

DRAFT ENVIRONMENTAL IMPACT REPORT

Significant Natural Resource Areas Management Plan

PLANNING DEPARTMENT
CASE NO. 2005.1912E

STATE CLEARINGHOUSE NO. 2009042102

Volume 1 – Draft EIR

AUGUST 2011



SAN FRANCISCO
PLANNING
DEPARTMENT

Draft EIR Publication Date:	AUGUST 31, 2011
Draft EIR Public Hearing Date:	OCTOBER 6, 2011
Draft EIR Public Comment Period:	AUGUST 31, 2011 to OCTOBER 17, 2011

Written comments should be sent to:
Environmental Review Officer | 1650 Mission Street, Suite 400 | San Francisco, CA 94103



PRINTED ON 100% RECYCLED PAPER



SAN FRANCISCO PLANNING DEPARTMENT

DATE: August 31, 2011
TO: Distribution List for Significant Natural Resource Areas Management Plan Project
FROM: Bill Wycko, Environmental Review Officer
SUBJECT: Request for the Final Environmental Impact Report for the Significant Natural Resource Areas Management Plan Project (2005.1912E)

1650 Mission St.
Suite 400
San Francisco,
CA 94103-2479

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

This is the Draft of the Environmental Impact Report (EIR) for the Significant Natural Resource Areas Management Plan Project. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, the Planning Department will prepare and publish a document titled "Comments and Responses" that will contain a summary of all relevant comments on this Draft EIR and our responses to those comments. It may also specify changes to this Draft EIR. Those who testify at the hearing on the Draft EIR will automatically receive a copy of the Comments and Responses document, along with a notice of the date reserved for certification of the EIR; others may receive such copies and notice on request or by visiting our office. This Draft EIR together with the Comments and Responses document will be considered by the City Planning Commission in an advertised public meeting(s) and certified as a Final EIR if deemed adequate.

After certification, the Planning Department will modify the Draft EIR as specified by the Comments and Responses document and print both documents in a single publication called the Final EIR. The Final EIR will add no new information to the combination of the two documents except to reproduce the certification resolution. The Final EIR will simply provide the information in one, rather than two, documents. Therefore, if you receive a copy of the Comments and Responses document in addition to this copy of the Draft EIR, you will technically have a copy of the Final EIR.

We are aware that many people who receive the Draft EIR and Comments and Responses have no interest in receiving virtually the same information after the EIR has been certified. To avoid expending money and paper needlessly, we would like to send copies of the Final EIR to private individuals only if they request them. If you would like a copy of the Final EIR, please fill out and mail the postcard provided inside the back cover to the San Francisco Planning Department within two weeks after certification of the EIR. Any private party not requesting a Final EIR by that time will not be mailed a copy. Public agencies on the distribution list will automatically receive a copy of the Final EIR.

Thank you for your interest in this project.

TABLE OF CONTENTS

Section	Page
I. SUMMARY.....	1
I.A Project Synopsis.....	1
I.B Summary of Project Alternatives	1
I.C Areas of Controversy and Issues To Be Resolved.....	2
I.D Summary of Impacts and Mitigation Measures	5
II. INTRODUCTION.....	71
II.A Project-Level Review.....	71
II.B Program-Level Review	71
II.C Environmental Review Process.....	72
II.D Public Comments	73
II.E Public Review of the Draft EIR	74
II.F Organization of the EIR	75
III. PROJECT DESCRIPTION.....	77
III.A Introduction.....	77
III.A.1 Background	77
III.A.2 Overview of the 1995 Management Plan	78
III.B Intended Uses of the EIR	79
III.C Project Objectives	82
III.D Project Location.....	82
III.E Project Overview	84
III.E.1 Objectives and Goals of the SNRAMP.....	84
III.E.2 Description of the Management Areas.....	87
III.E.3 Description of Natural Areas Program Management.....	89
III.E.4 Adaptive Management Approach.....	90
III.E.5 Management Practices	90
III.E.6 Monitoring Plan	94
III.F Activities Covered in this EIR	96
III.F.1 Program-Level Activities	96
III.F.2 Project-Level Activities	96
III.G Changes Made to the SNRAMP Since Publication	105
III.H General Recommendations for all Natural Areas.....	107
III.I Specific Recommendations for each Natural Area.....	112
III.I.1 Balboa (BA).....	113
III.I.2 Bayview Park (VP)	115
III.I.3 Bernal Hill (BH)	117
III.I.4 Billy Goat Hill (BG)	118
III.I.5 Brooks Park and Lakeview/Ashton Mini Park (BP)	119
III.I.6 Buena Vista Park (BV)	120
III.I.7 Corona Heights (CH).....	121
III.I.8 Dorothy Erskine (DP)	122
III.I.9 Duncan-Castro (DC)	123
III.I.10 Edgehill Mountain (EM).....	124
III.I.11 Fairmount Park (FP).....	125
III.I.12 Glen Canyon Park and O'Shaughnessy Hollow (GC/OH).....	125

TABLE OF CONTENTS *(continued)*

Section	Page
III.I.13	Golden Gate Heights Park, Grandview Park, Hawk Hill, and Rock Outcrop (GGRH) 128
III.I.14	Golden Gate Park Oak Woodlands (OW) 130
III.I.15	India Basin Shoreline Park (IB) 131
III.I.16	Interior Greenbelt (IG) 132
III.I.17	Kite Hill (KH)..... 133
III.I.18	Lake Merced (LM) 134
III.I.19	McLaren Park (MP) 137
III.I.20	Mount Davidson (MD) 139
III.I.21	Palou-Phelps (PP)..... 140
III.I.22	Pine Lake (PL) 141
III.I.23	Sharp Park (SP) 143
III.I.24	Tank Hill (TK) 146
III.I.25	Twin Peaks (TP)..... 147
III.I.26	15th Avenue Steps (FI) 148
III.I.27	Everson/Digby (ED) 149
IV.	PLANS AND POLICIES..... 151
IV.A	Applicable Plans and Policies 152
IV.A.1	San Francisco General Plan 152
IV.A.2	San Francisco Priority Policies..... 154
IV.A.3	Sustainability Plan for San Francisco..... 154
IV.A.4	Natural Areas Program 155
IV.A.5	San Francisco Dog Policy 155
IV.A.6	San Francisco Bay Basin (Region 2) Water Quality Control Plan.... 156
IV.A.7	San Francisco Bay Plan..... 156
IV.A.8	Climate Action Plan for San Francisco..... 156
IV.A.9	Urban Forestry Ordinance..... 157
IV.A.10	Pacifica Local Coastal Land Use Plan 157
IV.A.11	Bay Area 2010 Clean Air Plan 157
IV.A.12	California Coastal Act..... 158
IV.B	Pacifica Plans and Policies 162
IV.B.1	Pacifica General Plan..... 162
IV.B.2	Pacifica Logging Ordinance 162
IV.B.3	Pacifica Heritage Tree Preservation Code 163
IV.C	San Mateo County Plans and Policies 163
V.	ENVIRONMENTAL SETTING AND IMPACTS..... 165
V.A	Introduction..... 165
V.A.1	Comments Received on the Notice of Preparation 165
V.A.2	Scope of the EIR 165
V.A.3	Format of the Environmental Analysis..... 166
V.A.4	Cumulative Impact Analysis 167
V.B	Land Use and Land Use Planning..... 169
V.B.1	Regulatory Setting..... 169
V.B.2	Environmental Setting 176
V.B.3	Impacts..... 176

TABLE OF CONTENTS *(continued)*

Section	Page
V.C	Aesthetics..... 184
V.C.1	Regulatory Setting..... 184
V.C.2	Environmental Setting..... 185
V.C.3	Impacts..... 188
V.D	Cultural and Paleontological Resources 200
V.D.1	Regulatory Setting..... 200
V.D.2	Environmental Setting..... 203
V.D.3	Impacts..... 216
V.E	Wind and Shadow 240
V.E.1	Regulatory Setting..... 240
V.E.2	Environmental Setting..... 241
V.E.3	Impacts..... 242
V.F	Recreation 252
V.F.1	Regulatory Setting..... 252
V.F.2	Environmental Setting..... 254
V.F.3	Impacts..... 255
V.F.4	Impacts of Mitigation Measures 264
V.G	Biological Resources..... 270
V.G.1	Regulatory Setting..... 271
V.G.2	Environmental Setting..... 276
V.G.3	Impacts..... 290
V.H	Hydrology and Water Quality..... 347
V.H.1	Regulatory Setting..... 347
V.H.2	Environmental Setting..... 351
V.H.3	Impacts..... 362
V.I	Hazards and Hazardous Materials 383
V.I.1	Regulatory Setting..... 384
V.I.2	Environmental Setting..... 385
V.I.3	Impacts..... 388
V.J	Agriculture and Forest Resources..... 400
V.J.1	Regulatory Setting..... 400
V.J.2	Environmental Setting..... 402
V.J.3	Impacts..... 404
V.K	Air Quality..... 411
V.K.1	Regulatory Setting..... 411
V.K.2	Environmental Setting..... 416
V.K.3	Impacts..... 422
VI.	OTHER CEQA ISSUES 440
VI.A	Growth-Inducing Impacts 440
VI.B	Significant Unavoidable Impacts 440
VI.C	Significant Irreversible Impacts 441
VI.D	Significant Environmental Impacts 441
VI.E	Areas of Known Controversy and Issues to be Resolved 441
VI.F	Effects Not Found to be Significant 442
VI.F.1	Transportation and Circulation 443
VI.F.2	Noise 444

TABLE OF CONTENTS *(continued)*

Section	Page
VI.F.3 Greenhouse Gas Emissions	445
VI.F.4 Utilities and Service Systems	457
VI.F.5 Geology and Soils	459
VII. ALTERNATIVES.....	461
VII.A No Project Alternative.....	465
VII.A.1 Description	465
VII.A.2 Impacts.....	467
VII.B Maximum Restoration Alternative.....	480
VII.B.1 Description	480
VII.B.2 Impacts.....	482
VII.C Maximum Recreation Alternative.....	493
VII.C.1 Description	493
VII.C.2 Impacts.....	495
VII.D Maintenance Alternative.....	511
VII.D.1 Description	511
VII.D.2 Impacts.....	513
VII.E Environmentally Superior Alternative	524
VII.F Alternatives Considered but Rejected	526
VIII. REFERENCES.....	528
IX. EIR PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED	540
IX.A EIR Preparers.....	540
IX.B Persons and Organizations Consulted	540

LIST OF FIGURES

Figure	Page
1	Natural Areas 83
2	Laguna Salada Restoration Footprint 100
3	Laguna Salada Restoration Features 101
4	Sharp Park at Archery Site 192
5	Mount Davidson at Twin Peaks Blvd at Panorama Drive 193
6	Mount Davidson at Edgehill Way 194
7	Potential Sea Level Rise near Sharp Park..... 359
8	Potential Sea Level Rise for San Francisco Bay 360

LIST OF TABLES

Table	Page
1	Summary of Environmental Effects..... 3
2	Summary of Environmental Impacts and Mitigation Measures 6
3	Potentially Required Regulatory Approvals 81
4	Laguna Salada Habitat Types within Restoration Footprint..... 104
5	Summary of Natural Areas Management Plan 114
6	Archaeological Sensitivity of Natural Areas 209
7	Distribution of the Natural Areas Across Archaeological Sensitivity Levels 217
8	Definitions of Surface Disturbance Categories 218
9	State and Federally Listed Species That May Occur Within the Natural Areas 278
10	Sensitive Habitat Types Identified in the SNRAMP 288
11	Laguna Salada Wetland Habitat Types within the Restoration Footprint 337
12	State and National Ambient Air Quality Standards 412
13	State and National Attainment Status 417
14	Toxic Air Contaminants, San Francisco and San Mateo Counties 419
15	URBEMIS Results for Sharp Park Restoration Criteria Air Pollutant Emissions 433
16	Health Risk Assessment Results for Sharp Park Restoration 436
17	Cumulative Health Risk Assessment Results for Sharp Park Restoration 439
18	GHG Reductions from the AB 32 Scoping Plan Sectors 449
19	Regulations Applicable to the Proposed Project..... 453
20	SNRAMP Alternatives Comparison 462
21	Summary of Environmental Effects..... 525

LIST OF APPENDICES (PROVIDED ON ENCLOSED CD)

A	Notice of Preparation, Initial Study, and Scoping Report
B	Maps of the Natural Areas
C	Cultural Resources
D	Biological Resources
E	1995 Significant Natural Resource Areas Management Plan
F	Everson/Digby Natural Area Description
G	Cumulative Projects
H	Air Quality
I	Laguna Salada Conceptual Restoration Plan
J	Summary of Changes to the SNRAMP

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ADRP	archaeological data recovery plan
AE	Aesthetics
AF	Agriculture and Forest Resources
AMP	archaeological monitoring program
AQ	Air Quality
ARB	California Air Resources Board
BA	Balboa
BAAQMD	Bay Area Air Quality Management District
BG	Billy Goat Hill
BH	Bernal Hill
BI	Biological Resources
BMP	best management practice
BO	biological opinion
BP	Brooks Park and Lakeview/Ashton Mini Park
BV	Buena Vista Park
C-APE	CEQA Area of Potential Effect
CCC	California Coastal Commission
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CH	Corona Heights
CMP	Congestion Management Program
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
CP	Cultural and Paleontological Resources
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
dbh	diameter at breast height
DBI	Department of Building Inspection
DC	Duncan-Castro
DP	Dorothy Erskine
DPA	dog play area
ED	Everson/Digby
EE	Environmental Evaluation
EIR	Environmental Impact Report
EM	Edgehill Mountain
EP	Environmental Planning
EPA	US Environmental Protection Agency
ERO	Environmental Review Officer
ESA	Endangered Species Act
FARR	Final Archaeological Resources Report
FEMA	Federal Emergency Management Agency
FI	15 th Avenue Steps
FIRM	Flood Insurance Rate Map
FP	Fairmount Park
GC/OH	Glen Canyon Park and O'Shaughnessy Hollow
GGNRA	Golden Gate National Recreation Area

ACRONYMS AND ABBREVIATIONS

GGRH	Golden Gate Heights Park, Grandview Park, Hawk Hill, and Rock Outcrop
GHG	greenhouse gas
GIS	Geographic Information System
GR	General Recommendations
HRE	historical resources evaluation
HRER	historic resource evaluation response
HY	Hydrology and Water Quality
HZ	Hazards and Hazardous Materials
IB	India Basin Shoreline Park
IG	Interior Greenbelt
IPM	Integrated Pest Management
KH	Kite Hill
LM	Lake Merced
LS	locally sensitive
LTS	Less Than Significant Impact
LTS/M	Less Than Significant Impact with Mitigation
LU	Land Use and Land Use Planning
MA	management area
MBTA	Migratory Bird Treaty Act
MD	Mount Davidson
ME	Mineral and Energy Resources
MLD	Most Likely Descendant
MMT	million metric tons
MMTCO ₂ e	million gross metric tons of CO ₂ e
MP	McLaren Park
mph	miles per hour
msl	above mean sea level
NAHC	Native American Heritage Commission
Natural Areas	Significant Natural Resource Areas
NFIP	National Flood Insurance Program
NI	No Impact
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NWIC	Northwest Information Center
OSHA	Occupational Safety and Health Administration
OW	Golden Gate Park Oak Woodlands
PL	Pine Lake
PM ₁₀	inhalable particulate matter
PM _{2.5}	fine particulate matter
PP	Palou-Phelps
PS	Potentially Significant Impact
RE	Recreation
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
S	Significant Impact
SB	Senate Bill
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SFGS	San Francisco garter snake
SFHA	special flood hazard area

ACRONYMS AND ABBREVIATIONS

SFPUC	San Francisco Public Utilities Commission
SFRPD	San Francisco Recreation and Park Department
SMCMVCD	San Mateo County Mosquito and Vector Control District
SNRAMP	Significant Natural Resource Areas Management Plan
SP	Sharp Park
SU	Significant and Unavoidable Impact
SU/M	Significant and Unavoidable Impact with Mitigation
SWMP	stormwater management plan
SWPPP	stormwater pollution prevention plan
SWRCB	State Water Resources Control Board
TK	Tank Hill
TAC	toxic air contaminant
TP	Twin Peaks
TSS	total suspended solids
UCMP	University of California Museum of Paleontology
URBEMIS	Urban Land Use Emissions Model
USACE	US Army Corps of Engineers
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
VP	Bayview Park
WPA	Works Progress Administration
WS	Wind and Shadow

GLOSSARY

A Horizon—In a soil profile, the mineral horizon that forms at the surface or below an O horizon (dark-colored surface accumulation of organic matter). Characterized by the accumulation of decomposed organic matter mixed with solid mineral grains, however the mineral portion of the matrix is dominant. Typically darker in color than underlying horizons.

A zone—A FEMA Flood Zone designation for high risk zones, with a 1% annual chance of flooding and a 26 percent chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones on the FEMA Flood Insurance Rate Map.

Adaptive management—A flexible, learning-based approach to managing complex ecosystems.

Ambient air—Outside air; any portion of the atmosphere not confined by walls and a roof.

Ambient noise—The background noise in an area or environment, being a composite of sounds from many sources near and far.

Anaerobic process—A process which only occurs in the absence of molecular oxygen.

Architectural resource—The preferred term to refer to a building or structure.

Attainment—A designation used when an area meets an air quality standard.

B Horizon—In a soil profile, the mineral horizon that forms below and A, E (matrix characterized by loss of clay, soluble iron, soluble aluminum, organic matter, or some combination of these), or O horizon and shows little or no evidence of the original sediment or rock structure and is primarily characterized by illuvial concentrations of clay, iron, aluminum, humus, carbonates, gypsum, or silica.

Basal area—A measure, typically in square feet per acre, of the area covered by trees within a given urban forest. Basal area is used as an index of tree production.

Carbon sequestration—The removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests, and soils) through physical or biological processes, such as photosynthesis.

CEQA area of potential effects (C-APE)—The geographic area or areas within which the proposed project may directly indirectly cause alterations in the character or use of historical resources, if any such properties exist. The C-APE is influenced by the scale and nature of a proposed project and may be different for different kinds of effects caused by the project. The C-APE is likely to be the location physically inspected for cultural resources.

Cherry picker—A maneuverable vertical boom with an open bucket or cage at the end from which a worker can perform aerial work such as pruning trees or repairing electrical lines.

Chippage—Flakes resulting from the process of human modification to lithic materials.

Cultural resource—A generic term that may be used to refer to architectural resources, archaeological resources, and/or traditional cultural properties, or sacred sites regardless of National Register of Historic Place or California Register of Historical Resources evaluation.

Diameter at breast height (dbh)—A standard means of tree measurement, with the diameter of the trunk measured at breast height, defined as 4.5 feet above the forest floor on the uphill side of the tree.

Discharge—The flow of surface water into a stream or canal or the outflow of groundwater from a flowing artesian well, ditch, or spring. Also refers to the discharge of liquid effluent from a facility.

Ecological restoration—The process of repairing damage caused by humans to natural systems.

Ecotone—A transitional zone between two vegetation communities that contains the characteristic species of each community.

GLOSSARY

Escape habitat—Natural or man-made features that allow animals to avoid predators or other threats.

Expansive soils—Soils or rocks characterized by clayey material that shrinks and swells as it dries or becomes wet, respectively. Expansive soils are subject to changes in volume and settlement in response to wetting and drying, often resulting in severe damage to structures.

Extirpate—To remove or destroy totally.

Farmlands of Significance

Prime Farmland is land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed.

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production.

Unique Farmland does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used for the production of specific high-economic-value crops.

Farmland of Local Importance is either currently producing crops or has the capability of production but does not meet the criteria of the categories above.

Grazing Land is land on which the vegetation is suited to the grazing of livestock.

Floodplain—Land adjacent to a watercourse over which water flows in times of flood. The limits of the floodplain are defined by the peak level of a 1-in-100-year return period flood.

Fossil fuel—A general term for subsurface combustible geologic deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the Earth's crust over hundreds of millions of years.

Freeboard—The space between the top of the transported materials and the top of the truck that is transporting the materials.

Fugitive dust—Fugitive emissions generally refer to those emissions that are released to the atmosphere by some means other than through a stack or tailpipe.

Greenhouse gas—A gas which traps solar radiation, such as carbon dioxide.

Ground-Borne vibration—The noise that is manifested inside a building or structure as a result of vibrations produced by a source located outside the building (and its foundations) and transmitted as vibration through the ground between the source and the building.

Groundwater recharge—Inflow to aquifers from precipitation, infiltration, through-flow, or other means that replaces groundwater lost through pumping or other forms of discharge. The process of water being added to the saturated zone or the volume of water added by this process.

Hazardous materials—Defined in Section 25501(h) of the California Health and Safety Code, are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a substantial present or potential hazard to human health and safety or to the environment if released to the workplace or environment.

GLOSSARY

Hazardous waste—Any material that is relinquished, recycled, or inherently waste-like and falls under Title 22 of the California Code of Regulations, Division 4.5, Chapter 11 contains regulations for the classification of hazardous wastes. A waste is considered a hazardous waste if it is toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damages materials), or reactive (causes explosions or generates toxic gases) in accordance with the criteria established in Article 3. Article 4 lists specific hazardous wastes, and Article 5 identifies specific waste categories, including hazardous wastes, as defined by the Resource Conservation and Recovery Act, non-Resource Conservation and Recovery Act hazardous wastes, extremely hazardous wastes, and special wastes.

Herbaceous—Having the texture, color, and other characteristics of an ordinary foliage leaf; not woody.

Historic landscape—Landscapes or areas that are either 1) associated with an event or series of events of historical note; or 2) represent the visual perception of a particular period of civilization, a way of life, or patterns of living.

Historic resource—An ambiguous term that is sometimes used to refer to architectural resources or archaeological resources of the historic era.

Historical resource—Any property that is either listed in or eligible for listing in the California Register of Historical Resources.

Hydrology—The science that deals with the waters above and below land surfaces; their occurrence, circulation, and distribution, both in time and space; their biological, chemical, and physical properties; and their reaction with their environment, including their relation to living beings.

Integrated pest management—The use of multiple treatment methods to control undesirable weeds and other pests.

Integrity (archaeological or architectural)—A resource's "intactness" and the extent to which it resembles its original form.

Lateral Spreading—landslides that commonly form on gentle slopes and that have rapid fluid-like flow movement, like water.

Liquefaction—The process of changing soil and unconsolidated sediments into water mixture immediately following an earthquake; often results in foundation failure, with sliding of the ground under buildings and structures.

Native—Grown, produced, or originating from a particular geographic area.

Neotropical migrant—A bird that breeds in North America and spends the nonbreeding season in warmer climates, often in Central and South America.

Nonnative—Not originating from the current geographic area.

Paleontological resource—Fossilized remains or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period.

Particulate matter—Tiny solid or liquid particles, generally soot and aerosols.

Passive recreation—Recreational activities that occur in a natural setting and that require minimal site development or facilities. Under passive recreation, the importance of the environment or setting for the activities is greater than in developed or active recreation settings.

Pathogen—A disease-causing agent, especially a living microorganism such as a bacterium or fungus.

Riparian—land next to a natural watercourse such as a river or stream. Riparian areas support vegetation that provides important wildlife habitat, as well as important fish habitat when it overhangs the bank.

GLOSSARY

Rookery—Colony or aggregation of animals of the same species.

Roosting habitat—Natural or man-made features on which birds perch to rest or sleep.

Sacred site—Locality of traditional significance or importance to a Native American community.

Scenic highway—A highway from which a high quality scenic natural landscape can be seen by travelers and with little intrusion by development.

Scenic resource—The visible physical features on a landscape.

Scenic vista—A visually appealing distant view.

Scrub—Low trees or shrubs collectively.

Sediment Load—The total quantity of sediment, as measured by dry weight or volume, that moves past a site during a given time.

Sedimentation—The deposition of material suspended in a stream system, whether in suspension (suspended load) or on the bottom (bedload).

Sensitive receptor—People or institutions with people that are particularly susceptible to illness from environmental pollution, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

Sensitive species—Species that are listed on the California Native Plant Society plant list or *Inventory of Rare and Endangered Vascular Plants*.

Siltation—Sediment influx from either erosion or from sediment carried into a water body by inflowing rivers and tributaries.

Social trail—An undesignated, user-developed pathway that has developed through use of a Natural Area.

Special status species—Species that are accorded special status because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection in federal or state endangered species legislation. Others have been designated sensitive species or species of special concern on the basis of adopted policies of federal, state, or local resource agencies. These species are referred to collectively as special-status species.

Subsidence—A lowering of the land surface in response to subsurface weathering, collapse or slow settlement of underground mines, or the production of subsurface fluids such as ground water or oil.

Suspended particulates (PM₁₀ and PM_{2.5})—Particulate matter is a class of air pollutants that consists of solid and liquid airborne particles in an extremely small size range. Particulate matter is measured in two size ranges: PM₁₀ for particles less than 10 microns in diameter, and PM_{2.5} for particles less than 2.5 microns in diameter.

Topsoil—Surface soil usually including the organic layer in which plants have most of their roots and which a farmer turns over in plowing.

Understory—The shrubs and plants growing beneath the main canopy of a forest or stand of trees.

Unique archaeological resource—An archaeological property that meets the criteria listed in Section 21083.2 of the California Public Resources Code. An archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge there is a high probability that it meets one of a set of criteria.

Urban forest—A significant stand of nonindigenous trees.

GLOSSARY

V zones—A FEMA Flood Zone designation for high risk zones that consist of coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves. These areas have a 26% chance of flooding over the life of a 30-year mortgage. No base flood elevations are shown within these zones on the FEMA Flood Insurance Rate Map.

Viewshed—The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

Wetland—A zone periodically or continuously submerged or having high soil moisture, which has aquatic or riparian vegetation components and is maintained by water supplies significantly in excess of those otherwise available through local precipitation.

Williamson Act—Also known as the Land Conservation Act of 1965, this act provides for lowered property taxes for lands maintained in agricultural and certain open space uses. Under a Williamson Act contract, generally the landowner agrees to limit the use of the land to agriculture and compatible uses for a period of at least 10 years. In return, the land is taxed at a rate based on the agricultural production of the land, rather than its real estate market value.

Windthrow—The effects of wind on a stand of trees.

Wind-toughened edge trees—Trees in a stand that have become tough or resistant to the wind.

I. SUMMARY

I.A PROJECT SYNOPSIS

Fragments of unique plant and animal habitats within San Francisco and Pacifica, known as Significant Natural Resource Areas (Natural Areas), have been preserved within the parks that are managed by the San Francisco Recreation and Park Department (SFRPD). In the late 1990s, the SFRPD developed a Natural Areas Program to protect and manage these Natural Areas for the natural and human values they provide. The Natural Areas Program mission is to preserve, restore, and enhance the remnant Natural Areas and to promote environmental stewardship of these areas. On January 19, 1995, the San Francisco Recreation and Park Commission approved the first Significant Natural Resource Areas Management Plan; see Appendix E for a copy of this plan.

Over the course of several years, the SFRPD developed a new Significant Natural Resource Areas Management Plan (SNRAMP), with the final draft plan based on the 1995 plan published in February 2006. This SNRAMP contains detailed information on the biology, geology, and trails within 32 Natural Areas, 31 of which are in San Francisco and one of which (Sharp Park) is in Pacifica. The SNRAMP is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance activities over the next 20 years.

The SNRAMP delineates the acreage within each Natural Area into management area categories based on management priorities—MA-1, MA-2, and MA-3. The management area categories represent differing levels of sensitivity, species presence, and habitat complexity. The SNRAMP prescribes both general management activities that apply to all Natural Areas and management activities specific to each Natural Area.

I.B SUMMARY OF PROJECT ALTERNATIVES

A number of alternatives were analyzed that would avoid or substantially lessen some of the significant effects of the project. These alternatives, based on public comments received during the Notice of Preparation scoping period, are fully addressed in Chapter VII (Alternatives) of this document, include the following:

- No Project Alternative—Under this alternative, the SFRPD would continue with management activities authorized under the 1995 management plan.
- Maximum Restoration Alternative—This alternative seeks to restore native habitat and convert nonnative habitat to native habitat wherever possible throughout the Natural Areas, including all management areas.

- Maximum Recreation Alternative—This alternative seeks to restore and improve recreational access to the Natural Areas wherever it does not interfere with the continued existence of native species and federally or state-listed sensitive species.
- Maintenance Alternative—This alternative seeks to maintain the current distribution of native and nonnative habitat and species throughout the Natural Areas. Under this alternative, there would be no conversion of nonnative habitat to native habitat; other features of the Natural Areas also would be retained.

The Maximum Restoration Alternative is the Environmentally Superior Alternative.

Table 1 summarizes the effects of the proposed project and alternatives.

I.C AREAS OF CONTROVERSY AND ISSUES TO BE RESOLVED

The Environmental Planning (EP) Division of the San Francisco Planning Department has prepared this Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) (*California Public Resources Code*, Sections 21000-21177) and the Guidelines for Implementation of the California Environmental Quality Act (*California Code of Regulations*, Title 14, Sections 15000-15387). It evaluates environmental impacts associated with the project, identifies feasible mitigation measures to reduce these impacts to a less than significant level, and includes improvement measures to further reduce impacts identified as less than significant.

EP issued a Notice of Preparation (NOP) for the proposed project and published an environmental review notice in the *San Francisco Examiner* and *Pacifica Tribune* on April 22, 2009. During the 30-day public review period for the NOP, which began on April 22, 2009, and ended on May 26, 2009, comment letters were received from public agencies and individuals. Additional comments were also received during the May 12 and May 14, 2009, public scoping meetings. The NOP, Initial Study, and scoping report are included in Appendix A (Notice of Preparation and Scoping Report) of this EIR, and are considered in the EIR analyses, where appropriate.

Throughout the scoping process, 45 sets of scoping comments were received. Comments on the NOP addressed the following topics and are summarized in the scoping report in Appendix A:

- Sharp Park Golf Course
- General Project
- General CEQA
- General Environmental

**Table 1
Summary of Environmental Effects**

	Proposed Project	Maximum Restoration Alternative	Maximum Recreation Alternative	Maintenance Alternative	No Project Alternative
Land Use and Land Use Planning	LTS	LTS	LTS	LTS	NI
Aesthetics	LTS	LTS	LTS	LTS	LTS
Cultural and Paleontological Resources	SU/M	SU/M	LTS/M	LTS/M	LTS/M
Cultural and Paleontological Resources (Cumulative)	SU	SU	LTS	LTS	LTS
Wind and Shadow	LTS	LTS	LTS	LTS	LTS
Recreation	LTS/M	LTS/M	LTS	LTS	LTS
Recreation (Cumulative)	SU	SU	LTS	LTS	LTS
Biological Resources	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Biological Resources (Cumulative)	SU	SU	LTS	LTS	LTS
Hydrology and Water Quality	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Hazards and Hazardous Materials	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Agriculture and Forest Resources	LTS	LTS	LTS	LTS	LTS
Air Quality	SU/M	SU/M	SU/M	SU/M	LTS
Air Quality (Cumulative)	SU/M	SU/M	SU/M	SU/M	LTS

LEGEND:

- SU = Significant and unavoidable impact
- SU/M = Significant and unavoidable impact with mitigation
- LTS/M = Less than significant impact with mitigation
- LTS = Less than significant impact
- NI = No impact

- Cumulative Impacts
- Land Use and Land Use Planning
- Aesthetics
- Cultural and Paleontological Resources
- Transportation and Circulation
- Noise
- Air Quality
- Wind and Shadow
- Recreation
- Utilities and Service Systems
- Biological Resources
- Geology and Soils
- Hydrology and Water Quality
- Hazards and Hazardous Materials.

The Draft EIR has considered the CEQA-related concerns and other issues raised through the scoping process. These issues are addressed in Chapter V (Environmental Setting and Impacts) and Section VI.F (Effects Found Not to be Significant).

The following resources are addressed in this EIR:

- Land use and land use planning (Section V.B);
- Aesthetics (Section V.C);
- Cultural and paleontological resources (Section V.D);
- Wind and shadow (Section V.E);
- Recreation (Section V.F);
- Biological resources (Section V.G);
- Hydrology and water quality (Section V.H);
- Hazards and hazardous materials (Section V.I);
- Agriculture and forest resources (Section V.J); and
- Air quality (Section V.K).

The following resources are addressed only in the Initial Study:

- Population and housing;
- Public services; and
- Mineral and energy resources.

For the following resources found to have less than significant effects in the Initial Study, additional or clarifying text is provided to address the concerns expressed in comments received during the NOP scoping process:

- Transportation and circulation (Section VI.F.1);
- Noise (Section VI.F.2);
- Greenhouse gas emissions (Section VI.F.3);
- Utilities and service systems (Section VI.F.4); and
- Geology and soils (Section VI.F.5).

I.D SUMMARY OF IMPACTS AND MITIGATION MEASURES

Table 2 summarizes the significant environmental impacts of the proposed project, mitigation measures, and the impact level following mitigation. Throughout this table, the following identifiers are used to identify the impacts and mitigation measures:

- LU – Land Use and Land Use Planning
- AE – Aesthetics
- CP – Cultural and Paleontological Resources
- WS – Wind and Shadow
- RE – Recreation
- BI – Biological Resources
- HY – Hydrology and Water Quality
- HZ – Hazards and Hazardous Materials
- AF – Agriculture and Forest Resources
- AQ – Air Quality
- ME – Mineral and Energy Resources

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
LAND USE AND LAND USE PLANNING			
Impact LU-1 Implementation of programmatic projects under the SNRAMP would not physically divide an existing community	LTS	Not applicable	LTS
Impact LU-2 Implementation of routine maintenance activities under the SNRAMP would not physically divide an existing community	LTS	Not applicable	LTS
Impact LU-3 Implementation of the Sharp Park restoration activities under the SNRAMP would not physically divide an existing community	LTS	Not applicable	LTS
Impact LU-4 Implementation of programmatic projects under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact LU-5 Implementation of routine maintenance activities under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project	LTS	Not applicable	LTS
Impact LU-6 Implementation of the Sharp Park restoration activities under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project	LTS	Not applicable	LTS
Impact LU-7 Implementation of programmatic projects under the SNRAMP would not have a substantial impact upon the existing character of the vicinity	LTS	Not applicable	LTS
Impact LU-8 Implementation of routine maintenance activities under the SNRAMP would not have a substantial impact upon the existing character of the vicinity	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact LU-9 Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial impact upon the existing character of the vicinity	LTS	Not applicable	LTS
Impact LU-10 The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact related to land use and land use planning	LTS	Not applicable	LTS
AESTHETICS			
Impact AE-1 Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on a scenic vista	LTS	Not applicable	LTS
Impact AE-2 Implementation of routine maintenance under the SNRAMP would not have a substantial adverse effect on a scenic vista	NI	Not applicable	NI

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact AE-3 Implementation of Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on a scenic vista	LTS	Not applicable	LTS
Impact AE-4 Implementation of programmatic projects under the SNRAMP would not substantially damage scenic resources	LTS	Not applicable	LTS
Impact AE-5 Implementation of routine maintenance under the SNRAMP would not substantially damage scenic resources	NI	Not applicable	NI
Impact AE-6 Implementation of Sharp Park restoration under the SNRAMP would not substantially damage scenic resources	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact AE-7 Implementation of programmatic projects under the SNRAMP would not substantially degrade the visual character or quality of the Natural Areas and their surroundings</p>	LTS	Not applicable	LTS
<p>Impact AE-8 Implementation of routine maintenance under the SNRAMP would not substantially degrade the existing visual character or quality of the Natural Areas and their surroundings</p>	NI	Not applicable	NI
<p>Impact AE-9 Implementation of Sharp Park restoration under the SNRAMP would not substantially degrade the existing visual character or quality of the Natural Areas</p>	LTS	Not applicable	LTS
<p>Impact AE-10 The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact on aesthetics</p>	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
CULTURAL AND PALEONTOLOGICAL RESOURCES			
Impact CP-1 Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of historical architectural resources, including historic landscapes	LTS/M	M-CP-1: Consultation with the San Francisco Planning Department The SFRPD would coordinate with the San Francisco Planning Department's Historic Preservation Planners and would submit plans before constructing stabilizing and erosion control measures that require installation of structures, such as gabions, near any potentially eligible resources. The Planning Department would assist in determining if any proposed construction or other activities would impact identified historic resources under CEQA on a site-by-site basis; if such impacts may occur, the project would be required to be redesigned to avoid significant impacts to historic architectural resources. The Planning Department also would assess potential impacts on any historic landscapes that are present.	LTS
Impact CP-2 Invasive tree and vegetation removal and planting activities, as part of programmatic projects, would not result in a substantial adverse change in the significance of historic landscapes or urban forests	LTS	Not applicable	LTS
Impact CP-3 Invasive tree and vegetation removal activities as part of programmatic projects under the SNRAMP would not result in a substantial adverse change in the significance of the Golden Gate Park Historic District contributing sites	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact CP-4</p> <p>Invasive tree and vegetation removal and planting activities under the SNRAMP would not result in a substantial adverse change in the significance of historic landscapes or urban forests</p>	LTS	Not applicable	LTS
<p>Impact CP-5</p> <p>Invasive tree and vegetation removal as part of routine maintenance under the SNRAMP would not result in a substantial adverse change in the significance of the Golden Gate Park Historic District contributing sites</p>	LTS	Not applicable	LTS
<p>Impact CP-6</p> <p>Implementation of the Sharp Park restoration activities that include raising holes 10, 14, 15, and 18 would not result in a substantial adverse change in the significance of the Sharp Park Golf Course, a historic resource under CEQA</p>	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact CP-7</p> <p>Implementing restoration activities to close Hole 12 of the Sharp Park Golf Course would result in a substantial adverse change in the significance of the golf course, a historic resource under CEQA</p>	SU/M	<p>M-CP-7: Documentation of the Sharp Park Golf Course</p> <p>The SFRPD would document, or would retain a consultant to document, Sharp Park Golf Course before the wetland restoration activities take place. The National Park Service has published guidance for preserving cultural landscapes in Preservation Brief 36: Protecting Cultural Landscapes, Planning, Treatment and Management of Historic Landscapes and in the more complete Secretary of the Interior's Standards for Treatment of Historic Properties Guidelines for the Treatment of Cultural Landscapes. The appropriate level of documentation would be selected by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards, (36 CFR, Part 61). The documentation would consist of the following:</p> <ul style="list-style-type: none"> • Full sets of measured drawings depicting existing or historic conditions of the Sharp Park Golf Course; • Digital photographs of Sharp Park Golf Course; • A written history and description of Sharp Park Golf Course and its alterations. <p>The professional historian would prepare the documentation and submit it for review and approval by a San Francisco Planning Department Preservation Specialist. The documentation would be disseminated to the San Francisco Library History Room and the SFRPD Headquarters.</p>	SU

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact CP-8 Implementation of the Sharp Park restoration activity to construct a post and rail fence along the seawall of the golf course would not cause a substantial adverse change in the significance of the Sharp Park Golf Course, a historic resource under CEQA	LTS	Not applicable	LTS
Impact CP-9 Implementation of the Sharp Park restoration activity that requires modification of the Sharp Park Golf Course to create upland habitat on the east side of the lagoon and shorten or narrow Holes 10 and 13 would be a substantial adverse change in the significance of the golf course, a historic resource under CEQA	SU/M	M-CP-7 applies to this impact	SU
Impact CP-10 Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in Natural Areas of high archaeological sensitivity	LTS/M	M-CP-10: Archaeological Monitoring Program for Programmatic Projects in Natural Areas with High Archaeological Sensitivity, Routine Maintenance Activities at Tank Hill and Lake Merced, and the Sharp Park Restoration Project The following archaeological monitoring program (AMP) mitigation measure is required in order to avoid any potential adverse effect on accidentally discovered buried or submerged archaeological or historical resources as defined in CEQA Guidelines Section 15064.5(a)(c), as a result of SNRAMP programmatic projects in Natural Areas of high archaeological sensitivity and	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>routine maintenance activities at Tank Hill and Lake Merced. In addition, based on a reasonable potential that archeological resources may be present within the C-APE of the Sharp Park restoration project, the following measures shall be undertaken to avoid any potentially significant adverse effect from the Sharp Park restoration on archaeological resources.</p> <p>Before implementation of the SNRAMP and the Sharp Park restoration project, the SFRPD shall retain a qualified archaeological consultant from the San Francisco Planning Department's pool of qualified archaeological consultants, as provided by the Department archaeologist. The archaeological consultant will prepare one or multiple AMPs that addresses the following impacts on archaeological resources: 1) programmatic projects in Natural Areas with high archaeological sensitivity, 2) routine maintenance activities in Tank Hill and Lake Merced Natural Areas, and 3) the Sharp Park restoration project.</p> <p>All plans and reports prepared by the consultant shall be submitted first and directly to the Environmental Review Officer (ERO) for review and comment and shall be considered draft reports subject to revision until final approval by the ERO. Any AMP and/or data recovery programs required by this measure could suspend SNRAMP activities covered under this mitigation measure for up to four weeks. At the direction of the ERO, the suspension of construction could be extended beyond four weeks only if such a suspension were the only feasible means to reduce impacts to a less than significant level on a significant archaeological resource, as defined in CEQA Guidelines Sect. 15064.5 (a)(c).</p> <p><i>Archaeological monitoring program.</i> The AMP will minimally include the following provisions:</p> <ul style="list-style-type: none"> The archaeological consultant, SFRPD, and ERO will meet and consult on the scope of each AMP reasonably before implementation of the SNRAMP. The ERO, in consultation with the Project Archaeologist, will determine what programmatic projects in which high-sensitivity Natural Areas and what routine maintenance activities in Tank Hill and Lake 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>Merced Natural Areas shall be archaeologically monitored. Additionally, the ERO and Project Archaeologist will determine which activities and portions of the Sharp Park restoration project will be archeologically monitored. In most cases, any ground-disturbing activities, such as demolition, excavation, grading, utilities installation, site remediation, etc. shall require archaeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;</p> <ul style="list-style-type: none"> • The archaeological consultant will advise all project contractors and Natural Areas Program staff to be on the alert for evidence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of an apparent archaeological resource. A standard EP ALERT Sheet will be issued to participating project contractors and Natural Areas Program staff. Additionally, Natural Areas Program staff will advise all project volunteers of the potential for archaeological resources; • The archaeological monitors will be on the project site according to a schedule agreed on by the archaeological consultant and the ERO until the ERO has, in consultation with the archaeological consultant, determined that project construction would have no effects on significant archaeological deposits; • The archaeological monitor will record and be authorized to collect soil samples and artifactual/ecofactual material warranted for analysis; and • If an intact archaeological deposit is encountered, all ground-disturbing activities in the vicinity of the deposit should cease. The archaeological monitor will be empowered to temporarily redirect project activities and heavy equipment until the deposit is evaluated. The archaeological consultant will immediately notify the ERO of the encountered archaeological deposit. After making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, the archaeological consultant will present the findings to the 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>ERO.</p> <p>If the ERO, in consultation with the archaeological consultant, determines that a significant archaeological resource is present and that it could be adversely affected by the project, at the discretion of the SFRPD, the situation shall be resolved by one of the following actions:</p> <ul style="list-style-type: none"> • The project shall be redesigned so as to avoid any adverse effect on the significant archaeological resource, or • An archaeological data recovery program shall be implemented, unless the ERO were to determine that the archaeological resource is of greater interpretive value than research significance and that interpretive use of the resource were feasible. <p>If the ERO requires an archaeological data recovery program to mitigate for adverse effects on the significant archaeological resource, it shall be conducted in accordance with an archaeological data recovery plan (ADRP). The project archaeological consultant, SFRPD, and ERO shall meet and consult on the scope of the ADRP. The archaeological consultant shall prepare a draft ADRP and submit it to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain; that is, the ADRP would identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods were practical.</p> <p>The ADRP shall include the following elements:</p> <ul style="list-style-type: none"> • <i>Field Methods and Procedures.</i> Descriptions of proposed field strategies, 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>procedures, and operations;</p> <ul style="list-style-type: none"> • <i>Cataloguing and Laboratory Analysis.</i> Description of selected cataloguing system and artifact analysis procedures; • <i>Discard and Deaccession Policy.</i> Description of and rationale for field and post-field discard and deaccession policies; • <i>Interpretive Program.</i> Consideration of an on-site/off-site public interpretive program during the course of the archaeological data recovery program. • <i>Security Measures.</i> Recommended security measures to protect the archaeological resource from vandalism, looting, and unintentional damage; • <i>Final Report.</i> Description of proposed report format and distribution of results; and • <i>Curation.</i> Description of the procedures and recommendations for curating any recovered data having potential research value, identifying appropriate curation facilities, and summarizing the accession policies of the curation facilities. <p><i>Final Archaeological Resources Report.</i> The archaeological consultant shall submit a Draft Final Archaeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods used in the archaeological monitoring or data recovery program. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the draft final report.</p> <p>Copies of the Draft FARR shall be sent to the ERO for review and approval. Once the FARR is approved, copies shall be distributed as follows:</p> <ul style="list-style-type: none"> • One copy to the NWIC with a copy of the transmittal sent to the ERO; 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>and</p> <ul style="list-style-type: none"> Three copies to the EP division of the San Francisco Planning Department; EP shall also receive one unlocked, searchable PDF copy of the FARR on a CD or DVD, along with copies of any formal site recordation forms (CA DPR 523 series) and documentation for nomination to the National Register of Historic Places/California Register of Historical Resources. <p>In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.</p>	
Impact CP-11	LTS/M	M-CP-11: Accidental Discovery	LTS
Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in Natural Areas of moderate and low archaeological sensitivity		<p>Prior to any ground disturbing activity resulting from implementation of the SNRAMP, including Natural Areas of moderate and low archaeological sensitivity, a copy of EP’s standard archaeological alert sheet will be issued to project staff. The project sponsor shall distribute the Planning Department archaeological resource “ALERT” sheet to the involved Natural Areas Program staff and volunteers, project prime contractor, any project subcontractors (including, but not limited to, demolition, excavation, grading, etc. firms), and any utilities firm involved in ground-disturbing activities. Prior to any ground-disturbing activities being undertaken, each contractor (or Natural Areas Program staff for projects without contractors) is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, supervisory personnel, etc. The project sponsor shall provide the ERO with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) confirming that all field personnel have received copies of the “ALERT” sheet.</p> <p>Should any indication of an archaeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or SFRPD shall immediately notify the ERO and immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.</p>	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>If the ERO determines that an archaeological resource may be present within the project site, SFRPD shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archaeological consultant shall advise the ERO as to whether the discovery is an archaeological resource, retains sufficient integrity, and is of potential scientific, historical, or cultural significance. If an archaeological resource is present, the archaeological consultant shall identify and evaluate the archaeological resource. The archaeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by SFRPD. Measures might include:</p> <ul style="list-style-type: none"> • Preservation <i>in situ</i> of the archaeological resource; • An AMP; or • An archaeological testing program. <p>If an AMP or archaeological testing program is required, it shall be consistent with the EP division guidelines for such programs and as described above under M-CP-10. The ERO may also require that SFRPD immediately implement a site security program if the archaeological resource is at risk from vandalism, looting, or other damaging actions.</p> <p>The project archaeological consultant shall submit a FARR to the ERO that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods employed in the AMP and/or ADRP. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the final report.</p> <p>Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR and associated items (i.e. site record forms) shall be distributed in the same numbers and to the same recipients outlined in M-CP-10.</p>	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact CP-12</p> <p>Implementation of routine maintenance under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in any of the Natural Areas, with the exception of Lake Merced and Tank Hill Natural Areas</p>	LTS/M	<p>M-CP-11 applies to this impact</p> <p>M-CP-12: Annual Archaeological Sensitivity Training for Natural Areas Program Staff Involved with Routine Maintenance Activities in all Natural Areas</p> <p>SFRPD staff working within the Natural Areas will be trained by a qualified archaeologist regarding the potential for archaeological resources within the Natural Areas and how to identify such resources. The training will also include a review of penalties for looting and disturbance of these resources. At a minimum, the training will include the following:</p> <ul style="list-style-type: none"> • Assigned archaeological sensitivity level of each Natural Area; • A discussion of the potential to encounter archaeological resources; • Instructions for how to identify archaeological resources; • Instructions for reporting observed looting, disturbances of known archaeological resources, or the presence of a previously unidentified archaeological site; • An overview of the AMP for routine maintenance activities and accidental discovery procedures in the Natural Areas (see M-CP-10 and M-CP-11, respectively); and • An overview of M-CP-18, Treatment of Human Remains and Associated or Unassociated Funerary Objects. <p>It shall be the responsibility of SFRPD Natural Areas Program staff, at the beginning of any management activities involving persons outside of the Natural Areas Program, to educate volunteers or other personnel on the potential to encounter archeological resources and instructions for reporting the presence of potential resources to SFRPD Natural Areas Program staff.</p>	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact CP-13</p> <p>Implementation of routine maintenance under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in the Lake Merced and Tank Hill Natural Areas</p>	LTS/M	M-CP-10 and M-CP-12 apply to this impact	LTS
<p>Impact CP-14</p> <p>Implementation of the Sharp Park restoration efforts under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources</p>	LTS/M	M-CP-10 applies to this impact	LTS
<p>Impact CP-15</p> <p>Implementation of programmatic projects under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations</p>	LTS/M	<p>M-CP-15: Coordination with EP Regarding Paleontological Resources Prior to Implementation of Programmatic Projects</p> <p>To mitigate the potential for the SNRAMP to affect paleontological resources, this mitigation measure will apply to programmatic projects. The SFRPD shall coordinate with EP prior to conducting any programmatic projects that would result in ground disturbance. In such instances, EP shall review the proposed activities to determine if ground-disturbing activities could occur at or near bedrock or other geologic features of CEQA significance. If such features exist and could be affected by project activities, a training program will be conducted and an alert sheet will be disseminated to all field personnel.</p> <p>Any paleontological training will be conducted by a qualified paleontologist and will discuss the potential for such resources to exist in the Natural Area(s) and how to identify such resources. The training will also include a review of penalties for looting and disturbance of these resources. Alert sheets will be</p>	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>issued for all such projects and will include the following:</p> <ul style="list-style-type: none"> • A discussion of the potential to encounter paleontological resources; • Instructions for reporting observed looting of a paleontological resource; and • Instructions that if a paleontological deposit were encountered within a project area, all ground-disturbing activities in the vicinity of the deposit shall cease and the ERO shall be notified immediately. <p>When unanticipated paleontological resources are encountered during programmatic project activities, all project activities shall stop, and a professional paleontologist shall be hired to assess the find and its significance. The findings shall be presented to the ERO who would decide the additional steps to be taken before work in the vicinity of the deposit is authorized to continue.</p>	
<p>Impact CP-16 Implementation of routine maintenance under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations</p>	LTS/M	<p>M-CP-16: Avoidance of Surface Bedrock in Routine Maintenance Activities</p> <p>To mitigate the potential for the SNRAMP to affect paleontological resources the following mitigation measure will apply to routine maintenance activities. Natural Areas Program staff and volunteers will avoid ground-disturbing activities in areas where surface bedrock exists. If routine maintenance activities cannot avoid bedrock, SFRPD will implement M-CP-15, discussed above.</p>	LTS
<p>Impact CP-17 Implementation of Sharp Park restoration activities under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations</p>	LTS/M	<p>M-CP-17: Paleontological Training Program and Alert Sheet for the Sharp Park Restoration Project</p> <p>To mitigate the potential for the Sharp Park restoration project to affect paleontological resources, the SFRPD shall arrange for a paleontological training by a qualified paleontologist regarding the potential for such resources to exist in the restoration area and how to identify such resources. The training shall also include a review of penalties for looting and disturbance of these resources. An alert sheet shall be issued and will include</p>	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>the following:</p> <ul style="list-style-type: none"> • A discussion of the potential to encounter paleontological resources; • Instructions for reporting observed looting of a paleontological resource; and • Instruct that if a paleontological deposit were encountered within a project area, all soil-disturbing activities in the vicinity of the deposit shall cease and the ERO would be notified immediately. <p>If an unanticipated paleontological resource is encountered during project activities, all project activities shall stop, and a professional paleontologist shall be hired to assess the find and its significance. The findings shall be presented to the ERO who would decide the additional steps to be taken before work in the vicinity of the deposit was authorized to continue.</p>	
<p>Impact CP-18 Implementation of programmatic projects under the SNRAMP would disturb human remains</p>	LTS/M	<p>M-CP-18: Human Remains, Associated or Unassociated Funerary Objects.</p> <p>The treatment of human remains and of associated or unassociated funerary objects discovered during any ground-disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the Coroner of the City and County of San Francisco (or San Mateo County Coroner if found at Sharp Park) and in the event of the Coroner's determination that the human remains are Native American remains, notification of the NAHC who shall appoint a Most Likely Descendant (Pub. Res. Code Sec. 5097.98). The archaeological consultant, SFRPD, and Most Likely Descendant shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.</p>	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact CP-19 Implementation of routine maintenance under the SNRAMP would disturb human remains	LTS/M	M-CP-18 applies to this impact	LTS
Impact CP-20 Implementation of Sharp Park restoration activities under the SNRAMP would disturb human remains	LTS/M	M-CP-18 applies to this impact	LTS
Impact CP-21 The proposed project, in combination with other planned and foreseeable future projects, would have a cumulatively considerable significant impact related to cultural and paleontological resources	SU/M		SU
WIND AND SHADOW			
Impact WS-1 Implementation of the programmatic projects under the SNRAMP would not result in significant ground-level wind hazards and windthrow risks	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact WS-2</p> <p>Implementation of the routine maintenance activities under the SNRAMP would not result in significant ground-level wind hazards and windthrow risks</p>	LTS	Not applicable	LTS
<p>Impact WS-3</p> <p>Implementation of the Sharp Park Restoration under the SNRAMP would not result in ground-level wind hazards and windthrow risks</p>	NI	Not applicable	NI
<p>Impact WS-4</p> <p>The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively significant impact related to wind and shadow</p>	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
RECREATION			
Impact RE-1 Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities	LTS	Not applicable	LTS
Impact RE-2 Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities	NI	Not applicable	NI
Impact RE-3 Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact RE-4</p> <p>Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on the physical characteristics of existing recreation facilities</p>	LTS	Not applicable	LTS
<p>Impact RE-5</p> <p>Implementation of routine maintenance projects under the SNRAMP would not have a substantial adverse effect on the physical characteristics of existing recreation facilities</p>	LTS	Not applicable	LTS
<p>Impact RE-6</p> <p>Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on the physical characteristics of existing recreation facilities</p>	LTS/M	<p>M-RE-6: Restoration of the Sharp Park Golf Course to 18 Playable Holes</p> <p>The SFRPD would coordinate with a golf course consultant and would restore the playability of the Sharp Park Golf Course, which would involve replacing Hole 12 either on the west (Option 1) or east (Option 2) side of Highway 1. Replacing the hole on the west side of Highway 1 may also require moving an additional hole west of the highway to retain playability and flow of the course, thereby increasing the number of holes west of the highway to 15 and decreasing to three the number of holes to the east. Creating a new hole east of Highway 1 would decrease the number of holes west of the highway to 13 and increase to five the number of holes to the east. The determination of where the replacement hole is constructed and whether additional holes need to be moved would require additional environmental review.</p>	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact RE-7	SU	None available	SU
<p>The proposed project, in combination with other planned and foreseeable future projects, would result in a cumulatively considerable significant impact related to recreation</p>			
BIOLOGICAL RESOURCES			
Impact BI-1	LTS/M	M-BI-1a: Protection of Protected Species and Riparian and Wetland Habitat	LTS
<p>The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on special status plant species</p> <p>Where there is potential for protected species or their habitats (plants, birds, terrestrial, and aquatic species) or other protected habitats, namely riparian and wetland habitat (as protected by California Department of Fish and Game, California Coastal Commission, San Francisco Bay Regional Water Quality Control Board and/or US Army Corps of Engineers) to be affected directly or indirectly by a programmatic project, the SFRPD will prepare and provide for ERO review a compliance plan that details the proposed project, whether any protected species, protected species habitat, riparian habitat, or wetland habitat exists, the appropriate life histories of such resources (as applicable to special status species), and how the project will achieve compliance with this mitigation measure, including details as to how the SFRPD will first avoid, then minimize and if necessary restore, and/or compensate for any impacts to protected species and/or their habitats or other regulated habitats. Where there is potential for impacts to protected species and/or riparian and wetland habitats that are regulated by state, federal and/or local agencies, the compliance plan shall identify those agencies, and the SFRPD shall coordinate with all applicable resource agencies to obtain the appropriate permits and/or consultation as required by state or federal law. This mitigation measure requires SFRPD to implement the following, subject to modification through the regulatory approval</p>			

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>processes required for an individual project:</p> <ol style="list-style-type: none"> 1. To avoid disturbance to protected species, their habitats, and riparian or wetland habitat, the following measures will be implemented by the SFRPD: <ol style="list-style-type: none"> a. For protected species, a qualified SFRPD biologist shall survey for suitable habitat within the project area before the project begins, according to US Fish and Wildlife Service and California Department of Fish and Game protocol for the protected species having the potential to occur. If no protocol exists, surveys shall be conducted according to generally accepted survey methods. If individuals were found or if it is determined that the potential exists for protected species to be present, the SFRPD shall redesign the proposed project to avoid impacts on protected species. Avoidance/minimization measures shall include conducting project activities during periods of the species lifecycle when the species would not be affected or may be minimally affected by project activities. If it is infeasible to avoid disturbance of protected species, the SFRPD will contact the US Fish and Wildlife Service or California Department of Fish and Game and undertake appropriate consultation according to the California Endangered Species Act or Endangered Species Act (unless an existing Biological Opinion is already in place and the proposed activities fall under the actions of that Biological Opinion, as may be the case for impacts to the mission blue butterfly at Twin Peaks). Any additional requirements agreed to during consultation with the US Fish and Wildlife Service and California Department of Fish and Game, or other regulatory agencies, to protect the species would be implemented, including restoration and compensation, where required. b. Where there is potential for wetland or riparian areas to be affected by programmatic activities, the SFRPD shall coordinate with California Department of Fish and Game, California Coastal Commission, San Francisco Bay Regional Water Quality Control 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>Board, US Army Corps of Engineers and/or other applicable agencies to determine the jurisdictional boundaries of protected riparian and wetland habitat. SFRPD shall apply for all appropriate permits for effects to riparian areas and wetlands (including, but not limited to, US Army Corps of Engineers 404 permits, California Department of Fish and Game Section 1602 permits, San Francisco Bay Regional Water Quality Control Board 401 Water Quality Certifications, and coastal development permits). Any additional requirements to protect riparian and wetland habitat resulting from the regulatory approval processes would be implemented, including restoration and compensation, where required.</p>	
		<p>c. As discussed in Section III.E.5, new trails would be designed to avoid sensitive species habitat and riparian and wetland habitat. Where habitat for protected species or riparian and wetland habitat cannot be avoided, the programmatic project would be required to restore and/or compensate for habitat losses in accordance with measures 4 and 5 of this mitigation measure. Restoration and/or compensation shall be required at a minimum of a 1:1 ratio of habitat affected to habitat restored and/or compensated.</p>	
		<p>2. To minimize disturbance to protected species, their habitat, and wetland and riparian habitat, as a result of programmatic projects, the following minimization measures will be implemented by SFRPD, as applicable.</p>	
		<p>a. Post signs or install flagging and temporary fencing around protected species habitats and riparian and/or wetland habitats that are not being directly restored. No activities shall be allowed within fenced areas, including moving equipment, storing materials, or temporarily stockpiling soils. All exclusion fencing will be removed when work in the project area is completed.</p>	
		<p>b. Where stream crossings are necessary, temporary stream crossings will be located in previously disturbed areas lacking riparian vegetation, pools, side ponds or other sensitive habitats unless</p>	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>otherwise permitted by natural resource agencies for habitat improvement activities or hazard abatement. At a minimum, all temporarily impacted areas shall be restored to their previous condition.</p> <p>c. In or near riparian or wetland habitat, programmatic project activities shall be limited to the dry season (generally April 15 to October 15) and include protective practices such as the use of geotextile cushions and other materials if heavy equipment will result in rutting or soil displacement (i.e. timber pads, prefabricated equipment pads, thick vegetative slash, geotextile fabric) and/or vehicles with balloon tires shall be employed.</p> <p>d. Where protected species are potentially present, a biological monitor shall be required (as determined after appropriate consultation with US Fish and Wildlife Service and California Department of Fish and Game) during implementation of the proposed project. The biological monitor shall survey for protected species to ensure avoidance of those species, wherever feasible; where avoidance is not feasible, the monitor would relocate any species throughout implementation of the programmatic project, as permitted by natural resource agencies. The exact relocation sites and requirements for relocation shall be determined through consultation/coordination with US Fish and Wildlife Service and/or California Department of Fish and Game.</p> <p>3. To minimize impacts from the continued use of the Natural Areas on protected species, their habitats, and riparian and wetland habitat, the SFRPD shall undertake the following:</p> <p>a. If visitor use of the Natural Areas is resulting in impacts on protected species, their habitat and/or riparian and wetland habitat, the SFRPD shall post signs or install fences along trails to protect those habitats. Fences would allow public access on designated trails but would discourage dogs and people from drifting off-trail. If use continues to adversely impact protected species, their habitats, riparian and/or</p>	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>wetland habitat, the SFRPD shall reroute trails and/or restore affected habitat to avoid continued impacts of human disturbance.</p>	
		<p>b. Dog play areas within the Natural Areas shall continue to be evaluated in accordance with the SFRPD's Dog Policy and shall be monitored for adverse effects to biological resources. If substantial adverse impacts to protected species are confirmed, the SFRPD shall take actions to protect those species, which may include installing signs, fencing, or protections including, but not limited to, decommissioning dog play areas, in accordance with the SFRPD Dog Policy.</p>	
		<p>4. Where disturbance of protected species, their habitat, or riparian or wetland habitat cannot be avoided or sufficiently minimized, the SFRPD shall restore the habitat functions and services of areas that are subject to disturbance during programmatic project activities at a minimum of a 1:1 ratio, in accordance with a detailed restoration plan or plans prepared by a qualified restoration ecologist and would be consistent with all required permits. Final restoration plans would include the following:</p>	
		<p>a. Detailed work descriptions for the restoration actions; and</p>	
		<p>b. Ecologically based criteria that shall be used to determine whether the restoration project(s) were achieving identified performance objectives. A schedule for monitoring and reporting on monitoring results shall be included, as agreed upon in coordination with applicable permitting agencies, and as needed to verify whether the vegetation is fully established. The final restoration plan may include the following:</p>	
		<ul style="list-style-type: none"> • Detailed description of restoration activities; • Restoration goals; • Restoration work plan; • Management and maintenance plan; 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<ul style="list-style-type: none"> • Success criteria and performance indicators; • Monitoring plan; and • Site protection measures. 	
		<p>5. Where avoidance and minimization measures are not sufficient to prevent a programmatic project from permanently removing protected species habitat, riparian, and/or wetland habitat and on- or off-site restoration or enhancement is not practicable, SFRPD shall provide compensatory mitigation for the impacts created at a minimum of a 1:1 ratio, unless otherwise determined by natural resources agencies. Examples include mitigation banking, in-lieu funds to parks for their restoration, or off-site preservation. Such activities would be evaluated in subsequent environmental reviews.</p>	
		<p>M-BI-1b: Protection of Locally Significant Plant Species during Implementation of Programmatic Projects</p>	
		<p>Where there is potential to impact locally significant plant species and SFRPD has not substantially enhanced the habitat for that species through restoration activities implemented by the SNRAMP already, SFRPD shall undertake the following measures to avoid and minimize impacts to locally significant plant species:</p>	
		<ul style="list-style-type: none"> • A qualified SFRPD biologist shall survey suitable habitat within the project area before the project begins. If locally significant plant species are found, the SFRPD shall redesign the proposed project to avoid or minimize impacts on locally significant plant species. • Where impacts to locally significant plant species cannot be avoided, SFRPD shall harvest the seeds of, or salvage, the affected species and use collected plants or seeds to enhance and/or restore similar habitat within the Natural Areas or outside of the Natural Areas, if necessary. To the extent feasible, habitat enhancement or restoration shall take place at sites already planned for other mitigation for the project or as part of other 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact BI-2	LTS/M	M-BI-1a applies to this impact	LTS
The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on special status bird species		restoration activities carried out by SFRPD; if habitat is not suitable at those sites, habitat enhancement or restoration shall be carried out at appropriate nearby sites through strategies such as transplantation, relocation or seed harvest. Enhancement and/or restoration of locally significant plant species habitat shall be designed to meet a minimum of a 1:1 ratio of affected plants/habitat to enhanced and/or restored habitat.	
Impact BI-3	LTS/M	M-BI-1a applies to this impact	LTS
The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on other protected terrestrial wildlife species (other than bird species)			
Impact BI-4	LTS/M	M-BI-1a applies to this impact	LTS
The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on protected aquatic species			

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact BI-5</p> <p>Implementation of routine maintenance activities under the SNRAMP would result in a substantial adverse effect on special status species</p>	LTS/M	<p>Measure M-BI-5: Protection of Special Status Species during Routine Maintenance</p> <p>The SFRPD shall avoid disturbance to biological resources by undertaking the following measures during routine maintenance activities:</p> <ul style="list-style-type: none"> • Natural Areas Program staff and/or SFRPD staff engaged in routine maintenance activities as part of the SNRAMP shall receive annual training on the special status species that occur within the Natural Areas. The training shall identify the special status species that occur within the Natural Areas, their life history, measures to be implemented to avoid impacts to those species, and the proper protocol for encountering special status species. The SFRPD shall confirm that all SFRPD staff engaged in routine maintenance activities as part of the SNRAMP has been trained appropriately. • An education program for other field personnel (e.g. volunteers) shall be conducted by the SFRPD staff before field activities begin at a new site that has the potential to contain special status species. The field education program will consist of a brief presentation by persons knowledgeable in the applicable special status species and will include identifying the locations of protected species and locally significant plant species and an explanation of the measures being taken to avoid these species. The SFRPD shall confirm that all workers and volunteers have been trained appropriately. • Disturbance of special status plant species shall be avoided. SFRPD staff shall conduct a reconnaissance survey of maintenance areas prior to undertaking routine maintenance activities to ensure that no special status plant species are present. If such species are found to be present, activities in those areas would be relocated or modified so as to avoid potentially affecting those species. SFRPD staff shall ensure that all volunteers and others involved in maintenance or restoration activities follow protection protocols. 	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<ul style="list-style-type: none"> • Vehicle operators shall use existing access roads and would remain outside of habitat supporting protected species to the extent feasible. • All vehicles shall be brought in clean and free of weeds to prevent the spread or introduction of invasive plant species. • Protected terrestrial and aquatic species impacts shall be avoided during routine maintenance activities by implementing the following measures: <ul style="list-style-type: none"> ○ California Red-Legged Frog and San Francisco Garter Snake: These species both potentially occur at the Sharp Park upper canyon. The following measures shall apply to this Natural Area: <ul style="list-style-type: none"> ▪ To avoid disturbance of these species, maintenance work shall not occur in the vicinity of ponds and wetlands between November 15 and April 15, the breeding season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows. ▪ If maintenance cannot be avoided during the abovementioned time period, the SFRPD staff will conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to ensure that no California red-legged frogs or San Francisco garter snakes are present. ▪ Vegetation in all maintenance areas will be progressively cleared by hand equipment to a height of 4 inches and checked for the presence of snakes prior to disturbance and prior to equipment or vehicles entering the sites. Once vegetation is cleared, an additional pre-activity survey for the San Francisco garter snake and California red-legged frog shall be conducted in the maintenance area. ▪ In the event that a California red-legged frog or San Francisco garter snake is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm the species has moved outside of the work 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>zone, or the work zone shall be adjusted to avoid the species.</p> <ul style="list-style-type: none"> ▪ SFRPD staff shall provide verbal notification to the US Fish and Wildlife Service and/or to the local California Department of Fish and Game warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to the US Fish and Wildlife Service and/or California Department of Fish and Game (as applicable) within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with US Fish and Wildlife Service and/or California Department of Fish and Game. Field personnel shall submit all observations of protected species to the California Natural Diversity Database. ○ Western Pond Turtle: This species occurs at Lake Merced and Sharp Park and may occur at Pine Lake. The following measures shall apply to these Natural Areas: <ul style="list-style-type: none"> ▪ To avoid disturbance of this species, routine maintenance work shall be avoided within wetlands, ponds and adjacent uplands, between May 15 and July 15, the nesting season for western pond turtles. ▪ If maintenance work cannot be avoided during the abovementioned time period, the SFRPD staff shall conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to ensure that no western pond turtles or their nests are present. ▪ In the event that a western pond turtle is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species. ▪ SFRPD staff shall provide verbal notification to the local 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>California Department of Fish and Game warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to California Department of Fish and Game within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with California Department of Fish and Game. Field personnel shall submit all observations of protected species to the California Natural Diversity Database.</p> <ul style="list-style-type: none"> ○ San Francisco Dusky-Footed Woodrat: This species occurs in the Sharp Park upper canyon. The following measure shall apply to this Natural Area: <ul style="list-style-type: none"> ▪ SFRPD staff will conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to identify locations of woodrat middens. ▪ To avoid disturbance of the San Francisco dusky-footed woodrat, no vegetation shall be cleared within a 10-foot buffer of an active or potentially active woodrat middens. ○ Western Red Bat: If an occupied or active roost is identified during maintenance activities, the roost shall not be disturbed. No maintenance work within 150 feet of the potentially occupied roost shall occur until it has been determined that bats are no longer using the site. <ul style="list-style-type: none"> ▪ In the event that a western red bat is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who shall confirm that the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species. ▪ SFRPD staff shall provide verbal notification to the local California Department of Fish and Game warden or biologist (as applicable) within one working day of the encounter. The SFRPD 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact BI-6 Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on special status species</p>	LTS/M	<p>M-BI-6a: Protection of Protected Species during Implementation of the Sharp Park Restoration Project</p> <p>The SFRPD shall implement the following, subject to modification during the required regulatory approval processes:</p> <p>Avoidance Measures:</p> <ul style="list-style-type: none"> • The number of access routes, the size of staging areas, and the total area of activity would be the minimum necessary to achieve the project goals and to the extent feasible access routes shall be located in upland 	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>areas;</p> <ul style="list-style-type: none"> • Vehicle and equipment operators would use existing access roads and would remain outside of wetlands and riparian areas that are not integral to the restoration project; • After surveying the construction site for special status species in accordance with this mitigation measure, silt fencing or exclusion fencing would be placed around the project and staging areas to reduce the potential for animals to enter the construction site. Fencing will be monitored throughout construction to ensure no snakes, frogs, or turtles enter the area; fencing will meet California Department of Fish and Game specifications so as to avoid impacts to species potentially getting trapped in the fence. • No restoration and construction shall occur between November 15 and April 15, the breeding season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows, although shrubs and willow posts may be planted by hand after the first rains, and weeds may be removed within 15 feet of aquatic areas during these times; • Before moving any vehicles that remain stationary for longer than 30 minutes, the biological monitor would inspect those vehicles to ensure that no animals had crawled beneath them for cover; • During project activities, all trash that could attract predators would be properly contained, removed from the work site, and disposed of regularly. Following project completion, all trash and construction debris would be removed from work areas. <p>Pre-Construction Activities:</p> <ul style="list-style-type: none"> • A worker education program shall be implemented to familiarize workers, including all vehicle operators, of the importance of avoidance of harm to special-status species and the proper protocol should a protected species be encountered. The training shall include a discussion of the importance 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>of maintaining speed limits and respecting exclusion zones. The SFRPD and its construction contractor shall confirm that all workers have been trained appropriately.</p> <ul style="list-style-type: none"> • Two weeks prior to the commencement of work activities and immediately prior to commencement of work, a qualified biologist will survey aquatic habitat that is suitable for the California red-legged frog, San Francisco garter snake, and western pond turtle that would be affected by the project. If individuals in any life stages of these species are found, the biologist will contact the US Fish and Wildlife Service and/or California Department of Fish and Game to determine whether relocating any life stages is appropriate. Collection of frogs, snakes, and turtles would be done with hand nets, and shall be relocated to areas of appropriate habitat; • Upland vegetation in all construction areas will be progressively cleared by hand equipment to a height of 4 inches and checked for the presence of protected species prior to disturbance and prior to construction equipment or vehicles entering the sites. Once vegetation is cleared, an additional pre-activity survey for the San Francisco garter snake, western pond turtles, and California red-legged frogs will be conducted in the impact area. • Prior to construction near wetlands or ponds, all rodent burrows in the construction area will be hand excavated until the burrows terminate or to a maximum depth of 30 centimeters in areas where soil or fill will be removed or placed. <p>Biological Monitor:</p> <ul style="list-style-type: none"> • A biological monitor familiar with the identification and life history of California red-legged frog, San Francisco garter snake, western pond turtle, and other potentially present protected species, and with the appropriate agency authorization, shall be designated to periodically inspect onsite compliance with all mitigation measures. 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<ul style="list-style-type: none"> • The biological monitor shall perform a daily survey of the entire project area during construction activities. During these surveys, the monitor shall inspect the exclusion fencing for individuals trapped within the fence and determine the need for fence repair. Throughout the duration of the project, the monitor shall continue to perform daily fence surveys and compliance reviews at the project site. The monitor shall be designated prior to project implementation and shall have at least one specialty environmental monitor on call, with a valid 10(a)(1)(A) permit to handle listed species. The specialty monitor shall direct all personnel in regards to interactions with protected species, perform authorized species relocations, and supervise all reporting on such species. • Bullfrog monitoring will occur and egg masses detected shall be removed. <p>M-BI-6b: Protection of Protected Species during Maintenance of the Sharp Park Restoration Project</p> <p>The SFRPD shall implement the following, subject to modification during the required regulatory approval processes:</p> <ul style="list-style-type: none"> • To avoid disturbance of the San Francisco garter snake, California red-legged frog and western pond turtle, maintenance work shall not occur in the vicinity of ponds and wetlands between November 15 and April 15, the breeding/nesting season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows. • If maintenance cannot be avoided during the abovementioned time period, the Natural Areas Program will conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to ensure that no California red-legged frogs, western pond turtles or San Francisco garter snakes are present. • Heavy equipment would remain outside of wetlands to the extent feasible. If it is infeasible to avoid wetlands, no heavy equipment shall be used within wetlands between October 15 and April 15. 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact BI-7	LTS/M	<ul style="list-style-type: none"> In the event that a California red-legged frog, western pond turtle or San Francisco garter snake is encountered, all work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm that the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species. SFRPD staff shall provide verbal notification to the US Fish and Wildlife Service and/or to the local California Department of Fish and Game warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to the US Fish and Wildlife Service and/or California Department of Fish and Game (as applicable) within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with US Fish and Wildlife Service and/or California Department of Fish and Game. Field personnel shall submit all observations of protected species to the California Natural Diversity Database. 	LTS
The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on sensitive natural communities		M-BI-1a applies to this impact	
Impact BI-8	LTS	Not applicable	LTS
Implementation of routine maintenance under the SNRAMP would not result in a substantial adverse effect on sensitive natural communities			
Impact BI-9	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial adverse effect on sensitive natural communities		M-BI-1a applies to this impact	LTS
Impact BI-10 The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on wetlands	LTS/M	M-BI-1a applies to this impact	LTS
Impact BI-11 Implementation of routine maintenance under the SNRAMP would not result in a substantial adverse effect on wetlands	LTS	Not applicable	LTS
Impact BI-12 Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on wetlands	LTS/M	M-BI-12a: Protection of Wetlands during the Sharp Park Restoration Project The SFRPD shall obtain all applicable permits from San Francisco Bay Regional Water Quality Control Board, California Coastal Commission, US Army Corps of Engineers, and California Department of Fish and Game for impacts to wetland habitat. Measures identified in these permits shall be applied, in addition to the following measures, unless otherwise specified by resource agencies: <ul style="list-style-type: none">• Except for those areas directly being restored, a minimum 100-foot buffer surrounding all wetlands, ponds, streams, drainages, and other aquatic	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>habitats located on or within 100 feet of the project site shall be clearly designated on the final project construction plans and marked on the site with orange construction fencing or silt fencing. If the area is on a slope, silt fencing or other comparable management measures will be installed to prevent polluted runoff, as well as equipment, from entering the buffer area. Signs shall be installed every 100 feet on or adjacent to the buffer fence that read, "Environmentally Sensitive Area – Keep Out." Fencing and management measures shall be installed and inspected prior to project implementation and maintained throughout the restoration period. No equipment mobilization, grading, clearing, storage of equipment or machinery, vehicle or equipment washing, or similar activity, may occur until a representative of the SFRPD has inspected and approved the fencing and/or management measures installed around these features;</p> <ul style="list-style-type: none"> • Vehicle and equipment operators would use existing access roads and would remain outside of wetlands and riparian areas that are not directly associated with habitat restoration. Project construction and staging areas would be delineated with construction fencing and shall avoid wetland habitat to the maximum extent feasible; • All vehicles would be brought in clean and free of weeds to prevent the spread or introduction of invasive plant species. Vehicles and equipment would be fueled, maintained, and parked at least 100 feet from wetlands. Each morning, operators would inspect all equipment that requires the use of fuel or fluids for leaks; • Silt barriers, such as sand bags, silt fences/curtains, or basins, would be installed before the project begins; • Wet sediments taken from the wetlands would be stockpiled so water could drain or evaporate before removal. Stockpiles would be placed in upland areas with the perimeters protected by best management practices to avoid polluted runoff; • All soil stockpiles shall be protected against wind and rainfall erosion at all times. Plastic sheeting or other similar material shall be used to cover 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>soils and would be securely anchored by sandbags or other suitable means. At no time would any stockpiled materials be allowed to erode into any water body or drainage facility or onto any roadway; and</p> <ul style="list-style-type: none"> • Ground disturbing construction and maintenance activities shall be avoided during the rainy season and consistent with Mitigation Measure M-BI-6a. <p>M-BI-12b: Laguna Salada Restoration Project Wetland Mitigation Plan</p> <p>Consistent with the requirements for a Section 401 water quality certification permit, the SFRPD shall prepare a mitigation plan. Additionally, because this is a restoration project, the California Coastal Commission may require an objective performance evaluation to determine project success which would include a monitoring program and methods for evaluating performance, which could be accomplished through implementation of the wetland mitigation plan. The wetland mitigation plan shall include, at a minimum, a description of the following:</p> <ul style="list-style-type: none"> • Proposed project's physical and biological impacts; • Mitigation goals; • Mitigation work plan; • Management and maintenance plan; • Success criteria and performance indicators • Monitoring plan; and • Site protection measures. <p>The components of the above mitigation plan may be altered, supplemented, or deleted during the San Francisco Bay Regional Water Quality Control Board's review process, as the San Francisco Bay Regional Water Quality Control Board has final authority over the terms of the water quality certification.</p>	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact BI-13</p> <p>The SNRAMP and implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on fish and wildlife movement, migratory corridors, or nursery sites</p>	LTS	Not applicable	LTS
<p>Impact BI-14</p> <p>Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on fish and wildlife movement, migratory corridors and nursery sites</p>	LTS	Not applicable	LTS
<p>Impact BI-15</p> <p>Implementation of Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on fish and wildlife movement, migratory corridors and nursery sites</p>	LTS/M	M-BI-6a, M-BI-6b, M-BI-12a, and M-BI-12b apply to this impact	LTS
<p>Impact BI-16</p> <p>The SNRAMP and implementation of</p>	NI	Not applicable	NI

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
programmatic projects under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources	NI	Not applicable	NI
Impact BI-17 Implementation of routine maintenance activities under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources	NI	Not applicable	NI
Impact BI-18 Implementation of Sharp Park restoration activities under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources	SU	None available	SU
Impact BI-19 The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively considerable significant impact related to biological resources			

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
HYDROLOGY AND WATER QUALITY			
<p>Impact HY-1</p> <p>Implementation of programmatic projects under the SNRAMP would violate water quality standards or otherwise degrade water quality</p>	LTS/M	<p>M-HZ-13 applies to this impact</p> <p>M-HY-1: Implementation of Stormwater Pollution Prevention Measures</p> <p>Construction projects that do not drain to San Francisco’s combined sewer system and involve one or more acres of land disturbance are required to obtain coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activity. In accordance with the NPDES General Permit requirements, the SFRPD or its contractors would submit a notice of intent to the SWRCB’s Division of Water Quality, would develop a SWPPP, and would implement site-specific BMPs to prevent discharges of nonpoint source pollutants in construction-related stormwater runoff to storm drains and water bodies. As required by the NPDES General Construction Permit, trained and certified persons would prepare the SWPPPs and would conduct inspections to ensure the effectiveness of the BMPs.</p> <p>Listed below are BMPs that would be implemented at the Natural Areas to meet the minimum requirements of the NPDES General Construction Permit. These measures may be altered, supplemented, or deleted during the SFBRWQCB’s review process, as it has final authority over the terms of the SWPPP.</p> <p>Other programmatic projects shall implement the following measures, where applicable to a project, unless other equally or more effective measures are determined to be necessary during future project-specific environmental review. These projects are those on less than one acre and that do not require a NPDES General Construction Permit or that drain to San Francisco’s combined sewer system and are regulated by the SFPUC.</p> <p>a. <u>Schedule to Avoid or Minimize Impacts</u></p> <ul style="list-style-type: none"> • Schedule construction to minimize ground disturbance during the rainy season; • Sequence construction activities to minimize the amount of time that 	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>soils remain disturbed;</p> <ul style="list-style-type: none"> • Stabilize all disturbed soils as soon as possible following the completion of ground-disturbing work in any area of the project site; • Provide plans to stabilize soil with vegetation or physical means in the event rainfall is expected; and • Install erosion and sediment control best management practices prior to the start of any ground-disturbing activities. <p>b. <u>Erosion and Sediment Controls</u></p> <ul style="list-style-type: none"> • Preserve existing vegetation in areas where no construction activity is planned or where construction activity will occur at a later date; • Stabilize and revegetate disturbed areas as soon as possible after construction with planting, seeding, and/or mulch (e.g., straw or hay, erosion control blankets, hydromulch, or other similar material), except in actively cultivated areas; • Install silt fences, coir rolls, and other suitable measures around the perimeter of the construction zone, staging areas, storm drains, temporary stockpiles, spoil areas, stream channels, swales, down-slope of all exposed soil areas, and other locations determined necessary to prevent off-site sedimentation; • Install temporary slope breakers during the rainy season on slopes greater than 5 percent where the base of the slope is less than 50 feet from a water body, wetland, or road crossing, at spacing intervals required by the San Francisco Bay Regional Water Quality Control Board; • Use filter fabric or other appropriate measures to prevent sediment from entering storm drain inlets; and • Detain and treat stormwater and water produced by construction site dewatering using sedimentation basins, sediment traps (when water 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>is flowing and there is sediment), baker tanks, or other measures to ensure that discharges to receiving waters meet applicable water quality objectives.</p> <p>c. <u>Housekeeping</u></p> <ul style="list-style-type: none"> • Store all equipment, materials, fuels, lubricants, solvents, and other possible contaminants away from waterways and in secured locations; • Check equipment for leaks regularly; • Wash construction equipment in a designated enclosed area regularly; and • Refuel all vehicles and equipment at least 100 feet from any water bodies <p>d. <u>Waste Management and Hazardous Materials Pollution Control</u></p> <ul style="list-style-type: none"> • Remove trash and construction debris from the project area daily; • Locate sanitary facilities a minimum of 300 feet from water bodies; • Maintain sanitary facilities regularly; • Maintain spill containment and cleanup equipment onsite and properly label and dispose of wastes; • Locate waste collection areas close to construction entrances and away from roadways, storm drains, and water bodies; • Inspect trash receptacles and other waste and debris containers regularly for leaks and remove and properly dispose of any hazardous materials and liquid wastes placed in these containers; and • Train construction personnel in proper material delivery, handling, storage, cleanup, and disposal procedures. 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>e. <u>Best Management Practices Inspection, Maintenance, and Repair</u></p> <ul style="list-style-type: none"> • Inspect all best management practices regularly to confirm proper installation and function; • Inspect all stormwater best management practices daily during storms; • Inspect sediment basins, sediment traps, and other detention and treatment facilities regularly throughout the construction period; • Provide sufficient devices and materials (e.g., silt fence, coir rolls, and erosion blankets) throughout project construction to enable immediate repair or replacement of failed best management practices; and • Inspect all seeded and revegetated areas regularly for failures and remediate or repair them immediately. <p>f. <u>Post-construction Best Management Practices</u></p> <ul style="list-style-type: none"> • Revegetate all temporarily disturbed areas as required after construction; • Remove any remaining construction debris and trash from the project site and area on project completion; • Phase the removal of temporary best management practices as necessary to ensure stabilization of the site; • Maintain post-construction site conditions to avoid any unintended drainage channels, erosion, or areas of sedimentation; and • Correct post-construction site conditions as necessary to comply with the stormwater pollution prevention plan and any other pertinent San Francisco Bay Regional Water Quality Control Board requirements. 	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HY-2 Implementation of routine maintenance activities under the SNRAMP would violate water quality standards or otherwise degrade water quality	LTS/M	M-HZ-14 applies to this impact	LTS
Impact HY-3 Implementation of the Sharp Park restoration under the SNRAMP would violate water quality standards or otherwise degrade water quality	LTS/M	M-BI-1a, M-BI-12b, HY-1, and HZ-13 apply to this impact	LTS
Impact HY-4 Implementation of the programmatic projects under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge	LTS	Not applicable	LTS
Impact HY-5 Implementation of routine maintenance under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge	NI	Not applicable	NI

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HY-6 Implementation of the Sharp Park restoration under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge	LTS	Not applicable	LTS
Impact HY-7 Implementation of the programmatic projects under the SNRAMP would result in substantial erosion or siltation	LTS/M	M-HY-1 applies to this impact	LTS
Impact HY-8 Implementation of the routine maintenance activities under the SNRAMP would not result in substantial erosion or siltation	LTS	Not applicable	LTS
Impact HY-9 Implementation of the Sharp Park restoration under the SNRAMP would not result in substantial erosion or siltation	LTS/M	M-HY-1 applies to this impact	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HY-10 Implementation of the programmatic projects under the SNRAMP would not result in flooding	LTS	Not applicable	LTS
Impact HY-11 Implementation of routine maintenance activities under the SNRAMP would not result in flooding	NI	Not applicable	NI
Impact HY-12 Implementation of the Sharp Park restoration under the SNRAMP would not result in flooding	LTS	Not applicable	LTS
Impact HY-13 Implementation of the programmatic projects under the SNRAMP would affect stormwater runoff quantity or quality	LTS/M	M-HY-1 applies to this impact	LTS
Impact HY-14 Implementation of the routine maintenance activities under the SNRAMP would not substantially affect stormwater runoff quantity or quality	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HY-15 Implementation of the Sharp Park restoration under the SNRAMP would affect stormwater runoff quantity or quality	LTS/M	M-BI-1a, HY-1, and HZ-13 apply to this impact	LTS
Impact HY-16 The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively considerable significant impact related to hydrology and water quality	LTS	Not applicable	LTS
HAZARDS AND HAZARDOUS MATERIALS			
Impact HZ-1 Implementation of programmatic projects under the SNRAMP would not result in significant impacts on public safety from windthrow effects	LTS	Not applicable	LTS
Impact HZ-2 Implementation of the programmatic projects under the SNRAMP would not increase the mosquito and tick population	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact HZ-3</p> <p>Implementation of the routine maintenance activities under the SNRAMP would not result in significant impacts on public safety from windthrow effects</p>	LTS	Not applicable	LTS
<p>Impact HZ-4</p> <p>Implementation of the routine maintenance activities under the SNRAMP would not increase the mosquito and tick population</p>	NI	Not applicable	NI
<p>Impact HZ-5</p> <p>Implementation of the Sharp Park restoration activities under the SNRAMP would not impact public safety from windthrow effects</p>	NI	Not applicable	NI
<p>Impact HZ-6</p> <p>Implementation of the Sharp Park restoration activities under the SNRAMP would not result in a significant increase in the mosquito and tick population</p>	LTS	Not applicable	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HZ-7 Implementation of the programmatic projects under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control	LTS	Not applicable	LTS
Impact HZ-8 Implementation of the programmatic projects under the SNRAMP would not disturb lead-contaminated soil	NI	Not applicable	NI
Impact HZ-9 Implementation of the routine maintenance activities under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control	LTS	Not applicable	LTS
Impact HZ-10 Implementation of the routine maintenance activities under the SNRAMP would not disturb lead-contaminated soil	NI	Not applicable	NI

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact HZ-11</p> <p>Implementation of the Sharp Park restoration activities under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control</p>	LTS	Not applicable	LTS
<p>Impact HZ-12</p> <p>Implementation of the Sharp Park restoration under the SNRAMP would not disturb lead-contaminated soil</p>	NI	Not applicable	NI
<p>Impact HZ-13</p> <p>Implementation of the programmatic projects under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment</p>	LTS/M	<p>M-HZ-13: Emergency Response Plan for Accidental Releases of Hazardous Materials</p> <p>To reduce impacts from the accidental release of hazardous materials, the SFRPD shall prepare an emergency response plan for the Sharp Park restoration and each programmatic project that uses gasoline- or diesel-powered equipment before the project began. The plan shall include emergency procedures for hazardous materials releases. These procedures shall include requirements for the necessary personal protective equipment, spill containment procedures, and worker training to respond to accidental spills and releases. The plan shall also require equipment to be refueled at least 100 feet from any streams or water bodies. During the implementation of programmatic projects, all hazardous materials, including any hazardous wastes, shall be used, stored, transported, and disposed of in accordance with local, state, and federal hazardous materials regulations. Developing and implementing the plan will ensure the proper storage and use of hazardous materials, proper response to accidental releases, and worker training, all of which will minimize contamination from hazardous materials.</p>	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact HZ-14</p> <p>Implementation of the routine maintenance activities under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment</p>	LTS/M	<p>M-HZ-14: General Emergency Response Plan for Routine Management Activities Using Gasoline- or Diesel-Powered Equipment</p> <p>To reduce impacts from accidental releases of hazardous materials, the SFRPD shall prepare a general emergency response plan to address routine management activities that use gasoline- or diesel-powered equipment. The plan shall include emergency procedures for hazardous materials releases with requirements for the necessary personal protective equipment, spill containment procedures, and worker training to respond to accidental spills and releases. The plan shall also require equipment to be refueled at least 100 feet from any streams or water bodies. During routine maintenance, all hazardous materials, including any hazardous wastes, shall be used, stored, transported, and disposed of in accordance with local, state, and federal hazardous materials regulations. Developing and implementing the plan will ensure the proper storage and use of hazardous materials, proper response to accidental releases, and worker training, all of which will minimize contamination from hazardous materials.</p>	LTS
<p>Impact HZ-15</p> <p>Implementation of the Sharp Park restoration under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment</p>	LTS/M	M-HZ-13 applies to this impact	LTS
<p>Impact HZ-16</p> <p>Implementation of programmatic projects under the SNRAMP would not result in substantial fire hazards</p>	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact HZ-17 Implementation of the routine maintenance activities under the SNRAMP would not result in substantial fire hazards	LTS	Not applicable	LTS
Impact HZ-18 Implementation of the Sharp Park restoration activities under the SNRAMP would not result in substantial fire hazard impacts	LTS	Not applicable	LTS
Impact HZ-19 The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact related to hazards and hazardous materials	LTS	Not applicable	LTS
AGRICULTURE AND FOREST RESOURCES			
Impact AF-1 Implementation of the programmatic projects under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland	NI	Not applicable	NI

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact AF-2 Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland</p>	NI	Not applicable	NI
<p>Impact AF-3 Implementation of the Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland</p>	NI	Not applicable	NI
<p>Impact AF-4 Implementation of the programmatic projects under the SNRAMP would not have a substantial adverse effect on the loss or conversion of farmland or forest land</p>	LTS	Not applicable	LTS
<p>Impact AF-5 Implementation of the routine maintenance activities under the SNRAMP would not have a substantial adverse effect on the loss or conversion of forest land</p>	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact AF-6 Implementation of the Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on the conversion of forest land</p>	NI	Not applicable	NI
<p>Impact AF-7 The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively considerable substantial adverse effect related to agriculture and forest resources</p>	LTS	Not applicable	LTS
AIR QUALITY			
<p>Impact AQ-1 Programmatic projects under the SNRAMP would result in substantial fugitive dust emissions</p>	LTS/M	<p>M-AQ-1: Fugitive Dust Reduction</p> <p>The SFRPD would implement the requirements of the Dust Control Ordinance for all programmatic projects that are outside of San Francisco to reduce fugitive dust emissions.</p> <p>For projects less than half an acre, the SFRPD would comply with the general dust control requirements listed in Section 106.3.2.6.3(c) of the San Francisco Building Code, which are:</p> <ul style="list-style-type: none"> Water all active construction areas sufficiently to prevent dust from becoming airborne. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. If not required, reclaimed water should be 	LTS

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<p>used whenever possible.</p> <ul style="list-style-type: none"> • Provide as much water as necessary to control dust (without creating runoff) in any area of land clearing, earth movement, excavation, drillings, and other dust-generating activity. • During excavation and dirt-moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday. • Cover any inactive (no disturbance for more than seven days) stockpiles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques. • Use dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area. <p>For projects greater than half an acre, in addition to the general dust control requirements above, the SFRPD would prepare a site-specific dust control plan that requires the project sponsor to:</p> <ul style="list-style-type: none"> • Submit a map to the director of the San Francisco Department of Public Health, showing all sensitive receptors within 1,000 feet of the site; • Wet down areas of soil at least three times per day; • Provide an analysis of wind direction, and install upwind and downwind particulate dust monitors; • Record particulate monitoring results; • Hire an independent third party to conduct inspections and keep a record of those inspections; • Establish shutdown conditions based on wind, soil migration, and other factors; 	

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Impact AQ-2 The routine maintenance activities under the SNRAMP would not result in substantial fugitive dust emissions	LTS	Not applicable	LTS
Impact AQ-3 The Sharp Park restoration under the SNRAMP would result in substantial fugitive dust emissions	LTS/M	M-AQ-1 applies to this impact	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
<p>Impact AQ-4</p> <p>Programmatic projects under the SNRAMP would contribute substantially to an existing or projected air quality violation and would result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard</p>	SU/M	<p>M-AQ-4: Construction Contract Specification to Reduce Construction Vehicle Emissions</p> <p>The SFRPD will consult with EP before implementing each programmatic project. Under EP's direction, the SFRPD will either conduct a refined air quality analysis prior to project implementation, or EP will provide a list of all feasible mitigation measures to incorporate into the construction specifications to reduce construction vehicle emissions. If SFRPD were to conduct a refined air quality analysis and find that construction-related criteria air pollutant emissions would be below the Bay Area Air Quality Management District thresholds, SFRPD would not be required to incorporate mitigation measures into the project's construction specifications. The following mitigation measures are examples of mitigation measures that EP might direct the SFRPD to incorporate into construction specifications for the Sharp Park restoration project or the programmatic projects.</p> <ul style="list-style-type: none"> • For programmatic projects between 2011 and 2015, use Tier 3 equipment with best available control technology where feasible. For programmatic projects conducted after 2015, use Tier 4 equipment or interim Tier 4 equipment equipped with best available control technology where such equipment exists. • Use temporary power provided by the Pacific Gas & Electric Company instead of diesel generators; where it is not possible to plug into the electric grid, use Tier 3 diesel generators and air compressors. • Use concrete batched from local plants to limit concrete trucks' travel time and the amount of diesel exhaust emitted. • Minimize idling times by either shutting equipment and vehicles off when not in use or limiting the maximum idling time to five minutes or less (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Provide clear signage of idling rules for construction workers at all access points. • Use on-road haul trucks model year 2007 or later. 	SU

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
		<ul style="list-style-type: none"> Maintain and properly tune construction equipment in accordance with manufacturer's specifications. Have all equipment checked by a certified mechanic to determine that equipment is running in proper condition prior to operation. 	
Impact AQ-5 The routine maintenance activities under the SNRAMP would not contribute substantially to an existing or projected air quality violation and would not result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard	LTS	Not applicable	LTS
Impact AQ-6 The Sharp Park restoration under the SNRAMP would contribute substantially to an existing or projected air quality violation and would result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard	SU/M	M-AQ-4 applies to this impact	SU
Impact AQ-7	LTS	Not applicable	LTS

**Table 2
Summary of Environmental Impacts and Mitigation Measures**

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Programmatic projects under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations	LTS	Not applicable	LTS
Routine maintenance under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations	LTS	Not applicable	LTS
Sharp Park restoration under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations	SU/M	M-AQ-4 applies to this impact	SU
Implementation of the proposed project in combination with past, present, and reasonably foreseeable projects in the vicinity would result in cumulatively considerable significant air quality impacts		<p>M-AQ-10: Cumulative Health Risk Analysis for Programmatic Projects</p> <p>As part of the environmental review for all programmatic projects, the SFRPD will conduct a cumulative site-specific health risk analysis to determine if nearby sensitive receptors would be affected by those projects in combination with other known sources (e.g., roadway sources and permitted stationary sources) and existing construction projects within 1,000 feet. Based on the results of those analyses, EP would determine the need for and the scope of additional measures to reduce health risk impacts from construction activities. Mitigation measures to reduce construction-related health risks could include those listed under M-AQ-4.</p>	

Table 2
Summary of Environmental Impacts and Mitigation Measures

Impact	Impact Significance	Mitigation Measures	Impact Significance With Mitigation
Improvement Measure from the Initial Study			
	I-ME-1	Consistent with the 2005 California Energy Action Plan II priorities for reducing energy use, the SFRPD would ensure that energy-efficient equipment is used to the extent practicable during project implementation.	

- 1 LEGEND:
2 SU = Significant and unavoidable impact
3 SU/M = Significant and unavoidable impact with mitigation
4 LTS/M = Less than significant impact with mitigation
5 LTS = Less than significant impact
6 NI = No impact

II. INTRODUCTION

The Environmental Planning (EP) Division of the San Francisco Planning Department has prepared this Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Sections 21000-21177) and the *Guidelines for Implementation of the California Environmental Quality Act* (California Code of Regulations, Title 14, Sections 15000-15387). It evaluates environmental impacts associated with the project, identifies feasible mitigation measures to reduce the impacts to a less than significant level, and includes improvement measures to further reduce impacts identified as less than significant.

This EIR meets the CEQA requirements to (1) assess the expected direct, indirect, and cumulative impacts of the project; (2) identify means of avoiding, minimizing, or mitigating potential significant adverse environmental impacts; and (3) evaluate a reasonable range of alternatives to the project, including the No Project Alternative.

The proposed project is the San Francisco Recreation and Park Department (SFRPD) implementation of its Significant Natural Resource Areas Management Plan (SNRAMP; SFRPD 2006). The SNRAMP is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance for 32 Natural Areas in San Francisco and Pacifica over the next 20 years.

II.A PROJECT-LEVEL REVIEW

The most common type of EIR examines the environmental impacts of a specific project. This level of CEQA review focuses primarily on the changes in the environment that would result from a project and examines all phases of the project, including planning, construction, and operation (CEQA Guidelines Section 15168).

Project-level review has been selected as the appropriate level of CEQA review for the SNRAMP's routine maintenance activities and the Sharp Park restoration activities. These components of SNRAMP have been developed to a sufficient level of detail to allow project-level environmental review.

II.B PROGRAM-LEVEL REVIEW

Program-level CEQA review is used in environmental analyses for a series of actions that can be characterized as one large project because they are logically related. The series of actions can be related geographically, or be logical parts in the chain of contemplated actions. Program-level

review is used in connection with the issuance of rules, plans, or other general criteria to govern the conduct of a continuing program.

Programmatic review is also appropriate for individual activities carried out under the same authorizing statutory or regulator authority, that have generally similar environmental effects which can be mitigated in similar ways (CEQA Guidelines Section 15168).

Program-level review has been selected as the appropriate level of CEQA review for the SNRAMP's large-scale projects because these projects are long-term projects that have not been fully developed to enable project-level environmental review. Once funding is available for long-term projects, additional design and development of the project would commence, allowing for a greater understanding of project-level environmental impacts. Per CEQA Guidelines Section 15168(c), subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared. If the agency finds that pursuant to CEQA Guidelines Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required.

However, if upon subsequent environmental review of programmatic projects it was determined that the activity would have effects not examined in the program EIR, a new environmental document would be required.

II.C ENVIRONMENTAL REVIEW PROCESS

The SFRPD filed an Environmental Evaluation (EE) application with EP that initiated the environmental review process outlined below. The EIR process provides an opportunity for the public to review and comment on the project's potential environmental effects and to further inform the environmental analysis.

As a first step in complying with the procedural requirements of CEQA, EP used the Notice of Preparation (NOP) and Initial Study process to determine whether any aspect of the project, either individually or cumulatively, may cause a significant effect on the environment and, if so, to narrow the scope of the environmental analysis.

EP issued the NOP and Initial Study on April 22, 2009, and filed it with the California Office of Planning and Research, State Clearinghouse. An environmental review notice associated with the NOP was published in the *San Francisco Examiner* and *Pacifica Tribune* on April 22, 2009. The NOP

Notice of Availability was sent to more than 2,400 interested parties. The NOP initiated a 30-day public review period that ended on May 26, 2009; its purpose was to solicit comments on the scope and content of the environmental analysis contained in the EIR. In addition, EP held two public scoping meetings on May 12 and 14, 2009, to solicit further comments on the scope and content of the environmental analysis to be included in the EIR. The NOP, Initial Study, and scoping report are included in Appendix A of this EIR.

After an internal development period, EP will issue the Draft EIR for public review. This Draft EIR public review and comment period is intended to solicit public comment on the information presented in the Draft EIR. Public hearings also will be scheduled during the public review period on the Draft EIR.

II.D PUBLIC COMMENTS

Comments were received from public agencies and individuals during the scoping period and during the two public scoping meetings.

Throughout the scoping process, 45 sets of scoping comments were received. A scoping report summarizing scoping comments and how they are addressed in the EIR is included in Appendix A of this EIR. Comments on the NOP addressed the following topics:

- Sharp Park Golf Course;
- General Project;
- General CEQA;
- General Environmental;
- Cumulative Impacts;
- Land Use and Land Use Planning;
- Aesthetics;
- Cultural and Paleontological Resources;
- Transportation and Circulation;
- Noise;
- Air Quality;
- Wind and Shadow;

- Recreation;
- Utilities and Service Systems;
- Biological Resources;
- Geology and Soils;
- Hydrology and Water Quality; and
- Hazards and Hazardous Materials.

The Draft EIR has considered the CEQA-related concerns and other issues raised through the scoping process. These issues are addressed in Chapter V (Environmental Setting and Impacts) and Section VI.F (Effects Found Not to be Significant).

II.E PUBLIC REVIEW OF THE DRAFT EIR

The Draft EIR is available for public review at the Planning Department offices at 1660 Mission Street, 1st Floor Planning Information Counter. The Draft EIR is also available through the EP web site: <http://www.sf-planning.org/index.aspx?page=1828>. The documents referenced in this Draft EIR are available for public review at the San Francisco Planning Department, 1650 Mission Street, Fourth Floor, (415) 558-6378.

After the Draft EIR is published, there will be a 45-day public review and comment period to solicit public comment on the information presented in the Draft EIR. This period is from August 31, 2011, through October 17, 2011. Additionally, a public hearing on this Draft EIR will be held at the San Francisco Planning Commission on October 6, 2011. Prior to the public hearing at the Planning Commission, the Historic Preservation Commission will have the opportunity to hear the project and prepare written comments to be forwarded to the Planning Commission on September 21, 2011.

Reviewers are invited to submit written comments on the Draft EIR. Written comments should be submitted to:

Bill Wycko
Environmental Review Officer
SNRAMP EIR
City and County of San Francisco
San Francisco Planning Department
1650 Mission Street, Suite 400
San Francisco, CA 94103

II.F ORGANIZATION OF THE EIR

This EIR has been organized for ease of use and reference. To help the reader locate information of particular interest, the following is a brief summary of the contents of the EIR:

- **Chapter I (Summary)**—The Summary chapter includes a brief project description, a summary of significant project impacts and mitigation measures, a summary of project alternatives, and areas of controversy and issues to be resolved.
- **Chapter II (Introduction)**—The Introduction chapter includes the type and purpose of the EIR, a summary of the environmental and public review process, and a brief outline of this document's organization.
- **Chapter III (Project Description)**—The Project Description chapter provides a detailed description of the project, including its location, components, and characteristics. The Project Description also includes approval requirements and intended uses of the EIR.
- **Chapter IV (Plans and Policies)**—The Plans and Policies chapter discusses the project's consistency with applicable plans and policies.
- **Chapter V (Environmental Setting and Impacts)**—The Environmental Setting and Impacts chapter discusses the existing conditions, project impacts, and mitigation and improvement measures for the nine resources addressed in detail in this EIR. The impact discussion includes the significance thresholds used to evaluate the nature or magnitude of environmental impacts, significance conclusions, and feasible mitigation measures that would avoid, minimize, or mitigate significant or potentially significant environmental impacts.
- **Chapter VI (Other CEQA Issues)**—As required by Section 15126.2 of the CEQA guidelines, this chapter summarizes growth-inducing impacts, significant and unavoidable environmental impacts, irreversible changes to the environment, and significant impacts of the project. This chapter also discusses areas of known controversy, issues to be resolved, and effects found not to be significant.
- **Chapter VII (Alternatives)**—The Alternatives chapter analyzes alternatives to the project, including the required No Project Alternative, compares their environmental effects with those of the project, and identifies the environmentally superior alternative. Alternatives evaluated in this chapter include the No Project Alternative, the Maximum Restoration Alternative, the Maximum Recreation Alternative, and the Maintenance Alternative.

- **Chapter VIII (References)**—The References chapter includes bibliographic information for reference materials cited throughout the document.
- **Chapter IX (EIR Preparers and Persons and Organizations Contacted)**—This chapter identifies the individuals responsible for preparation of this EIR, as well as the persons and organizations contacted during preparation of the EIR.

Acronyms and Abbreviations and a Glossary are provided at the end of the Table of Contents.

Appendices and a fold-out list of the General Recommendations are provided at the end of the document.

III. PROJECT DESCRIPTION

III.A INTRODUCTION

III.A.1 Background

While San Francisco is by and large a densely developed urban area, fragments of unique plant and animal habitats, known as Significant Natural Resource Areas (Natural Areas), have been preserved within the parks of San Francisco and Pacifica that are managed by the SFRPD. In the late 1990s, the SFRPD developed a Natural Areas Program to protect and manage these Natural Areas for the natural and human values they provide. The Natural Areas Program mission is to preserve, restore, and enhance the remnant Natural Areas and to promote environmental stewardship of these areas. On January 19, 1995, the San Francisco Recreation and Park Commission approved the first Significant Natural Resource Areas Management Plan.

Over the course of several years, the SFRPD updated and expanded the level of detail in the 1995 plan, ultimately resulting in a new Significant Natural Resource Areas Management Plan (SNRAMP, SFRPD 2006), with a final draft plan published in February 2006. The San Francisco Recreation and Park Commission approved the final draft plan for CEQA evaluation in August 2006. This SNRAMP contains detailed information on the biology, geology, and trails within 32 Natural Areas, 31 in San Francisco and one (Sharp Park) in Pacifica. The SNRAMP is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance activities over the next 20 years. The proposed project is the SFRPD's implementation of the SNRAMP.

Specific management issues include:

- Loss of special status or unusual native species or habitats;
- Loss of diversity and components of a healthy ecosystem;
- Effect of nonnative invasive species on the local native flora and fauna;
- Erosion of Natural Areas from inappropriately located or constructed trails and access roads;
- Effect of human uses (recreation, poor trail location or too many trails, and a general increase in use) that conflict with conservation values; and
- Effects of feral animals and domestic pets on native flora and fauna.

III.A.2 Overview of the 1995 Management Plan

Below is a summary of the plan's general policies and management actions (SFRPD 1995):

- **Vegetation**
 - Maintain and promote indigenous plant species,
 - Control or remove invasive species,
 - Provide fire breaks where appropriate and maximize indigenous vegetation for fire control,
 - Use indigenous vegetation for erosion control,
 - Protect species listed as rare, threatened, or of special concern,
 - Remove exotic plants that adversely affect indigenous plant growth,
 - Enhance riparian areas,
 - Reforest or replant areas to maintain diversity, and
 - Preserve habitat that supports wildlife;
- **Wildlife**
 - Monitor wildlife,
 - Consult with other agencies on habitat enhancement,
 - Cooperate with other agencies to address issues of such nuisances as feral cats, domestic dogs, and feral geese, and
 - Develop educational programs with other agencies for wildlife protection;
- **Water Resources**
 - Maintain or improve water quality,
 - Protect riparian zones from erosion and sedimentation,
 - Maintain drainage and erosion prevention devices along roads and service trails,
 - Control drainage and runoff from roads,
 - Establish and maintain tule encroachment zone around lakes, and
 - Use proper controls when applying aquatic herbicides;

- **Geotechnical/Soils**
 - Minimize erosion along roads and trails,
 - Seed or plant bare soils with indigenous vegetation,
 - Stabilize embankments where it is not in conflict with habitat,
 - Minimize access on unstable slopes,
 - Cooperate with adjacent property owners to minimize erosion and runoff,
 - Clear landslide debris on park property, and
 - Install retaining devices where necessary to stabilize slopes;
- **Education**
 - Promote natural resource management among SFRPD staff,
 - Develop nature programs to promote recreation and education values,
 - Develop education programs aimed at private property owners, and
 - Develop education programs with the San Francisco Unified School District;
- **Public Use**
 - Develop guidelines for pathways and trails and for interpretive signs,
 - Control dirt bike and off-road use, and
 - Encourage community participation in a public stewardship program.

III.B INTENDED USES OF THE EIR

An EIR is an informational document that is intended to inform the public and the decision makers of the environmental consequences of a proposed project and to present mitigation measures and feasible alternatives to avoid or reduce the adverse environmental effects of that project. This EIR examines the potential significant physical environmental impacts that could result from implementation of the proposed project. This EIR is both a program and project EIR, in that it analyzes some portions of the SNRAMP at a programmatic level and some portions at a project-specific level. Because the specific details of the programmatic projects, as defined in Section III.E, are not known, those projects are analyzed at the program level; once individual programmatic projects are proposed and specific details are available, additional environmental review will be conducted, as appropriate. There is sufficient detail for project-level analysis of the routine

maintenance activities, defined in Section III.E, and the Laguna Salada habitat restoration activities proposed at Sharp Park, as detailed in Section III.F.23.

Before any discretionary project approvals may be granted for the project, the Planning Commission must certify the EIR as adequate, accurate, and complete. This Draft EIR will undergo a public review period, during which time the Planning Commission will hold a public hearing on the Draft EIR. Prior to the Planning Commission hearing, the Historic Preservation Commission will have an opportunity to review and provide written comments to the Planning Commission on the adequacy of the Draft EIR at a duly noticed public hearing. Following the close of the public comment period, EP will prepare and publish a Comments and Responses document containing a summary of all substantive comments received that raise environmental issues and EP's responses to those comments. The Comments and Responses document may also contain specific changes to the Draft EIR text. The Draft EIR, together with the Comments and Responses document, including revisions to the Draft EIR, if any, will be considered by the Planning Commission in a public meeting and presented to the Planning Commission for certification. No approvals or permits may be issued before certification of the EIR.

Following certification of the EIR, the Recreation and Park Commission would consider the final SNRAMP for approval and would adopt CEQA findings for the project. If the SNRAMP is approved, the SFRPD would then implement the SNRAMP in compliance with the Mitigation Monitoring and Reporting Program.

In addition to compliance with CEQA, the SFRPD anticipates that the proposed project will be subject to additional compliance and permitting requirements administered by various federal, state, and local resource agencies. These potentially required regulatory approvals are presented in Table 3.

Table 3
Potentially Required Regulatory Approvals

Agency	Permit/Approval	Applicable Natural Areas
US Fish and Wildlife Service (USFWS)	<ul style="list-style-type: none"> • Incidental take authorization in accordance with the Endangered Species Act (ESA) • Review for compliance with the Migratory Bird Treaty Act (MBTA) 	<ul style="list-style-type: none"> • Bayview Park, India Basin Shoreline Park, Lake Merced, Sharp Park, Twin Peaks • All
US Army Corps of Engineers (USACE)	<ul style="list-style-type: none"> • Permit under Section 404 of the Clean Water Act, which regulates wetlands and other Waters of the United States 	<ul style="list-style-type: none"> • Sharp Park, Lake Merced, Glen Canyon and O'Shaughnessy Hollow, Bayview Park
California Department of Fish and Game (CDFG)	<ul style="list-style-type: none"> • Take authorization in accordance with the California Endangered Species Act (CESA) • Lake or streambed alteration agreement under Section 1602 of the California Fish and Game Code 	<ul style="list-style-type: none"> • Lake Merced, Sharp Park • Glen Canyon Park and O'Shaughnessy Hollow, Lake Merced, Pine Lake, Sharp Park
California Coastal Commission	<ul style="list-style-type: none"> • Coastal development permit, in accordance with the California Coastal Act 	<ul style="list-style-type: none"> • Sharp Park
San Francisco Bay Regional Water Quality Control Board (SFBRWQCB)	<ul style="list-style-type: none"> • Water quality certification under Section 401 of the Clean Water Act 	<ul style="list-style-type: none"> • Sharp Park
State Water Quality Control Board (SWQCB)	<ul style="list-style-type: none"> • National Pollutant Discharge Elimination System general construction activity permit under Section 402 of the Clean Water Act 	<ul style="list-style-type: none"> • All
Bay Conservation and Development Commission	<ul style="list-style-type: none"> • Permit in accordance with the McAteer-Petris Act and the California Coastal Act 	<ul style="list-style-type: none"> • India Basin Shoreline Park
City and County of San Francisco	<ul style="list-style-type: none"> • Coastal development permit, in accordance with the California Coastal Act 	<ul style="list-style-type: none"> • Balboa and Lake Merced
City of Pacifica Local Coastal Land Use Program	<ul style="list-style-type: none"> • Coastal development permit, in accordance with the California Coastal Act 	<ul style="list-style-type: none"> • Sharp Park (west of Highway 1 and outside the Laguna Salada wetland complex)

III.C PROJECT OBJECTIVES

The SNRAMP identifies a number of objectives and goals of the Natural Areas Program on pages 1-3 to 1-4 and 2-1 and 2-2 of the plan. While these objectives and goals guided the content of the SNRAMP itself, CEQA requires that an EIR identify the objectives sought by implementing the proposed project. For purposes of CEQA, the project objectives are as follows:

- To identify issues and impacts adversely affecting ecosystem functions and biological diversity;
- To identify, prioritize, and implement restoration and management actions designed to promote the functioning of San Francisco's native¹ ecosystem, including the maintenance and enhancement of native biodiversity;
- To identify and prioritize monitoring of natural resources to support an adaptive management² approach;
- To provide guidelines for passive recreation³ compatible with San Francisco's natural resources;
- To provide guidelines for education, research, and stewardship programs; and
- To restore the Laguna Salada wetland complex for the benefit of special status species.

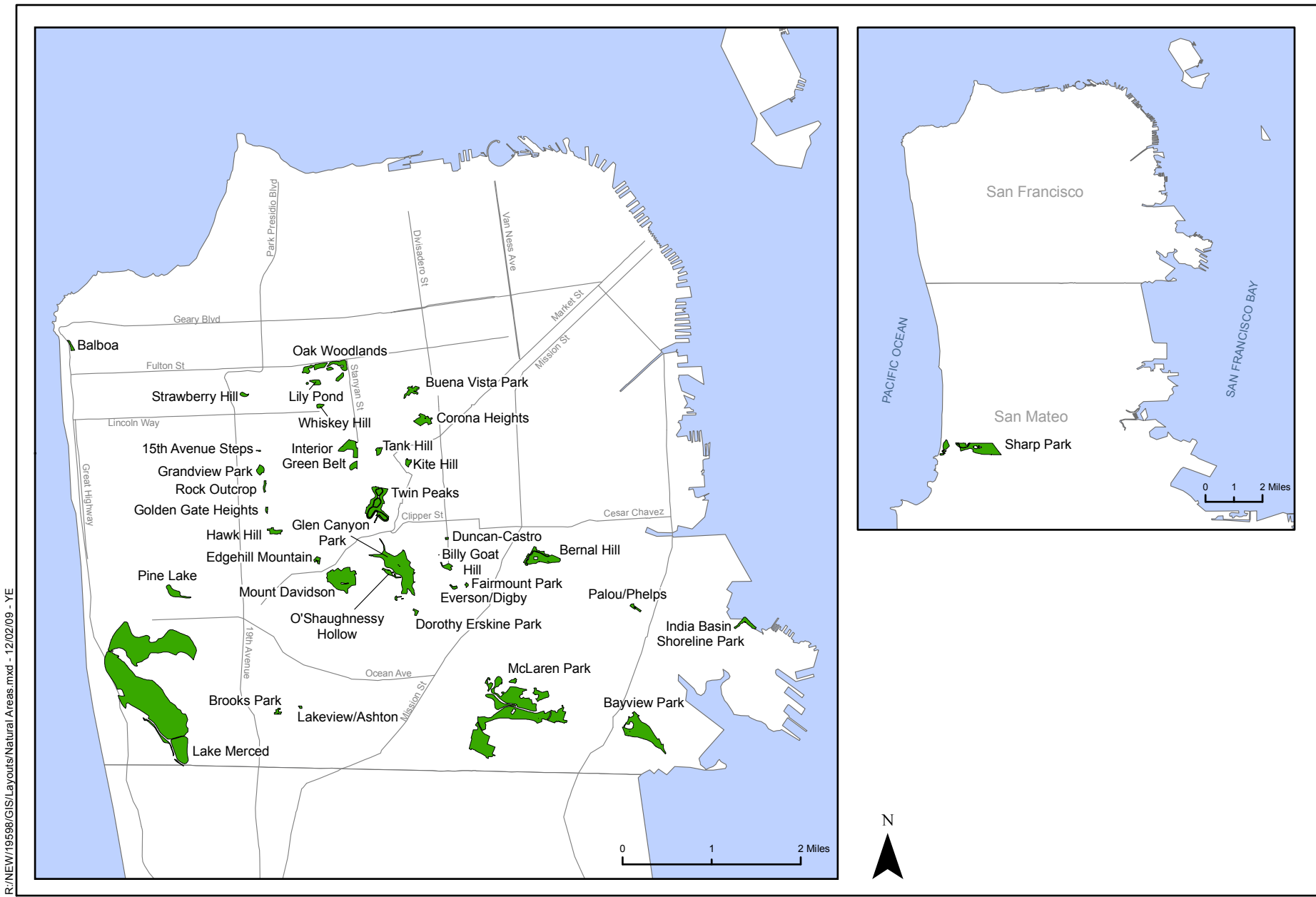
III.D PROJECT LOCATION

The 32 Natural Areas are scattered mostly throughout the central and southern portions of San Francisco and constitute approximately four percent of the total city area; one Natural Area is in Pacifica. The areas range in size from less than one acre to almost 400 acres and include such popular locations as Twin Peaks and portions of Glen Canyon Park. Many of these areas support sensitive plant and animal species and habitats. Most are used as recreational open spaces by residents and visitors. While mostly owned by the SFRPD, some Natural Areas are managed by other public and private entities; for properties that the SFRPD does not own and manage, management agreements are in place to guide activities at some of those Natural Areas. The SNRAMP will guide activities on properties owned or maintained by the SFRPD through its Natural Areas Program. Figure 1 is an overview map of the Natural Areas.

¹ Native—Grown, produced, or originating from a particular geographic area.

² Adaptive management—A flexible, learning-based approach to managing complex ecosystems.

³ Passive recreation—Recreation that occurs in a natural setting and that requires minimal site development or facilities. Under passive recreation, the importance of the environment or setting for the activities is greater than in developed or active recreation settings.



R:\NEW\19598\GIS\Layouts\Natural Areas.mxd - 12/02/09 - YE

The 32 Natural Areas total approximately 1,107 acres and range in size from 0.3 acres (15th Avenue Steps) to 395 acres (Lake Merced).

Natural Area
 — Roadway

Natural Areas

Detailed maps of each Natural Area depicting the designated management areas described below can be found in Appendix B.

III.E PROJECT OVERVIEW

The *Significant Natural Resource Areas Management Plan, Final Draft* (SFRPD 2006) is incorporated by reference into this description of the project. During the development of this EIR, the SFRPD has modified management activities to address evolving management concerns and changes in conditions at the Natural Areas; these modifications are summarized in Section III.G; a memorandum documenting these modifications will be appended to the final draft SNRAMP and is included in Appendix J. The final SNRAMP will also incorporate the mitigation measures identified in this EIR.

As envisioned, the SNRAMP will provide the framework for long-term management of the Natural Areas. One goal is to provide resource managers with a framework that can be used for the next 20 years. During this period, restoration actions will be taken within the framework of an evolving urban fabric, and monitoring will determine the success of those actions and influence future actions. The SNRAMP outlines both routine maintenance and programmatic projects within the Natural Areas.

III.E.1 Objectives and Goals of the SNRAMP

Section III.C lists the CEQA objectives of the proposed project. The SNRAMP, however, identified a number of additional goals and objectives. The objectives of the SNRAMP are as follows:

- To inventory biological resources in Natural Areas, which will inform planning, restoration, and management;
- To develop a geographic information system database containing baseline information for each of the Natural Areas;
- To identify issues and impacts adversely affecting ecosystem functions and biological diversity;
- To identify and prioritize restoration and management actions designed to promote the functioning of San Francisco's native ecosystem, including the maintenance of native biodiversity;
- To identify and prioritize monitoring of natural resources to support an adaptive management approach;

- To provide guidelines for passive recreation that is compatible with San Francisco's natural resources; and
- To provide guidelines for education, research, and stewardship.

Summarized below are the goals of the SNRAMP.

Conservation and Restoration Goals

- To identify natural resources;
- To maintain viable populations of all special status species;⁴
- To maintain and enhance native plant and animal communities;
- To maintain and enhance local biodiversity;
- To reestablish native community diversity, structure, and ecosystem function where degraded;
- To improve Natural Area connectivity; and
- To decrease the extent of invasive exotic species.

Education Goals

- To provide services that will enable all age groups to better understand the values of the Natural Areas, including ecosystem functions and socioeconomic values;
- To provide learning opportunities to students in the San Francisco Unified School District; and
- To provide diverse outdoor classroom opportunities.

Research Goals

- To provide a research framework and research opportunities to schools and universities that will lead to an enhanced understanding of the natural systems and an informed adaptive management approach;
- To contribute to the scientific understanding of local natural systems; and

⁴ Special status species—Species that are accorded special status because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection in federal or state endangered species legislation. Others have been designated sensitive species or species of special concern on the basis of adopted policies of federal, state, or local resource agencies or conservation groups (e.g., the California Native Plant Society, Audubon Society, etc). These species are referred to collectively as special status species.

- To contribute to the field of restoration ecology and other applied sciences.

Stewardship Goals

- To develop and support opportunities for public stewardship of Natural Areas;
- To foster neighborhood stewardship and volunteer groups; and
- To provide diverse opportunities for participation by stewardship groups.

Recreation Goals

- To provide opportunities for passive recreation, such as hiking and nature observation, that are compatible with conservation and restoration goals; and
- To improve and develop a recreation trail system that provides the greatest amount of accessibility while protecting natural resources.

Monitoring Goals

- To establish a long-term monitoring program to:
 - Identify the species on which monitoring should focus;
 - Detect increases and declines in abundance, distribution, or health of special status species;
 - Detect significant changes in acreage of native communities, wildlife habitats, and invasive species;
 - Detect significant increases and declines in native species richness;
 - Assess success of restoration in achieving conservation and restoration goals; and
 - Provide an adaptive management framework for evaluating changes (e.g., conceptual model).

Design and Aesthetic Goals

- Where possible, to develop aesthetically pleasing landscapes that are consistent with surrounding landscapes and that create natural transitions, especially where adjacent parklands and traditionally landscaped areas abut Natural Areas;

- To maintain and develop viewpoints and viewsheds⁵ to enhance park experiences; and
- Where possible, to design and maintain landscapes to discourage the accumulation of trash and illegal encampments.

Safety Goal

- To design and maintain landscapes that promote public safety.

III.E.2 Description of the Management Areas

The management areas (MAs) addressed in the SNRAMP represent differing levels of sensitivity, species presence, and habitat complexity within the 32 Natural Areas. Three levels of MAs have been defined as MA-1, MA-2 and MA-3, and the acreage of each Natural Area is divided among these three categories. MA-1, MA-2, and MA-3 areas make up approximately 18, 39, and 43 percent of the total Natural Areas, respectively. In general, MA-1 areas are the most biologically rich and represent the priority areas for conservation and management activities, where management actions provide the greatest conservation benefit. MA-2 areas are the next most important conservation areas and offer the greatest opportunity for habitat restoration. MA-3 areas are the least biologically sensitive areas, yet offer unique opportunities for conservation and enhancement. As additional resources become available, management activities may shift to MA-2 or MA-3 areas. Individual maps of the Natural Areas showing the designated management areas and proposed actions within those management areas are included in Appendix B.

Portions of Natural Areas designated MA-1 are those that:

- Support listed species or special status species;
- Provide habitat for a significant number of sensitive species of plants or animals;
- Contain a relatively high portion of native plants or plant richness;
- Contain unique remnant native vegetation (such as native grasslands or wetlands⁶);
- Contain habitats or species most likely to be impacted by human use;
- May support vegetation assemblages of limited distribution (locally or regionally); or
- Contain erosion-prone areas.

⁵ Viewshed—The landscape that can be directly seen under favorable atmospheric conditions, from a viewpoint or along a transportation corridor.

⁶ Wetland—A zone periodically or continuously submerged or having high soil moisture, which has aquatic or riparian vegetation components and is maintained by water supplies significantly in excess of those otherwise available through local precipitation.

Management actions within areas designated MA-1 may include:

- The most focused restoration work, possibly to the degree of manipulating individual plants and vegetation series;
- Reintroduction of sensitive species;
- Tree removal in conformance with forestry statements (Appendix F of the SNRAMP);
- Implementation of erosion-control measures as problems arise, including the closure of informal and social trails;⁷ and
- Prohibition of planting nonnative⁸ species.

Areas designated MA-2 areas are comparatively more resilient to human disturbance than MA-1 areas, and their criteria for designation include:

- Important habitats, such as coastal scrub, wetlands, native grasslands;
- Remnant native vegetation of otherwise widespread plant communities, such as coyote brush, scrub, blackberry scrub;
- Habitats or species moderately susceptible to human impact;
- Habitat for local native wildlife species, such as resident and migratory bird species;
- Native vegetation with some nonnative elements; or
- Buffer areas for MA-1s.

Management actions within areas designated as MA-2 may include the following:

- Management focused on maintaining native plant communities;
- Reintroduction of sensitive plants;
- Tree removal that is limited to a prescribed number of acres or trees in compliance with forestry statements (Appendix F of the SNRAMP);
- Implementation of erosion control measures as problems arise, including closing informal and social trails; and
- Prohibition on planting nonnative species.

⁷ Social trail—An undesignated user-developed pathway through a Natural Area.

⁸ Nonnative—Not originating from the current geographic area.

The remaining lands within the Natural Areas are those designated as MA-3, which are the least sensitive. Specific criteria for areas to be designated MA-3 include:

- Absence (current or historic) of sensitive plants or animals but where there are some native plants and habitat for wildlife species;
- Predominance of nonnative vegetation that serves as a buffer for MA-1 and MA-2 areas from surrounding developed recreational and other land uses; or
- Unusual geological features.

Management actions within areas designated as MA-3 include:

- Activities to promote the health and diversity of urban forests⁹ and the wildlife habitat they provide;
- Prohibition on (re)introduction of sensitive species;
- Few restrictions on recreational use (subject to the standard park rules and codes); and
- Implementation of erosion control measures as problems arise, including the closure of informal and social trails.

Implementation of the SNRAMP would prioritize activities at MA-1 areas, then MA-2 areas, then MA-3 areas. Removal of vegetation would be followed by revegetation with species appropriate for that location.

III.E.3 Description of Natural Areas Program Management

The Natural Areas Program staff is composed of biologists, ecologists, and natural resource managers that conduct routine maintenance within the Natural Areas on a daily basis. The Natural Areas Program staff of approximately ten gardeners would continue to conduct the management actions at the Natural Areas. The Natural Areas Program also uses groups of volunteers that range in size from 10 to 50 people.

For larger projects, generally defined as programmatic projects in this EIR, the SFRPD Natural Areas Program or Capital Division staff would hire a contractor and would oversee the contractor's work to ensure that those projects are carried out in conformance with the Mitigation Monitoring and Reporting Program requirements established in this EIR. The Natural Areas Program staff would

⁹ Urban forest—A significant stand of nonindigenous trees.

require that the contractor provide a work plan addressing erosion control, species awareness and management, and other environmental considerations.

III.E.4 Adaptive Management Approach

The strategy for managing Natural Areas is based on adaptive management, which is a flexible learning-based approach to managing complex ecosystems. Adaptive management recognizes that some uncertainty exists about the nature of ecosystems and the organisms and processes that define them. Adaptive management, as applied to natural systems, involves a continuous cycle of systematically monitoring biodiversity and other ecosystem goals, and reassessing the plans, strategies and goals, methods, and questions that underlie the management approach. Land managers then use this information to evaluate successes and failures of management actions and to refine techniques and approaches. In this approach, adaptive management is executed in three phases. First, site-specific issues and recommendations are developed. Second, a plan based on these recommendations and on priorities assigned by the Natural Areas Program is implemented. Third, a monitoring program is implemented to evaluate the plan's site-specific success and, based on the information gathered, the implementation strategies, priorities, and methods are modified, as necessary.

III.E.5 Management Practices

Integrated Pest Management

Integrated Pest Management (IPM) is the use of multiple treatment methods to control undesirable weeds and other pests. While IPM has a range of meanings and is subject to various interpretations, the Natural Areas Program defines it as the optimal integration of management methods to control pests with the least possible hazard to people, property, and the environment. The Natural Areas Program uses a least toxic decision making model in its vegetation management. Although the IPM process has been formally adopted by many public and private organizations, it continues to evolve as management strategies are fine-tuned and innovative new pest control methods are found to be effective.

IPM is a multistep ecologically based approach that enables staff to make decisions about where, when, and how resources should be best allocated to control pests. Conventional pest control methods attempt to control the symptoms of a pest problem, but IPM is a proactive strategy that focuses on identifying and reducing, or eliminating, the root cause of a pest problem. IPM implements effective, long-term management solutions through the use of a broad range of expertise, a combination of treatment methods, and comprehensive monitoring and evaluation.

In accordance with Chapter 39 of the San Francisco Administrative Code, the Natural Areas Program employs IPM as its strategy for preventing new and managing existing pest infestations. Four general weed management strategies exist: prevention, containment, reduction, and eradication; each of these results in a different level of weed control and reflects available resources. The Natural Areas Program's policy is to use the least-toxic control methods whenever feasible and practical.

Factors that make manual and/or mechanical methods impractical include:

- Direct threats to human health and safety (e.g., steep, inaccessible, unstable slopes, significant poison oak infestations, etc.);
- Large infestations requiring ongoing repeated strenuous physical labor, such as picking and lifting, that may cause injury to staff, contract field crews, or volunteers; and
- Areas where access, human trampling, or soil disturbance may directly or indirectly damage native plant communities, affect wildlife, or cause soil erosion.

Management methods to be employed by the Natural Areas Program include:

- Physical control methods, which range from hand-pulling weeds to the use of hand and mechanical tools to uproot, girdle, or cut plants;
- Biological control, which involves revegetating cleared areas and introducing native plants in an area to encourage competition with weeds;
- Chemical control, which involves the use of herbicides to suppress wildland weeds; and
- Public education and outreach.

Only aquatic-specific herbicides (those determined safe for aquatic life) would be applied to wetlands and to areas next to water bodies.

Best Management Practices

The SNRAMPS identifies best management practices (BMPs) for erosion control, pathogen¹⁰ control, and West Nile virus.

¹⁰ Pathogen—A disease-causing agent, especially a living microorganism such as a bacterium or fungus.

Depending on site conditions, trails may or may not be created in previously inaccessible areas, as opposed to improving existing social trails. Trail placement would be designed to avoid sensitive vegetation and habitat to the extent possible. Trail alignments in the SNRAMP are conceptual and require further refinement and site-by-site evaluation to confirm the best alignment to provide access and minimize effects on surrounding natural resources. Natural Areas Program staff would avoid disturbing undeveloped portions of Natural Areas that are not planned for restoration or other management actions.

The Natural Areas Program gardeners would continue to carry fire extinguishers in their trucks and would use appropriate fire prevention and suppression measures for more extensive tree and shrub removal. The SFRPD would continue to hold regular meetings with the San Francisco Fire Department and would coordinate management activities, such as tree removal, with that department.

Tree Removal and Replacement. Invasive trees removed in San Francisco would be replaced with native tree species at a ratio of roughly one-to-one, although not necessarily at the same location or within the same Natural Area. The SFRPD would take into consideration the views from Natural Areas when locations are being selected for new trees; locations of replacement trees in San Francisco Natural Areas would be selected to preserve views from important points. Tree removal and other activities conducted at the edges of Natural Areas may require temporary closure of sidewalks and roads. For Sharp Park in Pacifica, many of the trees would be replaced not with trees but with more appropriate native vegetation, specifically coastal scrub. Tree removal is discussed in detail in Appendix F of the SNRAMP. For accounting purposes, the SNRAMP defines a tree as any plant having a dominant vertical trunk that is over 15 feet tall; tree species less than 15 feet tall are considered seedlings or saplings in the SNRAMP. Natural Areas Program staff could remove trees that have a diameter at breast height¹¹ (dbh) of six inches or less; Natural Areas Program staff would coordinate with the SFRPD arborist, who would evaluate the removal of larger trees. Tree work would generally be limited to the nonbreeding season for bird species. Where tree work is required during the breeding season, surveys would be conducted before tree removal to determine the presence or absence of breeding birds, in accordance with General Recommendation GR-4b (see page 109). Typically, trees would be removed limb-by-limb, rather than felling an entire tree; limb-by-limb removal techniques would always be applied in areas adjacent to other trees or sensitive habitat unless this technique is not feasible or practical from a safety perspective. Minimally

¹¹ Diameter at breast height—A standard means of tree measurement, with the diameter of the trunk measured at breast height, defined as 4.5 feet above the forest floor on the uphill side of the tree.

impacting tree removal techniques would be employed and would involve removing the individual limbs of a tree, then cutting the trunk into individual sections. Tree removal would be conducted manually by someone climbing the tree or someone on a mechanical cherry picker next to the tree. If tree removal occurs in an area that is roadway-accessible, the limbs and trunk sections typically would be transported from the area by a flatbed truck; in other areas, the limbs and trunk sections would be left in place on the ground. Tree removal would leave the tree stump and root ball intact to hold the soil and minimize subsurface disturbance; stumps may be ground to below grade where necessary to avoid tripping hazards. The SFRPD would spread tree removal across targeted portions of Natural Areas and would not concentrate it in a particular location. Larger-scale tree removal (that exceeds half an acre or on average more than 20 trees), identified and analyzed as long-term programmatic projects in this EIR, would remove trees within urban forests (MA-2 and MA-3) over time and not simultaneously in one portion of a Natural Area. The SFRPD's Tree Removal Procedures require that all trees designated for removal be posted at least 30 days before removal. The public is invited to comment about the proposed removal, and the SFRPD may or may not modify its plans based on public input.

Implementing the SNRAMP would involve thinning both individual trees and small clusters of trees. In most cases, some trees within the area would be left, and the surrounding forest would remain intact. Removal of other vegetation in MA-1 areas would primarily affect individual plants within roughly half-acre plots.

Erosion Control. The erosion control BMPs applicable and appropriate to managing the Natural Areas include the following:

- Straw mulch—This method can be applied quickly in areas where long-term erosion protection is not required;
- Rolled erosion control products—These materials are supplied in rolls and are used to protect exposed soil areas from water and wind erosion;
- Wood mulch—This material is typically broadcast by hand onto exposed soil to prevent wind and water erosion;
- Silt fences—This method involves staking a permeable geotextile fabric along the contours of a slope. The bottom of the silt fence is typically trenched into the soil, allowing the fence to intercept and reduce the velocity of sediment-laden sheet flow;

- Fiber rolls—These roll materials are shaped into tubes that can be placed along the contour of a slope to intercept sediment-laden sheet flow and can also be placed around storm drain inlets; and
- Straw bales—These can be applied in much the same way as the fiber rolls, but they are taller and sturdier.

Pathogen Control. The SNRAM identified the following BMPs to control the spread of pathogens from one area to another. For work conducted in a known site of sudden oak death infestation, tools should be cleaned and disinfected after use on infected trees and should be sanitized before use on healthy trees. Generally, to prevent the spread of aquatic pathogens, dirt and debris should be removed from equipment, and the equipment should be disinfected.

West Nile Virus. To control the spread of this mosquito-borne disease, the following BMPs are recommended:

- Educate staff about the most effective ways to avoid being bitten by mosquitoes;
- Remove small water features that contain standing water or treat those features with BT (*Bacillus thuringiensis israelensis*), a biological control agent for mosquito larvae, if the features are to remain and Public Health Services identifies a potential health hazard; and
- Encourage staff to drain any standing water that is caused by stored equipment or by temporary depressions.

III.E.6 Monitoring Plan

Monitoring activities will be designed within the conceptual framework to address the following questions:

- What is the population status of selected special status species? Where are these populations located? What are the growth trends for each of these populations and for the species as a whole within the Natural Areas?
- How successful are restoration and enhancement projects in terms of project goals? What are the best ways to measure success criteria? How do selected management activities, including restoration and conservation projects, affect the diversity and abundance of native species in relation to the diversity and abundance of invasive species within the project areas?

The following standardized protocols have been developed to address those questions:

Monitoring Populations of Special Status Species

- Monitoring special status plant species
 - Locate populations,
 - Map populations,
 - Estimate population/cover, and
 - Assess population/cover change.
- Monitoring Special Status Wildlife Species
 - Locate populations, and
 - Assess population change.

Measuring the Success of Restoration and Conservation Programs

- Qualitative methods for assessing project success
 - Timing of photo-monitoring, and
 - Location of photo-monitoring.
- Quantitative Methods for Assessing Project Success
 - Map project area,
 - Randomize samples,
 - Conduct point intercept sampling, and
 - Record and analyze.
- Tracking changes in avian and butterfly diversity and abundance
 - Qualitative methods for avian species monitoring,
 - Quantitative methods for avian species monitoring,
 - Qualitative methods for monitoring butterfly species, and
 - Quantitative methods for monitoring butterfly species.

A monitoring program can be successful only if it is applied uniformly and consistently. Once a monitoring effort has begun, the methods for collecting data must continue in the manner that they were initially implemented, or the data will not be comparable over time and between sites.

Therefore, the protocols associated with the SNRAMP monitoring plan should not be altered in any significant way.

III.F ACTIVITIES COVERED IN THIS EIR

The activities planned for the Natural Areas can generally be divided between routine maintenance and programmatic projects, as described below. In this EIR, routine maintenance is addressed at a project level, while the programmatic projects are addressed programmatically; programmatic projects would undergo additional environmental review, as appropriate, at the time they are proposed. This EIR also analyzes the Sharp Park restoration at the project-level.

III.F.1 Program-Level Activities

Programmatic projects would include the following:

- Rerouting or constructing trails, using heavy equipment (such as bobcats, backhoes, and excavators) at a typical grading depth of two feet. This activity is typically conducted by contractors.
- Stabilizing hillsides, using erosion control measures that require heavy equipment and grading and possible installation of structures, such as gabions. This activity is typically conducted by contractors.
- Undertaking initial invasive weed or tree removal projects that typically exceed half an acre (or on average 20 trees) at any one time. Trees will be removed manually and limb-by-limb, as described previously. This activity can be conducted by contractors or SFRPD staff.

While the SNRAMP may identify additional types of programmatic projects, the environmental effects of those projects are anticipated to be similar to or less than the above categories of program-level projects.

III.F.2 Project-Level Activities

Routine Maintenance

Routine maintenance would include the following:

- Removing invasive weeds by hand, either as follow-up on a previously treated site or as initial treatment in small areas (less than half an acre). This activity mostly involves the use of hand tools and volunteers, with some use of power equipment by SFRPD staff, such as

brush blades or chainsaws. Ground disturbance from this activity is typically within the top inch or so of ground around the root zone.

- Installing plants using hand tools and plants in one-gallon containers or smaller. In addition to planting, volunteers also may assist Natural Areas Program staff with installation of erosion control materials, including coir rolls, straw bales, wattles, jute netting, and straw matting. These materials are installed with pins or two- to three-foot-long wooden stakes. This activity typically disturbs up to 12 inches of surface soil.
- Removing invasive trees (mostly eucalyptus), as well as overhanging tree limbs. This activity typically occurs in places where trees are expanding into or threatening a native habitat or presenting a safety concern. Following removal, stumps are left in place, resulting in little, if any, ground disturbance. Typically, no more than 20 trees (or half an acre) are treated at one time. This removal covers saplings and any tree over 15 feet high. Trees over six inches dbh are typically removed by tree crews at a rate of one to a few trees at a time. Trees will be removed manually and limb-by-limb, as described above.
- Maintaining trails, which includes clearing deposited soil from steps, replacing or installing steps or trail edging, and rerouting and benching trails. Ground disturbance for this activity is usually six inches or less.
- Maintaining catchment basins and sediment dams through hand removal of accumulated materials.

Sharp Park Restoration

As part of the Sharp Park restoration activities, the following measures from the SNRAMP would be implemented. The full set of Sharp Park SNRAMP measures are presented in Section III.I.23 and include additional measures that may fall under either programmatic projects or routine maintenance.

- SP-4a—Implement improvements to protect and enhance the habitat for the California red-legged frog and San Francisco garter snake at Laguna Salada, including the following:
 - Create upland mounds for foraging, resting, and escape cover for the California red-legged frog and the San Francisco garter snake;
 - Dredge excess sediments and accumulated organic matter, including stands of encroaching tules, to maintain open water and fringe habitat in the wetlands complex

- and use appropriate dredged material on site to create or enhance upland habitat or to increase the elevation of certain golf course fairways;
- Continue monitoring for California red-legged frogs and San Francisco garter snakes; and
 - Install and maintain signs and barriers to prevent disturbance of sensitive habitat in Horse Stable Pond and Laguna Salada by dogs or other possible nuisances.
 - SP-4b—Construct upland mounds in the area directly south and southeast of Laguna Salada and plant with native grasses and herbs to provide snake and frog basking sites, and to provide nesting habitat for riparian birds; and
 - SP-9b—Establish a vegetation management plan for the canal connecting Laguna Salada and Horse Stable Pond that would allow channel maintenance without affecting the forktail damselfly, California red-legged frog, or San Francisco garter snake.

The improvements to protect and enhance the California red-legged frog and San Francisco garter snake at Laguna Salada under measure SP-4a are focused on restoring the marsh complex and associated uplands. These restoration activities are intended to establish conditions that more resemble previous conditions and allow for thriving populations of these listed species. Figure 2 shows the restoration project footprint and the current vegetation communities, and Figure 3 shows the conceptual plan for restoring these areas. The goals of the Sharp Park restoration are to restore and enhance the wetland and upland habitat for the benefit of the San Francisco garter snake and California red-legged frog, which will contribute to the recovery of these species, and to reduce the potential recurrence of the conditions that negatively affect the wetland complex and habitat for these species, including sedimentation, eutrophication¹² due to the accumulation of dead and decaying vegetation, and loss of open water habitat due to accumulation of sediment and the proliferation of encroaching plant species. Although the primary restoration features discussed in this section are not likely to change, some modification may occur during consultation with the USFWS and/or CDFG pursuant to the state and federal Endangered Species Acts and during other regulatory approval processes. The main components of the restoration to achieve recovery of the California red-legged frog and San Francisco garter snake populations are as follows:

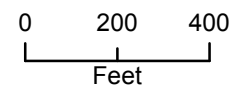
¹² Eutrophication—The process by which a body of water becomes enriched in dissolved nutrients that stimulate the growth of aquatic plant life resulting in the depletion of dissolved oxygen.

- Dredging up to 60,000 cubic yards of material to remove sediment, encroaching plant species, and decaying vegetation in Laguna Salada, Horse Stable Pond, and the channel that connects the two water bodies, resulting in the conversion of freshwater marsh, willow scrub, and wet meadow wetland habitat to open water habitat;
- Recontouring freshwater marsh wetland and ruderal (disturbed) habitat along the Laguna Salada, Horse Stable Pond, and channel shorelines to create shallow water wetland habitat;
- Creating an upland and wetland habitat corridor between Horse Stable Pond and Laguna Salada;
- Converting about half an acre of wet meadow/freshwater marsh wetland to upland habitat, creating an upland refuge in the middle of Laguna Salada to provide snakes and frogs with refugia from feral cats and other terrestrial predators, and creating about an acre of replacement wetland along the northern and western edges of the lagoon in place of coastal scrub habitat; and
- Constructing up to four acres of upland mounds on landscaped grass on the east side of the lagoon and between Laguna Salada and Horse Stable Pond. These mounds would be placed in the area currently occupied by part of the Hole 13 fairway, which would be narrowed and reconfigured.

Some areas that are currently open water within Laguna Salada and Horse Stable Pond would be deepened by one to three feet, and parts of the eastern portions of the lagoon and pond shorelines, as well as the connector channel, would be excavated to restore open water habitat and to ensure that ample edge habitat consisting of open water/emergent vegetation interface would persist for the foreseeable future. Excavation of accumulated sediments and encroaching wetland plants would result in the conversion of vegetated wetlands to open water habitat. This deepening would be conducted using excavating equipment positioned along the shore of the two water bodies. Up to 60,000 cubic yards of material would be excavated; of this, approximately 40,000 cubic yards would be used on-site and approximately 20,000 cubic yards would be stockpiled or spread at the Sharp Park rifle range site or disposed of at the Sharp Park organic dump. Excavated dredge spoils appropriate for use as golf course substrate materials would be used on-site to raise the elevation of Holes 10, 14, 15, and 18 and to create the upland habitat on the east edge of Laguna Salada. Prior to on-site use of dredged material, the sediments to be removed as part of the wetland restoration project would be tested for elevated concentrations of sulfides and other characteristics to determine whether the sediments would serve as soils suitable for supporting desired vegetation. If the



R:\NEW\19598\Layouts\Laguna Salada Restoration Footprint.mxd 08/01/11 - YE



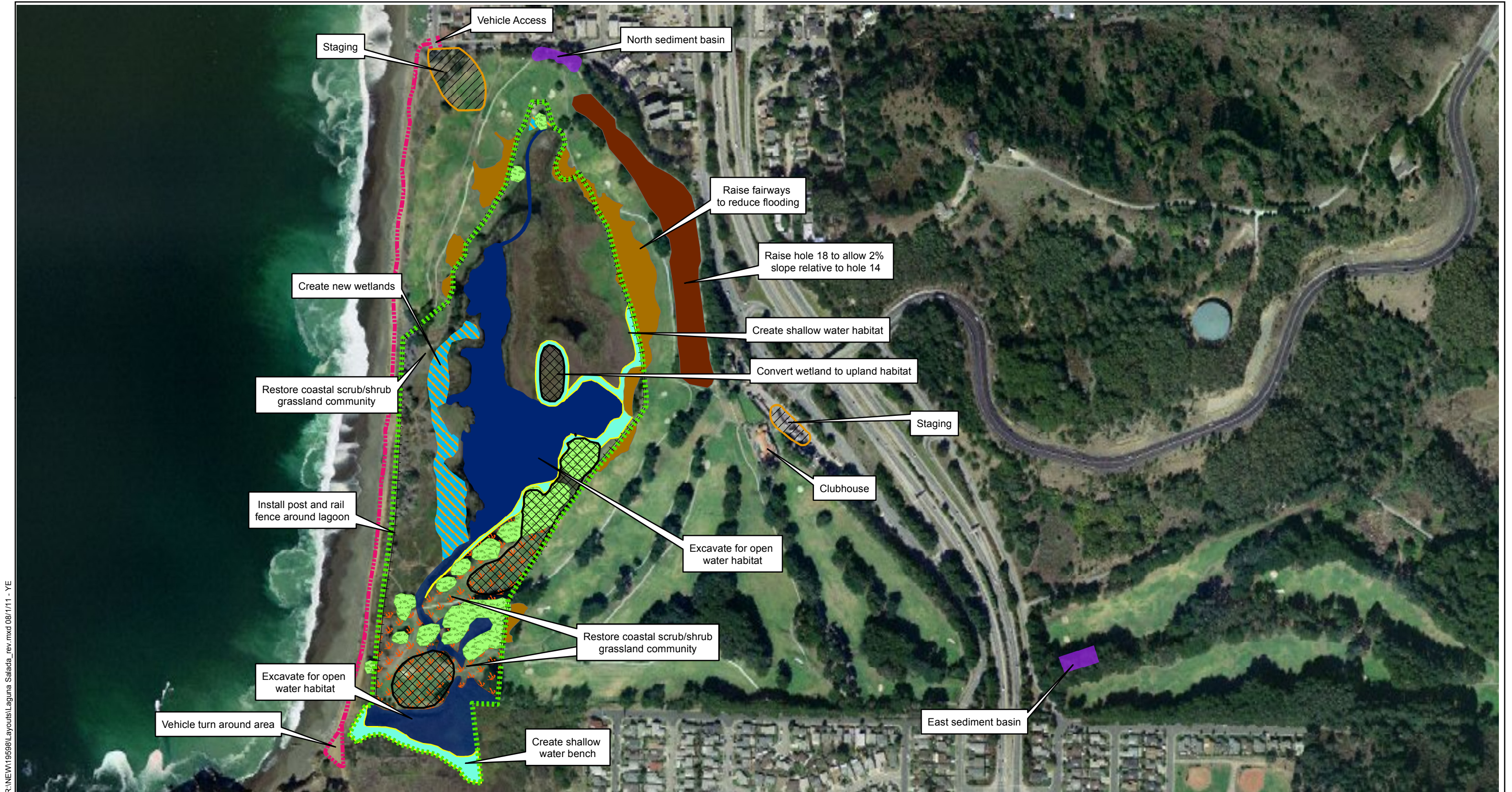
- | | |
|-----------------------------------|-----------------------------|
| Restoration Footprint | Wet Meadow |
| Vehicle Access | Willow Scrub |
| Golf Course | Unvegetated Pond/Open Water |
| Coastal Scrub | Freshwater Marsh |
| Vegetated Upland | Paved |
| Ruderal and Monterey Pine Habitat | |

Laguna Salada Restoration Footprint

Pacifica, California



Figure 2



R:\NEW\19598\Layouts\Laguna Salada_rev.mxd 08/11/11 - YE

Laguna Salada Restoration Features

Pacifica, California

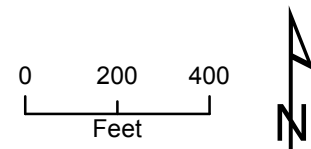


Figure 3

sediment proves unsuitable, it would be placed in a nonsensitive location or treated to render it capable of supporting the desired vegetation. Treatment may include spreading and mixing the dredged material with native soil to avoid concentrating acidic soils or adding lime to neutralize acidic soils. Excavation of the eastern portions of the lagoon, pond and the connector shoreline would convert up to six acres of freshwater marsh, willow scrub, and wet meadow wetland habitat to open water habitat.

To facilitate deepening of Laguna Salada, Horse Stable Pond, and the channel that connects them, as well as removal of encroaching bulrushes and tules, the water levels would be lowered temporarily to allow equipment to access the shoreline for removal of accumulated vegetation and sediments. This would be accomplished by operating the pumps at Horse Stable Pond to draw water through the wetland complex and out to the Pacific Ocean. It is anticipated that the water level in the wetland complex would be lowered from an approximate elevation of 7.5 feet above mean sea level (msl) to an elevation of approximately 4.5 feet msl, a decrease of 3 feet. Following lowering of the water levels, a qualified USFWS-approved biologist would survey the entire project area for California red-legged frogs and San Francisco garter snakes. If individuals are found during the survey, the biologist would relocate them to appropriate aquatic habitat, such as that near Mori Point, located south of Horse Stable Pond (or other suitable location as agreed to as part of consultation with the USFWS and/or CDFG); these activities would be conducted in coordination with the USFWS and CDFG.

An upland and wetland habitat corridor between the lagoon and the pond would be constructed with upland features designed to support the San Francisco garter snake; this action would necessitate permanently closing Hole 12 of the Sharp Park Golf Course. Sediment basins would be installed in two locations, one where Sanchez Creek enters a culvert to pass under Highway 1 and the other at the northern boundary of Sharp Park; the former sediment basin would be developed on about half an acre of the golf course (primarily upland Monterey pine habitat), and the latter sediment basin would be expanded onto about half an acre of ruderal and upland Monterey pine habitat. A post and rail fence would also be installed along the seawall to the west of the lagoon, with additional fencing around the wetland complex, to discourage human and pet intrusion into the restored habitat area.

Creating an upland refuge in the middle of the lagoon would require filling approximately half an acre of wet meadow and freshwater marsh wetlands. To compensate for this and other incidental loss of vegetated wetlands during construction, in-kind creation of approximately one acre of wetlands would occur in several upland locations around the northern and western edges of the

lagoon. The newly created wetlands would cover the same or a greater amount of area as the wetlands that would be converted to upland habitat.

During the restoration activities, temporary equipment staging and materials storage would occur at the northwest corner of Sharp Park, at or near Hole 17 of the golf course. Equipment access to the project area from the north would be from Clarendon Street, which runs along the north side of Sharp Park. Access to the southern part of the project area would be from the sea wall levee road and the dirt road near the Horse Stable Pond pump house. Following completion of each season's restoration activities (anticipated between May 1 and October 15), those staging and storage areas that are not permanently modified would be scarified, recontoured, and hydroseeded with native vegetation to approximate their pre-disturbance condition.

Creating, restoring, and enhancing California red-legged frog and San Francisco garter snake habitat at Laguna Salada would also involve a reconfiguration of some holes of Sharp Park Golf Course and converting a portion of the area currently occupied by the course to Natural Area. Approximately 13 acres of the golf course would be modified to create important upland habitat adjacent to the wetlands for the endangered San Francisco garter snake, to discourage frogs from depositing egg masses in locations where the resulting tadpoles may end up being stranded, and to allow for creation of new wetlands to compensate for those filled during restoration. In order to create a habitat corridor between Horse Stable Pond and Laguna Salada, Holes 10 and 13 would be slightly shortened or narrowed, and the existing Hole 12 would be permanently closed. The habitat corridor would cover approximately six acres, bringing the total of modified area at the golf course to about 19 acres.

To protect the frogs and snakes during restoration work, the SFRPD anticipates conducting the restoration activities between May 1 and October 15 and would continue to coordinate the planning and undertaking of those activities with the USFWS and CDFG; this activity period avoids the breeding season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows. The SFRPD would coordinate with the San Mateo County Mosquito and Vector Control District on the proposed changes to Laguna Salada to minimize the potential for development of mosquito breeding habitat.

While management options for the Sharp Park sea wall, including a naturally managed sea wall and shoreline, have been considered by the SFRPD, those options are not proposed as part of the SNRAMP. Thus, they are not addressed in this EIR.

Following completion of the restoration activities, the SFRPD would conduct maintenance to ensure the success of those activities. The scope of the maintenance is subject to modification during consultation with the USFWS pursuant to the ESA and through other regulatory approval processes. Maintenance would include weeding and maintaining the restored areas. Maintenance of the wetland areas may include removal of encroaching or invasive plant species and additional planting of wetland plant species. As needed, the SFRPD would also conduct small-scale dredging of accumulated sediments from the wetlands using a backhoe. Maintaining the sediment basins would involve the periodic removal of accumulated sediment. Needed surveys would be coordinated with the USFWS and CDFG to ensure compliance with endangered species laws and regulations (SFRPD 2009a). Wetland functionality would be assessed using ecologically based criteria to determine success of the project objectives.

Presented in Table 4 are the approximate areas of those habitat types that are present within the restoration project footprint; this footprint and these habitats are also illustrated in Figure 2. Habitats within the footprint are potentially subject to temporary disturbance during the restoration activities. Following completion of each season's restoration activities, the disturbed areas would be scarified, recontoured, and hydroseeded with native vegetation to approximate their pre-disturbance condition, as needed based on the level of disturbance. Also summarized in Table 4 are the approximate post-restoration areas of the restoration habitat types.

Table 4
Laguna Salada Habitat Types within Restoration Footprint

Type of Habitat	Existing Acreage*	Post-Restoration Acreage*
Landscaped Golf Course	30	11
Wetlands	23	17.5
Freshwater Marsh	19.5	14
Willow Scrub	1	0.5
Wet Meadow	2.5	3
Coastal Scrub	9	27.5
Open Water	4.5	10.5
Vegetated Upland	3	3
Ruderal and Monterey Pine	0.5	0.5

*The acreages within the Figure 2 restoration footprint have been rounded to the half acre

III.G CHANGES MADE TO THE SNRAMP SINCE PUBLICATION

When the San Francisco Recreation and Park Commission approved the SNRAMP for environmental analysis under CEQA, it passed the following two amendments:

- MA-3 areas would be maintained by the SFRPD Urban Forestry staff and may be reforested with native or nonnative species. Weed and brush removal and erosion control in MA-3 areas would be undertaken in accordance with the SNRAMP.
- Where appropriate in the SNRAMP, feral cat relocation would be implemented only on a determination by the San Francisco Recreation and Park Commission that other methods of population reduction failed to adequately reduce cat populations in the Natural Areas.

During the CEQA review process, changes have been made to the activities proposed under the SNRAMP for one or more of the following reasons:

- The activity was determined to be infeasible;
- The activity has been completed under separate environmental review;
- The activity was incorrectly described;
- The activity has been re-assessed as contrary to policy; and
- Additional details and specificity have been developed for the activity.

During the CEQA review process, the following changes have been made to the SNRAMP (additional detail on these changes is provided in Appendix J):

- While General Recommendation GR-3b of the SNRAMP mentions prescribed burning, no burning is proposed;
- While General Recommendation GR-8b of the SNRAMP mentions consideration of new dog play areas (DPAs), no new DPAs are proposed as part of the project, due to the current moratorium on new DPAs;¹³

¹³ There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

- While Recommendation VP-8a of the SNRAMP mentions modifying the Key Avenue roadway, some of those modifications have been completed and are not proposed as part of the project;
- While Recommendation LM-7a of the SNRAMP mentions relocating a DPA at Lake Merced, no relocation of DPAs is proposed as part of the project, in compliance with the current moratorium on new DPAs;
- While Recommendation LM-8b of the SNRAMP mentions development of an environmental education center at Lake Merced, no such center is proposed;
- While Recommendation SP-12a of the SNRAMP mentions cleanup and remediation of the former rifle range at Sharp Park, those activities are not proposed as part of the project. Remediation of the rifle range is complete and the CEQA lead agency for this project is the California Department of Toxic Substances Control;
- Additional details were developed for the SNRAMP BMPs, the program-level activities and routine maintenance activities proposed under the SNRAMP;
- For General Recommendation GR-4b, the bird breeding season was changed from April to September 1 to February 1 to August 31;
- For General Recommendation GR-15c, the following language was added to the end of the description: “retain snags and dead branches on live trees, unless they are a hazard to public safety or contain significant harmful insect or disease infestations;”
- For Recommendation VP-7b, the following text was added: “(note that this new entryway may not be feasible given the steepness of the slopes);”
- For Recommendation CH-1e, the following text was added: “(note that a portion of these trees on the north side of Corona Heights were removed in August 2010 because they were determined to be hazardous);”
- For Recommendation DP-1b, the number of existing eucalyptus trees was changed from 120 to 100;
- For Recommendations DP-2a, GC/OH-4a, and LM-3a the text was changed so that tree removal is prohibited within 150 feet of an occupied bird nest, rather than within 500 feet;
- For Recommendation IG-2a, the following text was added: “(note that this work was completed in June 2011);”

- For Recommendation LM-3b, heron nesting areas were added to the list of areas that could require closure of social trails to reduce disturbance of such areas;
- For Sharp Park, the bulleted text under SP-4a was modified and deleted. Under SP-4c, language was added indicating that the goal is to ensure that red-legged frog egg masses remain hydrated. SP-4e, SP-6a, SP-6b, and SP-9c were deleted, and the remaining measures were re-labeled. SP-10a was modified to specify that the subject trenches are located north of Sharp Park Road. The discussion of recommended management actions were modified to add a detailed description of the Laguna Salada wetland complex restoration activities;
- The Everson/Digby Natural Area was added as the 32nd Natural Area in the Natural Areas Program;
- For General Recommendation GR-8a, Lake Merced was removed from the list of DPAs whose boundaries and locations would be retained;
- For Recommendation IB-1c, California seablite (*Suaeda californica*) was added to the list of plants whose populations should be augmented;
- Recommendation IG-2b was modified to clarify that only appropriate social trails would be formalized and inappropriate trails would be eliminated;
- For Recommendation MP-9b, monitoring was expanded to include the Geneva Avenue DPA;
- For Recommendation PL-1b, the phrase associated with the Pine Lake Park Improvement Project was removed, as that project has been completed;
- For Recommendation PL-7a, the number of dedicated access points to Pine Lake was changed from two to one;
- For Recommendation TK-2a, language was added indicating that installed vegetation would include oaks; and
- For Recommendation TP-3a, the following text was added: "Explore options with the San Francisco Municipal Transit Agency to convert a portion of Twin Peaks Boulevard to a multi-use trail."

III.H GENERAL RECOMMENDATIONS FOR ALL NATURAL AREAS

This section presents management recommendations common throughout the various Natural Areas. For use while reading this EIR, a fold-out list of the General Recommendations (GRs) is included at the end of this document. Site-specific recommendations are presented in Section III.I.

Invasive Plant Control and Revegetation

- GR-1a—Reduce invasive plant populations;
- GR-1b—Where native plant seed banks do not exist or have diminished, appropriate native species may be used for revegetation. Plant native species to approximate the diversity, cover, and density of adjacent habitats or of reference sites in similar habitats;
- GR-1c—Conduct restoration during the appropriate time of the year and at an appropriate scale to avoid impacts on wildlife and to minimize erosion;
- GR-1d—In areas where it may not be feasible to reduce large infestations of invasive vegetation immediately, conduct containment actions along the interface between native and nonnative habitats;
- GR-1e—Annually monitor MAs, restoration areas, and other sensitive habitats for undesired plant species.

Sensitive Plant Species

- GR-2a—Prioritize invasive weed reduction and management in areas supporting sensitive species or other vegetation series;
- GR-2b—Give sensitive species priority in revegetation and reintroduction activities throughout Natural Areas;
- GR-2c—Protect areas of sensitive species and vegetation series of limited distribution from human disturbance;
- GR-2d—Closely monitor plant populations and vegetation series of limited distribution;
- GR-2e—Continue to work with the scientific community to better understand key biological factors affecting the survival and reproduction of sensitive species and to better inform adaptive management decision making.

Native Grasslands

- GR-3a—monitor annually, if feasible, native grasslands and control invasive species;
- GR-3b—Explore alternative methods of grassland management for large grassland expanses, such as prescribed burning, livestock grazing, and use of motorized equipment.

(Note: The SNRAMP no longer is proposing prescribed burning. The SNRAMP will be updated to reflect this change. Should the SFRPD later determine prescribed burning to be a desirable and feasible method for managing native grasslands, a separate environmental

review would be required to comply with CEQA, and applicable permits and other regulatory agency approvals would be obtained.)

Breeding Bird Habitat

- GR-4a—Conduct annual breeding bird surveys, if resources are available, using the standard point count or transect method, to develop a list of species nesting in Natural Areas;
- GR-4b—Conduct vegetation management activities outside the breeding season (February 1 to August 31) if breeding birds could be affected, unless the following specific conditions are met: projects begun before the breeding season have already disturbed the area, or a breeding bird survey is conducted first. If active nests (or large abandoned stick nests) of a sensitive species are discovered, a 150-foot-radius avoidance buffer would be centered on the nest site(s) to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest;
- GR-4c—If surveys indicate that parasitism by brown-headed cowbirds is a significant problem, consult with the CDFG and the USFWS to determine proper protocols to minimize the negative effects of this species on breeding birds;
- GR-4d—Use material from brush and tree trimming to increase nesting or escape habitat¹⁴ for ground-dwelling birds and to mitigate any loss of habitat from other vegetation clearing;
- GR-4e—Create corridors of shrubs between landscaped areas and Natural Areas to provide cover and transitional habitat for birds and other wildlife.

Avian Foraging Habitat

- GR-5a—Prevent invasive shrubs and trees from colonizing grasslands.

Avian Cavity Nesting Habitat

- GR-6a—Leave snags and dead branches on live trees, unless they are a hazard to public safety or contain significant harmful insect or disease infestations;
- GR-6b—Provide nest boxes for native species where natural cavities are absent or in limited supply;
- GR-6c—Provide nest boxes for wood ducks at Impound Lake (a sub-lake of Lake Merced), Sharp Park, and Pine Lake.

¹⁴ Escape habitat—Natural or man-made features that allow animals to avoid predators or other threats.

Predators

- GR-7a—Implement the feral cat control policy from the Quail Recovery Plan approved by the San Francisco Commission on the Environment;
- GR-7b—Develop outreach materials to educate neighbors and users of Natural Areas about feral cats;
- GR-7c—Undertake control of non-cat predators only where they are concentrated in such a manner that they are having a substantial effect on native wildlife populations.

Dog Use

- GR-8a—Retain the boundaries and locations of seven DPAs in Natural Areas (Corona Heights, Pine Lake Park, Golden Gate Park Southeast, McLaren Park Crocker Amazon, McLaren Park Geneva, Golden Gate Park Northeast, and Buena Vista Park) and modify two DPAs (Shelley Drive Loop at McLaren Park and Bernal Hill) to protect sensitive habitat areas;
- GR-8b—Match on-leash and off-leash dog use with the sensitivity of the habitat when considering new DPAs within or next to Natural Areas;

(Note: An underlying assumption of this EIR is that there would be no new DPAs because there is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee. Should new DPAs be proposed at some point, the appropriate level of CEQA analysis would be undertaken, and applicable permits and other regulatory agency approvals would be obtained.)

- GR-8c—Restrict dogs from three sensitive habitat areas (a portion of Gray Fox Creek at McLaren Park, habitat used by the San Francisco garter snake or California red-legged frog at Sharp Park, and the water at Pine Lake).

Small Mammal Habitat

- GR-9a—Preserve during vegetation management activities any brush, logs, rocks, and other natural elements that function as habitat for small mammals and place them at appropriate locations within the Natural Areas.

Invertebrate Habitat

- GR-10a—As invasive plants are removed, install native plants or seeds that are beneficial to local insects;
- GR-10b—In MA-3 grasslands, maintain some invasive plant species that are host plants for local butterflies and other native insects.

Trails and Views

- GR-11a—Maintain and improve primary designated trails;
- GR-11b—Encourage users to stay on the trails in all Natural Areas;
- GR-11c—Routinely monitor Natural Areas for new social trails and close or reroute any trails that impact sensitive species or sensitive habitat or that contribute to erosion;
- GR-11d—Maintain viewsheds to maintain and enhance public recreation;
- GR-11e—Consider adding amenities, such as overlooks and seating areas, when evaluating overall trail use.

Erosion Control

- GR-12a—Revegetate steep slopes that have very thin vegetation to promote general soil stability;
- GR-12b—Reduce erosion risk during the transition between removing invasive species and growth of native species that replace them, including gradual implementation of restoration efforts.

Safety

- GR-13a—Discourage establishment of vegetation with high fire hazard ratings, such as French broom and eucalyptus stands, next to homes and other structures;
- GR-13b—Maintain clear passageways by removing encroaching vegetation and maintaining sight lines to increase safety on trails.

Education

- GR-14a—Continue to network with local schools and research institutions to provide environmental education resources and opportunities for school children in San Francisco and Pacifica;

- GR-14b—Develop appropriate signage that explains the importance of natural resources, ecosystem functions, management activities and goals, and public involvement contacts;
- GR-14c—Develop education materials that discuss the impacts of feeding wildlife and wild animals and the problems with releasing unwanted pets into Natural Areas;
- GR-14d—Conduct special outreach to adjacent property owners about the impacts mentioned in GR-14c.

Urban Forests

- GR-15a—Maintain urban forests within the MA-3 areas with a basal area¹⁵ per acre of between 200 and 600 square feet (this would provide a shaded forest environment);
- GR-15b—Maintain a stocking rate that will perpetuate the urban forest and promote forest health;
- GR-15c—To promote forest health, focus tree removal on dead or dying trees, trees with disease or insect infestations, storm-damaged or hazardous trees, and trees that are suppressed because of overcrowding; retain snags and dead branches on live trees, unless they are a hazard to public safety or contain significant harmful insect or disease infestations;
- GR-15d—Do not plant sensitive species in MA-3 urban forests;
- GR-15e—Remove invasive Cape (*Delairea odorata*), English (*Hedera helix*), and Algerian ivy (*Hedera algeriensis*) and Himalayan blackberry (*Rubus discolor*) to promote and maintain urban forest health in MA-3 areas;
- GR-15f—Consult the SFRPD arborist when tree removals or plantings are proposed in MA-3 urban forests;
- GR-15g—Plant trees and shrubs in the urban forests that promote species diversity and improve wildlife habitat; and
- GR-15h—Use San Francisco-approved insecticides to treat cut stumps.

III.I SPECIFIC RECOMMENDATIONS FOR EACH NATURAL AREA

The *Significant Natural Resource Areas Management Plan, Final Draft* (SFRPD 2006) is incorporated by reference into this description of the proposed project. The information presented below for each of

¹⁵Basal area—A measure, typically in square feet per acre, of the area covered by trees within a given urban forest. Basal area is used as an index of tree production.

the Natural Areas is grouped into sections on general description, management areas, and recommended management actions. The systemwide recommendations that apply to the entire Natural Area are presented first, followed by site-specific recommendations, including an alphabetical code unique to each Natural Area; the GRs referenced in the discussions below are described in Section III.H and are included in a fold-out list at the end of this document for use while reading this EIR. Where appropriate, the changes to the SNRAMP summarized in Section III.G are also listed in applicable subsection of Sections III.H and III.I. As presented in the SNRAMP, a number of the Natural Areas have been grouped in this section; as a result, the 32 Natural Areas are addressed in 27 subsections below. Table 5 is an overview of the management activities proposed for each of the Natural Areas. Figure 1 is an overview of the Natural Areas, and individual maps of the Natural Areas are included in Appendix B.

III.I.1 Balboa (BA)

General Description

The 1.8-acre Balboa Natural Area, also referred to as Sutro Dunes and Parcel 4, is at the corner of Balboa Street and the Great Highway in western San Francisco. The National Park Service (NPS) currently maintains the Balboa Natural Area for the City and County of San Francisco under the terms of a Cooperative Management Agreement approved in 2007. It is in the southern corner of the Sutro Heights Park and is across the Great Highway from Ocean Beach and the Pacific Ocean; it also is next to NPS lands administered by the Golden Gate National Recreation Area (GGNRA). This all-sand area has one of the few foredune communities in San Francisco. An elevated boardwalk provides public access and is intended to keep people out of the sensitive sand dune vegetation.

Management Areas

The 1.1-acre MA-1 area of the Balboa Natural Area includes restored dune scrub habitat and sensitive species. The 0.7-acre MA-2 area is a sandy substrate area with potential for expansion of the dune community. There is no MA-3 area at the Balboa Natural Area.

**Table 5
Summary of Natural Areas Management Plan**

Natural Area Site	Park Acreage	Natural Area Acreage ¹	Management Area (acres)				Invasive Trees			Trails (feet)				Dog Play Areas (acres)			
			MA-1	MA-2	MA-3	Total MA ¹	Existing	To Remove	To Remain	Existing	To Close/ Relocate	To Create	Resulting	Existing	To Remove	To Remain	Monitor ^{**}
Balboa	1.8	1.8	1.1	0.7	0	1.8	0	0	0	637	90	0	547				
Bayview Park	43.9	43.9	8.2	15.8	19.7	43.7	6,000	511	5,489	8,496	1,439	1,020	8,077				
Bernal Hill	24.3	24.3	7.6	5.8	10.7	24.1	100	0	100	12,239	4,544	464	8,159	21.0	6.0	15.0	No
Billy Goat Hill	3.5	3.5	0.6	1.1	1.6	3.3	20	0	20	2,600	745	0	1,855				
Brooks Park	3.5	2.0	0.8	0.9	0.3	2.0	20	3	17	1,340	456	0	884				
Buena Vista Park	36.1	6.1	0	6.1	0	6.1	140	10	130	3,741	0	0	3,741	1.0	0	1.0	Yes
Corona Heights	12.6	9.6	2.9	2.5	4.2	9.6	200	15	185	6,701	1,845	0	4,856	0.4	0	0.4	No
Dorothy Erskine Park	1.5	1.5	0.2	0.3	1.0	1.5	100	14	86	771	0	0	771				
Duncan-Castro	0.5	0.5	0.3	0.1	0.1	0.5	0	0	0	333	0	0	333				
Edgehill Mountain	2.3	2.3	0	0.9	1.4	2.3	300	0	300	747	0	438	1,185				
Everson/Digby	1.2	1.2	0.9	0.1	0.2	1.2	0	0	0	0	0	0	0				
Fairmount Park	0.7	0.7	0	0	0.7	0.7	100	0	100	187	0	0	187				
Glen Canyon Park and O'Shaughnessy Hollow ^{***}	72.6	63.8	8.1	33.0	22.4	63.5	6,000	120	5,880	23,242	3,653	0	19,589				
Golden Gate Heights	6.0	0.8	0.2	0.5	0.1	0.8	30	0	30	559	390	188	357				
Golden Gate Park Oak Woodlands	1,021.0	26.2	0.7	25.5	0	26.2	900	82	818	24,844	12,381	0	12,463	2.8	0	2.8	Yes
Grandview Park	4.0	4.0	0.9	2.4	0.7	4.0	25	5	20	1,722	409	0	1,313				
Hawk Hill	4.5	4.5	1.4	3.0	0	4.4	10	0	10	1,609	692	0	917				
India Basin Shoreline Park	11.8	6.2	3.2	2.8	0	6.0	0	0	0	1,885	0	0	1,885				
Interior Greenbelt	19.4	16.5	0	1.8	14.7	16.5	5,800	140	5,660	935	0	620	1,555				
Kite Hill	2.7	2.7	0.6	0.5	1.6	2.7	10	0	10	1,957	398	0	1,559				
Lake Merced	614.0	395.0	60.8	101.8	231.5	394.1	12,000	134	11,866	11,106	3,319	365	8,152	5.0	5.0	0	
Lakeview/Ashton Mini Park	0.5	0.5	0.1	0.2	0.2	0.5	0	0	0	651	0	0	651				
McLaren Park	312.6	165.3	34.9	68.3	61.4	164.6	19,500	809	18,691	59,185	15,681	0	43,504	61.7	8.3	53.4	Yes
Mount Davidson	40.2	40.2	8.8	11.0	20.1	39.9	11,000	1,600	9,400	15,456	2,867	0	12,589				
Palou-Phelps	2.5	2.1	0.8	0.4	0.8	2.0	40	2	38	1,049	527	496	1,018				
Pine Lake	30.3	8.4	1.0	3.8	3.6	8.4	1,000	0	1,000	3,157	608	13	2,562	3.3	0	3.3	No
Rock Outcrop	1.6	1.6	0.8	0.7	0	1.5	0	0	0	0	0	0	0				
Tank Hill	2.9	2.9	1.5	0.6	0.7	2.8	50	0	50	2,672	1,411	0	1,261				
Twin Peaks	34.1	31.1	12.6	14.3	3.8	30.7	88	3	85	8,741	2,303	501	6,939				
15th Avenue Steps	0.3	0.3	0	0.2	0	0.2	0	0	0	0	0	0	0				
San Francisco Subtotal	2,312.9	869.5	159.0	305.1	401.5	865.6	63,433	3,448	59,985	196,562	53,758	4,105	146,909	95.2	19.3	75.9	
Sharp Park (Pacifica)	411.0	237.2	35.0	125.1	76.5	236.6	54,000	15,000	39,000	14,741	653	1,792	15,880				
Total	2,723.9	1,106.7	194.0	430.2	478.0	1,102.2	117,433	18,448	98,985	211,303	54,411	5,897	162,789	95.2	19.3	75.9	

¹The total acreages for the management areas do not exactly match the Natural Areas acreages. The Natural Areas acreages are based on vegetation series within each Natural Area where the geographic information system data was precisely clipped to the Natural Area boundary. Management areas were created by mapping their boundaries in the field with a GPS unit. This data was then edited by Natural Areas Program staff to match Natural Areas boundaries. This process created minor errors when the management area appeared to line up with the Natural Area boundary but in fact was off by a small amount. The average error is about 0.1 acre and never more than 0.8 acre. As would be expected, the error is largest in the larger Natural Areas because they have relatively longer boundaries.

^{**}The SFRPD would monitor dog use and impacts on oak woodlands at Buena Vista and Golden Gate Park Oak Woodlands and impacts on small wildflower meadows in McLaren Park.

^{***}Glen Canyon Park and O'Shaughnessy Hollow are two different Natural Areas; they are grouped together in this table, as they are in the SNRAMP.

Recommended Management Actions

At Balboa, GR-1, GR-2, GR-4, GR-7, GR-9, and GR-11 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Balboa Natural Area:

- BA-1a—Contain and reduce herbaceous¹⁶ invasive plants and prevent invasive tree species from becoming established;
- BA-1b—Revegetate using appropriate native plants in those areas where invasive plants have been removed;
- BA-1c—Augment existing populations of sensitive plant species; and
- BA-1d—Reintroduce rare plants.

III.1.2 Bayview Park (VP)

General Description

Bayview Park is in southeast San Francisco and is east of Candlestick Point State Park and Candlestick Park. Developed areas within the 43.9-acre Natural Area are limited to paved trails, which are also used as access roads. This is one of the more diverse Natural Areas with vegetation that includes grasslands, scrub, tree-dominated areas, and a large number of sensitive plant species. The vegetation provides suitable habitat for resident and migratory bird species, reptiles, mammals, and amphibians. The extensive grasslands provide habitat for butterflies and other insects, including the endangered mission blue butterfly (*Icaricia icarioides missionensis*). It also contains historic Works Progress Administration features.

Management Areas

The 8.2-acre MA-1 area is native grassland and scrub habitats that support the highest numbers of sensitive species. The 15.8-acre MA-2 area also may contain sensitive species and habitats and may act as buffers for the more sensitive areas. The 19.7-acre MA-3 area includes urban forests and invasive scrub.

¹⁶ Herbaceous—Having the texture, color, and other characteristics of an ordinary foliage leaf; not woody.

Recommended Management Actions

At Bayview Park, GR-1 through GR-4, GR-6, GR-7, and GR-9 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended:

- VP-1a—Reduce and contain herbaceous and woody invasive plants;
- VP-1b—Remove approximately 511 of the estimated 6,000 invasive trees (primarily blue gum eucalyptus) to enhance sensitive species habitats;
- VP-1c—Protect and maintain existing native habitats;
- VP-1d—Augment existing sensitive plant populations;
- VP-1e—Reintroduce populations of sensitive plant species to help prevent extinctions of these species in San Francisco;
- VP-2a—Install coast live oak seedlings and other native plants in gaps and openings in the eucalyptus forest;
- VP-3a—Construct a small berm to create a seasonal wetland and detention basin, if capital funds are made available;
- VP-4a—Maintain and improve habitat for the pinion mouse;
- VP-5a—Augment existing silver bush lupine (*Lupinus albifrons*), summer lupine (*Lupinus formosus*), and varied lupine (*Lupinus* sp.) populations;
- VP-6a—Install signs and temporary barriers along the roadway to discourage off-road motorcycle riding;
- VP-7a—Construct a pedestrian trail connecting to the historic Works Progress Administration trail;
- VP-7b—Develop a new entryway on the southern side of the park (note that this new entryway may not be feasible given the steepness of the slopes);
- VP-8a—Remove the berm on the downhill side of Key Avenue and regrade the entire roadway so that the uphill side is higher than the downhill side, if funds are made available (note that portions of this management action have been completed);
- VP-8b—Remove material in major downslope gullies and replace it with brush that is highly compacted;
- VP-8c—Build a small berm south of Key Avenue at the base of the main soil slip;

- VP-9a—Create a detailed and complete erosion control plan before beginning work on the large gully near the summit; work would include the following:
 - Installing a minimum of two check-dams within the upper portion of the gully,
 - Creating soil berms and troughs between these two structures,
 - Removing soil from the upper edges of the gully to create a 1:1 slope,
 - Installing a staked brush pile or brush box immediately below the upper edge of the gully,
 - Installing one or two staked brush bundles in the vegetated swale leading into the gully from the direction of the radio tower,
 - Installing rice straw bales along all edges of the gully, and
 - Hand broadcasting the entire area with the appropriate native grass seed once construction is complete and before the fall rains; and
- VP-10a—Restrict access to sensitive mission blue butterfly habitat if these habitat areas continue to be damaged.

III.I.3 Bernal Hill (BH)

General Description

Bernal Hill is in the Bernal Heights neighborhood in central San Francisco. A microwave radio transmission station, not owned by the SFRPD, is in a fenced enclosure at the hill's summit. Other than a paved access road, the 24.3-acre Natural Area is primarily grassland. A designated DPA is on and above Bernal Heights Boulevard, which circumnavigates the Natural Area.

Management Areas

The 7.6-acre MA-1 area includes the slopes of Bernal Hill where native grasslands and sensitive species are found. The 5.8-acre MA-2 area serves as a buffer between the MA-1 area and urban forest. The 10.7-acre MA-3 area is that portion of the Natural Area that does not support sensitive species or native grasslands.

Recommended Management Actions

At Bernal Hill, GR-1 through GR-4 and GR-7 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Bernal Hill Natural Area:

- BH-1a—Reduce and contain herbaceous and woody invasive plants;
- BH-1b—Revegetate using appropriate native plants where invasive plants have been removed;
- BH-1c—Focus sensitive plant species management and conservation on existing habitat areas;
- BH-1d—Maintain the urban forest-grassland mosaic in currently forested areas below the road;
- BH-2a—Encourage people and dogs to stay on designated trails and discourage them from climbing the steep slopes and causing erosion on the north side of the Natural Area; and
- BH-3a—Retain on- and off-leash dog use of the entire Natural Area and limit off-leash activities to the relatively flat areas to avoid sensitive plant species, reducing the off-leash DPA from 21 to 15 acres.

III.1.4 Billy Goat Hill (BG)

General Description

The 3.5-acre Billy Goat Hill Natural Area is in the Diamond Heights area, east of Glen Canyon Park. The Natural Area is composed mainly of grasslands. Billy Goat Hill provides important habitat for native plants and populations of sensitive plant species, grassland habitat, and suitable habitat for a variety of bird species and special-status butterfly species.

Management Areas

The MAs have been delineated based on the presence of rich native grasslands. The 0.6-acre MA-1 area supports the richest array of species, as well as more intact habitat than the 1.1-acre MA-2 area, which surrounds the MA-1 and buffers it. The MA-2 area is itself surrounded on three sides by the 1.6-acre MA-3 area, which includes tree and grassland communities.

Recommended Management Actions

At Billy Goat Hill, GR-1 through GR-4, GR-7, and GR-9 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Billy Goat Hill Natural Area:

- BG-1a—Reduce and contain woody and herbaceous invasive plants;

- BG-1b—Revegetate using appropriate native plants, enhance and diversify existing grasslands as appropriate, augment the existing rare or uncommon grassland plant species, slowly replace the nonnative grassland with a grassland dominated by native species, maintain and enhance the native scrub community, and plant native grassland and scrub species into the appropriate areas using diversity, cover, and density targets generated from reference sites around San Francisco;
- BG-1c—Maintain a periphery of tall trees and diversify areas at the grassland interface with wildlife-enhancing species, and design, maintain, and enhance a grassland-scrub-tree mosaic; and
- BG-2a—Create and protect a complex mosaic of grassland and scrub with a variety of plant species that will provide shelter, food, and nesting areas for local wildlife.

III.1.5 Brooks Park and Lakeview/Ashton Mini Park (BP)

General Description

Brooks Park and Lakeview/Ashton Mini Park (also informally known as Orizaba Rocks) are in southwestern San Francisco in the Merced Heights and Ingleside Heights neighborhoods. Brooks Park, which fronts on Shields Street between Victoria and Vernon Streets, is a 3.5-acre park, two acres of which are part of the Natural Area. The 0.5-acre Lakeview/Ashton Mini Park Natural Area is a rocky outcrop at the dead ends of Ashton and Orizaba Avenues and Lakeview and Shields Streets. Both of these Natural Areas contain grasslands.

Management Areas

The Brooks Park and Lakeview/Ashton Mini Park Natural Areas are dominated by grasslands, and the relative quality of the grasslands define the MA-1, MA-2, and MA-3 areas. The 0.9-acre MA-1 areas encompass two grasslands at Brooks Park and one area at Lakeview/Ashton Mini Park. The 1.1-acre MA-2 areas are the grasslands surrounding the MA-1 areas and serve as buffers between the MA-1 and the MA-3 areas. The 0.5-acre MA-3 areas are on the periphery in both parks and represent the least sensitive grassland areas.

Recommended Management Actions

At Brooks Park and Lakeview/Ashton Mini Park, GR-1 through GR-4, GR-7, and GR-10 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Brooks Park and Lakeview/Ashton Mini Park Natural Areas:

- BP-1a—Contain and reduce herbaceous and woody invasive plants;
- BP-1b—At Brooks Park, remove three cypress trees and prevent establishment of invasive trees in all areas;
- BP-1c—Revegetate with appropriate native plants using diversity, cover, and density targets generated from reference sites within and around San Francisco; and
- BP-1d—Consider augmenting sensitive species at Lakeview/Ashton Mini Park and introducing sensitive species within suitable locations at Brooks Park.

III.I.6 Buena Vista Park (BV)

General Description

The 36.1-acre Buena Vista Park is in central San Francisco, just north of Corona Heights, and is bounded in part by Haight Street on the north; Buena Vista Avenue East and Buena Vista Avenue West loop around the park and form the eastern, southern, and western boundaries. The 6.1-acre Buena Vista Park Natural Area is on the northern side of the park and supports one of the most extensive coast live oak forests within San Francisco. The remainder of the park is covered almost exclusively by mixed exotic forest. There is a designated DPA in the northwest corner of Buena Vista Park in the oak woodland.

Management Areas

The 6.1-acre MA-2 area includes coast live oak woodlands in the northern portion of the park. There are no MA-1 or MA-3 areas.

Recommended Management Actions

At Buena Vista Park, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, GR-11, GR-13, and GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Buena Vista Park Natural Area:

- BV-1a—Reduce woody and herbaceous invasive plants and understory¹⁷ plants and prevent invasive trees from becoming established;
- BV-1b—Remove approximately 10 eucalyptus and acacia trees out of 140 invasive trees, revegetate areas with appropriate dune scrub and oak trees to promote creation of a multi-

¹⁷ Understory—The shrubs and plants growing beneath the main canopy of a forest or stand of trees.

aged stand, and use diversity, cover, and density targets generated from reference sites around San Francisco to develop planting plans;

- BV-1c—Consider reintroducing rare or uncommon plant species;
- BV-2a—Create complex multistoried habitat by removing invasive species in the understory and planting species that provide food and nesting resources and increase structural diversity by planting native vegetation that is different in height at maturity than vegetation in the existing habitats;
- BV-2b—Install a permanent water source within or next to the Natural Area in an area that would not be easily accessible to off-leash dogs or subject to undesirable human use and ensure that artificial water sources can be drained periodically to remove bullfrogs;
- BV-3a—Augment winter and late-fall fruiting shrubs; and
- BV-4a—Consider implementing protective measures or relocating the DPA outside of oak woodlands if necessary to protect nesting bird habitat.

III.I.7 Corona Heights (CH)

General Description

Corona Heights is in the central portion of San Francisco and is bounded roughly by Flint Street, Roosevelt Way, and 16th Street. The Corona Heights Playground and the Randall Museum are within the southern portion of the park. Of the park's 12.6 acres, the Natural Area covers approximately 9.6 acres and is composed of grasslands, with scrub and tree-dominated areas around its edges. A fenced DPA is next to the northwest portion of the Natural Area.

Management Areas

The 2.9-acre MA-1 areas include three areas with sensitive species and habitats. The 2.5-acre MA-2 areas are buffers around the MA-1 areas. The 4.2-acre MA-3 areas include urban forest and grasslands around the Natural Area perimeter.

Recommended Management Actions

At Corona Heights, GR-1 through GR-4, GR-7, GR-9 through GR-13, and GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Corona Heights Natural Area:

- CH-1a—Contain and reduce herbaceous and woody invasive plants and prevent invasive tree species from becoming established;
- CH-1b—Augment existing populations of sensitive plant species through seeding or planting;
- CH-1c—Reintroduce populations of rare plant species to help prevent local extinctions of these species in San Francisco;
- CH-1d—Maintain diverse native grassland in areas where invasive plants have been removed. Maintain and enhance oak woodlands;
- CH-1e—Remove 15 Monterey pines (*Pinus radiata*) (note that a portion of these trees on the north side of Corona Heights were removed in August 2010 because they were determined to be hazardous);
- CH-2a—Create complex multistoried habitat that provides food sources and nesting, roosting, and escape habitat for a variety of species; and
- CH-2b—Increase the extent of oak woodland habitat to create habitat for wildlife, particularly birds.

III.1.8 Dorothy Erskine (DP)

General Description

Dorothy Erskine Park is near the southern end of Glen Canyon Park at the intersection of Baden Street and Martha Avenue in central San Francisco. The 1.5-acre Natural Area is mostly forested. Most remnant plant areas and important wildlife habitat are associated with the grassland and mixed exotic forests on the steep north-facing slopes, which are inaccessible due to the presence of a safety fence at the top of the slope. There is one main trail and access route through the Natural Area.

Management Areas

The 0.2-acre MA-1 areas contain remnant grassland and wildflower habitats. The 0.3-acre MA-2 areas include remnant scrub habitat and serve as buffers to the MA-1 areas. The 1.0-acre MA-3 areas are composed of urban forests.

Recommended Management Actions

At Dorothy Erskine, GR-1, GR-2, GR-4, GR-7, GR-9, GR-13, and GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Dorothy Erskine Natural Area:

- DP-1a—Reduce and contain herbaceous and woody invasive plants and prevent invasive trees from becoming established;
- DP-1b—Remove approximately 14 of the estimated 100 eucalyptus trees;
- DP-1c—Revegetate with appropriate native plants those areas where invasive plants have been removed to maintain and enhance the native grassland and scrub communities;
- DP-1d—Reintroduce silk tassel bush (*Garrya elliptica*) to prevent the countywide extinction of this sensitive plant species; and
- DP-2a—Survey the site for red-tailed hawk nests before tree removal. If an occupied nest is found, conduct tree removal activities no closer than 150 feet from the nest.

III.1.9 Duncan-Castro (DC)

General Description

Duncan-Castro is in the central portion of San Francisco and is northeast of the intersection of Castro and Duncan Streets. The 0.5-acre Natural Area is predominantly grassland, with an ornamental planting area along Duncan Street.

Management Areas

The 0.3-acre MA-1 area includes rock outcrops, red fescue prairie, and portions of the annual grassland with sensitive plant species populations. The 0.1-acre MA-2 area has less diverse grasslands and rock outcrops on the south and west sides of the Natural Area. The 0.1-acre MA-3 area includes ornamental vegetation and forest along the eastern edge of the Natural Area.

Recommended Management Actions

At Duncan-Castro, GR-1 through GR-4, GR-7, GR-9, GR-10, GR-13, and GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Duncan-Castro Natural Area:

- DC-1a—Contain and reduce herbaceous and woody invasive plants and prevent invasive tree species from becoming established;

- DC-1b—Maintain and diversify grasslands and maintain and enhance tree cover in the northeast part of the Natural Area;
- DC-1c—Enhance the native scrub community; and
- DC-2a—Determine whether two pipelines crossing the Natural Area are still in service or abandoned, then bury, reroute, or remove them, as appropriate.

III.I.10 Edgehill Mountain (EM)

General Description

Edgehill Mountain is northwest across Portola Drive from Mount Davidson in central San Francisco. The 2.3-acre, forested Natural Area is bordered by Kensington and Edgehill Ways. The area is accessed from Shangrila Way and Knockash Hill. Edgehill Mountain is a blue gum eucalyptus (*Eucalyptus globulus*) forest that supports small populations of sensitive plants and provides habitat for sensitive bird species.

Management Areas

The 0.9-acre MA-2 areas are at the center of the Natural Area and include coastal scrub and prairie grassland habitats. The 1.4-acre MA-3 areas include the remaining urban forests. There are no MA-1 areas.

Recommended Management Actions

At Edgehill Mountain, GR-1, GR-2, GR-4, GR-7, GR-9, and GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Edgehill Mountain Natural Area:

- EM-1a—Reduce and contain herbaceous and woody invasive plants and prevent invasive trees from becoming established;
- EM-1b—Replace dead and dying trees with native species typical of coastal bluff scrub and oak woodland habitats;
- EM-1c—Revegetate with appropriate native plant species in those areas where invasive plants have been removed to maintain and enhance existing scrub and grassland habitats;
- EM-1d—Augment existing sensitive plants to prevent extinction of rare or uncommon plant species; and

- EM-2a—Develop two new entrances and trails through the Natural Area, one entering at Kensington Way and one entering at Edgehill Way.

III.I.11 Fairmount Park (FP)

General Description

Fairmount Park is southeast of Billy Goat Hill in central San Francisco. The 0.7-acre Natural Area is mostly forested and is at the intersection of Fairmount and San Miguel Streets.

Management Areas

The 0.7-acre MA-3 area is an urban forest. There are no MA-1 or MA-2 areas.

Recommended Management Actions

At Fairmount Park, GR-1, GR-3, GR-4, GR-7, GR-11, GR-12, GR-13, and GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Fairmount Park Natural Area:

- FP-1a—Contain and reduce herbaceous and woody invasive plants and
- FP-1b—Focus tree regeneration on the north and south sides, leaving fewer trees on the east side where views are to be preserved and helping to screen existing homes from view.

III.I.12 Glen Canyon Park and O'Shaughnessy Hollow (GC/OH)

General Description

Glen Canyon Park and O'Shaughnessy Hollow are south of Twin Peaks, between the Diamond Heights and Miraloma neighborhoods, in an area formally referred to as the San Miguel Hills. The approximately 70-acre Glen Canyon Park has 60 acres designated as a Natural Area. O'Shaughnessy Hollow is a 3.8-acre Natural Area. O'Shaughnessy Boulevard separates the two Natural Areas, with Glen Canyon Park to the east and O'Shaughnessy Hollow to the west. Recreation facilities in Glen Canyon Park include the Silver Tree Day Camp, a community recreation center, ball fields, playgrounds, and formal and informal trails. There are no developed areas within O'Shaughnessy Hollow.

Management Areas

The 8.1-acre MA-1 areas contain high concentrations of native plants within the grasslands or sensitive species at Glen Canyon Park. The O'Shaughnessy Hollow MA-1 areas include sensitive

plant species habitat. The 33-acre MA-2 areas include the scrub-covered western slopes and the riparian¹⁸ corridor in Glen Canyon Park, and areas are designated to provide buffers around the grassland MA-1 areas. The O'Shaughnessy Hollow MA-2 areas support a mix of native-dominated scrub and grassland habitats. MA-3 areas (22.4 acres) include portions of Glen Canyon Park covered with urban forest, the invasive annual grassland in the extreme northern corner, and a corridor along the gravel access road.

Recommended Management Actions

At Glen Canyon Park and O'Shaughnessy Hollow, GR-1 through GR-7, GR-8c, GR-9, and GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Glen Canyon Park and O'Shaughnessy Hollow Natural Areas:

- GC/OH-1a—Reduce woody and herbaceous invasive plants and understory plants and prevent invasive trees from becoming established;
- GC/OH-1b—Revegetate with appropriate native plants to approximate the diversity, cover, and density of adjacent habitat;
- GC/OH-1c—Augment existing rare or uncommon species to maintain these species and enhance their chances of survival;
- GC/OH-1d—Consider reintroduction of sensitive species;
- GC/OH-1e—Remove approximately 120 of the estimated 6,000 invasive blue gum eucalyptus (*Eucalyptus globulus*) trees in Glen Canyon Park to maintain and enhance native habitats;
- GC/OH-2a—Thin sections of the overstory within the riparian corridor and reduce invasive plants in the understory;
- GC/OH-2b—Prevent willows from encroaching on open water and create new and stable pool habitats;
- GC/OH-3a—Protect sensitive habitats and prevent erosion by closing social trails to the northwestern rock outcrop in Glen Canyon Park, discontinuing rock climbing, and closing social trails in O'Shaughnessy Hollow;

¹⁸ Riparian—Land next to a natural watercourse such as a river or stream. Riparian areas support vegetation that provides important wildlife habitat, as well as important fish habitat when it overhangs the bank.

- GC/OH-4a—Avoid removing trees with red-tailed hawk or great horned owl nests and prohibit tree removal within 150 feet of occupied nests;
- GC/OH-4b—Protect and preserve open grassland habitat through vegetation management and control of invasive species;
- GC/OH-5a—Remove invasive species bordering native coastal scrub;
- GC/OH-5b—Plant native vegetation of differing heights to increase structural diversity of coastal scrub habitats;
- GC/OH-5c—Manage open pools as in GC/OH-2a-b and GC/OH-7e and make these pools inaccessible to the public;
- GC/OH-6a—Consider the requirements of amphibians when creating open pools under GC/OH-2;
- GC/OH-7a—Document the presence or absence of forktail damselfly in Glen Canyon Park;
- GC/OH-7b—Reintroduce forktail damselfly in Glen Canyon Park if it is not observed in the next five years;
- GC/OH-7c—Remove and trim vegetation along the asphalt channel to create appropriate habitat for the forktail damselfly, if it is observed or reintroduced;
- GC/OH-7d—Remove willows along the asphalt channel to reduce shading of water, if the forktail damselfly is observed or reintroduced;
- GC/OH-7e—Control vegetation within the asphalt channel to create open water and emergent vegetation, if the forktail damselfly is observed or reintroduced;
- GC/OH-7f—Consider requirements of the forktail damselfly when creating new pools in Islais Creek;
- GC/OH-8a—Annually evaluate the populations of sensitive butterflies within the park;
- GC/OH-8b—Install larval host plants and nectar sources as part of revegetation;
- GC/OH-9a—Monitor the dog impact on wetlands and Islais Creek channel and consider appropriate restrictions (including fencing) to keep dogs out of the creek channel and wetlands;

- GC/OH-9b—Install boardwalks in wet marshy locations along the Islais Creek loop trail to prevent damage to resources and increased sedimentation¹⁹ in the creek;
- GC/OH9c—Trim willows along formal trails to allow ease of access, thereby limiting the perceived need to create new trails;
- GC/OH-10a—Fill gullies in the access road with gravel to help minimize the input of sediment from the gravel access road, outslope the road the next time it is graded or resurfaced to allow uniform flow of runoff from the hillside across the road to the creek and to eliminate ponding and reduce gullying in the road, evaluate and replace the culverts as necessary, and consider paving the access road;
- GC/OH-10b—Close and revegetate social trails that are next to or crossing the creek, in accordance with GR-11, and install bridges or stabilize stream banks with well-designed steps that lead to stepping-stones to cross the creek for any creek crossings that would remain in use;
- GC/OH-10c—Maintain the sediment dam and consider installing new sediment traps on the lower reach of the creek; and
- GC/OH-10d—Consider a long-term solution for the unstable and eroding bank of Islais Creek immediately below Silver Tree Day Camp.

III.I.13 Golden Gate Heights Park, Grandview Park, Hawk Hill, and Rock Outcrop (GGRH)

General Description

The Natural Areas at Grandview Park, Rock Outcrop, Golden Gate Heights Park, and Hawk Hill all belong to a remnant ridgetop sand dune system in the western portion of San Francisco, in the mid-Sunset or Sunset Heights area. Because these sites have similar characteristics and management issues, they have been combined into this single section. The 4-acre Grandview Park is at 15th Avenue and Moraga Street. Just south of Grandview Park is the 1.6-acre Rock Outcrop, between 14th and Funston Avenues. Continuing south, Golden Gate Heights Park, which contains a 0.8-acre Natural Area, is between Funston, 12th, and 14th Avenues. Of the four parks, the 4.5-acre Hawk Hill at the intersection of Rivera Street and Funston Avenue is the farthest south. These parks are surrounded by dense urban development.

¹⁹ Sedimentation—The deposition of material suspended in a stream system, whether in suspension (suspended load) or on the bottom (bedload).

Management Areas

The 3.3-acre MA-1 areas include sensitive species, rich dune habitats, and grasslands. Three areas on Grandview, two areas on Rock Outcrop, one area at Golden Gate Heights, and one area at Hawk Hill have been designated as MA-1. The 6.6-acre MA-2 areas contain less-sensitive but important habitat, and they usually surround the MA-1 areas, providing buffers to the more sensitive habitats within MA-1 areas. The 0.8-acre MA-3 areas designated at Grandview and Golden Gate Heights contain areas of invasive tree species.

Recommended Management Actions

At the Natural Areas at Grandview Park, Rock Outcrop, Golden Gate Heights Park, and Hawk Hill, GR-1 through GR-4, GR-7, and GR-11 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for these sites:

- GGRH-1a—Contain and reduce herbaceous and woody invasive plants, removing them in such a way that avoids erosion, and then plant native species;
- GGRH-1b—Augment existing sensitive plants to maintain these species and enhance their chances of survival;
- GGRH-1c—Reintroduce populations of sensitive plant species to help prevent countywide extinctions of these species;
- GGRH-1d—Prevent invasive trees from becoming established and remove trees only at Grandview Park, where approximately five trees will be removed from the upper slope;
- GGRH-1e—Reduce invasive vegetation, plant native species to approximate the diversity, cover, and density of adjacent habitat or reference plots in similar habitats at other parks and target habitat types as follows:
 - At Grandview, maintain and enhance dune scrub, a dune scrub mosaic, and cypress tree-scrub mosaic,
 - At Rock Outcrop, maintain and enhance the dune scrub-rock outcrop plant communities,
 - At Golden Gate Heights, maintain and enhance dune scrub, maintain a diversified understory and plant forest gaps with wildlife friendly species within the urban forest, consider removing the asphalt pad at the entryway and installing a native plant demonstration garden, and

- At Hawk Hill, maintain and enhance the dune scrub communities with scattered open sand for annual plant recruitment;
- GGRH-1f—Remove vegetation and replant with native species in small noncontiguous patches where soil erosion could occur;
- GGRH-2a—Limit access to the 917 linear feet of designated trails to protect sensitive habitat and consider installing fencing at Hawk Hill if necessary;
- GGRH-2b—Consider using the dune-step system as a biotechnical control measure to help control soil movement and allow for revegetation that would better withstand foot traffic on the steep dune slopes;
- GGRH-3a—Route users away from eroding areas and sensitive habitats to the 1,313 linear feet of designated trails and install temporary or permanent fencing at Grandview Park if necessary;
- GGRH-3b—Install soil retaining boxes on the downhill side of the landings to help minimize erosion at Grandview Park; and
- GGRH-4a—Develop a new approximately 188-foot trail at the edge of the forest to replace the trail that is causing erosion and close the 390-linear-foot social trail through the dunes (Golden Gate Heights).

III.I.14 Golden Gate Park Oak Woodlands (OW)

General Description

The 26.2-acre Oak Woodlands Natural Area is in the northeast corner of the 1,021-acre Golden Gate Park, between Fulton Street and Lincoln Way. In addition to the large oak woodland bounded by Stanyan Street, Fulton Street, and 6th Avenue, the Natural Areas in Golden Gate Park include Whiskey Hill, Strawberry Hill, and Lily Pond. The individual areas that compose this Natural Area represent the few places where native trees persist in the Natural Areas Program system. Two DPAs are within or next to the Natural Area, one where North Willard Street intersects with Fulton Street (Golden Gate Park Northeast DPA) and one next to Whiskey Hill (Golden Gate Park Southeast DPA).

Management Areas

The 0.7-acre MA-1 areas contain sensitive plant species. The 25.5-acre MA-2 areas are oak woodlands. There are no MA-3 areas.

Recommended Management Actions

At Oak Woodlands, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, and GR-11 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Oak Woodlands Natural Area:

- OW-1a—Contain and reduce herbaceous and woody invasive plants and prevent invasive tree species from becoming established;
- OW-1b—Reduce invasive vegetation within the oak woodlands to increase and diversify the native understory;
- OW-1c—Augment and reintroduce native plant species;
- OW-1d—Remove approximately 82 of the approximately 900 invasive blue gum eucalyptus (*Eucalyptus globulus*) trees;
- OW-2a—Redesign the organic material dump site and install traffic barricades at the edge of the slope to reduce damage to downslope oak trees;
- OW-3a—Remove invasive understory vegetation and replace it with native species typical of an oak woodland understory; and
- OW-4a—Monitor use and impacts of Golden Gate Park Northeast DPA and install signs and protective devices to delineate the boundaries of both DPAs.

III.I.15 India Basin Shoreline Park (IB)

General Description

India Basin Shoreline Park is in southeast San Francisco next to Hunters Point Boulevard at the shore of San Francisco Bay. Comprising 6.2 of the park's 11.8 acres, the Natural Area is the only one that borders San Francisco Bay. It contains a segment of the Bay Trail, shoreline access for fishing and water-dependent recreation, tidal salt marsh wetlands, and suitable habitat for shore birds and foraging raptors. The park supports a large and multispecies collection of waterfowl from fall through spring and birds protected under the Migratory Bird Treaty Act. It also contains the endangered plant California seablite (*Suaeda californica*).

Management Areas

The 3.2-acre MA-1 area consists of salt marsh wetland. The 2.8-acre MA-2 areas include a buffer between restored wetlands and upland habitat, annual grasslands, scrub, and oak habitat areas under development. There are no MA-3 areas.

Recommended Management Actions

At India Basin Shoreline Park, GR-1 through GR-4, GR-7, and GR-13 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the India Basin Shoreline Park Natural Area:

- IB-1a—Monitor the salt marsh for smooth cordgrass (*Spartina alterniflora*) and other invasive species and reduce and contain infestations of upland invasive species;
- IB-1b—Remove invasive species from wetland and upland areas and maintain and enhance upland areas as a grassland-coastal scrub mosaic;
- IB-1c—Augment populations of alkali heath (*Frankenia salina*), marsh gumplant (*Grindelia stricta* var. *angustifolia*), and California seablite (*Suaeda californica*) by direct seeding or planting;
- IB-2a—Maintain and enhance existing grassland-scrub mosaic;
- IB-2b—Install low-growing plants to create a partially vegetated screen between the trail and the buffer area;
- IB-3a—Increase vegetation density in the area of the trail to reduce erosion on the face of the levee; and
- IB-4a—Restrict access to sensitive salt marsh habitat if damage to these areas occurs, including installing low trailside fencing.

III.I.16 Interior Greenbelt (IG)

General Description

Interior Greenbelt is on Mount Sutro, south of Golden Gate Park and north of Twin Peaks in central San Francisco. Of the two parcels that make up the 16.5-acre Natural Area, the northern parcel (which abuts the University of California San Francisco property) is accessed at the end of Edgewood Street and at the corner of Stanyan Street and Belgrave Avenue. The southern parcel is south across Clarendon Street from the northern parcel and is accessed at the ends of Mt. Spring and Saint Germain Streets. Both parcels are urban forests.

Management Areas

The 1.8-acre MA-2 areas are in the northern parcel and support sensitive plants. The 14.7-acre MA-3 areas include the urban forests outside the MA-2 areas. There are no MA-1 areas.

Recommended Management Actions

At Interior Greenbelt, GR-1, GR-2, GR-4, GR-7, GR-9, GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Interior Greenbelt Natural Area:

- IG-1a—Reduce and contain herbaceous invasive plants and prevent invasive trees from becoming established;
- IG-1b—Remove approximately 140 of the estimated 5,800 blue gum eucalyptus trees (*Eucalyptus globulus*);
- IG-1c—Revegetate using appropriate native plants in those areas where invasive plants have been removed to maintain and enhance the existing scrub mosaic communities;
- IG-1d—Augment existing populations of sensitive plants;
- IG-1e—Reintroduce rare plants to reduce the potential for local extinction of sensitive species in San Francisco;
- IG-2a—Develop a new trail linking existing secondary trails with trails on the University of California property (note that this work is underway and is expected to be completed in June 2011); and
- IG-2b—Formalize existing social trails where appropriate and eliminate where not.

III.I.17 Kite Hill (KH)

General Description

Kite Hill is a grassy knoll in the central portion of San Francisco, near the intersection of 19th and Yukon Streets. Most of the 2.7-acre Natural Area is grassland, with an ornamental garden north of the corner of 19th and Yukon Streets.

Management Areas

The 0.6-acre MA-1 area has native scrub series, rock outcrops, and annual grasslands with high native species diversity. The 0.5-acre MA-2 area buffers the MA-1 area and includes native landscaping along the Yukon Street frontage. The 1.6-acre MA-3 area has grasslands in the eastern portion of the Natural Area.

Recommended Management Actions

At Kite Hill, GR-1 through GR-4, GR-7, and GR-9 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Kite Hill Natural Area:

- KH-1a—Contain and reduce herbaceous and woody invasive plants and prevent invasive tree species from becoming established;
- KH-1b—Maintain and diversify grasslands, with the initial focus on areas where native species are dominant;
- KH-1c—Install showy native vegetation near the road and access points;
- KH-1d—Reintroduce populations of rare plant species to help prevent local extinctions of these species in San Francisco;
- KH-1e—Maintain and enhance the grassland-scrub oak woodland ecotone²⁰ to increase habitat diversity and value to wildlife; and
- KH-2a—Revegetate a large area of exposed soil surrounding a small group of apple trees by hand-broadcasting the appropriate seed mixture and by applying mulch to the area. Install signs explaining the benefits of this revegetation.

III.I.18 Lake Merced (LM)

General Description

Lake Merced is in the southwest portion of San Francisco and is roughly bordered by John Muir Drive, Skyline Boulevard, and Lake Merced Boulevard. The San Francisco Public Utilities Commission (SFPUC) owns Lake Merced, and the SFRPD maintains the recreational uses under the terms of a memorandum of understanding between the two departments. Recreation at the lake includes boating, fishing, golfing, jogging, bicycling, skeet shooting, and picnicking. Lake Merced is made up of four connected sub-lakes: North, East, South, and Impound. A designated DPA on the north side of East Lake is in an area informally known as the Mesa. The Natural Area covers approximately 395 of the lake's 614 acres and generally encompasses the lake, the bordering freshwater marsh wetland, and upland vegetation.

²⁰ Ecotone—A transitional zone between two vegetation communities that contains the characteristic species of each community.

Management Areas

The 60.8-acre MA-1 areas include double-crested cormorant rookeries,²¹ a portion of the Mesa that supports sensitive plant species, Impound Lake and its associated wetlands, and tule marsh around East, North, and South Lakes. The 101.8-acre MA-2 areas include the water of East Lake, which supports western pond turtles, and the habitat between the marshes and the Natural Area boundary. The 231.5-acre MA-3 areas include urban forests and North and South Lakes.

Recommended Management Actions

At Lake Merced, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, and GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Lake Merced Natural Area:

- LM-1a—Contain and reduce herbaceous and woody invasive plants and plant native species;
- LM-1b—Remove approximately 134 of the estimated 12,000 invasive blue gum eucalyptus (*Eucalyptus globulus*) trees, a little more than one percent of the total inventory, to maintain and enhance native habitats;
- LM-1c—Prevent the establishment of invasive tree species to maintain and enhance coastal wetland scrub;²²
- LM-1d—Maintain and enhance sensitive habitats;
- LM-2a—Augment existing sensitive plants to maintain these species and enhance their chances of survival;
- LM-2b—Reintroduce populations of rare plant species to help prevent countywide extinctions of these species;
- LM-3a—Remove trees in such a way as to avoid removing those used by raptors, cormorants, and herons and remove no trees within 150 feet of occupied nests;
- LM-3b—Consider closing social trails near cormorant nesting colonies, hawk nests, and heron nesting areas if trail usage appears to disrupt nesting. Install signs at rental boat launch locations asking boaters to remain at least 30 feet from the edge of the marsh between February 1 and August 31;

²¹ Rookery—Colony or aggregation of animals of the same species.

²² Scrub—low trees or shrubs collectively.

- LM-3c—Remove invasive understory vegetation when bird nests are not active;
- LM-3d—Locate and map raptor nests during inactive periods;
- LM-4a—Maintain and enhance important bird nesting and foraging habitat to include removal of invasive species and natural recruitment of preferred species;
- LM-5a—Create more open grassland habitat through vegetation management and control of invasive species;
- LM-5b—Remove iceplant to create openings where native grasslands and grassland/scrub mosaics could be established;
- LM-6a—Remove invasive vegetation and enhance native scrub and grassland species in upland sandy soils next to East Lake to allow for western pond turtle nesting. Create piles of logs or rocks to increase and improve basking habitat;
- LM-6b—Protect the western pond turtle by periodically trapping and removing nonnative turtle species;
- LM-6c—Restrict public access to the East Lake water and shoreline from April 1 to August 31 to avoid disturbing breeding turtles;
- LM-7a—Relocate the DPA to a different area to avoid disturbing breeding birds in the current location;

(Note: The SFRPD determined following completion of the final draft SNRAMP that, due to ongoing disturbance of breeding birds, this DPA should be closed, rather than monitored. This DPA would be closed in accordance with the SFRPD Final Dog Policy (SFRPD 2002) and SFPUC's Lake Merced Watershed Report (SFPUC 2011). Due to the San Francisco moratorium on new DPAs, the Lake Merced DPA couldn't be relocated to a new location, so it would only be removed. Restoration of the site would continue, following removal of the DPA.)

- LM-8a—Implement GR-14;
- LM-8b—Consider participating in the development of an environmental education center;

(Note: Constructing and operating an environmental education center is no longer proposed as part of the SNRAMP. The SNRAMP will be updated to reflect this change. Should those activities be proposed at some point, the appropriate level of CEQA analysis would be undertaken, and applicable permits and other regulatory agency approvals would be obtained.)

- LM-8c—Maintain existing interpretive signs at key locations;
- LM-9a—Treat small-scale erosion gullies with such measures as gully plugs, brush boxes, energy dissipaters, and water bars and plant these areas with native vegetation to prevent soil erosion;
- LM-9b—Coordinate with the San Francisco Department of Public Works and other agencies about programs to address large-scale erosion gullies;
- LM-10a—Create an educational program for golf course staff; and
- LM-10b—Install informational and interpretive signs next to Lake Merced, along the periphery of Harding Park Golf Course, indicating that the area is sensitive wildlife habitat and install temporary barriers along sensitive areas during large golf tournaments.

III.I.19 McLaren Park (MP)

General Description

McLaren Park covers 312.6 acres near the southeast corner of San Francisco and is bisected by Mansell Street. Sunnydale and Visitacion Avenues cross the southern half of the park, while John F. Shelley Drive crosses the northern half. Recreational facilities within the park include over 11 miles of trails, tennis courts, ball fields, a golf course, picnic areas, and an amphitheater. Three designated DPAs are within the park, two within and one next to the Natural Area. The Natural Area covers 165.3 acres and is made up of grassland, scrub, and tree-dominated vegetation series.

Management Areas

The 34.9-acre MA-1 areas include sensitive riparian habitat, grassland habitat, marsh habitat, and an area of diverse grasslands supporting sensitive plant species. The 68.3-acre MA-2 areas may also contain sensitive species²³ and habitats and act as buffers between the MA-1 areas and the adjacent urban forest. These areas are being restored, and trees and shrubs are being removed, and native species are being planted. The 61.4-acre MA-3 areas include urban forests, grasslands, and forest-grassland mosaics.

²³ Sensitive species—Species that are listed on the California Native Plant Society plant list or *Inventory of Rare and Endangered Vascular Plants*.

Recommended Management Actions

At McLaren Park, GR-1 through GR-4, GR-6, GR-7, and GR-9 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the McLaren Park Natural Area:

- MP-1a—Reduce and contain herbaceous and woody invasive plants;
- MP-1b—Remove approximately 809 of the estimated 19,500 invasive blue gum eucalyptus (*Eucalyptus globulus*) trees to enhance sensitive species habitats;
- MP-1c—Revegetate, using appropriate native plants in those areas where invasive plants have been removed;
- MP-1d—Augment existing sensitive plants to prevent the extinction of rare or uncommon grassland plants in McLaren Park;
- MP-1e—Reintroduce rare plant species to help prevent local extinction of sensitive species in San Francisco;
- MP-2a—Increase the patch size of willow and coastal scrub by removing invasive species that border these areas and allowing natural recruitment into the newly opened areas;
- MP-2b—Increase the structural diversity of habitats by planting native vegetation that is different in height from the existing plants;
- MP-2c—Restrict foot traffic in the Gray Fox Creek area;
- MP-3a—Remove fruiting plants only in the very early spring before nesting starts but after wintering birds have left;
- MP-4a—Install spring boxes or small artificial pool habitats associated with springs and seeps to enhance amphibian habitat;
- MP-5a—Continue to control emergent vegetation in Yosemite Marsh to prevent cattails from completely clogging the open water areas;
- MP-5b—Continue to allow the development of an unmowed grass buffer along the channel between Yosemite Marsh and the recreation area;
- MP-5c—Routinely monitor the San Francisco forktail damselfly population;
- MP-5d—Create an environmental education program for all SFRPD personnel that work at McLaren Park;

- MP-5e—Protect the San Francisco forktail damselfly at Yosemite Marsh by not adding any fish to the pond;
- MP-6a—Conduct an annual evaluation of the mission blue butterfly population;
- MP-6b—Install larval host plants and nectar sources as part of revegetation efforts;
- MP-7a—Install signs and temporary barriers along the roadway to protect sensitive areas from off-road vehicles;
- MP-8a—Restrict access to sensitive habitat areas if damage continues;
- MP-9a—Eliminate dog access to a portion of Gray Fox Creek and convert the area around the creek to an on-leash area, resulting in the loss of 8.3 acres of DPA; and
- MP-9b—Monitor native grassland and wildflower areas within the remaining off-leash area of the Shelley Loop and Geneva Avenue DPAs.

III.1.20 Mount Davidson (MD)

General Description

Mount Davidson is in south-central San Francisco just south of Portola Drive and partly next to Juanita Avenue, Dalewood Way, and Molimo Drive in the Miraloma neighborhood. Forests dominate the landscape, covering three-quarters of the 40.2-acre Natural Area. Developed facilities are minimal. Mount Davidson is a highly visible focal point within San Francisco and supports a diverse array of habitats, plants, and animals.

Management Areas

The 8.8-acre MA-1 areas include two areas on the east-facing slope where the native Franciscan coastal scrub (huckleberry and reed grass) and grasslands are found and another area in the understory of the eucalyptus forest where populations of Pacific reed grass persist. The 11-acre MA-2 areas may also contain sensitive species, and its habitats serve as buffers between the extensive urban forests and the MA-1 areas. At Mount Davidson, the 20.1-acre MA-3 area is composed entirely of urban forest.

Recommended Management Actions

At Mount Davidson, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, and GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Mount Davidson Natural Area:

- MD-1a—Reduce woody and herbaceous invasive plants, prevent invasive tree species from establishing, and reduce understory plants;
- MD-1b—Remove approximately 1,600 invasive blue gum eucalyptus trees of the estimated 11,000 invasive trees to maintain and enhance native habitats;
- MD-1c—Revegetate using appropriate native plants, enhance and diversify existing grasslands and coastal scrub habitats, and plant the understory and forest gaps, in accordance with GR-15;
- MD-1d—Augment existing rare or uncommon species to maintain these species and enhance their chances of survival;
- MD-1e—Reintroduce populations of rare plant species to help prevent countywide extinctions of these species;
- MD-2a—Remove invasive species bordering native scrub, and connect isolated patches of shrubs with plantings and brush piles;
- MD-2b—Plant native species of differing heights to increase structural diversity;
- MD-3a—Remove fruiting invasive plants after breeding season and after native replacements mature to fruiting stage; and
- MD-4a—Consider establishing a permanent water source for birds and other native animals and provide breeding habitat for amphibians.

III.I.21 Palou-Phelps (PP)

General Description

Palou-Phelps Park covers 2.5 acres near the intersection of Palou and Phelps Streets in southeastern San Francisco. The park has a playground area at the northern entry. The 2.1-acre Natural Area has a vegetated slope made up primarily of grasslands.

Management Areas

The 0.8-acre MA-1 area is rich grassland above the playground that includes purple needlegrass (*Nassella pulchra*) prairie. The 0.4-acre MA-2 area supports natural resources and serves as a buffer for the MA-1 area. The MA-3 0.8-acre area contains invasive scrub series and trees in the eastern portion of the Natural Area.

Recommended Management Actions

At Palou-Phelps, GR-1 through GR-4, GR-7, and GR-9 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Palou-Phelps Natural Area:

- PP-1a—Reduce and contain herbaceous and woody invasive plants and prevent invasive trees from becoming established;
- PP-1b—Revegetate with appropriate native plants those areas where invasive vegetation has been removed;
- PP-1c—Reintroduce sensitive plants;
- PP-1d—Maintain the existing mosaic of urban forest and grassland; and
- PP-2a—Close an unsafe social trail segment leading southeast from the playground and investigate the best possible route to reach the southern portion of the Natural Area.

III.I.22 Pine Lake (PL)

General Description

The 8.4-acre Pine Lake Natural Area is within the 30.3-acre Pine Lake Park. The Natural Area is bounded in part by Wawona Way on the north and Crestlake Drive on the west and south sides. The eastern edge of Pine Lake abuts the Stern Grove Park Recreation Area. Surrounded on three sides by an urban forest, Pine Lake (or Laguna Puerca), with a water surface area of approximately 1.7 acres, is one of the few natural lakes in San Francisco. Most of Pine Lake's undeveloped areas are covered with nonnative blue gum eucalyptus (*Eucalyptus globulus*) forest. A designated DPA exists in the meadow to the east of the Natural Area.

Management Areas

The one-acre MA-1 area at Pine Lake is associated with the wetland habitat in the lake. The 3.8-acre MA-2 area includes the bulk of the open water, willow habitat, and buffer area around the MA-1 area. The 3.6-acre MA-3 areas are those that are less sensitive and not a priority for direct management; they include the urban forest on the slopes that surround Pine Lake.

Recommended Management Actions

At Pine Lake, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, and GR-11 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Pine Lake Natural Area:

- PL-1a—Reduce populations of invasive plants, including understory plants, periodically remove water primrose to preserve the open water of Pine Lake, prevent invasive trees from becoming established, and prune invasive trees to create light windows to encourage plant growth in the understory;
- PL-1b—Revegetate with appropriate native plants that are consistent with the diversity, cover, and density of reference plots in similar habitats around San Francisco, enhance and diversify existing wetlands and willow riparian areas, and develop and maintain a continuous riparian corridor to Pine Lake at the base of the slope on the south side of the Natural Area to increase available habitat for birds;
- PL-2a—Locate and map raptor nests during inactive periods, avoid removing trees used by raptors, and prohibit tree removal activities within 150 feet of occupied nests;
- PL-3a—Remove invasive species to increase the patch size of willows and coastal scrub and create larger habitat units by encouraging willows to form a continuous riparian corridor to the lake;
- PL-3b—Install native plants of different height from existing habitats to increase structural diversity;
- PL-3c—Install native hydrophytic vegetation that provides cover and foraging habitat for resident and migratory waterfowl along the degraded shoreline of Pine Lake;
- PL-4a—Determine the presence, population, and reproduction status of western pond turtles at Pine Lake;
- PL-4b—Relocate any western pond turtles to the higher-quality habitat at Lake Merced;
- PL-5a—Consider reintroducing Pacific chorus frogs into Pine Lake;
- PL-5b—Consult with the California Department of Fish and Game before introducing any species;
- PL-6a—Reopen the concrete trail on the western end of the Natural Area if it allows safe public access, otherwise close the concrete trail and develop a nearby alternate route; remove old concrete and revegetate the site;
- PL-6b—Maintain and improve 2,144 linear feet of primary trails throughout the Natural Area and reroute or close degraded areas and social trails;

- PL-7a—In accordance with the Sigmund Stern Grove and Pine Lake Park Improvement Plan, provide one dedicated access point to Pine Lake (one at the beach at the east end and one overlooking the lake at the west end) and reduce uncontrolled shoreline access;
- PL-7b—Restrict dog access to the lake; and
- PL-7c—Post signs informing public of rules at the lake prohibiting dog access in the lake.

III.I.23 Sharp Park (SP)

General Description

The 411-acre Sharp Park is in the town of Pacifica in San Mateo County. The park borders the Pacific Ocean and is bisected by Highway 1. The Sharp Park Golf Course and Laguna Salada are on the western side of Highway 1. An archery range and extensive canyon are on the eastern side. Sharp Park Road cuts through the northern edge of Sharp Park, east of Highway 1. Sanchez Creek originates in the upper canyon of Sharp Park and approximately bisects the park in an east-west direction. Sharp Park is one of the largest SFRPD parks and is surrounded by significant open spaces. Mori Point, recently acquired by the GGNRA, borders the southwestern edge, and the Sweeney Ridge GGNRA borders the park on the southeastern and eastern edges. The northern side of Sharp Park is bordered by undeveloped areas within the cities of Pacifica and San Bruno.

The Natural Areas account for 237.2 acres within Sharp Park and encompass the upper canyon areas, portions of Sanchez Creek, and the Laguna Salada wetlands and associated vegetation. The vegetation of Sharp Park is dominated by invasive forest and a golf course, but the park also contains significant areas of wetlands and scrub vegetation.

Management Areas

The Sharp Park management areas include the wetlands associated with Laguna Salada and Horse Stable Pond, grassland and scrub areas, and the urban forests of the canyon. The 35-acre MA-1 areas include three areas in the upper canyon and three in the Laguna Salada area. The 125.1-acre MA-2 areas surround each MA-1 in the upper canyon, may also contain sensitive species and habitats, and provide buffers between the extensive urban forests and the MA-1 areas. Many of the MA-2 areas in the upper canyon also support diverse assemblages of scrub and riparian vegetation that provide important structural diversity. The 76.5-acre MA-3 areas at Sharp Park include most of the areas that are dominated by invasive trees but that are lacking the understory complexity found in the MA-2 areas.

Recommended Management Actions

At Sharp Park, GR-1, GR-2, GR-4, and GR-6 through GR-15 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Sharp Park Natural Area:

- SP-1a—Reduce woody and herbaceous invasive plants, prevent invasive tree species from being established, and reduce invasive understory plants;
- SP-1b—Remove approximately 15,000 invasive blue gum eucalyptus of the estimated 54,000 invasive trees to maintain and enhance native habitats;
- SP-1c—Revegetate using appropriate native plants, enhance and diversify existing wetlands, creek grasslands, and coastal scrub habitats to approximate the diversity, cover, and density of reference sites around San Francisco, and plant the understory and forest gaps in accordance with GR-15;
- SP-1d—Augment existing rare or uncommon grassland species to maintain these species and enhance their chances of survival;
- SP-1e—Consider reintroducing sensitive species;
- SP-2a—Implement a control program for feral pigs;
- SP-3a—Preserve natural or biodegradable elements (branches, trees, and logs) during vegetation management and remove other materials;
- SP-4a—Implement improvements to protect and enhance the habitat for the California red-legged frog and San Francisco garter snake at Laguna Salada, including the following (this action is addressed as part of the Sharp Park restoration project in Section III.F.2):
 - Create upland mounds for foraging, resting, and escape cover for the California red-legged frog and the San Francisco garter snake;
 - Dredge excess sediments and accumulated organic matter, including stands of encroaching tules, to maintain open water and fringe habitat in the wetlands complex and use appropriate dredged material on site to create or enhance upland habitat or to increase the elevation of certain golf course fairways;
 - Continue monitoring for California red-legged frogs and San Francisco garter snakes; and
 - Install and maintain signs and barriers to prevent disturbance of sensitive habitat in Horse Stable Pond and Laguna Salada by dogs or other possible nuisances.

- SP-4b—Construct upland mounds in the area directly south and southeast of Laguna Salada and plant with native grasses and herbs to provide snake and frog basking sites, and to provide nesting habitat for riparian birds (this action is addressed as part of the Sharp Park restoration project in Section III.F.2);
- SP-4c—Continue to maintain water levels in Horse Stable Pond so that red-legged frog egg masses remain hydrated;
- SP-4d—Remove any bullfrogs, an invasive species, that are found in Laguna Salada or Horse Stable Pond;
- SP-6a—Develop a plan for safe public access for San Francisco archers to the upper canyon and nearby GGNRA lands;
- SP-7a—Make 33.3 acres of Arrowhead Pond, Laguna Salada, and Horse Stable Pond off limits to dogs to prevent access to sensitive habitats; if this is not effective, use fencing to close social trails in these areas;
- SP-8a—For the purpose of protecting these species, educate golf course staff about the importance of identifying California red-legged frogs, San Francisco garter snakes, and forktail damselflies and their habitats;
- SP-9b—Establish a vegetation management plan for the canal connecting Laguna Salada and Horse Stable Pond that would allow channel maintenance without affecting the forktail damselfly, California red-legged frog, or San Francisco garter snake (this action is addressed as part of the Sharp Park restoration project in Section III.F.2).
- SP-9c—Work with golf course maintenance staff to incorporate native plants within bank stabilization efforts along Sanchez Creek where it flows through the golf course;
- SP-10a—Backfill trenches on the north side of Sharp Park Road with nearby loose soil, replant with appropriate native vegetation;
- SP-11a—Develop and implement a comprehensive plan to control the erosion in the extensive area of eroded badlands in the isolated northern portion of the park bounded by the loop in Sharp Park Road; and
- SP-12a—Work with other divisions of the SFRPD as necessary to facilitate cleanup and remediation of the former rifle range.

(Note: Because these cleanup and remediation activities are part of a separate process led by the SFRPD Capital Division, are complete, and have been evaluated under a separate CEQA review, they are not addressed as part of the SNRAMP in this EIR)

SFRPD would continue to use pumps to manage water levels in Horse Stable Pond to conserve the California red-legged frog by conducting post-rainfall inspections of the pond for California red-legged frog egg masses and making any pumping changes necessary to prevent stranding and other impacts to egg masses, if found to be present.

This EIR addresses the project-level impacts from both Laguna Salada routine maintenance and the Laguna Salada restoration activities at Sharp Park as part of the Sharp Park restoration analysis; routine maintenance within other parts of the park are addressed at the project-level; other programmatic projects at Sharp Park are evaluated programmatically.

III.1.24 Tank Hill (TK)

General Description

Tank Hill is in central San Francisco on Twin Peaks Boulevard near Golden Gate Park. The Natural Area is a 2.9-acre grassy knoll rich in local plant species. The property is publicly accessible via a wooden stairway from Twin Peaks Boulevard and a retained-earth stairway at the end of Belgrave Street.

Management Areas

The 1.5-acre MA-1 areas are grassland and rock outcrops that support sensitive species. The 0.6-acre MA-2 areas buffer the MA-1 areas. The 0.7-acre MA-3 areas include tree-dominated habitats and steep slopes in the southern portion of the Natural Area.

Recommended Management Actions

At Tank Hill, GR-1, GR-2, GR-4, GR-7, and GR-9 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Tank Hill Natural Area:

- TK-1a—Contain and reduce herbaceous and woody invasive plants;
- TK-1b—Augment populations of sensitive plant species;
- TK-1c—Reintroduce sensitive plant species;

- TK-1d—Revegetate areas where invasive plants have been removed with appropriate native species;
- TK-1e—Prevent establishment of invasive tree species; and
- TK-2a—Following control of invasive species, install native scrub and oaks.

III.I.25 Twin Peaks (TP)

General Description

The 31.1-acre Twin Peaks Natural Areas are north of Mount Davidson and south of Buena Vista Park and Corona Heights. To the north of Twin Peaks are Sutro Tower, a San Francisco Fire Department reservoir, and a parking lot for one of the most popular vista points in San Francisco (popularly known as Christmas Tree Point). The Fire Department property, Christmas Tree Point, and other open space to the north contain Natural Areas, which, when combined with SFRPD property, make a much larger and more viable habitat area. The Natural Areas at Twin Peaks essentially encompass the entire area, except for the roads, viewpoints, and the reservoir.

Twin Peaks has a north-south orientation and is divided into several discontinuous sections by Twin Peaks Boulevard, which winds along its slopes. Twin Peaks' west-facing slopes receive substantial fog and strong winds, while the east-facing slopes receive more sun and warmth. The vegetation is primarily a mix of intergrading patches of grassland and scrub. Twin Peaks offers spectacular views of the surrounding Bay Area and is a world-famous tourist attraction. Twin Peaks receives a high level of recreational use and contains a segment of the Bay Ridge Trail.

Management Areas

Four management areas have been designated at Twin Peaks. The 12.6-acre MA-1 areas include rich native grasslands and sensitive species habitat, including mission blue butterfly habitat. Much of the 14.3-acre MA-2 areas are coastal scrub areas. There are two 3.8-acre MA-3 areas, most of which are along the boundary of the Twin Peaks Natural Area, next to the surrounding residential neighborhoods.

Recommended Management Actions

At Twin Peaks, GR-1, GR-2, GR-4, GR-6, GR-7, GR-9, and GR-11 through GR-14 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Twin Peaks Natural Area:

- TP-1a—Contain and reduce woody and herbaceous invasive plants;

- TP-1b—Augment existing rare or uncommon plant species to help ensure the continued presence of these species, and consider reintroducing sensitive species;
- TP-1c—Maintain and enhance existing grassland habitats using diversity, cover, and density targets generated from reference sites around San Francisco, plant native grassland and scrub species, and maintain toyon, oak, and coastal scrub in the tree-dominated areas on the park's edges;
- TP-1d—Prevent invasive tree species from becoming established and remove three pine trees out of 88 existing invasive trees;
- TP-2a—Continue to monitor the mission blue butterfly population;
- TP-2b—Augment host plant populations whenever possible;
- TP-3a—Maintain existing fences to route park users to safe and designated trails and develop safe pedestrian access along Twin Peaks Boulevard, including developing approximately 500 feet of new trails, if they are required. Explore options with the San Francisco Municipal Transit Agency to convert a portion of Twin Peaks Boulevard to a multi-use trail;
- TP-3b—Install signs at all formal access points to show that trails are for foot use only, monitor the use of trails within the area, and install appropriate fencing to prevent wheeled-vehicle access to sensitive habitats if necessary;
- TP-3c—Install signs at known habitat areas of the mission blue butterfly indicating on-trail and on-leash access only and consider lining the trail with fences; and
- TP-4a—Consider restricting access to or fencing 5.9 acres of mission blue butterfly habitat next to or surrounding the trails.

III.I.26 15th Avenue Steps (FI)

General Description

The 0.3-acre 15th Avenue Steps Natural Area is in the Golden Gate Heights area of San Francisco and is the extension of 15th Avenue, between Kirkham and Lawton Streets. Access is via a set of concrete stairs bisecting the Natural Area, which supports native oak trees and habitat for a variety of resident and migratory bird species.

Management Areas

The 0.2-acre MA-2 area includes coast live oak trees and California blackberry scrub on both sides of the concrete stairs. There are no MA-1 and MA-3 areas.

Recommended Management Actions

At 15th Avenue Steps, GR-1, GR-2, GR-4, GR-7, GR-9, GR-11, and GR-12 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the 15th Avenue Steps Natural Area:

- FI-1a—Allow for recruitment of native plants, enhance existing habitats, contain and reduce herbaceous and woody species, remove invasive plants and replace with appropriate dune species; and
- FI-1b—Maintain and enhance oak woodland and coastal scrub communities.

III.I.27 Everson/Digby (ED)

General Description

The Everson/Digby property was recently determined to be a Natural Area and was not addressed in the SNRAMP. The 1.2-acre Everson/Digby Natural Area is undeveloped open space between Everson Street and Digby Street in the Diamond Heights area of San Francisco, east of Glen Canyon Park. The vegetation of is composed primarily of grasslands with shrubs and trees along its lower (northern) boundary. This Natural Area provides important habitat for native plants, grassland habitat, regionally significant San Francisco city views, and suitable habitat for a variety of bird species. A paved sidewalk runs along Digby Street at the upper (southern) boundary of the Natural Area.

Management Areas

The management areas at the Everson/Digby Natural Area have been delineated based on the presence of diverse native grasslands. The 0.9-acre MA-1 area supports a rich array of species including California poppy (*Eschscholzia californica*), purple needle grass (*Nassella pulchra*), and California melica (*Melica californica*), and is more intact habitat than the 0.1-acre MA-2 area that borders Digby Street. The 0.2-acre MA-3 areas include tree and shrub communities.

Recommended Management Actions

At Everson/Digby, GR-1, GR-3, GR-4, GR-7, GR-9, GR-10, GR-11, GR-12, and GR-13 would be implemented to address management issues. In addition, the following site-specific management actions are recommended for the Everson/Digby Natural Area:

- ED-1a—Reduce and contain herbaceous and woody invasive species, including radish, fennel, and annual grasses in all management areas. Prevent the establishment of invasive trees in grasslands;
- ED-1b—Revegetate areas where invasive species have been removed using appropriate native plants. Enhance and diversify existing grasslands. Augment the existing uncommon grassland plant species such as silver lupine (*Lupinus albifrons* var. *collinus*) in MA-1a. Within MA-2a, gradually replace the existing nonnative grassland with a native grassland including California poppy (*Eschscholzia californica*), purple needle grass (*Nassella pulchra*), and California melica (*Melica californica*). Using diversity, cover, and density targets generated from reference sites within and around San Francisco, plant native grassland species in the appropriate areas; and
- ED-1c—Contain or reduce acacia (*Acacia dealbata*), broom (*Genista monspessulana*), cotoneaster (*Cotoneaster* sp.), and fennel (*Foeniculum vulgare*) in MA-3a areas and diversify the grassland interface with wildlife-enhancing species and design.

IV. PLANS AND POLICIES

This section identifies and discusses applicable regional and local land use plans and policies relevant to the proposed project. The focus of this section is the San Francisco land use plans and policies. San Francisco land use plans and policies are primarily applicable to projects within the jurisdictional boundaries of San Francisco, although in some cases they may apply to projects outside San Francisco. This information is relevant to the evaluation of impacts of the proposed project with respect to specific significance criteria under CEQA that require analysis of the compatibility of a proposed project with certain aspects of local land use plans and policies.

The Natural Areas are scattered throughout the central and southern portions of the San Francisco and constitute four percent of the total city area. Sharp Park is in the city of Pacifica. Most Natural Areas are owned and managed by the SFRPD; the Balboa Natural Area is owned by San Francisco and is managed by the NPS, while the SFPUC owns, and SFRPD manages, the Lake Merced Natural Area.

The SFRPD is guided by the San Francisco City Charter along with other city plans and policies. These plans include the *San Francisco General Plan*, which sets forth the comprehensive, long-term land use policy for the San Francisco, and the *San Francisco Sustainability Plan*, which addresses the long-term sustainability of the city. In addition the SFRPD has created the Natural Areas Program to support and develop a community-based habitat restoration program. The plans and policies applicable to the proposed project, as well as other relevant plans and policies, are discussed herein.

This chapter discusses the project's inconsistencies, if any, with applicable plans and policies that may result in physical environmental effects. If no inconsistencies are found, the discussion lists the plans that were reviewed and states that no inconsistencies were identified.

Policy conflicts do not, in and of themselves, indicate a significant environmental effect within the meaning of CEQA, in that the intent of CEQA is to determine physical effects associated with a project. Many of the plans of the City and County of San Francisco and the other relevant jurisdictions contain policies that address multiple goals pertaining to different resource areas. To the extent that physical environmental impacts of a proposed project may result from conflicts with one of the goals related to a specific resource topic, such impacts are analyzed in this EIR in that respective topical section, such as Section V.G, Biological Resources, and Section V.K, Air Quality.

IV.A APPLICABLE PLANS AND POLICIES

IV.A.1 San Francisco General Plan

One of the basic goals of the *San Francisco General Plan* is “coordination of the growth and development of the City with the growth and development of adjoining cities and counties and of the San Francisco Bay Region.” The general plan consists of ten issue-oriented plan elements—Air Quality, Arts, Commerce and Industry, Community Facilities, Community Safety, Environmental Protection, Housing, Recreation and Open Space, Transportation, and Urban Design. The plan elements relevant to the proposed project are briefly described below. There are also 16 Area Plans for San Francisco that address development within each of those geographic areas. The Area Plans near the Natural Areas include Bayview Hunters Point and Western Shoreline.

Air Quality Element

This element promotes the goal of clean air planning through objectives and policies aimed at adherence to air quality regulations, focusing development near transit services, and advocating alternatives to the private automobile.

Environmental Protection Element

This element addresses the impact of urbanization on the natural environment. The element promotes the protection of plant and animal life and freshwater sources and speaks to the responsibility of San Francisco to provide a permanent, clean water supply to meet present and future needs and to maintain an adequate water distribution system.

Recreation and Open Space Element

This element promotes the goal of preserving and protecting open spaces. Policy 2.13 of the General Plan requires the City to preserve and protect the Significant Natural Resource Areas. Policy 13 includes natural resource areas and naturalistic areas as potential protection and preservation areas. The policy identifies the following criteria used to determine a Significant Natural Resource Area: (1) sites that are undeveloped, relatively undisturbed remnants of San Francisco’s original landscape that either support diverse and significant indigenous plant and wildlife habitats or contain rare geologic formations or riparian zones; (2) sites that contain rare, threatened, or endangered species or areas likely to support these species; and (3) areas that are adjacent to other protected natural resource areas. The policy further stipulates that management plans be developed for each of the Natural Areas. Specifically, the policy describes the need to:

- Identify Natural Areas and inventory them;
- Identify the presence of natural resources;
- Describe practices such as exotic plant species removal; and
- Identify policies governing access and recreational uses to ensure that natural resource values are not diminished by public use.

Urban Design Element

This element concerns the physical character and order of the City and the relationship between people and their environment. It provides a general plan, responding to issues relating to City pattern, conservation, major new development, and neighborhood environment.

Western Shoreline Area Plan

The policies of the San Francisco Local Coastal Program were incorporated into the general plan as part of this area plan. Applicable area plan policies include the following:

- Objective 5: Preserve the recreational and natural habitat of Lake Merced.
 - Policy 5.1: Preserve in a safe, attractive and usable condition the recreational facilities, passive activities, playgrounds and vistas of the Lake Merced area for the enjoyment of citizens and visitors to the city.
 - Policy 5.2: Maintain a recreational pathway around the lake designed for multiple use.
 - Policy 5.3: Allow only those activities in the Lake Merced area which will not threaten the quality of the water as a standby reservoir for emergency use.
 - Policy 5.4: As it becomes obsolete, replace the police pistol range on the southerly side of South Lake with recreational facilities.

As described above, the *San Francisco General Plan* addresses such elements as air quality, community safety (including protection from geologic and seismic hazards), and environmental protection (including protection of water resources and biological resources and addressing recreation and open space).

The project proposes to restore and manage the Natural Areas. Although the project could result in negative impacts to natural systems in the short term, mitigation measures would minimize those potential impacts, and management actions are intended to result in net long-term benefits to natural systems. Implementation of the project would identify natural resources and maintain and

preserve native plant and animal communities and local biodiversity. No inconsistencies with the *San Francisco General Plan* were identified.

IV.A.2 San Francisco Priority Policies

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added Section 101.1 to the City Planning Code to establish eight Priority Policies. These policies, and the sections of the Initial Study checklist addressing the environmental issues associated with the policies, are: (1) preservation and enhancement of neighborhood-serving retail uses; (2) protection of neighborhood character (Question 1c, Land Use and Land Use Planning); (3) preservation and enhancement of affordable housing (Question 3b, Population and Housing, with regard to housing supply and displacement issues); (4) discouragement of commuter automobiles (Questions 5a,b, and f, Transportation and Circulation); (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership (Question 1C, Land Use and Land Use Planning); (6) maximization of earthquake preparedness (Questions 13a-d, Geology and Soils); (7) landmark and historic building preservation (Question 4a, Cultural and Paleontological Resources); and (8) protection of open space (Questions 8a and b, Wind and Shadow, and Questions 9a and c, Recreation). Prior to issuing a permit for any project which requires an Initial Study under CEQA, prior to issuing a permit for any demolition, conversion, or change of use, and prior to taking any action which requires a finding of consistency with the *San Francisco General Plan*, the City is required to find that the proposed project or legislation would be consistent with the Priority Policies. As noted above, the consistency of the proposed project with the environmental topics associated with the Priority Policies is discussed in Chapter V, Environmental Setting and Impacts, Chapter VI, Other CEQA Issues, and the project's Initial Study (Appendix A), providing information for use in the case report for the proposed project. The case report and approval motions for the proposed project would contain the Planning Department's comprehensive project analysis and findings regarding consistency of the proposed project with the Priority Policies.

No inconsistencies with the Priority Policies were identified.

IV.A.3 Sustainability Plan for San Francisco

The *Sustainability Plan for San Francisco* (CCSF 1996b) was endorsed by the San Francisco Board of Supervisors in 1997. Although the Board has not committed the City to perform the actions addressed in the plan, the plan serves as a blueprint for sustainability, with many of its individual proposals requiring further development and public comment should they be proposed for implementation. The underlying goals of the plan are to maintain the physical resources and

systems that support life in San Francisco and to create a social structure that will allow such maintenance. It is divided into 15 topic areas, 10 that address specific environmental issues (Air Quality; Biodiversity; Energy, Climate Change and Ozone Depletion; Food and Agriculture; Hazardous Materials; Human Health; Parks, Open Spaces and Streetscapes; Solid Waste; Transportation; and Water and Wastewater), and five that are broader in scope and cover many issues (Economy and Economic Development; Environmental Justice; Municipal Expenditures; Public Information and Education; and Risk Management). Each topic area in the plan has a set of indicators that are to be used over time to determine whether San Francisco is moving in a sustainable direction in that particular area. The Biodiversity section, which includes 39 specific actions, addresses the goals of increased ecological understanding, protection, and restoration of remnant natural ecosystems; increased habitat value in developed and naturalistic areas; and collection, organization, and development of historic information on habitat and biodiversity.

The *Sustainability Plan for San Francisco* was developed to address San Francisco's long-term environmental sustainability, and it adopted many of the goals and objectives of the 1995 Significant Natural Resource Areas Management Plan. As such, no inconsistencies with the *Sustainability Plan for San Francisco* were identified.

IV.A.4 Natural Areas Program

The mission of the Natural Areas Program is two-fold: to restore and enhance remnant Natural Areas and to develop and support community-based stewardship of these areas (CCSF 2008c). Recognizing the functions and value of these Natural Areas and the need to protect and restore them, SFRPD agreed to support and develop a community-based habitat restoration program, today known as the Natural Areas Program. No inconsistencies with the Natural Areas Program were identified.

IV.A.5 San Francisco Dog Policy

The SFRPD is the steward of wide-ranging unique landscapes and makes decisions on land management practices. The SFRPD's Dog Policy (SFRPD 2002) reflects the SFRPD Strategic Plan, input from community stakeholder groups, San Francisco Municipal Codes, the 1998 Dog Task Force recommendations, and the best and most relevant efforts of established dog park designs and policies. The SFRPD welcomes dogs on leashes in most of its parks; dogs are allowed off-leash in 19 designated areas. Existing and proposed sites will need to be evaluated in the context of this policy. Dogs are not allowed in some areas, as noted in Section 3.1 (Location) of the policy. The policy supports continued and increased education about how to be a responsible park user with a pet.

The SFRPD's Dog Policy excludes dogs (on- and off-leash) from sensitive habitat areas, such as sensitive wildlife areas (e.g., breeding habitat for birds), sensitive remnant native plant communities (e.g., wetlands), sensitive plant populations (e.g., locally rare wildflower species), and high erosion prone areas, and excludes them temporarily from restoration areas. This policy attempts to reconcile conflicting priorities between dog walkers and other recreational uses. As such, no inconsistencies with the SFRPD's Dog Policy were identified.

IV.A.6 San Francisco Bay Basin (Region 2) Water Quality Control Plan

Water for recreation and habitat is associated with the Natural Areas. The San Francisco Bay Basin (Region 2) Water Quality Control Plan contains water quality regulations adopted by the San Francisco Bay Regional Water Quality Control Board. It has been approved by the State Water Resources Control Board, the Office of Administrative Law, and US Environmental Protection Agency (EPA) (SFBRWQCB 2007). It also contains statewide regulations adopted by the State Water Resources Control Board and other state agencies that refer to activities regulated by the board. No inconsistencies with the San Francisco Bay Basin (Region 2) Water Quality Control Plan were identified.

IV.A.7 San Francisco Bay Plan

The San Francisco Bay Plan guides the protection and development of the bay and its tributary waterways, marshes, managed wetlands, salt ponds, and shoreline (San Francisco Bay Conservation and Development Commission 2008). A major plan proposal is to develop waterfront parks and recreation facilities. New shoreline parks, beaches, marinas, fishing piers, scenic drives, and hiking or bicycling pathways should be provided in many areas. The bay and its shoreline offer particularly important opportunities for recreational development in urban areas where large concentrations of people live close to the water but are shut off from it. Highest priority should be given to recreational development in these areas as an important means of helping to immediately relieve urban tensions. No inconsistencies with the San Francisco Bay Plan were identified.

IV.A.8 Climate Action Plan for San Francisco

The Climate Action Plan for San Francisco (San Francisco Department of the Environment and San Francisco Public Utilities Commission 2004):

- Provides background information on the causes of climate change and projections of its impacts on California and San Francisco from recent scientific reports;
- Presents estimates of San Francisco's baseline greenhouse gas emissions inventory and reduction target;

- Describes recommended emissions reduction actions in the key target sectors - transportation, energy efficiency, renewable energy, and solid waste management – to meet the 2012 goal; and
- Presents next steps required over the near term to implement the plan.

No inconsistencies with the Climate Action Plan were identified.

IV.A.9 Urban Forestry Ordinance

The San Francisco Urban Forestry Ordinance defines landmark trees, significant trees, street trees, and hazard trees. It also outlines protections for landmark trees, significant trees, and street trees. No landmark trees are proposed for removal under the SNRAMP. Should tree removal include significant trees or street trees, the permits required under this ordinance would be obtained before removal. No inconsistencies with this ordinance were identified.

IV.A.10 Pacifica Local Coastal Land Use Plan

Pacifica's Local Coastal Land Use Plan (City of Pacifica 1980b) serves as the land use plan for the City of Pacifica's coastal zone and was written in accordance with the policies of the California Coastal Act of 1976. A portion of the Sharp Park coastal zone west of Highway 1 and outside the Laguna Salada wetland complex is under the jurisdiction of Pacifica's Local Coastal Land Use Plan. The Local Coastal Land Use Plan was developed by the City of Pacifica with extensive participation by local residents. It was adopted in 1980, and is undergoing an update, expected to be completed in 2012. The Local Coastal Land Use Plan includes 33 Coastal Act policies, most of which are applicable to particular General Plan elements. The policies cover such topics as access, facilities, recreation, habitat protection, scenic and visual qualities, and cultural resources. No inconsistencies with the Pacifica Local Coastal Land Use Plan were identified.

IV.A.11 Bay Area 2010 Clean Air Plan

The Bay Area Air Quality Management District, in cooperation with the Metropolitan Transportation Commission, the Association of Bay Area Governments, and the Bay Conservation and Development Commission, prepared the Bay Area 2010 Clean Air Plan (BAAQMD 2010a). This plan is required because the Bay Area is designated as nonattainment for the state ozone and particulate matter standards and includes all feasible measures to reduce emissions of ozone precursors and to reduce transport of those precursors to neighboring air basins. The Clean Air Plan outlines a plan to improve Bay Area air quality and to protect public health. The three-part strategy includes reducing emissions and decreasing ambient concentrations of harmful pollutants; safeguarding public health by reducing exposure to air pollutants that pose the greatest health

risk, with an emphasis on protecting the communities most heavily impacted by air pollution; and reducing greenhouse gas (GHG) emissions to protect the climate. The 2010 Clean Air Plan control strategy includes 55 control measures that address stationary sources, mobile sources, transportation control, land use and local impacts, and energy and climate. No inconsistencies with the Bay Area 2010 Clean Air Plan were identified. Compliance with the 2010 Clean Air Plan is further addressed in Section V.K, Air Quality.

IV.A.12 California Coastal Act

The California Coastal Act applies to projects that result in the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes occurring in the coastal zone. The act limits these activities to certain types of projects (restoration projects, for example, are included among the permitted projects) and stipulates criteria under which development is permitted. Chapter 3 of the act details the coastal resources planning and management policies (Sections 30200 to 30265.5). The act also permanently established the California Coastal Commission (CCC).

The portion of the Sharp Park Natural Area extending 1,000 feet inland from the levee is within the coastal zone and falls within the jurisdiction of the CCC; proposed SNRAMP activities within the coastal zone may require a coastal development permit. The Balboa Natural Area also is within the coastal zone and the jurisdiction of the CCC; however, none of the proposed SNRAMP activities at this Natural Area would require a coastal development permit. The India Basin Shoreline Park is within the coastal zone and under the jurisdiction of the Bay Conservation and Development Commission; however, none of the proposed SNRAMP activities at this Natural Area would require a coastal development permit.

The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The policies of the act are the statutory standards that apply to planning and regulatory decisions made by the commission and by local governments, pursuant to the act. Implementation of the act's policies is accomplished primarily through the preparation of local coastal programs that include land use plans. To ensure that coastal resources are effectively protected in light of changing circumstances, such as new information and changing development pressures and impacts, the CCC is required to review each certified local coastal program at least once every five years.

For the resources evaluated in Chapter V of this EIR, the applicable California Coastal Act policies are presented below, and the project's consistency with those policies is evaluated. No inconsistencies with the California Coastal Act were identified.

Aesthetics

The California Coastal Act policy applicable to aesthetics is the following:

- Protecting scenic and visual qualities of coastal areas (Section 30251).

Sharp Park borders the Pacific Ocean. Restoration activities would alter and restore scenic resources (e.g., land, water, vegetation, animals, structures, and other features). Promoting the natural integrity of the area would ultimately reestablish the local native scenic resources typical of the Natural Area. This would not diminish general scenic views and would still be compatible with the local setting. The overall visual landscape of the coastline would not be degraded. Restoration at Sharp Park would not be inconsistent with the California Coastal Act.

Cultural and Paleontological Resources

The California Coastal Act policy applicable to cultural and paleontological resources is the following:

- Where development would adversely impact archaeological or paleontological resources as identified by the State Historic Preservation Officer, reasonable mitigation measures shall be required (Section 30244).

To mitigate the adverse impacts of the Sharp Park restoration project on archaeological and paleontological resources, this EIR identifies Mitigation Measures M-CP-10 and M-CP-17; thus, the project is not inconsistent with the policies of the California Coastal Act.

Recreation

The California Coastal Act policies applicable to recreation resources for this project are the following:

- Providing and maintaining maximum access and recreation opportunities for all the people (Section 30210);
- Protecting the availability of water-oriented recreation activities not provided at inland water areas (Section 30220);

- Protecting oceanfront land suitable for recreational use unless anticipated demand for that use is already provided for in the area (Section 30221); and
- Encouraging boating activities on coastal waters (Section 30224).

The proposed management actions at India Basin Shoreline Park include activities to manage the health of the vegetation. Implementation of these actions is not anticipated to impede shoreline access for fishing and water-dependent recreation, such as boating, at this Natural Area because access points would remain open and recreational activities would continue during management action implementation. Other policies relevant to recreation would not be impacted by proposed activities at this Natural Area.

The Sharp Park restoration project involves modifying and restoring the Laguna Salada wetland complex. To achieve this, approximately 19 acres of the Sharp Park Golf Course would be modified. Although modification of the Sharp Park Golf Course may deter some people from using it, the golf course would still be open to the public, continuing to maximize recreation activities in the Natural Area. Additionally, the golf course and the Laguna Salada area do not currently provide access to the shoreline, so access would be unaffected by the restoration activities at Sharp Park. Access to the shoreline is available via Mori Point, immediately south of Sharp Park. Other California Coastal Act policies relevant to recreation would not be impacted by the restoration at Sharp Park.

Based on the above, the project is not inconsistent with the policies of the California Coastal Act.

Biological Resources

The California Coastal Act policies applicable to biological resources are the following:

- Maintaining, enhancing, and restoring marine resources (Section 30230);
- Maintaining and restoring biological productivity and quality of coastal waters and water bodies to benefit marine organisms and protection of human health (Section 30231);
- Limiting and controlling the diking, filling, and dredging of coastal waters and water bodies (Section 30233); and
- Protecting environmentally sensitive habitat areas from significant disruption of habitat values (Section 30240).

The Sharp Park restoration project involves modifying the Laguna Salada wetland complex. It does not involve activities that would affect marine resources. Modifications to Laguna Salada, including

any filling and dredging of water bodies under this project would be done for restoration purposes and to improve the quality of habitat used by the state and/or federally protected San Francisco garter snake, California red-legged frog, and western pond turtle populations. While the project would cause temporary disruptions to habitat during the seasonal restoration activities, those activities would ultimately increase the value of habitat for the protected San Francisco garter snake and California red-legged frog populations, and thus the project is not inconsistent with the objectives of the California Coastal Act.

Hydrology and Water Quality

The California Coastal Act policies applicable to hydrology and water quality are the following:

- Maintaining and restoring biological productivity and quality of coastal waters and water bodies to benefit marine organisms and protection of human health (Section 30231);
- Protecting against spills of petroleum products and other hazardous substances (Section 30232); and
- Limiting and controlling the diking, filling, and dredging of coastal waters and water bodies (Section 30233).

The Sharp Park restoration project involves modifying the Laguna Salada wetland complex. Both the project and the mitigation measures identified in this section would maintain and improve both the short-term and long-term quality of waters that are hydraulically connected to the ocean. The project includes mitigation measures to avoid and minimize the effects of petroleum spills. The dredging of water bodies under this project would be done for restoration purposes and to improve the quality of habitat used by local San Francisco garter snake, California red-legged frog, and western pond turtle populations. As such, this project is not inconsistent with the California Coastal Act policies listed above.

Hazards and Hazardous Materials

The California Coastal Act policies applicable to hazards and hazardous materials are the following:

- Protecting against the spillage of crude oil, gas, petroleum products, or hazardous substances (Section 30232); and
- Minimizing risks from new development to life and property in areas of high fire hazard (Section 30253).

To reduce impacts from the accidental release of hazardous materials, the SFRPD shall prepare an emergency response plan for the Sharp Park restoration, as detailed in Mitigation Measure M-HZ-13. Developing and implementing the plan will ensure the proper storage and use of hazardous materials, proper response to accidental releases, and worker training, all of which will minimize contamination from hazardous materials.

As Sharp Park and a few Natural Areas within San Francisco are classified as moderate to high fire hazard zones, tree and invasive weed removal as part of the programmatic projects would reduce the potential fire hazards within these areas. Further, tree removal would be carefully coordinated, fire suppression equipment would be located on-site, and no prescribed burning is planned within the Natural Areas. Motorized equipment used during restoration would increase the risk of fire. Workers involved in the restoration activities would carry fire extinguishers in their trucks and would use appropriate fire prevention and suppression measures during restoration.

Restoration at Sharp Park would not be inconsistent with the California Coastal Act.

IV.B PACIFICA PLANS AND POLICIES

While the SFRPD and the SNRAMP are not subject to City of Pacifica plans and policies, they are presented in this section for informational purposes.

IV.B.1 Pacifica General Plan

The City of Pacifica General Plan (City of Pacifica 1980a) reviewed planning options for the city and includes nine mandatory elements—land use, circulation, scenic highways, housing, noise, conservation, open space, seismic safety, and safety—and three additional elements—community facilities, historic preservation, and community design. The Policy Plan contains the recommendations of each element, while the Land Use Plan represents the conclusion of the interaction among these element studies. The Land Use Element was revised in 1987, the Open Space and Recreation Element was revised in 1984, and the Seismic Safety and Safety Element was updated in 1983. The comprehensive General Plan update is not expected to be complete until 2012. No inconsistencies with the Pacifica General Plan were identified.

IV.B.2 Pacifica Logging Ordinance

City of Pacifica Ordinance 636-C.S. defines logging as removing, destroying, or harvesting 20 or more trees in one year from a parcel or from contiguous parcels under the same ownership. It defines a tree as any tree six inches in diameter as measured 12 inches from the ground. This ordinance prohibits logging operations unless one of the following conditions is met:

- Said operations are in conjunction with a city permit(s) requiring planning commission and/or city council approval, at which time said operations shall be evaluated and approved or denied at a duly noticed public hearing by the commission and /or council, concurrently with the other permit(s).
- Said operations are necessary immediately for the safety of life or property, as determined by the director of public works or his/her designee.
- Said operations occur on city-owned property and are necessary immediately to maintain public health and safety.

Because the SFRPD and the SNRAMP are not subject to City of Pacifica plans and policies, no city permits would be required for tree removal at Sharp Park.

IV.B.3 Pacifica Heritage Tree Preservation Code

Pacifica Municipal Code Title 4, Chapter 12, Preservation of Heritage Trees, defines a heritage tree as 1) a tree within the City of Pacifica, exclusive of eucalyptus, which has a trunk with a circumference of 50 inches (approximately 16 inches in diameter) or more, measured at 24 inches above the natural grade; or 2) a tree or grove of trees, including eucalyptus, designated by resolution of the city council to be of special historical, environmental, or aesthetic value. The code states that no person shall cut down, destroy, remove, or move a heritage tree, or engage in new construction within the dripline of a heritage tree growing on private property or city-owned property, without a permit. Because the SFRPD and the SNRAMP are not subject to City of Pacifica plans and policies, no city permits would be required for tree removal at Sharp Park.

IV.C SAN MATEO COUNTY PLANS AND POLICIES

While the SFRPD and the SNRAMP are not subject to San Mateo County plans and policies, they are presented in this section for informational purposes.

The Significant Tree Ordinance of San Mateo County requires a permit for cutting down, removing, poisoning, or otherwise killing or destroying or causing to be removed any significant tree or community of trees on any private property. The ordinance defines a significant tree as any live woody plant rising above the ground with a single stem or trunk of a circumference of 38 inches or more measured at four and a half feet vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes. In certain zoning districts, the definition includes all trees in excess of 19 inches in circumference. It defines a community of trees as a group

of trees of any size that are ecologically or aesthetically related to each other such that loss of several of them would cause a significant ecological, aesthetic, or environmental impact in the immediate area.

V. ENVIRONMENTAL SETTING AND IMPACTS

V.A INTRODUCTION

Based on the Initial Study published on April 22, 2009, the San Francisco Planning Department determined that an EIR was required. The preparers of the Initial Study determined that the project effects on the following resources would either be less than significant or that there is no potential occurrence of impacts that were not addressed in the Initial Study analysis, and thus they would require no further analysis: population and housing, transportation and circulation, noise, utilities and service systems, public services, geology and soils, and mineral and energy resources. CEQA does not require further assessment of the environmental effects that would be less than significant; therefore, these resources are not discussed in the EIR (see Appendix A for the Initial Study). The proposed project's effects on land use and land use planning, wind and shadow, hazards and hazardous materials, and agricultural resources also were determined to be less than significant in the Initial Study. These topics are included in the EIR to assist the reader, to provide details about the proposed project, or to respond to scoping comments.

Sections V.B through V.K of this EIR contains a discussion of the potential environmental impacts of implementing the SNRAMP, including the existing site conditions, type and magnitude of project-level and cumulative environmental impacts, feasible mitigation measures that would reduce or avoid identified significant adverse environmental impacts, and feasible improvement measures that would further reduce the magnitude of less than significant impacts. Except as supplemented in Sections V.B through V.K, the existing site condition information from the SNRAMP is incorporated by reference.

V.A.1 Comments Received on the Notice of Preparation

During the 30-day public review period for the NOP, which began on April 22, 2009, and ended on May 26, 2009, comment letters were received from public agencies and individuals, as discussed in Chapter II of this EIR. Additional comments were also received during the May 12 and May 14, 2009 scoping meetings. The NOP, the NOP comment letters, and scoping meeting transcript are included in Appendix A (Notice of Preparation, Initial Study, and Scoping Report) of this EIR and were considered in the EIR analyses.

V.A.2 Scope of the EIR

The following environmental resources are discussed in detail in this EIR:

- Land use and land use planning (Section V.B);
- Aesthetics (Section V.C);

- Cultural and paleontological resources (Section V.D);
- Wind and shadow (Section V.E);
- Recreation (Section V.F);
- Biological resources (Section V.G);
- Hydrology and water quality (Section V.H);
- Hazards and hazardous materials (Section V.I);
- Agriculture and forest resources (Section V.J); and
- Air quality (Section V.K).

All impacts determined to be less than significant are briefly discussed in Chapter VI of this EIR.

V.A.3 Format of the Environmental Analysis

Each environmental topic in Sections V.B through V.K of this EIR presents a program-level and project-level analysis of the Significant Natural Resource Area Management Plan's direct and indirect environmental impacts on the environment. Each section includes a description of the environmental setting and impacts. The impacts discussion includes the significance criteria, project-level impacts and proposed mitigation and improvement measures, and cumulative impacts.

This EIR uses the following terms to describe the level of significance of identified impacts:

- Significant Impact—A significant effect is defined by Section 15382 of the CEQA Guidelines as “a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment ... [but] may be considered in determining whether the physical change is significant.” As defined in this EIR, a significant impact exceeds the defined significance criteria and would result in significant and unavoidable impacts, either with or without feasible mitigation.
 - Significant and Unavoidable Impact (SU)—This is an impact that exceeds the defined significance criteria and cannot be reduced through compliance with local, state, and federal laws and regulations or by implementation of all feasible mitigation measures.

- Significant and Unavoidable Impact with Mitigation (SU/M)—This is an impact that exceeds the defined significance criteria; it can be reduced through compliance with local, state, and federal laws and regulations or by implementation of all feasible mitigation measures, but it cannot be reduced to a less than significant level.
- Less Than Significant Impact with Mitigation (LTS/M)—This is an impact that could exceed the defined significance criteria, but it can be eliminated or reduced to a less than significant level through implementation of the identified mitigation measures.
- Less Than Significant Impact (LTS)—This is an impact that does not exceed the defined significance criteria or that would be eliminated or reduced to a less than significant level through compliance with local, state, and federal laws and regulations.
- No Impact (NI)—No adverse changes to or impacts on the environment are expected.

V.A.4 Cumulative Impact Analysis

CEQA requires that EIRs discuss a project's potential contribution to cumulative impacts, in addition to project-specific impacts. Section 15130(a)(1) of the CEQA Guidelines states that a "cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts." Other projects include past, present, and reasonably foreseeable future projects.

Section 15130(b)(1) of the CEQA Guidelines states that the approach to the cumulative impact analysis may be based on either of the following approaches or on a combination thereof:

- A list of past, present, and probable future projects producing related or cumulative impacts or
- A summary of projections contained in an adopted general plan or related planning document designed to evaluate regional or areawide conditions.

For the purposes of this EIR, the analysis of the potential for the project's incremental effects to be cumulatively considerable is based on a list of related projects identified by San Francisco and neighboring jurisdictions. This list includes those San Francisco Planning Department projects within a quarter mile of a Natural Area that are active or that were closed on or after January 1, 2009. The list also includes General Plan area plans within a quarter mile of each Natural Area. The analysis is also based on reasonably anticipated buildout of the *San Francisco General Plan* or other planning documents, depending on the specific impact being analyzed.

The geographic scope of the cumulative impact analyses and the specific related projects that are included in the analyses may also vary, depending on the specific environmental issue being analyzed. The cumulative context for each cumulative impact analysis is designated in each technical section of this EIR.

CEQA requires that an EIR include a discussion of cumulative impacts to determine whether they are significant. If a cumulative impact is significant, the project's incremental effects must be analyzed to determine if their contribution to the cumulative impact is considerable. In accordance with Section 15065(a)(3) of the CEQA Guidelines, this determination is based on an assessment of the project's incremental effects viewed in combination with the effects of past, present, and foreseeable future related projects. The existence of a current significant cumulative impact does not necessarily mean that the project's contribution to that impact must be significant. Instead, a project's contribution to a significant cumulative impact is significant only if it is cumulatively considerable.

CEQA recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-level impacts but instead should "be guided by the standards of practicality and reasonableness" (Section 15130[b] of the CEQA guidelines). The discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone.

This EIR presents a cumulative impact analysis only when the project's incremental effect would result in a cumulative impact that is less than significant, less than significant with mitigation, significant and unavoidable, or significant and unavoidable with mitigation.

V.B LAND USE AND LAND USE PLANNING

For informational purposes, this topic is included in the EIR to assist the reader and to respond to scoping comments. This section describes the plans and policies that guide use of the lands within the Natural Areas and evaluates the potential for environmental impacts from the proposed management activities. None of the management activities propose to change the general land use within the Natural Areas; therefore, this analysis focuses on consistency with applicable plans and policies and compatibility with surrounding land uses.

Comments related to land use and land use planning received during the NOP scoping process included concerns about:

- Project consistency with Pacifica regulations and plans, specifically the Local Coastal Land Use Plan;
- New policies in the Pacifica General Plan update that could impact the SNRAMP; and
- Effects on land use from restricting recreational access to the Natural Areas.

V.B.1 Regulatory Setting

In California, land use is regulated through local plans and policies, including those described below that are associated with the proposed project.

San Francisco General Plan

In San Francisco, the overall planning framework is set by the San Francisco General Plan, which consists of ten plan elements. General plans are intended to identify features that are unique to each region and to identify policies that preserve and reinforce unique values of the community. Each element identifies objectives and is supported by policy statements and explanations. In addition, eleven neighborhoods have area plans that recognize unique characteristics and strengths of the neighborhoods and introduce objectives and policy statements at the neighborhood level. The concepts of the General Plan are implemented through the zoning code and administrative review processes.

An important value of San Franciscans is represented by Objective 7 of the Environmental Protection Element (CCSF 2004): “Assure that the land resources in San Francisco are used in ways that both respect and preserve the natural values of the land and serve the best interests of all of the city’s citizens.”

Another policy statement is Objective 1 of the Environmental Protection Element: “Achieve a proper balance among the conservation, utilization, and development of San Francisco’s natural resources.”

The Recreation and Open Space Element (CCSF 2007a) guides policies over hiking and bicycle trails and advocates developing additional trails along San Francisco Bay (the Bay Trail), on ridgelines, and along the coast and linking these trails with those in adjacent counties. It defines various classes of open space, including city-serving (for example, Golden Gate Park and McLaren Park), district-serving (larger than 10 acres), neighborhood-serving (less than 10 acres and more than 4 acres), and subneighborhood-serving (generally an acre or less).

Objective 2 of the Recreation and Open Space Element states “Develop and maintain a diversified and balanced citywide system of high quality public open space.” It is supported by Policy 2.8: “Develop a recreational trail system that links city parks and public open space, ridge lines and hilltops, the Bay and ocean, and neighborhoods, and ties into the regional hiking trail system.” The plan identifies several city parks where future segments of these trails should be developed. The Bay Trail is a resource for pedestrians and bicyclists and passes through the India Basin Natural Area. Of the San Francisco Natural Areas, trails would increase at Edgehill Mountain and Interior Greenbelt. Trails would be created at an additional seven San Francisco Natural Areas, and many informal social trails would be closed.

Policy 2.9, “Maintain and expand the urban forest,” acknowledges the role of urban forests in enhancing the quality of life in San Francisco. The text clarifies the need for replacing mature trees and promotes the need for a “major reforestation effort” in the larger city parks. It calls for a systematic inventory of the urban forest, tree replanting, and plant material diversification.

Policy 2.13 is to “Preserve and protect significant natural resource areas.” It specifically addresses the natural resource area management plan and calls for preserving native plant habitats, inventorying natural areas, and protecting natural areas “to ensure that the natural resource values are not diminished or impacted by public use.”

Under Policy 3.5, this element calls for extending the reforestation program within Golden Gate Park “throughout the park to ensure vigorous forest tree growth” Regarding Bayview Park, this section calls for better pedestrian access, which is echoed in the proposed project.

Policy 4.3, “Renovate and renew the City’s parks and recreational facilities,” acknowledges the need for ongoing assessment and renewal of San Francisco’s open space resources.

The San Francisco Recreation and Park Commission has adopted additional policies pertaining to certain parks, such as the master plans for Buena Vista Park, Glen Canyon Park, Golden Gate Park, McLaren Park, and Pine Lake Park.

There is currently a Draft Update of the Recreation and Open Space Element out for review and is expected to be adopted in late 2011. The Draft Update references the SNRAMP as a Related Plan and Agency Program. Many of the policies from the existing Recreation and Open Space Element are included in the Draft Update, including Policy 2.8, regarding developing and enhancing the City's recreational trail system.

The Golden Gate Park Master Plan

The Golden Gate Park Master Plan (SFRPD 1998) identifies three policies that are relevant to the proposed removal of invasive trees. Policy A addresses naturalistic parkland as follows: "Naturalistic parkland comprises the largest land category in Golden Gate Park, and must be preserved to protect the pastoral character of the park and to ensure the retention of park open space. Naturalistic parkland is the predominant landscape of the park and gives the park its visual character."

The second objective of the plan mandates protecting and renewing the park landscape. Policy B places priority on preserving and renewing the park's forestry. It calls for "Removal of hazardous, diseased and dying trees; replacement with appropriate tree species." Another goal is to "Maintain the designated indigenous oak preserves for their natural and historical values as the only remaining indigenous woodlands in the park, and preserve existing oak trees in other areas." Policy E focuses on forested indigenous oak preserves and calls for them to be carefully managed to promote their preservation.

California Coastal Act

The California Coastal Act of 1976 contains policies for the coastal zone regarding development and conservation activities. The portion of the Sharp Park Natural Area extending 1,000 feet inland from the levee is within the coastal zone and falls within the jurisdiction of the CCC; proposed SNRAMP activities within the coastal zone may require a coastal development permit. The Balboa Natural Area also is within the coastal zone and the jurisdiction of the CCC; however, none of the proposed SNRAMP activities at this Natural Area would require a coastal development permit. The India Basin Shoreline Park is within the coastal zone and the jurisdiction of the Bay Conservation and Development Commission; however, none of the proposed SNRAMP activities at this Natural Area

would require a coastal development permit. Section 30001.5 of the California Coastal Act sets forth the five following goals:

- (a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.
- (b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.
- (c) Maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.
- (d) Assure priority for coastal-dependent and coastal-related development over other development on the coast.
- (e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

These policies are used to determine the “adequacy of local coastal plans” and the “permissibility of proposed developments.” Public agencies implementing activities occurring outside of the coastal zone that could have an impact on resources within the coastal zone shall also “consider the effect of such actions on coastal zone resources in order to assure that these policies are achieved.”

City of Pacifica Local Coastal Land Use Plan

The Local Coastal Land Use Plan (City of Pacifica 1980b) is the land use plan for the City of Pacifica’s coastal zone and was written in accordance with the policies of the California Coastal Act of 1976. The current Local Coastal Land Use Plan was adopted in 1980, and the City of Pacifica is undergoing a General Plan Update process, which also includes an update to the Local Coastal Land Use Plan. The final version of the Local Coastal Land Use Plan is expected in 2011. In July 2010, the City of Pacifica made available a Pacifica General Plan Existing Conditions and Key Issues report for public comment. That report included key issues to be addressed in the updated plans. Key Issue 8 acknowledges that the current 1980 Local Coastal Plan will need to be updated because some Coastal Act policies have changed.

Pacifica's Coastal Zone extends from the eastern edge of Highway 1 to the Pacific Ocean and contains six coastal neighborhoods. Coastal zone neighborhood designations and descriptions used in the Local Coastal Land Use Plan were developed in conjunction with the City’s General Plan. A

portion of the Sharp Park coastal zone west of Highway 1 and outside the Laguna Salada wetland complex is included within the Sharp Park Municipal Golf Course/West Fairway Park/Mori Point/Rockaway Beach neighborhood; the remainder of the Sharp Park coastal zone is within the jurisdiction of the CCC. This neighborhood area is described as the largest undeveloped area in the Coastal Zone, with Laguna Salada providing an important habitat area for the San Francisco garter snake. Protection of the highly sensitive San Francisco garter snake habitat is listed as one of the primary issues of concern associated with the neighborhood.

The Local Coastal Land Use Plan includes 33 Coastal Act policies. Policy Number 18 establishes protection for “environmentally sensitive habitat area” from “any significant disruption of habitat values,” and states “only uses dependent on such resources shall be allowed within such areas.” Additionally, “development in areas adjacent to environmentally sensitive habitat areas...shall be sited and designed to prevent impacts which would significantly degrade such areas,” and the continuance of habitat areas is the goal for development adjacent to habitat areas.

Policy Number 24 calls for the “scenic and visual qualities” of coastal areas to be “considered and protected as a resource of public importance.” Therefore, any permitted development should be considerate of ocean and scenic coastal areas, natural landforms, the character of surrounding areas, and where feasible, should “restore and enhance visual quality in visually degraded areas.”

In the Plan Conclusions Section of the Local Coastal Land Use Plan, the San Francisco garter snake habitat is also referenced under the rare and endangered species: habitat protection topical area section. Sharp Park Lagoon and Marsh is identified as one of two wetland areas that should be under a management plan. According to this section, primary habitats are defined as “necessary for the survival and propagation of the garter snake,” and “primary secondary or support areas to the identified primary habitat areas shall be defined by investigating biologists.” In terms of any proposed development, “a secondary habitat buffer should ensure that the “San Francisco garter snake and other sensitive plant or animal species will not be affected.” Secondary habitat area or buffer area uses are limited to “pedestrian access paths, fences necessary to protect the habitat from intrusion by people and domestic animals and other similar uses which either have beneficial effects or at least no significant adverse effects on the primary habitat as determined by the reporting biologist.”

Pacifica General Plan

While Pacifica’s General Plan is not applicable to Sharp Park activities, this section is an informational discussion of that plan.

The City of Pacifica is undergoing a General Plan Update process. The final version of the General Plan is expected in 2011. In July 2010, the City of Pacifica made available a Pacifica General Plan Existing Conditions and Key Issues report for public comment. The report doesn't include any polices and summarizes the existing 1980 General Plan in addition to providing updated data on existing conditions. The report lists key issues to be "discussed with City staff, decision makers, and community members, and ultimately addressed through policies in the updated General Plan." The most relevant in relation to the SNRAMP are Key Issues 6 and 8. Key Issue 6 is "Adding Open Space," which recognizes that open space is mainly under the auspices of Golden Gate National Recreation Area, the County and State parks systems, and the City and County of San Francisco and therefore open space additions must be considered in terms of "local and regional benefit and environmental protection." Key Issue 8 acknowledges that the current 1980 Local Coastal Plan will need to be updated because some Coastal Act policies have changed.

The City of Pacifica General Plan (City of Pacifica 1980a) includes nine mandatory elements—land use, circulation, scenic highways, housing, noise, conservation, open space, seismic safety, and safety—and three additional elements—community facilities, historic preservation, and community design. The Land Use Element was revised in 1987, the Open Space Element was revised in 1984, and the Seismic Safety and Safety Element was updated in 1983. The Land Use Element includes a policy dictating continued cooperation "with other public agencies and utilities in applying compatible uses for their lands, right-of-ways, and easements." In addition to the general land use guidelines, specific neighborhoods are also discussed. The element calls for the portion of East Sharp Park just north of Sharp Park to be designated with a land use of open space residential and highlights the importance of managing future use of the area because of its "potential impact on the City and County of San Francisco's Sharp Park and on the views from Sharp Park Road." Additionally, the Land Use Element includes the coastal zone neighborhood land use descriptions and maps used in the Local Coastal Land Use Plan and specifically the Sharp Park Municipal Golf Course/West Fairway Park/Mori Point/Rockaway Beach neighborhood discussed previously. As noted above, a small portion of the Sharp Park coastal zone is within the jurisdiction of Pacifica; the remainder is within the jurisdiction of the CCC.

The Scenic Highways Element includes provisions for developing, establishing, and protecting scenic highways. Pacifica's Scenic Highways Element has two goals. The first is "preserving, maintaining, and enhancing the visual qualities of the City's scenic corridors," and the second is "making the residents of the City more aware of the City's scenic resources." This emphasis on scenic vistas is supported by the goals of the SNRAMP. The Scenic Highway Element provides for eligible roadways to be selected on the following grounds: designating on the Select Street System

Map or in the General Plan scenic quality and ability to connect areas of recreational or historic interest, providing continuous flow of traffic, and including bicycle/pedestrian routes wherever possible.

The first three policies of the Conservation Element focus on the conservation of trees, indigenous rare and endangered species, and significant neighborhood trees. “Native forestation” and “appropriate trees and vegetation” are also encouraged. The Conservation Element also identifies Laguna Salada as the only wetland area in Pacifica and as habitat for the San Francisco garter snake; for this reason, Laguna Salada is identified for protection because of its unique status habitat for the San Francisco garter snake.

The purpose of the Open Space Element is to address open space in a comprehensive fashion and to encourage recognition of open space as a limited and valuable resource. Pacifica defines open space as “any area which provides recreation, significant visual assets for the City, or is vital for the preservation of irreplaceable natural resources,” and retaining open space for the purpose of preserving natural resources is a priority. Compatible land uses are described as “those which preserve natural resources (including animal habitat), provide for the managed production of resources, provide for outdoor recreation, and provide for the public's health and safety (including areas which require special management or regulation because of inherent hazardous conditions, such as earthquake faults, unstable soils, steep slopes and similar limiting qualities).” Open space should also be balanced in relation to development, public safety, and the scale and character of neighborhood areas.

Additionally, the Open Space Element includes guidance to “protect visual amenities,” and Action Program 3 of the Open Space Element states “Views of open space are as important as access to open space.”

The Seismic Safety and Safety Element identifies portions of Sharp Park Golf Course as being subject to flooding but to a lesser extent than San Pedro Creek. This element also identifies the City as having emergency plans established to manage the needs following an emergency.

The Historic Preservation Element identified four historic sites within Sharp Park—Laguna Salada and Marsh, Sharp Park Golf Course and Clubhouse, Trees in Sharp Park, and Fairway Park World War II Alien Detention Camp. In accordance with its requirements, the element is implemented by a historic ordinance, which also establishes a Pacifica Historic Sites Advisory Committee tasked with reviewing proposed changes to sites and structures. A map in the Historic Preservation Element

shows the general location of the Trees in Sharp Park as toward the east end of the Natural Area. Based on conversations with the Pacifica Planning and Public Works Departments, there no other references or ordinances that identify or pertain to the historic trees in Sharp Park.

The Community Design Element relates Pacifica's distinctive conditions to the general and expected patterns of growth. One of the policies included in the element is to "protect the City's irreplaceable scenic and visual amenities."

The Community Design Element also establishes guidelines and principles for more specific planning actions. For hillside developments, the guidelines are intended to minimize a development's impact on the terrain and to ensure the safety of residents. Guideline Number 1 is "Preserve 'visually significant' slopes and ridgelines, maintain natural open space between areas of development, [and] set aside and preserve natural features." Guideline Number 6 is "Landscape developed areas to blend with the natural landscape and require minimum maintenance and water." Guideline Number 7 is "Minimize the disruption of existing plant life," and Guideline Number 8 is "Phase grading and construction to coincide with periods of dry weather."

V.B.2 Environmental Setting

The 32 Natural Areas exist in parks or portions of parks. In some cases, Natural Areas abut private property in urban uses, as described in Chapter III, Project Description. Most are used as recreational open spaces by residents and visitors. Thirty-one of the Natural Areas are within San Francisco, and the Sharp Park Natural Area is in Pacifica. Sharp Park is owned and operated by the SFRPD. Each of the 32 Natural Areas is described in Chapter III and throughout this EIR.

V.B.3 Impacts

Significance Thresholds

A proposed project would have a significant land use and land use planning impact if it were to result in the following:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Have a substantial impact on the existing character of the vicinity.

Impacts Addressed in the Initial Study

The Initial Study and NOP did not address the significance of the SNRAMP's potential to affect land use and land use planning. Therefore, this EIR evaluates the impacts of the SNRAMP's management actions for each of the 32 Natural Areas as they relate to land use and land use planning. Land use and land use planning impacts are identified based upon the CEQA significance criteria set forth on page 176.

Significant Natural Resource Areas Management Plan Impacts

Community Division

Programmatic Impacts

Impact LU-1: Implementation of programmatic projects under the SNRAMP would not physically divide an existing community. (Less than Significant)

The implementation of programmatic projects (large-scale tree removal, large-scale erosion control projects, trail development or rerouting, or other projects involving an increased recreational use of an area) would occur within the boundaries of defined Natural Areas. Most Natural Areas are currently used as recreational open spaces by residents and visitors. The SNRAMP would not alter the existing land use pattern of the project sites and vicinity. The SNRAMP activities would not introduce new land uses and would take place within existing Natural Areas; therefore, the SNRAMP would not physically divide any established community and the impact would be *less than significant*.

Project-level Impacts (Routine Maintenance)

Impact LU-2: Implementation of routine maintenance activities under the SNRAMP would not physically divide an existing community. (Less than Significant)

The implementation of routine maintenance activities (removing invasive plants, installing plants, removing trees, maintaining trails, and maintaining catchment basins and sediment) within Natural Areas would not alter the existing land use of the project sites and vicinity. Routine maintenance under the SNRAMP would not result in activities or features that would physically divide existing communities surrounding the Natural Areas; therefore, the impact would be *less than significant*.

*Project-level Impacts (Sharp Park Restoration)***Impact LU-3: Implementation of the Sharp Park restoration activities under the SNRAMP would not physically divide an existing community. (Less than Significant)**

Sharp Park restoration activities as outlined in Chapter III would result in the conversion of portions of the Sharp Park Golf Course to wetland and upland habitat for the San Francisco garter snake and California red-legged frog. However, the restoration activities do not include construction of any features that would divide Sharp Park and the existing community. Restoration activities at Sharp Park under the SNRAMP would not physically divide an existing community, and the impact would be *less than significant*.

Land Use Plan or Policy Conflict*Programmatic Impacts***Impact LU-4: Implementation of programmatic projects under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation that was adopted for the purpose of avoiding or mitigating an environmental impact. (Less than Significant)**

Applicable plans for the project site and vicinity are discussed in Section V.B.1 and include the San Francisco General Plan, the Golden Gate Park Master Plan, California Coastal Act, and the Pacifica Local Coastal Land Use Plan; the Pacifica General Plan is not applicable but is discussed in this EIR for informational purposes. The San Francisco General Plan represents many different goals and the ones most relevant to land use under the SNRAMP are those for open space, trails, parks, and recreational facilities. The SNRAMP would generally be consistent with the San Francisco General Plan as outlined in Section V.B.1, including Policy 2.13, to “preserve and protect significant natural resource areas.” In particular, the SNRAMP proposes trail improvements that are consistent with the Recreation and Open Space Element’s trail objectives. Trails would increase at Edgehill Mountain and Interior Greenbelt, and trails would be created at an additional seven San Francisco Natural Areas. While the overall length of trails would be reduced across the 32 Natural Areas, those being removed are problematic because they are social trails, redundant, or near sensitive species or habitat. The programmatic projects would not change the land use of the Natural Areas, and there are no obvious conflicts with the San Francisco General Plan. These projects would not restrict recreational access to or within the Natural Areas.

The Golden Gate Park Master Plan contains policies related to preservation, and the SNRAMP does not pose any significant conflicts with the Golden Gate Park Master Plan. The San Francisco

Sustainability Plan establishes targets or standards with a focus on improving the City's physical environment in specific areas, and the SNRAMP does not represent any obvious conflicts.

In Setting V.B.1, the California Coastal Act and the Pacifica Local Coastal Land Use Plan and the Pacifica General Plan were discussed. Most Sharp Park tree removal would occur in the upper canyon. As stated in the SNRAMP, the upper canyon is outside the coastal zone and therefore a coastal development permit is not required. The California Coastal Act governs activities within and affecting the coastal zone, and SNRAMP actions are consistent with California Coastal Act policies protecting and maintaining the coastal zone environment and balancing recreation and conservation. The Pacifica Local Coastal Land Use Plan is concerned with the protection of environmentally sensitive habitats and scenic and visual qualities of coastal areas; the SNRAMP programmatic projects at Sharp Park are expected to improve sensitive habitats and would not alter the coastal area.

The City of Pacifica General Plan's Conservation Element's emphasizes "native forestation" and "appropriate trees and vegetation" and the SNRAMP objectives of removing nonnative trees and replacing them with other native vegetation are consistent with the Conservation Element. The Conservation Element also identifies San Francisco garter snake habitat for protection, and the SNRAMP recommends that access to the San Francisco garter snake habitat at Sharp Park be restricted. The goals of the SNRAMP are compatible with the Open Space Element's guidance to "protect visual amenities" and statement that "views of open space are as important as access to open space." The SNRAMP's erosion control goals are consistent with the Community Design Element's emphasis on preserving natural features and natural open space, such as visually significant slopes and ridgelines. Finally, the Historic Preservation Element identifies four historic sites within Sharp Park, but there is no further information to suggest a conflict with SNRAMP actions.

The implementation of programmatic projects would not conflict with any applicable plans and policies; therefore, the impact would be *less than significant*.

Project-level Impacts (Routine Maintenance)

Impact LU-5: Implementation of routine maintenance activities under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation that was adopted for the purpose of avoiding or mitigating an environmental impact. (Less than Significant)

As discussed above, the SNRAMP activities do not conflict with applicable land use plans. Routine maintenance would not change the land use of the Natural Areas, and there are no obvious conflicts with the San Francisco General Plan; it would not restrict recreational access to or within the Natural Areas. Regarding the Pacifica Local Coastal Land Use Plan, routine maintenance activities would not alter the Sharp Park coastal area. The routine maintenance activities under the SNRAMP aim to preserve and maintain Natural Areas and do not alter the Natural Areas in a way that would conflict with applicable plans and policies; therefore, the impact would be *less than significant*.

Project-level Impacts (Sharp Park Restoration)

Impact LU-6: Implementation of the Sharp Park restoration activities under the SNRAMP would not conflict with any applicable land use plan, policy, or regulation that was adopted for the purpose of avoiding or mitigating an environmental impact. (Less than Significant)

Applicable plans include the San Francisco General Plan, California Coastal Act and the Pacifica Local Coastal Land Use Plan. The restoration project would not restrict recreational access to or within Sharp Park. The Sharp Park restoration activities would be consistent with the San Francisco General Plan, which is outlined in Section V.B.1. In particular, restoring the wetland complex would help achieve Policy 2.13, to “preserve and protect significant natural resource areas.” This project would not change the land use of the Natural Area, and there are no obvious conflicts with the San Francisco General Plan.

The California Coastal Act and Pacifica Local Coastal Land Use Plan are concerned with the protection of environmentally sensitive habitats and scenic and visual qualities of coastal areas. The restoration activities would enhance environmentally sensitive habitats and maintain coastal visual qualities. This area is within the coastal zone; therefore, a coastal development permit is required.

While not applicable to the management activities at Sharp Park, the Pacifica General Plan is discussed for informational purposes. The restoration activities would be consistent with the Conservation Element of the Pacifica General Plan because the proposed restoration involves removal of only a few individual, nonnative trees and enhancement of habitat for rare and endangered species.

Similar to the actions taken at the other 31 Natural Areas, the Sharp Park restoration activities would not result in changes to land use and would not conflict with plans, policies, or regulations of a jurisdictional agency; therefore, the impact would be *less than significant*. The potential impacts of restoration on the historic Sharp Park Golf Course and Clubhouse are discussed in Section V.D, Cultural and Paleontological Resources.

Existing Character

Programmatic Impacts

Impact LU-7: Implementation of programmatic projects under the SNRAMP would not have a substantial impact upon the existing character of the vicinity. (Less than Significant)

The programmatic projects planned under the SNRAMP (large-scale tree removal, large-scale erosion control projects, trail development or rerouting, or other projects involving an increased recreational use of an area) would introduce restoration activities at Natural Areas. The programmatic projects include changes to vegetation and trails at 32 Natural Areas. At some parks, the change in tree coverage would be minimal (two percent of trees), while in others it would be more noticeable (20 percent of trees). In Natural Areas where large numbers of trees would be removed, the removal would be gradual and would return the vegetation to a state more consistent with the area's original character. Overall, 18,448 invasive trees would be removed, representing 16 percent of the invasive trees in the Natural Areas. At Natural Areas other than Sharp Park, 3,448 invasive trees (approximately 5 percent of the invasive trees in those Natural Areas) would be replaced one-to-one with native trees. There are no projects that would result in a change in land use. Given that there are no proposed changes to the land use and the tree removal and replacement is limited, there would be no substantial impact upon the existing character of the vicinity. Additional information regarding visual impacts and recreation impacts of the proposed project are discussed in V.C, Aesthetics, and V.F, Recreation.

Sharp Park is one of the largest SFRPD parks and is primarily surrounded by open space. The Pacific Ocean represents the western boundary. The Mori Point GGNRA property borders the southwestern edge, and the Sweeney Ridge GGNRA property borders the park on the southeastern and eastern edges. Undeveloped areas within the cities of Pacifica and San Bruno constitute the northern boundary. At Sharp Park, approximately 15,000 invasive trees would be removed and replaced with other native vegetation and approximately 39,000 invasive trees would remain. The proposed tree removal would occur primarily in remote areas of the Natural Area and would not be noticeable enough to alter the character of the Natural Area or of the vicinity. The impact of tree

removal as seen from points outside of Sharp Park is discussed further in V.C, Aesthetics, and recreation impacts associated with the SNRAMP are discussed in V.F, Recreation. Given the similarity of land uses in the vicinity and no proposed changes to the land use, there would be no substantial impact upon the existing character of the vicinity.

The proposed programmatic projects under the SNRAMP would not result in a substantial change in the existing character of the vicinity for each Natural Area; therefore, the impact would be *less than significant*.

Project-level Impacts (Routine Maintenance)

Impact LU-8: Implementation of routine maintenance activities under the SNRAMP would not have a substantial impact upon the existing character of the vicinity. (Less than Significant)

Routine maintenance activities (removing invasive plants, installing plants, removing trees, maintaining trails, and maintaining catchment basins and sediment) would maintain the existing land uses of the Natural Areas and their presence within the surrounding communities. In the context of maintenance projects already occurring in the Natural Areas as a result of the 1995 plan and the scale of the proposed activities, the project would not result in a substantial change in the character of the vicinity. There are no proposed changes to land use as part of the routine maintenance activities under the SNRAMP; therefore, there would be no substantial impact upon the existing character of the vicinity, and the impact would be *less than significant*.

Project-level Impacts (Sharp Park Restoration)

Impact LU-9: Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial impact upon the existing character of the vicinity. (Less than Significant)

Sharp Park is one of the largest SFRPD parks and is primarily surrounded by open space. While the proposed restoration activities would modify the wetland complex, those changes would not alter the overall character of the Natural Area or of the vicinity. Given the similarity of land uses in the vicinity and no proposed changes to the land use as part of the Sharp Park restoration, there would be no substantial impact upon the existing character of the vicinity, and the impact would be *less than significant*.

Cumulative Impacts

Impact LU-10: The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact related to land use and land use planning. (Less than Significant)

As discussed above, the project would conform to the adopted goals, policies, and plans for the San Francisco and Pacifica. The proposed project would result in the implementation of management plans for actions within the Natural Areas. Surrounding land uses would not be affected. The proposed project would not result in changes to the Natural Areas that would divide an existing community, conflict with plans and policies established for protecting the environment, nor would the SNRAMPS result in substantial impacts on land use character; therefore, the project would not contribute to a cumulative impact on land use and land use planning.

V.C AESTHETICS

This section is a description of the aesthetics of the Natural Areas and an evaluation of the potential for environmental impacts from the proposed management activities. While the natural features of each Natural Area have aesthetic value, this analysis focuses on those Natural Areas with the greatest potential for significant impacts on their aesthetic appeal.

Comments related to aesthetics received during the NOP scoping process included concerns about the following:

- The effects of Mount Davidson tree removal on the quality of the human experience and the hill's viewpoint, including increased noise, altered wind and fog patterns, growth of poison oak, and increased erosion;
- Use of a scientific evaluation of aesthetics to address the effects of tree removal, such as on Mount Davidson;
- The impacts on views from the surrounding residences as a result of the three Sharp Park Golf Course scenarios;
- Adverse aesthetic impacts from poor maintenance of the Natural Areas.

V.C.1 Regulatory Setting

San Francisco General Plan

Map 1 in the Urban Design Element in the San Francisco General Plan identifies important vista points to be protected (CCSF 2005a). The Urban Design Element in the San Francisco General Plan also contains a map of Outstanding and Unique Areas, further described under Section V.C.2.

The San Francisco General Plan does not identify protected scenic vistas in the Recreation and Open Space Element or the Transportation Element (CCSF 2007a, 2005b), nor does the City of Pacifica General Plan identify protected scenic vistas in the Scenic Highways Element, the Conservation Element, the Open Space Element, or the Community Design Element (City of Pacifica 1980a). Also, there is no designated state or county scenic highway¹ near the proposed project (California Department of Transportation 2008). Highway 1 is an eligible State Scenic Highway.

¹ Scenic highway—a highway from which a high quality scenic natural landscape can be seen by travelers and with little intrusion by development.

The following principles for city pattern relating to parks are found in the Urban Design Element of the San Francisco General Plan (CCSF 2005a):

- “Where large parks occur at tops of hills, low-rise buildings surrounding them will preserve views from the park and maintain visibility of the park from other areas of the city. Comment: Areas around Mount Davidson and Twin Peaks have a pattern of low development. The hilltops are therefore citywide focal points of natural landscape, functioning much as Telegraph Hill’s summit does in the North Beach area.”
- “Landsaped pathways can visually and functionally link larger open spaces to neighborhoods. Comment: The roadside planting of Park Presidio and Sunset Boulevard, and the landscape connections between Mount Sutro, Twin Peaks, Laguna Honda and Glen Canyon are examples of a system that links parks and other open spaces to one another. Such linkages, creating strong defining features, can be extended to other parts of the city.”

The General Plan notes the importance to residents and visitors of general scenic vistas, such as those involving ridgelines and beaches.

California Coastal Act

The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Those policies applicable to aesthetics are discussed in Section IV.A.12.

V.C.2 Environmental Setting

Scenic Vistas

A scenic vista is a visually appealing view of the distant broad landscape. Map 1 in the Urban Design Element in the San Francisco General Plan identifies important vista points to be protected (CCSF 2005a). These specific vista points are throughout the City and include Natural Areas, such as Mount Davidson and Buena Vista Park. Also, almost all of the Natural Areas include trails, most of which provide general scenic views, such as those along the coast. Sharp Park borders the Pacific Ocean and is described in greater detail below under the Scenic Resources and Visual Character or Quality discussion.

The Golden Gate Park design is essentially a sequence of changing vistas. Some vistas provide long distance views, while others provide shorter views of spaces that bend out of sight, suggesting continuation and enticing the visitor. With few exceptions, the vistas are internal and contained by a dense perimeter planting to shield the surrounding city from view. Some vistas have been lost as plantings have matured. According to the Golden Gate Park Master Plan, where appropriate, historic vistas should be restored, such as the panoramic views from the top of Strawberry Hill (SFRPD 1998).

Scenic Resources and Visual Character or Quality

Scenic resources² are the visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features). The Urban Design Element of the San Francisco General Plan also contains a map of Outstanding and Unique Areas (CCSF 2005a) that includes Telegraph Hill, Russian Hill, Pacific Heights, Buena Vista and Upper Market, and Dolores Heights. Parks are part of the special components that make these areas outstanding and unique. The Buena Vista and Upper Market area includes or is next to Buena Vista Park, Corona Heights, and Tank Hill Natural Areas.

The visual character or quality of the Natural Areas is characterized as being undeveloped, being used for various designated purposes, and being surrounded by an urban environment. The Natural Area settings are described in detail in the SNRAMP (SFRPD 2006).

Described below are the Natural Areas with the greatest potential for aesthetics impacts due to the amount of tree removal that is proposed:

- Sharp Park borders the Pacific Ocean and is bisected by Highway 1. Laguna Salada and most of the Sharp Park Golf Course are on the western side of Highway 1; an archery range, the golf course, and extensive canyon are on the eastern side. Sanchez Creek originates in the upper canyon of Sharp Park and approximately bisects the park in an east-west direction. This park is surrounded by significant open spaces, including Mori Point and Sweeney Ridge. The Natural Areas account for approximately 237 acres within Sharp Park and encompass the upper canyon areas, portions of Sanchez Creek, and the Laguna Salada wetlands and associated vegetation. The vegetation of Sharp Park is dominated by invasive forest and a golf course, but also contains significant areas of wetlands and scrub vegetation (SFRPD 2006).

² Scenic resource—the visible physical features on a landscape

- Mount Davidson, the highest point in San Francisco, is in south-central San Francisco. Elevations range from approximately 600 to 900 feet above sea level. Developed facilities are minimal and include trails, access roads, a bus turnaround, Works Progress Administration (WPA) stairs and retaining walls, a water tank, and the cement cross (owned by the Council of Armenian-American organizations of Northern California and not part of the Natural Area). Forests dominate the landscape at Mount Davidson, covering three-quarters of the Natural Area (SFRPD 2006). As a highly visible focal point within the City that supports a diverse array of habitats, plants, and animals, Mount Davidson has high natural resource and recreational values for the citizens of San Francisco, include City views, high levels of recreational trail use, and extensive urban forest (SFRPD 2006).
- McLaren Park is near the southeast corner of San Francisco. Elevations in McLaren Park range from approximately 100 and 125 feet above mean sea level in the southern and northern corners of the park to just over 525 feet above mean sea level along Mansell Street. Recreation facilities within McLaren Park include over 11 miles of trails, tennis courts, ball fields, a golf course, picnic areas, overlooks, and an amphitheater. The Natural Area at McLaren Park is composed of grassland, scrub, and tree-dominated vegetation series. As one of the largest Natural Areas in the City, McLaren Park has high natural resource and recreation values for San Franciscans, including trails, scenic views, and extensive grasslands (SFRPD 2006).
- Bayview Park is in southeast San Francisco, east of Candlestick Point State Park and Candlestick Park. Developed areas within the Natural Area are limited to paved trails. The 43.9-acre Natural Area at Bayview Park encompasses the entire hill, except for the radio transmitters and private land on the northern and southern boundaries. Bayview Park is one of the more diverse Natural Areas, with vegetation that includes grasslands, shrub, and tree-dominated areas and a large number of sensitive plant species (SFRPD 2006).

As a highly visible focal point within the City that supports a diverse array of habitats, Bayview Park has high natural resource and recreational values for the citizens of San Francisco that include recreation trails; historic WPA features; 360-degree views, including views of the City, San Francisco Bay, San Bruno Mountain, and downtown San Francisco; and extensive grasslands (SFRPD 2006).

As described in Section III.E.1, the design and aesthetic goals for the Natural Areas are as follows:

- Where possible, to develop aesthetically pleasing landscapes that are consistent with surrounding landscapes and that create natural transitions, especially where adjacent parklands and traditionally landscaped areas abut Natural Areas;
- To maintain and develop viewpoints and viewsheds to enhance park experiences; and
- Where possible, to design and maintain landscapes to discourage the accumulation of trash and illegal encampments.

Policy 1.5 in the Urban Design Element in the San Francisco General Plan emphasizes the special nature of each district through distinctive landscaping and other features (CCSF 2005a). This involves preserving what landscaping is there and installing or encouraging new landscaping.

V.C.3 Impacts

Significance Thresholds

A proposed project would have a significant aesthetics impact if it were to result in the following:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including trees, rock outcroppings, and other features of the built or natural environment, that contribute to a scenic public setting; or
- Substantially degrade the visual character or quality of the site and its surroundings.

Impacts Addressed in the Initial Study

In the Initial Study (Appendix A), no impacts related to the following criterion were identified:

- Create a new source of substantial light or glare that would adversely affect day or night views in the area or that would substantially impact other people or properties.

As a result, this CEQA significance criterion is not evaluated further in this EIR.

Significant Natural Resource Areas Management Plan Impacts

A visual quality analysis is somewhat subjective and considers the project in relation to the surrounding visual character, heights and building types of surrounding uses, its potential to obstruct public scenic views and its potential to create light and glare. (The proposed project does not include outdoor or indoor lighting or other components that would create new sources of light

or glare.) A proposed project would have an effect on the visual landscape if it were to cause a substantial demonstrable adverse change. With respect to scenic resources involving changes to vegetation, long-term impacts would involve the permanent loss of vegetation or the relatively long time needed for newly planted trees to reach the size of the trees they replaced; short-term impacts involve the relatively short time needed for replacement vegetation to mature.

The intensity of the impact depends, in part, on viewers and their sensitivity to changes to scenic resources at a Natural Area. Residents, for example, normally are sensitive to changes in their surroundings, as are recreational users of Natural Areas. However, roadway travelers might not be as sensitive because changes to the environment are in view for only a short time, and travelers are generally en route to other destinations.

Scenic Vistas

Programmatic Impacts

Impact AE-1: Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on a scenic vista. (Less than Significant)

The proposed project does not include permanent human-made structures that would obstruct general scenic vistas, such as those involving ridgelines or vistas of San Francisco from Natural Area trails, described above under the Scenic Vistas discussion of Section V.C.2. The proposed project would not permanently restrict access to general scenic vistas. Although the removal of invasive trees would be noticeable, the trees would be replaced with either native trees or other native vegetation, such as native scrub or grassland species. As described in Section III.E.5 (page 92), the SFRPD would select the locations of replacement trees in the San Francisco Natural Areas to preserve views from important points. Because no general scenic vistas would be substantially altered or access to those vistas restricted, the project would have *less than significant* impacts on general scenic vistas.

Specific important viewpoints (identified above under the Scenic Vistas discussion of Section V.C.2), from which vistas are available, would also be affected by the project. These points are throughout the City and include Natural Areas, such as Mount Davidson. Approximately 95 percent of the trees proposed for removal in the SNRAMP are on Mount Davidson and in Sharp Park, McLaren Park, and Bayview Park. Although the removal of invasive trees would be noticeable, the trees in the San Francisco Natural Areas would be replaced with either native trees or other native vegetation, such as native scrub or grassland species, while ensuring that the views from important points are

preserved, as detailed in Section III.E.5 (page 92). While the one-to-one tree replacement ratio would not increase the total number of trees present, specific vistas would likely be altered by planted trees because site-specific conditions are unlikely to allow the new native trees to be planted in the exact same locations as the removed invasive trees. However, in some locations, trees would be replaced by native scrub or grassland species, which would open up views that are currently blocked by trees. No specific scenic vistas would be substantially altered through implementation of the SNRAMP; therefore, the programmatic projects would have *less than significant* impacts on scenic vistas.

Project-level Impacts (Routine Maintenance)

Impact AE-2: Implementation of routine maintenance under the SNRAMP would not have a substantial adverse effect on a scenic vista. (No Impact)

Routine maintenance activities involving invasive weed and tree removal, plantings, and maintenance of trails, catchment basins, and sediment dams are described in Section III.F.2. The scale of the routine maintenance would not be sufficient to substantially alter scenic vistas. Also, these activities already occur within the Natural Areas; therefore, there would be *no impact* on scenic vistas by routine maintenance.

Project-level Impacts (Sharp Park Restoration)

Impact AE-3: Implementation of Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on a scenic vista. (Less than Significant)

The main components of the restoration are as follows, from Section III.F.2 (page 99):

- Dredging to remove sediment and decaying vegetation in Laguna Salada, Horse Stable Pond, and the channel that connects the two water bodies;
- Recontouring the shoreline to create shallow water habitat;
- Creating a habitat corridor between Horse Stable Pond and Laguna Salada;
- Creating an upland peninsula in the middle of the lagoon to provide snakes and frogs with refuge from feral cats and other predators; and
- Constructing upland mounds on the east side of the lagoon and between Laguna Salada and Horse Stable Pond.

The proposed project does not include permanent human-made structures that would obstruct general scenic vistas, such as those involving ridgelines. The proposed project would not permanently restrict access to Sharp Park vistas. Although the removal of invasive vegetation would be noticeable, the vegetation would be replaced, while ensuring that the views from important points are preserved. No vistas would be substantially altered; therefore, the Sharp Park restoration would have *less than significant* impacts on scenic vistas.

Scenic Resources

Scenic resources are the visible physical features on a landscape (e.g., land, water, vegetation, animals, structures, and other features). Changes to specific scenic resources of concern, such as vegetation, are described below.

Programmatic Impacts

Impact AE-4: Implementation of programmatic projects under the SNRAMP would not substantially damage scenic resources. (Less than Significant)

The proposed project would alter scenic resources within the Natural Areas. This would involve, for example, contouring the topography of an area differently and removing certain invasive vegetation to enhance habitat and establish native vegetation. Changes in vegetation include removing and replanting shrubs, bushes, and grasses and removing and replanting trees.

Impacts on scenic resources involving shrubs, bushes, and grasses would be noticeable and include diminished shrub, bush, and grass cover and altered composition and structure of this vegetation. Any adverse impacts on scenic resources involving removal of shrub, bush, and grasses would diminish as replanted vegetation matures.

Impacts on scenic resources involving trees would be noticeable and include diminished trees and altered composition and structure of this vegetation. Figures 4, 5, and 6 show the existing conditions and simulations of tree removal for Sharp Park and Mount Davidson, which have the highest number of trees planned for removal; in these figures, the red circles indicate the areas where noticeable tree removal is expected to occur. These figures simulate the anticipated results of tree removal from publicly accessible locations. The assumption is that the SFRPD intends to spread overall tree removal across the forested portion of a Natural Area and would not concentrate it in a particular location. Approximately 95 percent of all of the trees removed under the SNRAMP

Figure 4: Sharp Park at Archery Site



Existing Conditions



Simulated Conditions

Figure 5: Mount Davidson at Twin Peaks Blvd at Panorama Drive



Existing Conditions



Simulated Conditions

Figure 6: Mount Davidson at Edgehill Way



Existing Conditions



Simulated Conditions

are on Mount Davidson and in Sharp Park, McLaren Park, and Bayview Park. Removing clusters of 20 or more trees on over half an acre would still leave the surrounding forest and its aesthetic value intact. Also, no Landmark Trees would be removed or altered. Furthermore, the large-scale removal of trees would occur over time and not simultaneously in a particular portion of a Natural Area, thereby making the loss of trees less perceptible. As shown in the visual simulations, most of the impacts would not be visible from distant viewpoints but would require a viewer to be close to the tree removal areas. From close-range locations, the overall vegetated character of the areas would be retained. The impacts would be long-term because of the relatively long time needed for newly planted trees to reach the size of the trees they replace. However, as shown in Figures 4, 5, and 6, in long-range views, tree removal would be unnoticeable.

Although scenic resources would be altered, over time, revegetation and the progression of natural processes would gradually reduce the magnitude of these impacts. Except for MA-3 forests, where both native and nonnative species would be used, all removed vegetation would be replaced with native vegetation that is more appropriate for the area's precipitation pattern, water availability, animal populations, and local ecosystems, thereby allowing the new vegetation to thrive more successfully than the invasive vegetation. It would also establish necessary habitat used by native fauna, which are associated with wildlife viewing. Promoting the natural integrity of the areas would ultimately reestablish the native scenic resources typical of the local Natural Area.

Because of the relatively short maturation time, there would be *less than significant* impacts involving shrub, bush, and grass cover by programmatic projects. Although some individuals may feel that any tree removal is an adverse effect, aesthetics are subjective, and the proposed project is not expected to result in a demonstrable adverse change; therefore, the impacts of tree removal by programmatic projects would be *less than significant* and would diminish as trees mature. Also, because the vegetation is better suited to local conditions, it is expected to require less maintenance and, therefore, less intrusion on the natural landscape by maintenance personnel and equipment. There would be fewer of the long-term improvements described above for MA-3 forests because replanting would not involve just native species, but also nonnative species.

Project-Level Impacts (Routine Maintenance)

Impact AE-5: Implementation of routine maintenance under the SNRAMP would not substantially damage scenic resources. (No Impact)

Routine maintenance activities involving invasive weed and tree removal, plantings, and maintenance of trails, catchment basins, and sediment dams are described in Section III.F.2. The

scale and nature of the routine maintenance would not be sufficient to substantially damage individual scenic resources. Also, these activities already occur within the Natural Areas; therefore, there would be *no impact* on scenic resources by routine maintenance.

Project-Level Impacts (Sharp Park Restoration)

Impact AE-6: Implementation of Sharp Park restoration under the SNRAMP would not substantially damage scenic resources. (Less than Significant)

The proposed project would alter scenic resources, for example, by recontouring some of the golf course holes and portions of the wetland complex and by converting vegetated areas to open water habitat. Changes in vegetation include removing certain invasive vegetation to enhance habitat and establish native vegetation. Changes to scenic resources involving vegetation would be noticeable and include diminished vegetation cover and altered composition and structure. These adverse impacts on scenic resources would diminish as the planted vegetation matures. Establishing more locally-native vegetation as a result of the Sharp Park restoration would improve scenic resources by emphasizing mature native vegetation more consistent with the local native landscape desired by the Natural Areas Program. Also, because the vegetation is better suited to local conditions, it is expected to require less maintenance and, therefore, less intrusion on the natural landscape by maintenance personnel and equipment. As a result, there would be *less than significant* impacts on scenic resources from Sharp Park restoration.

Visual Character or Quality

The impact criterion pertaining to scenic resources above discussed changes to specific scenic resources (such as vegetation). This criterion focuses on the broader visual character or quality of the Natural Areas. As defined above, the visual character or quality of the Natural Areas is characterized as being undeveloped, being used for various designated purposes (such as recreation), and being surrounded by an urban environment. After implementation of projects under the SNRAMP, the overall visual setting of the Natural Areas would still be characterized as undeveloped, used for various designated purposes, and surrounded by an urban environment. However, during construction, the visual setting of the Natural Areas would be altered by the presence of construction equipment. Construction-related impacts are short term, temporary and would not result in long term adverse impacts to the visual character of the Natural Areas.

Programmatic Impacts

Impact AE-7: Implementation of programmatic projects under the SNRAMP would not substantially degrade the visual character or quality of the Natural Areas and their surroundings. (Less than Significant)

The proposed project would be required to comply with the policies in the Urban Design Element of the San Francisco General Plan. During implementation of the proposed project, equipment such as trucks and bulldozers would be visible in and around the Natural Areas. The presence of the equipment and project activities would detract from the overall setting of the areas; while these impacts are normally negligible in urban settings, the scenic nature of the Natural Areas makes them an issue of concern for the proposed project. Heavy equipment use would be required in such areas as Sharp Park and may be used at Mount Davidson, McLaren Park, and Bayview Park, where vegetation would be removed on a large scale. Less visible equipment would also be part of project activities and would include, for example, community-based volunteer groups weeding and restoring the areas using hand tools. There would be short-term impacts on the overall setting of the Natural Areas due to the presence of equipment and equipment use would be limited in duration. Although the equipment and project activities would detract from the overall setting of the areas, the equipment and these types of activities are not considered out of place or new to these Natural Areas because the areas currently require maintenance and are surrounded by developed lands (urban areas). In all parks, including Natural Areas, equipment is used for maintenance, and the proposed activities would not be substantially different from the types of activities that are normally required to make repairs or improvements. The proposed project, however, would likely have more equipment than typical maintenance equipment and activities. There would be *less than significant* adverse impacts on the visual character or quality of the Natural Areas by programmatic projects because these impacts would be limited to the duration of construction and would involve equipment and activities similar to typical maintenance equipment and activities that already occur.

Project-Level Impacts (Routine Maintenance)

Impact AE-8: Implementation of routine maintenance under the SNRAMP would not substantially degrade the existing visual character or quality of the Natural Areas and their surroundings. (No Impact)

Routine maintenance activities involving invasive weed and tree removal, plantings, and maintenance of trails, catchment basins, and sediment dams are described in Section III.F.2. The scale of the routine maintenance would not be sufficient to substantially degrade the visual

character or quality of the Natural Areas. Also, these activities already occur within the Natural Areas; therefore, there would be *no impact* on the visual character and quality of the Natural Areas.

Project-Level Impacts (Sharp Park Restoration)

Impact AE-9: Implementation of Sharp Park restoration under the SNRAMP would not substantially degrade the existing visual character or quality of the Natural Areas. (Less than Significant)

During implementation of the proposed project, equipment such as trucks and bulldozers would be visible. The presence of the equipment and project personnel would detract from the overall setting of the area. Less visible equipment would also be part of project activities and include, for example, community-based volunteer groups weeding and restoring the areas using hand tools. Impacts on the overall setting of the Natural Areas would be temporary because the presence of equipment and project personnel would be limited in duration. Therefore, similar to the analysis of programmatic projects, there would be *less than significant* adverse impacts on the visual character or quality of the area from Sharp Park restoration project.

Cumulative Impacts

Impact AE-10: The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact on aesthetics. (Less than Significant)

Cumulative impacts on visual resources would occur during construction and operation of cumulative projects over the course of the SNRAMP's 20-year implementation. The geographic context for the analysis of visual resources is limited to the area surrounding the Natural Areas. As a result, cumulative projects relevant to this analysis typically involve construction activities, such as the Hunters Point Shipyard/Candlestick Park Redevelopment project.

Cumulative development projects in the vicinity of Natural Areas involve construction activities and would involve equipment such as trucks and bulldozers, which would be visible. The presence of construction equipment and activities from cumulative projects would detract from the visual resources associated with Natural Areas. Although equipment and project personnel would detract from the visual resources, they are not considered out of place or new to these Natural Areas or to the surrounding urban environment. Depending on the amount, type, and timing of construction of cumulative projects, cumulative impacts on visual resources could range from short term to long

term. Given the size and nature of the cumulative projects, any adverse cumulative impacts on aesthetic resources would be less than significant.

Operation and maintenance activities of the cumulative projects could involve vegetation changes. Vegetation would likely be removed to accommodate cumulative project needs. The removal of vegetation under cumulative projects would diminish visual resources by decreasing the amount of natural vegetation. Initially, impacts on visual resources, such as diminished vegetation and its altered composition and structure, would be noticeable. However, the contribution from other cumulative projects to enhancing or diminishing the visual character or quality of the areas would depend on their permanent removal or addition of vegetation to the landscape. For example, depending on the cumulative project, trees may need to be planted or replaced, which would reduce cumulative adverse impacts; other types of vegetation, such as shrubs, bushes, and grass, may not require replacement. Also, larger SFPUC cumulative projects may require planting/revegetation plans; consequently, assuming cumulative projects did not reduce the overall amount of vegetation, cumulative adverse impacts involving vegetation would be short term and long term but not significant.

With the uncertain timing of the SNRAMP, it may or may not be implemented in a timeframe that contributes to the impacts of the other cumulative projects. The proposed project is designed to eventually improve the visual character and quality of the areas by establishing vegetation that is more consistent with the native character desired by the Natural Areas Program. As a result, initial project activities would result in adverse impacts similar to the cumulative projects. These include, for example, equipment and activities detracting from the visual resources, as well as diminished vegetation and its altered composition and structure. However, as vegetation matures, the proposed project's contribution to cumulative adverse impacts on visual resources would lessen. Over time, promoting the natural integrity of the Natural Areas would ultimately reestablish the native scenic resources typical of the local Natural Area, resulting in a *less than significant* contribution to cumulative impacts.

V.D CULTURAL AND PALEONTOLOGICAL RESOURCES

This section describes the cultural and paleontological resources of the Natural Areas and the potential for the proposed project to impact those resources. To support this analysis, an archaeological sensitivity assessment of the Natural Areas (King 2010), a historical resources evaluation (HRE) of Sharp Park Golf Course (Mates 2011), and historic resource evaluation responses (HREs) for Sharp Park and Mount Davidson (CCSF 2011a, 2011b) were completed. The HRE and HREs are included in Appendix C. The archaeological sensitivity assessment is a legally confidential document.

Comments related to cultural and paleontological resources received during the NOP scoping process included concerns about the following:

- Recognizing the Sharp Park Golf Course as a significant historic architectural resource;
- Consideration of the history of the Sharp Park Golf Course, which was designed by Allister MacKenzie, with the club house designed by Willis Polk's design firm; and
- Mount Davidson park and monument as important historic entities that should be recorded and documented for listing on the California Register of Historical Resources; keeping any historical trails created and enhanced as part of the WPA projects maintained and open.

V.D.1 Regulatory Setting

Under CEQA, cultural resources¹ listed on, or determined to be eligible for listing on, the California Register of Historical Resources (CRHR) or a local register are those that must be given consideration in the CEQA process. The CRHR is in the California Code of Regulations, Title 14, Chapter 11.5. According to this code, properties listed on or formally determined to be eligible for listing on the National Register of Historic Properties (NRHP) are automatically eligible for listing on the CRHR. A resource is generally considered to be historically significant under CEQA if it meets the criteria for listing on the CRHR.

The CRHR criteria closely parallel those of the NRHP, and historic significance is judged by applying both sets of criteria. The NRHP criteria are identified as Criterion A through Criterion D and the CRHR criteria as Criterion 1 through Criterion 4. The NRHP guidelines state that a historic resource's "quality of significance in American history, architecture, archeology, engineering and

¹ Cultural resource—A generic term that may be used to refer to architectural resources, archaeological resources, traditional cultural properties, or sacred sites regardless of NRHP or CRHR evaluation.

culture” is determined by meeting at least one of four main criteria. Properties may be significant at the local, state, or national level:

- Criterion A: Association with events or trends significant in the broad patterns of our history;
- Criterion B: Association with the lives of significant individuals;
- Criterion C: A property that embodies the distinctive characteristics of a type, period, or method of construction, represents the work of a master, or that possesses high artistic values;
- Criterion D: Has yielded, or is likely to yield, information important to history or prehistory.

In general, Criterion D is used to evaluate historic sites and archaeological resources.

Under the CRHR criteria, each resource must be determined to be significant at the local, state, or national level under one of the four criteria paraphrased below:

- Criterion 1: Resources associated with important events that have made a significant contribution to the broad patterns of our history;
- Criterion 2: Resources associated with the lives of persons important to our past;
- Criterion 3: Resources that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master;
- Criterion 4: Resources that have yielded, or may be likely to yield, information important in prehistory or history.²

A resource is considered eligible for inclusion on the CRHR, and therefore a potential historical resource under CEQA, if it is at least 45 years of age. To be eligible for listing to the CRHR under Criteria 1, 2, or 3, an archaeological resource must contain artifact assemblages, features, or stratigraphic relationships associated with important events or important persons, or be exemplary of a type, period, or method of construction. To be eligible under Criterion 4, a resource need only show the potential to yield important information.

² California Public Resources Code, Sections 4850 through 4858; California Office of Historic Preservation, “Instructions for Nominating Historical Resources to the California Register of Historical Resources,” August 1997.

CEQA requires that the effects of a project on an archaeological resource be taken into consideration. CEQA recognizes archaeological resources as being potential instances of a “unique archaeological resource” or of a “historical resource.” However, it must first be determined if the archaeological resource is a historical resource, that is, if the archaeological resource meets the criteria for listing on the CRHR. An archaeological resource that qualifies as a historical resource under CEQA generally qualifies for listing under Criterion 4 of the CRHR. An archaeological resource may qualify for listing under Criterion 4 when it can be demonstrated that it could significantly contribute to questions of scientific/historical importance. The research value of an archaeological resource can be evaluated only within the context of the prehistoric/historical background of the site of the resource and within the context of prior archaeological research related to the property type.

Artifacts, objects, or sites that do not meet the above criteria are not considered unique archaeological resources. Impacts on archaeological resources that are not unique and those that do not qualify for listing on the CRHR or a local register receive no further consideration under CEQA.

Paleontological resources include fossilized remains or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period. Collecting localities and the geologic formations containing those localities are also considered paleontological resources. They represent a limited, nonrenewable, and impact-sensitive scientific and educational resource.

Impacts on Native American burials are considered under California Public Resources Code 15064.5(d)(1). The SFRPD’s treatment of human remains and of associated or unassociated funerary objects discovered during any soils-disturbing activity would comply with applicable state laws.

Historical architectural resources under CEQA are buildings, structures, or objects, including historic landscapes. The National Park Service’s *Preservation Brief 36* defines a cultural landscape as “a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other values.” There are four general types of cultural landscapes, one of which is the historic designed landscape. National Park Service *National Register Bulletin 18*, “How to Evaluate and Nominate Designed Historic Landscapes,” defines a historic designed landscape as one that “has significance as a design or work of art; was consciously designed and laid out by a master gardener, landscape architect, architect, or horticulturalist to a design principle, or an owner or other amateur using a recognized style or tradition in response or reaction to a recognized style or tradition; has a historical association with a significant person, trend, or event, etc. in landscape gardening or landscape architecture; or a significant relationship to the theory or practice of landscape architecture.” *Bulletin*

18 goes on to list golf courses as an example of grounds designed or developed for outdoor recreation or sports that fall under the category of a designed historic landscape. Therefore, Sharp Park Golf Course was evaluated for its historic significance as a designed historic landscape.

The CEQA Area of Potential Effect (C-APE) is the area for which impacts on cultural resources under CEQA are analyzed for a proposed project. Different C-APEs were used to determine the potential impacts on archaeological resources and historical architectural resources that could result from the proposed project. The C-APE for archaeological resources was defined for the proposed project to include the surface and subsurface areas that would be directly affected by ground disturbance and project activities and is generally considered to be the boundary of each Natural Area. The architectural C-APE also includes the boundary of each Natural Area, but was established to also address nearby historical resources that could be indirectly affected. In general, the architectural C-APE includes historical resources from which the Natural Areas and their associated activities would be audible or visible. Examples of historical resources within the Natural Areas are historic landscapes, historic furniture (such as park benches and water fountains), and built resources (such as staircases, walls, and street lights, and any buildings or structures, such as bridges and restrooms).

California Coastal Act of 1976

The California Coastal Act applies to projects that result in the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes occurring in the coastal zone. The act limits these activities to certain types of projects (restoration projects, for example, are included among the permitted projects) and stipulates criteria under which development is permitted. The California Coastal Act also includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Those policies applicable to cultural and paleontological resources are discussed in Section IV.A.12.

V.D.2 Environmental Setting

To determine project impacts on the various types of cultural resources, records searches were requested in June and October 2008 from the California Historical Resources Information System's Northwest Information Center (NWIC) at Sonoma State University (File Nos. 07-1792 and 08-0414). A third records search was requested in November 2009 for the newly added Everson/Digby Natural Area (File No. 09-0630). Additionally an archaeological sensitivity assessment for all of the

Natural Areas (King 2010), an HRE for the Sharp Park Golf Course (Mates 2011), and HREs for the Sharp Park and Mount Davidson Natural Areas (CCSF 2011a, 2011b) were completed based on these records searches and additional research.

All of the Natural Areas were covered by a study of pre-Spanish ecology of the Bay Area (Mayfield 1978). Previous overviews (general discussions of resources that did not include field surveys) and field surveys (field studies completed specifically to identify archaeological or historic architectural resources) have been conducted within nine of the 32 Natural Areas. The Balboa Natural Area has been partially addressed in two overviews (Mayer 1995; Olmsted and Olmsted 1979) and one linear field survey³ (Chavez and Ramsey 1979). Bayview Park has been completely covered by a regional overview (Hupman and Chavez 2001) and was partially covered by a linear field survey (Hupman and Chavez 2004). Everson/Digby has been fully covered by three overviews (Espey, Huston, & Associates and Dames & Moore 1993; Milliken 1983; Rudo 1982); no field surveys have been conducted in the Natural Area. Hawk Hill has been fully covered by an archaeological field survey (CCSF 1987). India Basin Shoreline Park has been addressed by one cultural resource overview (Gualtieri and Wall 1987), one archaeological field survey (Praetzellis et al. 1994), and one linear archaeological field survey (Hupman and Chavez 1995). Lake Merced has been partially addressed in one regional cultural resource overview (Shoup and Baker 1981), three field surveys (David Chavez and Associates 1993; Heid 1964; Willer and Albee 1957), and one subsurface testing project (Chavez 1988). Palou-Phelps has been partially covered by three linear archaeological field surveys (BioSystems Analysis 1989; Nelson et al. 2002; Sawyer et al. 2000). Pine Lake Natural Area is part of the historic district of Stern Grove and Pine Lake Park and has been entirely covered by a cultural landscape report, with register evaluations that included both archaeological and architectural field surveys (Bradley and Corbett 2004). The preparers of the cultural landscape report determined that Pine Lake Park appears to be eligible as a historic district under NRHP Criterion A and CRHR Criterion 1 at the local level of significance because of its association with settling the western portion of San Francisco, the state-wide eucalyptus boom, WPA-related park and recreation construction in San Francisco during the Great Depression, the Stern Grove Festival, and with the development of recreation facilities in San Francisco. Also, Pine Lake Natural Area was partially covered by a separate archaeological field survey (EDAW and Ward and Associates 2006). Sharp Park has had nine overviews and surveys within and next to it, according to the NWIC database. The Natural Area itself has been partially covered by four archaeological field surveys (Cartier 1984; Melandry 1977; Orlins and Schwaderer 1994; Pastron 2008), two linear archaeological field surveys

³ The term "linear field survey" is used to refer to a field survey that was limited to a corridor, such as for pipelines, utilities, and roads.

(Clark 2006; Moratto 1974), and one archaeological field survey with a historic study and register evaluation (Clark 2007). The San Francisco Planning Department provided an additional survey report, Pastron (2008), specific to the Sharp Park Rifle Range. The other 23 Natural Areas have not been covered by a field survey or a cultural resource overview specific to those areas. These Natural Areas include: 15th Avenue Steps, Bernal Hill, Billy Goat Hill, Brooks Park, Buena Vista Park, Corona Heights, Dorothy Erskine Park, Duncan-Castro, Edgehill Mountain, Fairmont Park, Glen Canyon Park, Golden Gate Heights, Golden Gate Park Oak Woodlands, Grandview Park, Interior Green Belt, Kite Hill, Lakeview/Ashton Mini Park, McLaren Park, Mount Davidson, O'Shaughnessy Hollow, Rock Outcrop, Tank Hill, and Twin Peaks.

Based on the records searches, the archaeological sensitivity assessment, HRE, and HRER, nine Natural Areas contain documented archaeological or architectural cultural resources (Balboa, Bayview Park, Bernal Hill, Brooks Park, Corona Heights, Lake Merced, Mount Davidson, Sharp Park, and Tank Hill). An additional seven Natural Areas (15th Avenue Steps, Buena Vista Park, Golden Gate Park Oak Woodlands, India Basin Shoreline Park, Palou-Phelps, Pine Lake, and Twin Peaks) do not contain documented resources but have cultural resources in the vicinity of the C-APE. No archaeological or architectural resources were documented within or near the remaining 16 Natural Areas.

Architectural Resources

Based on the NWIC records search results, one historic building, the Golden Gate Park Conservatory (CA-SFR-37H [P-38-0037]), is next to the Golden Gate Park Oak Woodlands Natural Area (Oak Woodland, Lily Pond, and Whiskey Hill). Historic canal features associated with the Spring Valley Water Company's water system (CA-SFR-102H [P-38-0093]) are within the Lake Merced Natural Area. The Pine Lake Natural Area is part of the Stern Grove and Pine Lake Park (P-38-4472) historic district. Natural Areas are within the following historic districts:

- *Stern Grove and Pine Lake Park.* As stated above, the historic district of Stern Grove and Pine Lake Park are eligible for listing in the NRHP and CRHR under Criteria A and 1.
- *Golden Gate Park.* Golden Gate Park Oak Woodlands Natural Area is within the Golden Gate Park historic district, which is listed on the NRHP. The Natural Areas of Lily Pond, Whiskey Hill, and Strawberry Hill are within the Golden Gate Park Historic District and all are contributing sites to the historic district (except Whiskey Hill Natural Area which is not named in the nomination form). Golden Gate Park historic district is significant under Criterion C for its landscape architecture as one of the pioneering examples of the large

urban park (Nelson 2003). Secondly, the park has regional significance under Criterion A for social history as the first naturalistic landscape park in the western United States (Nelson 2003).

The Natural Areas that contain urban forest stands, as described in the SNRAMP in Appendix F, are Lake Merced, Glen Canyon Park, Bayview Park, McLaren Park, Mount Davidson, Interior Greenbelt, Dorothy Erskine Park, Corona Heights, and Sharp Park. None of the urban forests in these Natural Areas have been evaluated for their historic significance as potential historic resources. As such, the forest stands in these Natural Areas are treated as potentially historic urban forests or historic landscapes. Impacts on these urban forests are discussed in Section V.D.3.

Through coordination with the SFRPD and the San Francisco Planning Department's Preservation Specialists, additional cultural resources, primarily architectural, were identified that were not found through the NWIC records search (review for potential historic-period buildings or structures through the NWIC database is not comprehensive). This includes the Golden Gate Park Historic District, which incorporates Oak Woodlands Natural Area. This historic district was listed on the NRHP in October 2004 (NRIS 2008; Nelson 2004) and is therefore included on the CRHR as well. GIS data provided by the Planning Department indicate that numerous historic-aged buildings and structures are next to almost all of the Natural Areas. The Mount Davidson Cross is one of these resources; the cross is privately owned and is not part of the Mount Davidson Natural Area. The absence of this resource and other resources in the NWIC database indicates that the resource has not yet been formally documented and submitted to the California Office of Historic Preservation. Because of its historic age (45 years or older), the Mount Davidson Cross is considered a potential historical resource. To be formally determined a historical resource, the cross would need to be recorded and evaluated for eligibility for listing on the CRHR, in consultation with the San Francisco Planning Department's Preservation Specialists. Mount Davidson is also the location of WPA stairs and retaining walls (SFRPD 2006), which have been found to be eligible for listing on the CRHR under Criteria 1 and 3 (NRHP Criteria A and C) (Tetra Tech 2010).

Sharp Park appears to be the most sensitive Natural Area for cultural resources, based on the extent of documented historic activity there and the determination that Sharp Park Golf Course is a historic resource (Tetra Tech 2010). Sharp Park Natural Area is the location of a former 1930s State Relief Camp (Pastron 2008). As part of the camp's efforts to improve the local economy, San Franciscans "were paid 25 cents a day to plant trees, for example, along the valley bounded by Fairway Park and Sharp Park Road" (Hunter et al. 2002, *in* Pastron 2008). Many of these trees may still exist within the Sharp Park Natural Area. Sharp Park is also the location of the former Sharp Park Temporary

Detention Center used during World War II. The facility was one of two that held the largest number of Japanese individuals during this time. Following official closure of the detention center in 1946, a firing range was opened in 1952 but was closed in 1988 for safety concerns (Pastron 2008). One brick-and-wood structure, with a concrete porch, stairs, asphalt apron, and flagpole, as well as another similar but smaller building that once functioned as a restroom, have been identified and are associated with the detention center. Both buildings were believed to have been associated with the former rifle range. Pastron (2008) also documented a report by a member of the Pacifica Historical Society of isolated concrete stairs, possibly remnants of the State Relief Camp or the Detention Center.

In 2011, an HRE was completed by Tetra Tech, on behalf of the Planning Department, to evaluate the historical significance Sharp Park Golf Course. Sharp Park Golf Course was determined eligible for the CRHR and the NRHP under Criteria 1 and A, respectively, for its association with the growth of recreational golf in San Francisco and under Criteria 3 and C, respectively, as a historic landscape. The HRE resulted in the determination that Sharp Park Golf Course meets the criteria for listing on the NRHP for its significance under Criteria A and C and for listing on the CRHR under Criteria 1 and 3. The property's period of significance is from 1929 to 1932, which represent the construction dates for the course's original design.

Sharp Park Golf Course is significant under Criterion A/1, as a resource associated with important events that have made a significant contribution to the broad patterns of our history, because the course's construction is associated with the need within San Francisco for a third municipal golf course. The construction and development of Sharp Park Golf Course was a direct result of the overcrowding at Harding and Lincoln Park municipal courses and the City's desire to build a third course to accommodate San Francisco golfers. The construction of Sharp Park Golf Course represents a development pattern within the City of San Francisco and within the U.S. in general, in which golf was an increasingly popular sport. The years between 1910 and the late 1930s have been called the "golden age of golf" in the U.S. due to the fact that many of the great golf course architects designed courses during this period. Many of the courses, like Sharp Park Golf Course, are still in use today. The construction of Sharp Park Golf Course is directly associated with the growing popularity of recreational golf within the U.S. during the early twentieth century.

Sharp Park Golf Course is also significant under Criterion C/3, as a resource that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master. The course is significant for its architecture and landscape architecture—a public golf course constructed between 1929 and 1932. Sharp Park Golf Course contains many distinctive elements of

its type, a golf course constructed on the oceanside, on sandy dunes, with original seaside holes that provide water hazards as part of the game. The course was designed by a well-known architect, with nuances, style, and innovation that enhanced golf courses constructed during this period in the U.S., many of which were private. The original layout of the golf course included holes featuring multiple tees, double fairways, cross bunkering, fairways in sand dunes, and several holes bordering Laguna Salada. Cypress trees dotted the setting. Although the course has been modified, it is common to modify a living landscape, although efforts to keep the fairways' general original course design were always in effect. Twelve of the original 18 holes are part of the current design, and two fairways are original but without original greens.

The golf course is also the work of a master. While there are other examples of Mackenzie's work that are more well known, Sharp Park Golf Course is an example of his idea of the perfect surroundings for a golf course—holes surrounded by sand dunes next to the seashore. Although alterations have been made to the course, during the period of significance the course retained Mackenzie's routing, surprise elements, and hole and fairway locations.

The clubhouse is a good example of an Eclectic architectural style, with Mission and Spanish elements, improved by the WPA during the Great Depression. The clubhouse was built to serve the golfers of Sharp Park Golf Course, is directly associated with the golf course, and is considered a historical character-defining feature of the golf course. It is a good representation of its architectural type and period, and its alterations have not diminished its historic integrity, as discussed below. The golf course clubhouse has consistently been used as a clubhouse for Sharp Park golfers, as was its original purpose. The presence of the golf course clubhouse helps to convey the historic character of the entire golf course.

Sharp Park Golf Course's character-defining features are the original features and design of the golf course clubhouse, the original permanent maintenance building, and the course's original layout, including the 12 remaining original holes (current holes 1, 2, 3, 8, 9, 10, 11, 13, 14, 15, 17 and 18) and original landscape features. The cypress trees that line the fairways also contribute to its significance, although none of the specific shrubs or trees on the property are considered contributors. The property's noncontributing features are the practice green, the maintenance trailers, the cart paths, the four holes that were moved to the east side of Highway 1, and other alterations that occurred after the period of significance. The golf course is therefore considered a historic resource under CEQA.

Historical architectural resources not yet evaluated for CRHR or NRHP eligibility were identified through the abovementioned NWIC records searches and correspondence with San Francisco Planning Department's Preservation Specialists. No historical architectural resources listed in Article 10 or Article 11 of the San Francisco Planning Code are within the architectural C-APE (CCSF 2003a; CCSF 2003b). One San Francisco Landmark Tree, a blue elderberry, is in the Bernal Hill Natural Area at the corner of Folsom Street and Bernal Heights Boulevard. The overwhelming majority of the proposed project's architectural C-APE have not been previously surveyed for historical architectural resources. As such, the presence of historical architectural resources within most of the architectural C-APE of the proposed project is unknown.

Archaeological Resources

Given the lack of field surveys and recorded archaeological sites within the Natural Areas, an archaeological sensitivity assessment was used to better assess the potential for the proposed project to impact archaeological resources.

Table 6 summarizes the assessed sensitivity of each Natural Area for subsurface and surface archaeological resources. The assessments were primarily deductive, based on site density, survey coverage, proximity to prehistoric and historic-era natural resources, extent of disturbances, and the presence of buried landforms suitable in age for human occupation in the Bay Area (Late Pleistocene, Holocene, or historic), and depositional environments suitable for preserving

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
15 th Avenue Steps	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possible historic rock quarry and possibility for prehistoric use; • No survey coverage; • Limited natural resources; • Holocene landform; • Moderate natural and human disturbances. 	Moderate
Balboa	<ul style="list-style-type: none"> • Comparatively high site density in surrounding area; • Redeposition of Golden Gate Park landfill may include subsurface archaeological resources associated with the Midwinter International Exposition; • Evidence of high rate of historic activity; • Partial survey coverage; • Active Holocene landform; • Extensive natural and human disturbances. 	High
Bayview Park	<ul style="list-style-type: none"> • Comparatively high site density in surrounding area; 	Moderate

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
	<ul style="list-style-type: none"> • Possible historic rock quarry and possibility for prehistoric quarrying of outcrops; • Evidence of high rate of historic activity; • Minimal survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Extensive natural and human disturbances; • Productive surrounding natural environment, including freshwater source and associated productive riparian habitats. 	
Bernal Hill	<ul style="list-style-type: none"> • Comparatively moderate site density in surrounding area; • Possible historic rock quarry and possibility for prehistoric quarrying of outcrops; • Evidence of high rate of historic activity; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Moderate natural and human disturbances; • Productive surrounding natural environment, including freshwater source and associated riparian habitats. 	Moderate
Billy Goat Hill	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Situated between three historic freshwater sources and associated productive riparian habitats. 	Low
Brooks Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possible historic rock quarry and possibility for prehistoric quarrying of outcrops; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Near freshwater source and associated productive riparian habitats. 	Low
Buena Vista Park	<ul style="list-style-type: none"> • Comparatively moderate site density in surrounding area; • No survey coverage; • Minimal soil/sediment depth over Holocene landform; • Moderate natural and human disturbances; • Next to freshwater source, associated productive riparian habitats, and other productive environments. 	Moderate

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
Corona Heights	<ul style="list-style-type: none"> • Comparatively moderate site density in surrounding area; • Possible historic rock quarry and possibility for prehistoric quarrying of outcrops; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Moderate natural and human disturbances; • Next to freshwater sources, associated productive riparian habitats, and other productive environments. 	Moderate
Dorothy Erskine Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Near freshwater sources and associated productive riparian habitats. 	Low
Duncan-Castro	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops and exposures; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Near freshwater sources and associated productive riparian habitats. 	Low
Edgehill Mountain	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops and exposures; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Moderate natural and human disturbances. 	Low
Everson/Digby	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Near freshwater sources and associated productive riparian habitats. 	Moderate

**Table 6
Archaeological Sensitivity of Natural Areas**

Natural Area	Considerations	Archaeological Sensitivity
Fairmount Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • No survey coverage; • Varied soil/sediment depth over pre-Holocene landform; • Moderate natural and human disturbances; • Near freshwater sources and associated productive riparian habitats. 	Low
Glen Canyon Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage • Thin to deep sediments and soils over pre-Holocene landform; alluvial deposition; • Minimal natural and human disturbances; • Includes and is next to freshwater sources and associated productive riparian habitats. 	High
Golden Gate Heights Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage; • Limited natural resources; • Holocene landform; • Moderate natural and human disturbances. 	Low
Golden Gate Park Oak Woodlands (Lily Pond)	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Quarried lake may be historic, and Midwinter International Exposition-related deposits are possible; • No survey coverage; • Minimal soil/sediment depth over Holocene landform; • High degree of natural and human disturbances; • Limited natural resource availability. 	Low
Golden Gate Park Oak Woodlands (Oak Woodlands and Strawberry Hill)	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Midwinter International Exposition-related deposits are possible; • No survey coverage; • Minimal soil/sediment depth over Holocene landform; • High degree of natural and human disturbances; • Limited natural resource availability. 	Low
Golden Gate Park Oak Woodlands (Whiskey Hill)	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Midwinter International Exposition-related deposits are possible; • No survey coverage; • Extremely deep soil/sediment depth over Holocene landform; • High degree of natural and human disturbances; • Limited natural resource availability. 	Moderate
Grandview Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of exposures; • No survey coverage; • Limited natural resources; • Pre-Holocene landform; 	Low

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
Hawk Hill	<ul style="list-style-type: none"> • Moderate natural and human disturbances. • Comparatively low site density in surrounding area; • Complete survey coverage; • Limited natural resources; • Holocene landform and historic artificial fill; • Moderate natural and human disturbances. 	Low
India Basin Shoreline Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Partial survey coverage; • Historic fill material over Holocene bay and estuarine mud; • Minimal natural and human disturbances of historic fill. 	Moderate
Interior Greenbelt	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of exposures; • No survey coverage; • Pre-Holocene landform with soils varying in depth; • Minimal natural and human disturbances of historic fill; • Includes seasonal freshwater source and associated productive riparian habitats. 	High
Kite Hill	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage; • Thin soils over pre-Holocene landform; • Minimal natural and human disturbances; • Within proximity to freshwater sources and associated productive riparian habitats. 	Low
Lake Merced	<ul style="list-style-type: none"> • Comparatively high site density in Natural Area and surrounding area; • Partial survey coverage; • Holocene landforms with historic-era fill materials; • Moderate natural and human disturbances; • Includes major freshwater source and associated productive riparian/wetland habitats. 	High
Lakeview/Ashton Mini Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • No survey coverage; • Minimal soil/sediment depth over pre-Holocene landform; • Minimal natural and human disturbances; • Near freshwater source and associated productive riparian habitats. 	Low
McLaren Park	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Historic quarries are within the Natural Area and possibility for prehistoric quarrying of outcrops; • No survey coverage; • Varied soil/sediment depth over pre-Holocene landforms; • Moderate overall degree of natural and human disturbances; 	High

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
	<ul style="list-style-type: none"> • Comparatively numerous freshwater sources and associated riparian habitats within park and productive resource areas available. 	
Mount Davidson	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops; • Highest peak in area likely to draw human activity; • No survey coverage; • Unknown soil/sediment depth over pre-Holocene landform; • Minimal degree of natural and human disturbances; • Near freshwater source and associated productive riparian habitats. 	Moderate
O'Shaughnessy Hollow	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of outcrops. • No survey coverage; • Thin to deep sediments and soils over pre-Holocene landform; • Minimal natural and human disturbances; • Next to freshwater sources and associated productive riparian habitats. 	High
Palou-Phelps	<ul style="list-style-type: none"> • High comparative site density in surrounding area; • Minimal survey coverage; • Minimal soil/sediment depth over pre-Holocene landform and historic fill materials; • Moderate natural and human disturbances; • Productive surrounding natural environment, including freshwater source and associated riparian habitats. 	High
Pine Lake	<ul style="list-style-type: none"> • Moderate comparative site density in surrounding area; • Partial survey coverage; • Holocene landforms with historic-era fill materials; • Minimal natural and human disturbances; • Includes freshwater source and associated productive riparian/wetland habitats; major natural resources nearby. 	High
Rock Outcrop	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Possibility for prehistoric quarrying of exposures; • No survey coverage; • Limited natural resources; • Pre-Holocene landform with almost no soils; • Minimal natural and human disturbances. 	Low

Table 6
Archaeological Sensitivity of Natural Areas

Natural Area	Considerations	Archaeological Sensitivity
Sharp Park	<ul style="list-style-type: none"> • Comparatively high site density in and around Natural Area; • Partial survey coverage; • High degree of available natural resources; • Holocene landforms with soils no deeper than one foot; • High degree of human disturbances and moderate natural disturbances. 	High
Tank Hill	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • Unrecorded Spring Valley Water Company water tank foundation pad is within the Natural Area; • No survey coverage; • Thin soils over pre-Holocene landform and historic-era fill materials; • Moderate natural and human disturbances; • Near freshwater sources and associated productive riparian habitats. 	High
Twin Peaks	<ul style="list-style-type: none"> • Comparatively low site density in surrounding area; • No survey coverage; • Thin soils over pre-Holocene landforms; • Extensive natural and human disturbances; • Limited natural resource availability. 	Low

Source: King 2010

archaeological resources. Note that these evaluations are meant only as a preliminary assessment of surface and subsurface sensitivity for planning purposes and do not take into consideration proposed management actions at individual Natural Areas. Ground-truthing or additional, more detailed site-specific research may provide different results.

Native American Consultation

The Native American Heritage Commission (NAHC) was contacted to determine the presence of sacred sites⁴ within or near the project areas that could qualify as historical or unique archaeological resources or contain human burials. The NAHC responded on June 19, 2008, that no such resources were identified in their files; however, the NAHC did provide a list of five Ohlone/Costanoan groups and individuals traditionally affiliated with the region that may be able to identify undocumented resources. SFRPD mailed consultation letters to the suggested contacts on July 17, 2008 (Appendix C). At the time of this publication, no responses had been received.

⁴ Sacred site—locality of traditional significance or importance to a Native American community.

Paleontological Resources

A paleontological records search⁵ was requested through the University of California Museum of Paleontology (UCMP). The records search results indicated the presence of five vertebrate localities within two miles of Sharp Park, all to the north or east (Holroyd 2008). These include vertebrate, mammal, and bird specimens all within Pleistocene formations. There are also a number of invertebrate fossil localities recorded in San Francisco, but none in or next to the Natural Areas. No known paleontological resources are within or next to any of the Natural Areas (Holroyd 2008), but these results may indicate the lack of paleontological surveys in the area.

V.D.3 Impacts

Significance Thresholds

A proposed project would have a significant impact on cultural and paleontological resources if it were to result in the following:

- Cause a substantial adverse change in the significance of a historical resource, as defined in §15064.5 of the CEQA Guidelines, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code;
- Cause a substantial adverse change in the significance of an archaeological resource, in accordance with §15064.5 of the CEQA Guidelines;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Impacts Addressed in the Initial Study

The Initial Study and NOP did not address the significance of the SNRAMP's potential to affect cultural and paleontological resources. Therefore, this EIR evaluates the impacts of the SNRAMP's management actions for each of the 32 Natural Areas as they relate to cultural and paleontological resources. Cultural and paleontological resource impacts are identified based on the CEQA significance criteria set forth on this page.

⁵ Paleontological resource—fossilized remains or traces of animals, plants, and invertebrates, including their imprints, from a previous geological period.

Significant Natural Resource Areas Management Plan Impacts

The potential for and the degree of impacts on archaeological resources are based on the archaeological sensitivity of each Natural Area, weighed against the varying types of activities proposed in the SNRAMP and the severity of surface disturbance involved. As outlined in Table 7 below, nine Natural Areas have a high level of sensitivity, ten have a moderate level (including the Whiskey Hill portion of the Golden Gate Park Oak Woodlands Natural Area), and 14 have a low level of sensitivity (including the Lily Pond, Oak Woodlands, and Strawberry Hill portions of Golden Gate Park Oak Woodlands Natural Area). Table 8 outlines three categories of surface disturbance, as defined by Wildesen (1982:Table 2.1).

**Table 7
Distribution of the Natural Areas Across Archaeological Sensitivity Levels**

Archaeological Sensitivity	Natural Areas
Low	1. Billy Goat Hill 2. Brooks Park 3. Dorothy Erskine Park 4. Duncan-Castro 5. Edgehill Mountain 6. Fairmount Park 7. Golden Gate Heights Park 8. Golden Gate Park Oak Woodlands (Lily Pond, Oak Woodlands, and Strawberry Hill only) 9. Grandview Park 10. Hawk Hill 11. Kite Hill 12. Lakeview/Ashton Mini Park 13. Rock Outcrop 14. Twin Peak
Moderate	1. 15th Avenue Steps 2. Bayview Park 3. Bernal Hill 4. Buena Vista Park 5. Corona Heights 6. Everson/Digby 7. Golden Gate Park Oak Woodlands (Whiskey Hill only) 8. India Basin Shoreline Park 9. Mount Davidson
High	1. Balboa 2. Glen Canyon Park 3. Interior Greenbelt 4. Lake Merced 5. McLaren Park 6. O'Shaughnessy Hollow 7. Palou-Phelps 8. Pine Lake 9. Sharp Park 10. Tank Hill

Table 8
Definitions of Surface Disturbance Categories

Category	Definition
Severe	<ul style="list-style-type: none"> • Removal of litter, disturbance of soil greater than 2.5 centimeters deep. • Removal of the litter, A horizon,⁶ a portion of the B horizon⁷; burial of the soils surface by at least 0.25 centimeters of soil material; or severe compaction of the mineral soil. • Where A horizons are disrupted sufficiently to expose B horizons. • Surface soil removed and subsoil exposed.
Moderate	<ul style="list-style-type: none"> • Removal of litter, soil disturbed to less than 2.5-centimeter depth.
Slight	<ul style="list-style-type: none"> • No removal of litter or soil. • Litter disrupted sufficiently to expose, partly or wholly, mineral soil. • Litter removed, soil exposed; litter and soil mixed 50-50; soil on top of litter or slash. • Undisturbed litter and topsoil still in place. • Litter; no compaction.

Source: Wildesen (1982:Table 2.1)

Note: 2.5 centimeters = approximately 1 inch.

Architectural Resources

Programmatic Impacts

Impact CP-1. Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of historical architectural resources, including historic landscapes. (Less than Significant with Mitigation)

Stabilizing hillsides by constructing erosion control measures, such as gabions, has the potential to alter historic landscapes by adding modern structures in the portion of a Natural Area where the action occurs. Because none of the Natural Areas have been evaluated for their potential to be historic landscapes, these historic resources could be present within one or more Natural Area. Also, assessing the impacts to a specific potentially historic landscape is not feasible without specific

⁶A Horizon—In a soil profile, the mineral horizon that forms at the surface or below an O horizon (dark-colored surface accumulation of organic matter). Characterized by the accumulation of decomposed organic matter, mixed with solid mineral grains, but the mineral portion of the matrix is dominant. Typically darker in color than underlying horizons.

⁷B Horizon—In a soil profile, the mineral horizon that forms below an A, E (matrix characterized by loss of clay, soluble iron, soluble aluminum, organic matter, or some combination of these), or O horizon. Horizon B shows little or no evidence of the original sediment or rock structure and is primarily characterized by illuvial concentrations (dissolved or suspended soil materials in one area) of clay, iron, aluminum, humus, carbonates, gypsum, or silica.

project details. As such, construction of erosion control structures may cause a substantial adverse change in the significance of such a historical resource, resulting in a significant adverse impact. Mitigation Measure M-CP-1 calls for determining if any proposed construction would impact historic resources under CEQA on a site-by-site basis and identifying measures to avoid any significant impacts to eligible historic architectural resources. As a result of implementation of M-CP-1, impacts to historical architectural resources from programmatic projects would be *less than significant*. Other than the tree removal discussed below, no other management actions are expected to affect architectural resources.

M-CP-1: Consultation with the San Francisco Planning Department

The SFRPD would coordinate with the San Francisco Planning Department's Preservation Specialists and would submit plans before constructing stabilizing and erosion control measures that require installation of structures, such as gabions, near any potentially eligible resources. The Planning Department would determine if any proposed construction or other activities would impact historic resources under CEQA on a site-by-site basis; if such impacts may occur, the project would be required to be redesigned to avoid significant impacts to historic architectural resources.

Impact CP-2. Invasive tree and vegetation removal and planting activities, as part of programmatic projects, would not result in a substantial adverse change in the significance of historic landscapes or urban forests. (Less than Significant)

Several of the management activities proposed in the SNRAMP could adversely affect any present historical architectural resources. In addition to those discussed above, adverse effects could also result from vegetation changes within a Natural Area that may alter potential historic landscapes. Such changes include tree removal, which is proposed for 15 of the 32 Natural Areas and affects approximately 16 percent of the invasive trees in urban forests (San Francisco Park and Recreation Department 2006). As mentioned above, the Natural Areas that contain urban forest stands are Lake Merced, Glen Canyon Park, Bayview Park, McLaren Park, Mount Davidson, Interior Greenbelt, Dorothy Erskine Park, Corona Heights, and Sharp Park. These stands have not been evaluated for their historic significance; therefore, they are treated as potentially historic urban forests or historic landscapes.

Impact AE-1 in the Aesthetics section addresses the tree removal at Mount Davidson and Sharp Park and concludes that invasive tree and vegetation removal would not be noticeable at these Natural Areas and therefore it would not materially affect their significance as historic resources. Impacts to these potential historic resources through tree removal, which is detailed in Chapter III

and in the Urban Forestry Statements in Appendix F of the SNRAMP, could be beneficial to potential historic urban forests or historic landscapes because removing trees (through thinning and group selection) while maintaining the existing forest (which would occur in MA-3) would improve the health of the forest by relieving crowding and encouraging growth (SFRPD 2006). Other Natural Areas would experience less tree removal than Sharp Park and Mount Davidson, and, as a result, would experience lower impacts.

An HRER was prepared for Mount Davidson, and it was determined that invasive tree and vegetation removal as well as planting activities will not result in any significant changes to the historic landscape at Mount Davidson (CCSF 2011a). Selective tree removal would help to restore the historic balance of tree species within the forest and preserve its historic character. The project would not cause a substantial adverse change in the significance of the resource such that the significance of the resource would be materially impaired. For the other San Francisco Natural Areas containing urban forest stands, there would be a relatively lower amount of tree removal than Mount Davidson, and, as a result, similar or lower impacts to potentially historic landscapes.

Based on the above, invasive tree and vegetation removal would not result in a substantial adverse change in the significance of historic landscapes or historic forests and this impact would be *less than significant*.

Impact CP-3. Invasive tree and vegetation removal activities as part of programmatic projects under the SNRAMP would not result in a substantial adverse change in the significance of the Golden Gate Park Historic District contributing sites. (Less than Significant)

Actions at Golden Gate Park Oak Woodlands Natural Area may affect Strawberry Hill and Lily Pond, both contributing sites within the Golden Gate Park Historic District and part of the Natural Area (Whiskey Hill is within the historic district but does not contribute to it). The proposed project activities at these sites in the Natural Area involve removing invasive trees and enhancing oak woodlands and scrub. Although activities may continue to transform the character of the forest canopy, they would contribute to a process that has been occurring over time and as a result, the proposed project would not significantly impact the Natural Area sites as contributors to the district. Since the individual Natural Area sites would not be significantly impacted, the overall character of the Golden Gate Park Historic District also would not be significantly impacted by the proposed project activities. Also, because plants and trees are living organisms that contribute to historic designed landscapes of each site and therefore to the district as a whole, change is a normal condition that has occurred over the history of the district and therefore would not diminish the

historic integrity of the park, a historic cultural landscape. Tree removal activities within this Natural Area would restore the area to more resemble its historic condition. As such, proposed tree removal would have a *less than significant* impact on the Golden Gate Park Historic District contributing sites.

Project-level Impacts (Routine Maintenance)

Impact CP-4. Invasive tree and vegetation removal and planting activities under the SNRAMP would not result in a substantial adverse change in the significance of historic landscapes or urban forests. (Less than Significant)

Minor tree and vegetation removal associated with routine maintenance would improve the health of the forest by relieving crowding and encouraging growth. Tree removal, as discussed in Impact CP-2, for programmatic projects, would not result in a significant impact to any potential historic landscapes. Therefore, routine maintenance activities including tree and vegetation removal and tree planting, would have a *less than significant* impact on historic landscapes or urban forests within the Natural Areas.

Impact CP-5. Invasive tree and vegetation removal as part of routine maintenance under the SNRAMP would not result in a substantial adverse change in the significance of the Golden Gate Park Historic District contributing sites. (Less than Significant)

Impacts of routine maintenance activities associated with invasive tree and vegetation removal would be similar to those described under Impact CP-3; however, routine maintenance would involve smaller scale tree and vegetation removal. Tree removal activities within this Natural Area would restore the area to more resemble its historic condition. As such, routine maintenance activities such as tree removal would have a *less than significant* impact on the Golden Gate Park Historic District and contributing sites.

Project-Level Impacts (Sharp Park Restoration)

Impact CP-6. Implementation of the Sharp Park restoration activities that include raising holes 10, 14, 15, and 18 would not result in a substantial adverse change in the significance of the Sharp Park Golf Course, a historic resource under CEQA. (Less than Significant)

As discussed in Section V.D.2, Sharp Park Golf Course meets the criteria for listing on the NRHP and CRHR for its significance under Criteria A and C and for listing on the CRHR under Criteria 1 and 3.

At Sharp Park, excavated dredged spoils appropriate for use as golf course substrate materials would be used on-site to raise Holes 10, 14, 15, and 18 and to create the upland habitat on the east edge of Laguna Salada. Although Holes 10, 14, 15, and 18 are included in Sharp Park Golf Course's character-defining features because these holes are some of the original features and design of the clubhouse, raising Holes 10, 14, 15, and 18 would not have a significant impact on the historical character-defining features of the golf course because the holes would remain in place and alterations would be made only to elevate the holes, which would not impact the historic integrity of the fairways. The holes would retain their appearance and therefore there would be a *less than significant* impact on the golf course from raising holes at the Sharp Park Golf Course.

Impact CP-7. Implementing restoration activities to close Hole 12 of the Sharp Park Golf Course would result in a substantial adverse change in the significance of the golf course, a historic resource under CEQA. (Significant and Unavoidable Impact with Mitigation)

The closure of Hole 12 at Sharp Park would have significant impacts on the historic character-defining features of the golf course because it would eliminate an original hole and fairway on the west side of the course, along the ocean. Hole 12 was originally designed as a 262-yard fairway. The hole was shortened in the early 1960s and was renumbered. Although Hole 12 has been altered from its original design, its closure and conversion to a habitat corridor would be a significant impact on the golf course because Hole 12 was included as part of the golf course design since its inception. The hole had always been at the edge of the lagoon or backed against the seawall. Using the area for habitat conservation and not as part of the golf course changes the boundaries of the golf course and its historic design. Therefore, closing Hole 12 would be a significant impact to the Sharp Park Golf Course. While replacing Hole 12 elsewhere on the course could be seen as a potential mitigation measure in that it would retain the course as an 18-hole facility, replacing it in a location other than its current location still diminishes its historical integrity as a character-defining feature of the golf course and would not sufficiently reduce the impact to less than significant. Implementing Mitigation Measure M-CP-7 would reduce the magnitude of this impact, but it would not sufficiently reduce it to a less than significant level. No additional feasible mitigation measures have been identified; therefore, closing Hole 12 would result in a *significant and unavoidable* impact on the Sharp Park Golf Course.

M-CP-7: Documentation of the Sharp Park Golf Course

The SFRPD would document, or would retain a consultant to document, Sharp Park Golf Course before the wetland restoration activities take place. The National Park Service has published guidance for preserving cultural landscapes in Preservation Brief 36: Protecting Cultural

Landscapes, Planning, Treatment and Management of Historic Landscapes and in the more complete Secretary of the Interior's Standards for Treatment of Historic Properties Guidelines for the Treatment of Cultural Landscapes. The appropriate level of documentation would be selected by a qualified professional who meets the standards for history, architectural history, or architecture (as appropriate) set forth by the Secretary of the Interior's Professional Qualification Standards, (36 CFR, Part 61). The documentation would consist of the following:

- Full sets of measured drawings depicting existing or historic conditions of the Sharp Park Golf Course;
- Digital photographs of Sharp Park Golf Course;
- A written history and description of Sharp Park Golf Course and its alterations.

The professional historian would prepare the documentation and submit it for review and approval by a San Francisco Planning Department Preservation Specialist. The documentation would be disseminated to the San Francisco Library History Room and the SFRPD Headquarters.

Impact CP-8. Implementation of the Sharp Park restoration activity to construct a post and rail fence along the seawall of the golf course would not cause a substantial adverse change in the significance of the Sharp Park Golf Course, a historic resource under CEQA. (Less than Significant)

The Sharp Park restoration proposes a post and rail fence which would be installed along the seawall, to the west of the lagoon, with additional fencing around the wetland complex to discourage human and pet intrusion into the restored habitat area. This fence would alter the visual appearance of the seawall and would add a modern element to the golf course. The seawall is not an original feature of the golf course but was constructed during its period of significance and would be a modern element within the historic setting of the course. Although construction of a fence would add a modern element to the course, it would not alter a historic character-defining feature of the course. Therefore, constructing a post and rail fence would have a *less than significant* impact on the golf course.

Impact CP-9. Implementation of the Sharp Park restoration activity that requires modification of the Sharp Park Golf Course to create upland habitat on the east side of the lagoon and shorten or narrow Holes 10 and 13 would be a substantial adverse change in the significance of the golf course, a historic resource under CEQA. (Significant and Unavoidable Impact with Mitigation)

Modifying approximately 13 acres of the golf course to create upland habitat along the east side of the lagoon to provide San Francisco garter snake upland habitat would require slightly shortening or narrowing Holes 10 and 13. The habitat corridor would be approximately six acres, bringing the total of modified area at the golf course to about 19 acres. These changes would substantially alter historic character-defining features, Holes 10 and 13. Implementing Mitigation Measure M-CP-7 would record the golf course in its existing condition and reduce the magnitude of this impact; however, M-CP-7 would not reduce it to less than significant. No additional feasible mitigation measures have been identified; therefore, shortening and narrowing Holes 10 and 13 would result in a *significant and unavoidable* impact on the Sharp Park Golf Course.

Archaeological Resources

Programmatic Impacts

Impact CP-10. Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in Natural Areas of high archaeological sensitivity. (Less than Significant with Mitigation)

Several of the programmatic project activities proposed in the SNRAMP could adversely affect archaeological resources, for example, rerouting or constructing trails, using heavy equipment, installing new structures, and removing weeds. Ground-disturbing activities could disturb surface and subsurface resources that would substantially alter the significance of an archaeological resource, resulting in a significant adverse impact.

The potential for adverse impacts is congruent with the expectation of legally-significant archaeological resources⁸ within a Natural Area and the extent or nature of sub-surface disturbance involved with the project. Significant impacts are most likely to occur in the Natural Areas with high archaeological sensitivity—Balboa, Glen Canyon Park, Interior Greenbelt, Lake Merced, McLaren Park, O’Shaughnessy Hollow, Palou-Phelps, Pine Lake, Sharp Park, and Tank Hill.

⁸ By the expression “legally-significant archaeological resource” is meant an archaeological resource that qualifies as an “historical resource” (Public Res. Code 15064.5(c)) or as a “unique archaeological resource” (Public Res, Code 21083.2) under CEQA.

Therefore, programmatic project activities could have significant impacts on legally-significant archaeological resources, principally in areas of high archaeological sensitivity. With implementation of Mitigation Measure M-CP-10 for all programmatic projects in high sensitivity Natural Areas, impacts on archaeological resources would be *less than significant*.

M-CP-10: Archaeological Monitoring Program for Programmatic Projects in Natural Areas with High Archaeological Sensitivity, Routine Maintenance Activities at Tank Hill and Lake Merced, and the Sharp Park Restoration Project

The following archaeological monitoring program (AMP) mitigation measure is required in order to avoid any potential adverse effect to archaeological resources as defined in CEQA Guidelines Section 15064.5(a)(c), as a result of SNRAMP programmatic projects in Natural Areas of high archaeological sensitivity and routine maintenance activities at Tank Hill and Lake Merced (see Impact CP-13). In addition, based on a reasonable potential that archeological resources may be present within the C-APE of the Sharp Park restoration project, the following measures shall be undertaken to avoid any potentially significant adverse effect from the Sharp Park restoration on archaeological resources (see Impact CP-14).

Before implementation of the SNRAMP and the Sharp Park restoration project, the SFRPD shall retain a qualified archaeological consultant from the San Francisco Planning Department's pool of qualified archaeological consultants, as provided by the Department archaeologist. The archaeological consultant will prepare one or multiple AMPs that addresses the following impacts on archaeological resources: 1) programmatic projects in Natural Areas with high archaeological sensitivity, 2) routine maintenance activities in Tank Hill and Lake Merced Natural Areas, and 3) the Sharp Park restoration project.

All plans and reports prepared by the consultant shall be submitted first and directly to the ERO for review and comment and shall be considered draft reports subject to revision until final approval by the ERO. Any AMP and/or data recovery programs required by this measure could suspend SNRAMP activities covered under this mitigation measure for up to four weeks. At the direction of the ERO, the suspension of construction could be extended beyond four weeks only if such a suspension were the only feasible means to reduce impacts to a less than significant level on a significant archaeological resource, as defined in CEQA Guidelines Sect. 15064.5 (a)(c).

Archaeological monitoring program. The AMP will minimally include the following provisions:

- The archaeological consultant, SFRPD, and ERO will meet and consult on the scope of each AMP reasonably before implementation of the SNRAMP. The ERO, in consultation with the Project Archaeologist, will determine what programmatic projects in which high-sensitivity Natural Areas and what routine maintenance activities in Tank Hill and Lake Merced Natural Areas shall be archaeologically monitored. Additionally, the ERO and Project Archaeologist will determine which activities and portions of the Sharp Park restoration project will be archeologically monitored. In most cases, any ground-disturbing activities, such as demolition, excavation, grading, utilities installation, site remediation, etc. shall require archaeological monitoring because of the potential risk these activities pose to archaeological resources and to their depositional context;
- In addition, the archaeological consultant will advise all project contractors and Natural Areas Program staff to be on the alert for evidence of the expected resource(s), of how to identify the evidence of the expected resource(s), and of the appropriate protocol in the event of discovery of an apparent archaeological resource. A standard EP ALERT sheet will be issued to participating project contractors and Natural Areas Program staff. Additionally, Natural Areas Program staff will advise all project volunteers of the potential for archaeological resources;
- The archaeological monitors will be on the project site according to a schedule agreed on by the archaeological consultant and the ERO until the ERO has, in consultation with the archaeological consultant, determined that project construction would have no effects on significant archaeological deposits;
- The archaeological monitor will record and be authorized to collect soil samples and artifactual/ecofactual material warranted for analysis; and
- If an intact archaeological deposit is encountered, all ground-disturbing activities in the vicinity of the deposit should cease. The archaeological monitor will be empowered to temporarily redirect project activities and heavy equipment until the deposit is evaluated. The archaeological consultant will immediately notify the ERO of the encountered archaeological deposit. After making a reasonable effort to assess the identity, integrity, and significance of the encountered archaeological deposit, the archaeological consultant will present the findings to the ERO.

If the ERO, in consultation with the archaeological consultant, determines that a significant archaeological resource is present and that it could be adversely affected by the project, at the discretion of the SFRPD, the situation shall be resolved by one of the following actions:

- The project shall be redesigned so as to avoid any adverse effect on the significant archaeological resource, or
- An archaeological data recovery program shall be implemented, unless the ERO were to determine that the archaeological resource is of greater interpretive value than research significance and that interpretive use of the resource were feasible.

If the ERO requires an archaeological data recovery program to mitigate for adverse effects on the significant archaeological resource, it shall be conducted in accordance with an archaeological data recovery plan (ADRP). The project archaeological consultant, SFRPD, and ERO shall meet and consult on the scope of the ADRP. The archaeological consultant shall prepare a draft ADRP and submit it to the ERO for review and approval. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain; that is, the ADRP would identify what scientific/historical research questions are applicable to the expected resource, what data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, should be limited to the portions of the historical property that could be adversely affected by the proposed project. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods were practical.

The ADRP shall include the following elements:

- *Field Methods and Procedures.* Descriptions of proposed field strategies, procedures, and operations;
- *Cataloguing and Laboratory Analysis.* Description of selected cataloguing system and artifact analysis procedures;
- *Discard and Deaccession Policy.* Description of and rationale for field and post-field discard and deaccession policies;
- *Interpretive Program.* Consideration of an on-site/off-site public interpretive program during the course of the archaeological data recovery program.

- *Security Measures.* Recommended security measures to protect the archaeological resource from vandalism, looting, and unintentional damage;
- *Final Report.* Description of proposed report format and distribution of results; and
- *Curation.* Description of the procedures and recommendations for curating any recovered data having potential research value, identifying appropriate curation facilities, and summarizing the accession policies of the curation facilities.

Final Archaeological Resources Report. The archaeological consultant shall submit a Draft Final Archaeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods used in the archaeological monitoring or data recovery program. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the draft final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once the FARR is approved, copies shall be distributed as follows:

- One copy to the NWIC with a copy of the transmittal sent to the ERO; and
- Three copies to the EP division of the San Francisco Planning Department; EP shall also receive one unlocked, searchable PDF copy of the FARR on a CD or DVD, along with copies of any formal site recordation forms (CA DPR 523 series) and documentation for nomination to the NRHP/CRHR.

In instances of high public interest or interpretive value, the ERO may require a different final report content, format, and distribution than that presented above.

Impact CP-11. Implementation of programmatic projects under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in Natural Areas of moderate and low archaeological sensitivity. (Less than Significant with Mitigation)

The types of programmatic project activities described under Impact CP-10 may similarly impact archaeological resources within Natural Areas of moderate or low archaeological sensitivity. However, significant impacts on archaeological resources are less likely to occur in moderately sensitive Natural Areas: 15th Avenue Steps, Bayview Park, Bernal Hill, Buena Vista Park, Corona Heights, Everson/Digby, Golden Gate Park Oak Woodlands (Whiskey Hill area only), India Basin Shoreline Park, and Mount Davidson. Impacts are least likely to occur in Natural Areas with low

archaeological sensitivity—Billy Goat Hill, Brooks Park, Dorothy Erskine Park, Duncan-Castro, Edgehill Mountain, Fairmount Park, Golden Gate Heights Park, Golden Gate Park Oak Woodlands (Lily Pond, Oak Woodlands, and Strawberry Hill only), Grandview Park, Hawk Hill, Kite Hill, Lakeview/Ashton Mini Park, Rock Outcrop, and Twin Peak Natural Areas.

As in high sensitivity Natural Areas, any disturbance of documented, undocumented, or unevaluated archaeological sites within the Natural Areas would constitute a significant impact if the resource is determined to be CRHR-eligible. Further, there are potential cultural resources within some of the moderately sensitive Natural Areas. These are resources, such as rock quarries, that have been identified elsewhere as “old” or “historic,” but for which current research efforts have not been able to determine an establishment date or history. Therefore, it is unclear at this time if these resources are in fact 45 years or older. In other instances, there is increased potential for re-deposited archaeological resources, such as remnants or refuse from the Midwinter International Exposition, but a definitive determination of their presence is not possible at this time.

Therefore, programmatic project activities could have significant impacts on archaeological resources in areas of moderate to low archaeological sensitivity. With implementation of Mitigation Measure M-CP-11, which requires that an alert sheet be disseminated to all contractors, staff, and volunteers on site and addresses accidental discovery of an archaeological resource in Natural Areas, impacts on archaeological resources would be *less than significant*.

M-CP-11: Accidental Discovery

Prior to any ground disturbing activity resulting from implementation of the SNRAMP, including Natural Areas of moderate and low archaeological sensitivity, a copy of EP’s standard archaeological alert sheet will be issued to project staff. The project sponsor shall distribute the Planning Department archaeological resource “ALERT” sheet to the involved Natural Areas Program staff and volunteers, project prime contractor, any project subcontractors (including, but not limited to, demolition, excavation, grading, etc. firms), and any utilities firm involved in ground-disturbing activities. Prior to any ground-disturbing activities being undertaken, each contractor (or Natural Areas Program staff for projects without contractors) is responsible for ensuring that the “ALERT” sheet is circulated to all field personnel, including machine operators, field crew, supervisory personnel, etc. The project sponsor shall provide the ERO with a signed affidavit from the responsible parties (prime contractor, subcontractor(s), and utilities firm) confirming that all field personnel have received copies of the “ALERT” sheet.

Should any indication of an archaeological resource be encountered during any soils disturbing activity of the project, the project Head Foreman and/or SFRPD shall immediately notify the ERO and immediately suspend any soils disturbing activities in the vicinity of the discovery until the ERO has determined what additional measures should be undertaken.

If the ERO determines that an archaeological resource may be present within the project site, SFRPD shall retain the services of an archaeological consultant from the pool of qualified archaeological consultants maintained by the Planning Department archaeologist. The archaeological consultant shall advise the ERO as to whether the discovery is an archaeological resource, retains sufficient integrity, and is of potential scientific, historical, or cultural significance. If an archaeological resource is present, the archaeological consultant shall identify and evaluate the archaeological resource. The archaeological consultant shall make a recommendation as to what action, if any, is warranted. Based on this information, the ERO may require, if warranted, specific additional measures to be implemented by SFRPD. Measures might include:

- Preservation *in situ* of the archaeological resource;
- An AMP; or
- An archaeological testing program.

If an AMP or archaeological testing program is required, it shall be consistent with the EP division guidelines for such programs and as described above under M-CP-10. The ERO may also require that SFRPD immediately implement a site security program if the archaeological resource is at risk from vandalism, looting, or other damaging actions.

The project archaeological consultant shall submit a FARR to the ERO that evaluates the historical significance of any discovered archaeological resource and describes the archaeological and historical research methods employed in the AMP and/or ADRP. Information that may put at risk any archaeological resource shall be provided in a separate removable insert within the final report.

Copies of the Draft FARR shall be sent to the ERO for review and approval. Once approved by the ERO, copies of the FARR and associated items (i.e. site record forms) shall be distributed in the same numbers and to the same recipients outlined in M-CP-10.

*Project-Level Impacts (Routine Maintenance)***Impact CP-12. Implementation of routine maintenance under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in any of the Natural Areas. (Less than Significant with Mitigation)**

Routine maintenance activities at Lake Merced and Tank Hill Natural Areas are addressed under Impact CP-13. Routine maintenance at all other Natural Areas are addressed below.

Several of the routine maintenance activities proposed in the SNRAMP could adversely affect archaeological resources in the Natural Areas through ground disturbance. Specifically, these activities include removing weeds, installing plants, and performing some trail maintenance (such as installing and repairing steps or trail edging and rerouting and benching trails), resulting in slight to severe surface disturbance as defined in Table 7. Similar to programmatic projects (see Impact CP-10), the potential for impacts from these kinds of activities is congruent with the level of sensitivity and degree of disturbance. Leaving the stumps of removed trees in place would not affect archaeological resources. As discussed in Section III.E.5, tree stump grinding, when necessary, would be contained to the stump itself and would not affect the surrounding areas where archaeological materials may exist.

Although routine maintenance, particularly plant installation and trail maintenance, may include severe levels of surface disturbance, they are typically smaller in scale than programmatic project activities. Therefore, significant impacts from routine maintenance could occur but would be limited in extent.

Therefore, routine maintenance could have significant impacts on archaeological resources. Potential impacts to archeological resources could be reduced to *less than significant* with implementation of M-CP-11, which addresses potential effects to unanticipated archaeological resources, and implementation of M-CP-12, which would require archaeological sensitivity training.

M-CP-12: Annual Archaeological Sensitivity Training for SFRPD Staff Involved with Routine Maintenance Activities in all Natural Areas

SFRPD staff working within the Natural Areas will be trained by a qualified archaeologist regarding the potential for archaeological resources within the Natural Areas and how to identify such resources. The training will also include a review of penalties for looting and disturbance of these resources. At a minimum, the training will include the following:

- Assigned archaeological sensitivity level of each Natural Area;
- A discussion of the potential to encounter archaeological resources;
- Instructions for how to identify archaeological resources;
- Instructions for reporting observed looting, disturbances of known archaeological resources, or the presence of a previously unidentified archaeological site;
- An overview of the AMP for routine maintenance activities and accidental discovery procedures in the Natural Areas (see M-CP-10 and M-CP-11, respectively); and
- An overview of M-CP-18, Treatment of Human Remains and Associated or Unassociated Funerary Objects.

It shall be the responsibility of SFRPD Natural Areas Program staff, at the beginning of any management activities involving persons outside of the Natural Areas Program, to educate volunteers or other personnel on the potential to encounter archeological resources and instructions for reporting the presence of potential resources to SFRPD Natural Areas Program staff.

Impact CP-13. Implementation of routine maintenance under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources in the Lake Merced and Tank Hill Natural Areas. (Less than Significant with Mitigation)

Impacts on archaeological resources and human remains in Lake Merced and Tank Hill would be the same as described under Impact CP-12. However, since these two Natural Areas include documented archaeological resources within their management areas that could be affected by routine maintenance activities, primarily ground disturbances of any level, impacts in these Natural Areas and to these particular resources are more likely.

With implementation of Mitigation Measure M-CP-12, which requires an annual training program for Natural Areas Program staff implementing routine maintenance in all Natural Areas, as well as Mitigation Measure M-CP-10, which requires an AMP for these Natural Areas, impacts on archaeological resources from routine maintenance in Lake Merced and Tank Hill would be *less than significant*.

*Project-Level Impacts (Sharp Park Restoration)***Impact CP-14. Implementation of the Sharp Park restoration efforts under the SNRAMP would result in a substantial adverse change in the significance of archaeological resources. (Less than Significant with Mitigation)**

Although Sharp Park Natural Area has been identified as one of high archaeological sensitivity, the area affected by the proposed restoration activities does not include known archaeological resources. This is despite the fact that the location is a productive natural environment that likely drew prehistoric and historic populations. The project area has been severely disturbed by creation of the golf course, and the Holocene deposits in this area today extend no deeper than one foot from the surface (King 2010). Based on these factors, the specific restoration portion of Sharp Park is considered to be moderate in archaeological sensitivity. Proposed restoration efforts could significantly impact unidentified or buried archaeological resources but are less likely to do so in this location than in areas farther up the canyon. With implementation of Mitigation Measure M-CP-10, which requires an AMP, Sharp Park restoration project impacts on archaeological resources would be *less than significant*.

*Paleontological Resources and Unique Geological Formations**Programmatic Impacts***Impact CP-15. Implementation of programmatic projects under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations. (Less than Significant with Mitigation)**

The UCMP records search results indicated that there are no known paleontological resources within or next to the Natural Areas (Holroyd 2008). Many of the Natural Areas are on shallow or exposed bedrock, and project activities may affect those geologic features. Additionally, five localities have been identified within two miles of Sharp Park, making that Natural Area relatively more sensitive for paleontological resources. In general, ground-disturbing activities that reach bedrock, including those that require modification of bedrock, such as terracing, grading, or drilling into bedrock, could impact unknown paleontological resources, potentially destroying a unique paleontological resource. Such impacts would be more likely to occur in areas where bedrock is shallow or at the surface, where activities would be completed closer in depth to the bedrock, and where any geologic features or paleontological resources are present. As such, significant impacts as a result of ground-disturbing activities could result from SNRAMP programmatic projects. With

implementation of Mitigation Measure M-CP-15, potential impacts on geologic features or paleontological resources would be *less than significant*.

M-CP-15: Coordination with EP Regarding Paleontological Resources Prior to Implementation of Programmatic Projects

To mitigate the potential for the SNRAMP to affect paleontological resources, this mitigation measure will apply to programmatic projects. The SFRPD shall coordinate with EP prior to conducting any programmatic projects that would result in ground disturbance. In such instances, EP shall review the proposed activities to determine if ground-disturbing activities could occur at or near bedrock or other geologic features of CEQA significance. If such features exist and could be affected by project activities, a training program will be conducted and an alert sheet will be disseminated to all field personnel.

Any paleontological training will be conducted by a qualified paleontologist and will discuss the potential for such resources to exist in the Natural Area(s) and how to identify such resources. The training will also include a review of penalties for looting and disturbance of these resources. Alert sheets will be issued for all such projects and will include the following:

- A discussion of the potential to encounter paleontological resources;
- Instructions for reporting observed looting of a paleontological resource; and
- Instructions that if a paleontological deposit were encountered within a project area, all ground-disturbing activities in the vicinity of the deposit shall cease and the ERO shall be notified immediately.

When unanticipated paleontological resources are encountered during programmatic project activities, all project activities shall stop, and a professional paleontologist shall be hired to assess the find and its significance. The findings shall be presented to the ERO who would decide the additional steps to be taken before work in the vicinity of the deposit is authorized to continue.

Project-Level Impacts (Routine Maintenance)

Impact CP-16. Implementation of routine maintenance under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations. (Less than Significant with Mitigation)

Impacts on paleontological resources from routine maintenance are similar to those described under Impact CP-15. Given that routine maintenance activities are smaller in scale and less likely to reach

depths of paleontological resources or unique geological formations, significant impacts are accordingly less likely to occur. With the implementation of Mitigation Measure M-CP-16, which requires avoidance of surface bedrock, impacts of routine maintenance on paleontological resources or unique geological formations would be *less than significant*.

M-CP-16: Avoidance of Surface Bedrock in Routine Maintenance Activities

To mitigate the potential for the SNRAMP to affect paleontological resources the following mitigation measure will apply to routine maintenance activities. Natural Areas Program staff and volunteers will avoid ground-disturbing activities in areas where surface bedrock exists. If routine maintenance activities cannot avoid bedrock, SFRPD will implement M-CP-15, discussed above.

Project-Level Impacts (Sharp Park Restoration)

Impact CP-17. Implementation of Sharp Park restoration activities under the SNRAMP would directly or indirectly destroy paleontological resources or unique geological formations. (Less than Significant with Mitigation)

The Sharp Park Natural Area has been identified as sensitive for paleontological resources. Restoration activities include dredging, recontouring, excavating, and deepening open water areas around the lagoon, creating sediment basins, and creating compensation wetlands. The depths are not known for these ground-disturbing activities and some may reach Pleistocene deposits that may contain paleontological resources or a unique geological formation; therefore, it is anticipated that excavation associated with the restoration at Sharp Park could encounter paleontological resources, potentially resulting in a significant impact. With implementation of M-CP-17, Sharp Park restoration impacts on paleontological resources would be *less than significant*.

M-CP-17: Paleontological Training Program and Alert Sheet for the Sharp Park Restoration Project

To mitigate the potential for the Sharp Park restoration project to affect paleontological resources, the SFRPD shall arrange for a paleontological training by a qualified paleontologist regarding the potential for such resources to exist in the restoration area and how to identify such resources. The training shall also include a review of penalties for looting and disturbance of these resources. An alert sheet shall be issued and will include the following:

- A discussion of the potential to encounter paleontological resources;
- Instructions for reporting observed looting of a paleontological resource; and

- Instruct that if a paleontological deposit were encountered within a project area, all soil-disturbing activities in the vicinity of the deposit shall cease and the ERO would be notified immediately.

If an unanticipated paleontological resource is encountered during project activities, all project activities shall stop, and a professional paleontologist shall be hired to assess the find and its significance. The findings shall be presented to the ERO who would decide the additional steps to be taken before work in the vicinity of the deposit was authorized to continue.

Human Remains

Programmatic Impacts

Impact CP-18: Implementation of programmatic projects under the SNRAMP would disturb human remains. (Less than Significant with Mitigation)

Soil-disturbing activities resulting from implementation of the SNRAMP may affect human burials, human remains, and associated or unassociated burial goods. Human remains, burials, and burial items are frequently associated with prehistoric Native American occupation/activity sites or may occur independently of such sites. With implementation of Mitigation Measure M-CP-18, impacts of programmatic projects activities resulting from implementation of the SNRAMP on human remains would be *less than significant*.

M-CP-18: Human Remains, Associated or Unassociated Funerary Objects

The treatment of human remains and of associated or unassociated funerary objects discovered during any ground-disturbing activity shall comply with applicable State and Federal Laws, including immediate notification of the Coroner of the City and County of San Francisco (or San Mateo County Coroner if found at Sharp Park) and in the event of the Coroner's determination that the human remains are Native American remains, notification of the NAHC who shall appoint a Most Likely Descendant (MLD) (Pub. Res. Code Sec. 5097.98). The archaeological consultant, SFRPD, and MLD shall make all reasonable efforts to develop an agreement for the treatment of, with appropriate dignity, human remains and associated or unassociated funerary objects (CEQA Guidelines. Sec. 15064.5(d)). The agreement should take into consideration the appropriate excavation, removal, recordation, analysis, curation, possession, and final disposition of the human remains and associated or unassociated funerary objects.

*Project-Level Impacts (Routine Maintenance)***Impact CP-19. Implementation of routine maintenance under the SNRAMP would disturb human remains. (Less than Significant with Mitigation)**

There is a possibility that intact burials exist within the Natural Areas, and routine maintenance activities, particularly those involving moderate to severe surface disturbance in moderately to highly sensitive Natural Areas, may encounter and impact those resources. The archaeological sensitivity levels outlined above can be applied to the possibility of human remains in the Natural Areas. Ground-disturbing activities, similar to those identified under Impacts CP-12 and CP-13, could disturb burials as well, resulting in potentially significant impacts on human remains. With implementation of Mitigation Measure M-CP-18, the impacts of routine maintenance on human remains would be *less than significant*.

*Project-Level Impacts (Sharp Park Restoration)***Impact CP-20. Implementation of Sharp Park restoration activities under the SNRAMP would disturb human remains. (Less than Significant with Mitigation)**

There is a possibility that intact burials exist within the Sharp Park restoration footprint. This impact is equivalent to that discussed for archaeological resources in Impact CP-14. Therefore, restoration may have significant impacts on human remains. With implementation of Mitigation Measure M-CP-18, impacts of the Sharp Park restoration on human remains would be *less than significant*.

Cumulative Impacts**Impact CP-21: The proposed project, in combination with other planned and foreseeable future projects, would have a cumulatively considerable significant impact related to cultural and paleontological resources. (Significant and Unavoidable)**

Cumulative projects, such as the Sharp Park Recycled Water project, the San Andreas Pipeline Number 3 project, the Water System Improvement Program Groundwater Project B, the SFPUC Sunset Supply Pipeline Vegetation project, and the ground disturbing projects at McLaren Park, involve construction and development at Sharp Park, McLaren Park, and Lake Merced. All three Natural Areas were determined to have high archaeological sensitivity (King 2010), and Sharp Park also includes historic architectural and potential historic landscape resources, including the Sharp Park Golf Course (a historic resource) and urban forests. The cumulative projects also involve construction and development in the vicinity of Natural Areas, such as the 15th Avenue Steps, Corona Heights, Lily Pond, and Buena Vista Park, such as the 1427 11th Avenue project, the SFRPD

Grandview Park Restoration Work project, 2299 Market Street project, the 1000 Great Highway – 811 Stanyan Street project, SFRPD Golden Gate Park Beach Chalet Soccer Fields, 37-39 Lloyd Street project and Carona Heights project. As with all projects that include ground disturbance, modern development, retaining wall repair, protective fencing installation, structure demolition, such as greenhouses, or historical resource removal or alteration (e.g., addition to or demolition of CRHR-eligible or CRHR-listed resources), such as the Japanese Tea Garden project, the SFRPD Buena Vista Park Improvement project, and the San Francisco Botanical Garden project, there is a potential for cumulative projects in the region to impact cultural and paleontological resources. In general, cumulative projects that involve construction of undeveloped land, extending construction deeper than current development, or developing new topographic features (such as trails) have the potential to impact archaeological and paleontological resources. New construction or modifications to buildings near or next to Natural Areas also have the potential to impact historic architectural resources by modifying historical resources or placing new construction within the historic landscape of a historical resource. Development near Natural Areas may also cumulatively impact potential historic, architecturally significant areas and historic landscapes. These impacts are particularly possible for the culturally and paleontologically sensitive Sharp Park-area cumulative projects, which include constructing a new recycled water pump station (Sharp Park Recycled Water project), and development of residential and commercial properties. Given that cultural and paleontological resources are nonrenewable, the historic landscape and regional archaeology of San Francisco and the Peninsula, in addition to a specific resource, can also be cumulatively impacted by projects. Implementing the City's various area plans would likely require taking into consideration cultural and paleontological resource management and implementing measures that would protect them. The impacts resulting from cumulative projects, as described above, could result in significant cumulative effects on cultural and paleontological resources in the San Francisco region. However, it is expected that all of these projects would be evaluated under CEQA and that their impacts would be mitigated to less than significant. With implementation of the mitigation measures to protect archeological resources as identified in this EIR, the proposed project's contribution to any cumulatively significant archaeological resources impact would be *less than significant*.

Mitigation Measure M-RE-1 would require SFRPD to coordinate with a golf course consultant to restore the playability of the Sharp Park Golf course. However, if any reconfiguration of the course resulted in additional holes east of Highway 1, this would result in a significant impact on the historical significance of Sharp Park Golf Course, further contributing to significant cumulative impacts. Reconfiguration of the golf course holes to resemble its original layout (replacement holes west of Highway 1) would reduce cumulative impacts on the golf course. This reconfiguration

would result in a total of 15 holes on the west side of Highway 1 and three holes on the east side. Mitigation Measure M-RE-1 would be beneficial to the Sharp Park Golf Course because it would restore some of the elements in the original design of this course, such as coast side holes. This mitigation measure would change the layout of the holes, but the new holes would be in areas of the course where holes were situated in the original design, and would be in keeping with the historic boundaries of the golf course.

The proposed project, in combination with the cumulative projects, would have a significant and unavoidable impact on cultural resources, in particular architectural resources, as described under Impacts CP-7 and CP-9. The modifications to the historic Holes 10, 12, and 13 under the Sharp Park restoration plan would substantially affect the historical significance of Sharp Park Golf Course. This is both a significant and unavoidable adverse effect at the project level and cumulatively. As a result, the project's contribution to this significant and unavoidable cumulative impact would be cumulatively considerable.

V.E WIND AND SHADOW

Wind is included in the EIR because there were NOP comments regarding the wind-related effects of the project. Shadow impacts were adequately analyzed in the Initial Study (Appendix A), and no NOP comments related to shadows were received; as such, shadow impacts are not analyzed in the EIR.

Comments related to wind and shadow that were received during the NOP scoping process included concerns about the following:

- Effects of Mount Davidson tree removal on the quality of the human experience and the hill's viewpoint, including increased noise, altered wind and fog patterns, growth of poison oak, and increased erosion;
- Effects of Mount Davidson tree removal on fires that could be fanned by westerly winds;
- Impacts of removing trees and vegetation on increased wind in and beyond the park itself;
- Removing eucalyptus trees that grow in the sandy soil and withstand the fierce winds blowing off the Pacific Ocean. Studies in the Presidio have shown that eucalyptus trees slow the wind down at least 30 percent.

V.E.1 Regulatory Setting

Federal/State

There are no applicable federal or state regulations related to wind for this proposed project.

Regional/Local

San Francisco Planning Code

Planning Code Section 148 establishes two comfort criteria and one hazard criterion for assessing wind impacts of development projects in San Francisco. The comfort criteria are based on pedestrian-level wind speeds that include the effects of turbulence and are known as "equivalent wind speeds." Section 148 of the Planning Code establishes an equivalent wind speed of seven miles per hour (mph) for seating areas and 11 mph for areas of substantial pedestrian use. New buildings and additions to buildings may not cause ground-level winds to exceed these levels more than 10 percent of the time year round between 7:00 AM and 6:00 PM. If existing wind speeds exceed the comfort level, new buildings and additions in these areas must be designed to reduce ambient wind speeds to meet the requirements. Section 148 and Section 249 (c)(9) also establish a hazard criterion,

which is an equivalent wind speed of 26 mph for a single full hour, not to be exceeded more than once during the year. New buildings in governed areas cannot exceed this standard.

To provide a comfortable wind environment for people in San Francisco, development projects would be subject to specific comfort criteria. The Planning Code specifically outlines these criteria for areas that typically experience wind exceedances, specifically the Downtown Commercial (C-3) District and each of the following special use districts: Folsom and Main, Van Ness Avenue, and South of Market. While these criteria are not applicable to the proposed project, which does not involve buildings or structures in the downtown areas, they serve as a general point of reference regarding the impact analysis in this EIR.

V.E.2 Environmental Setting

The climate of the San Francisco Bay Area is characterized by a Mediterranean pattern of cool and mild temperatures along the coast, dry summers, and small fluctuations in seasonal temperatures. The Pacific High, a mass of cold air situated between San Francisco and Hawaii, dominates the weather much of the year. In the winter, the Pacific High moves southward, bringing wet stormy weather into the Bay Area (Gilliam 1966). In the summer, it moves northward, blocking the rains and causing an upwelling of cold offshore water along the central coast of California. This upwelling produces a thick layer of coastal fog that is drawn inland through San Francisco Bay when temperatures in the Central Valley rise. These east/west gradients of fog, precipitation, and temperature, coupled with the highly variable topography in San Francisco, produce strong microclimatic effects. Not only do weather conditions vary from one side of San Francisco to the next but from block to block, depending on the terrain and the degree of exposure.

Planetary wind systems, normally called prevailing winds, are large moving air masses that dominate whole areas and show constant directional characteristics, varying only with the movement of high- or low-pressure systems and with the seasons of the year. In many locations these are the dominant winds, particularly on exposed hilltops, shorelines facing the prevailing winds, open plains or plateaus, floors of open valleys running parallel to the prevailing winds, or the windward side of gently sloping hills. Local winds, by contrast, are caused by temperature differences created by local topographic conditions.

Winds are horizontal flows of air that blow from areas of high pressure to areas of low pressure. Wind strength depends on the difference between the high- and low-pressure systems and the distance between them (CCSF 2008d). A steep pressure gradient results from a large pressure difference or short distance between these systems and causes high winds. High winds are defined

as those that last longer than one hour at greater than 39 miles per hour (mph) or for any length of time at greater than 57 mph (CCSF 2008d). In San Francisco, high winds associated with cyclonic systems and their cold fronts occur in the winter, generally between November and March. All of San Francisco is subject to strong southeasterly winds associated with powerful winter cold fronts (CCSF 2008d).

Long-term wind data in San Francisco are available from historical wind gauge records from the US Weather Bureau weather stations above the old Federal Building at 50 United Nations Plaza and at San Francisco International Airport. Everyday wind climatology is defined using wind statistics of anemometers, which measure wind speed, in the northern portion of San Francisco Bay.

The dominant wind direction is known to shift with locations around the bay. Winds can fluctuate greatly depending on the time of year and the time of day. During winter, winds change markedly, becoming milder and less dominated by the west-northwesterly winds. Winds also change significantly during the day, typically intensifying from late morning until reaching an average peak of 20 knots (23 mph) in the late afternoon, diminishing in the evening.

Wind conditions can affect pedestrian safety on sidewalks and in other public areas, as follows (Lawson and Penwarden 1975):

- Winds up to 4 mph have no noticeable effect on pedestrians;
- Winds from 4 to 8 mph are felt on the face;
- Winds from 8 to 13 mph cause clothing to flap and extend a light flag mounted on a pole;
- Winds from 13 to 19 mph raise loose paper, dust, and dry soil;
- Winds from 19 to 26 mph are felt on the body;
- Winds of 26 to 34 mph render umbrellas difficult to use, make walking steadily difficult, and cause unpleasant noise;
- Winds over 34 mph make it difficult for a person to maintain balance, and gusts at this speed can blow a person over.

V.E.3 Impacts

Significance Thresholds

A proposed project would have a significant wind impact if it were to alter wind in a manner that substantially affects public areas.

The San Francisco Planning Code includes a wind hazard criterion and pedestrian comfort criteria for evaluating wind impacts of a proposed building within four defined areas of San Francisco. The code has established a hazard level of a 26 mph-equivalent wind speed for a single hour of the year for certain downtown areas. It is generally understood that only buildings about 100 feet or taller in San Francisco would result in adverse wind effects at street levels that could achieve a hazard level wind speed.

While this wind hazard level is not applicable to the proposed project, which does not involve buildings or structures within the downtown areas, that level serves as a general point of reference regarding the impact analysis in this EIR.

Impacts Addressed in the Initial Study

In the Initial Study (Appendix A), impacts related to the following criterion were identified as not significant:

- Create new shadows in a manner that substantially affects outdoor recreation facilities or other public areas.

As a result, this CEQA significance criterion is not evaluated further in this EIR.

Significant Natural Resource Areas Management Plan Impacts

A total of 18,448 trees would be incrementally removed as part of the management activities; of these trees, approximately 15,000 would be removed from Sharp Park. In general, tree removal would be focused on dead or dying trees, trees with disease or insect infestations, storm-damaged or hazardous trees, and trees that are suppressed because of overcrowding. Further, trees would typically be thinned over large areas, which would result in the removal of smaller trees and saplings.

Trees are proposed to be removed from 15 of the 32 Natural Areas: Bayview Park, Brooks Park, Buena Vista Park, Corona Heights, Dorothy Erskine Park, Glen Canyon Park and O'Shaughnessy Hollow, Golden Gate Park Oak Woodlands, Grandview Park, Interior Greenbelt, Lake Merced, McLaren Park, Mount Davidson, Palou-Phelps, Twin Peaks, and Sharp Park. This section does not address wind impacts in certain Natural Areas because trees targeted for removal are isolated individuals or small groups scattered throughout these Natural Areas, and this removal is not expected to have noticeable wind effects. These Natural Areas are Palou-Phelps, Brooks Park, Buena Vista Park, Grandview Park, and Twin Peaks. Natural Areas that do not include any tree removal

are Balboa, Bernal Hill, Billy Goat Hill, Duncan-Castro, Edgehill Mountain, Everson/Digby, Fairmont Park, Golden Gate Heights, Hawk Hill, India Basin Shoreline Park, Kite Hill, Lakeview/Ashton Mini Park, Pine Lake, Rock Outcrop, Tank Hill, and 15th Avenue Steps. No wind hazard impacts would result from the proposed project in any of these Natural Areas.

This analysis addresses wind impacts that would result from the proposed tree removals in each Natural Area. Large-scale tree removal is addressed only for Natural Areas where removal may exceed half an acre or more than 20 trees at one time; routine maintenance tree removal is evaluated at all Natural Areas where tree removal is proposed, except the five excluded Natural Areas, Palou-Phelps, Brooks Park, Buena Vista Park, Grandview Park, and Twin Peaks.

Trees could be removed on a large scale at Bayview Park, Glen Canyon Park and O'Shaughnessy Hollow, Golden Gate Park Oak Woodlands, Interior Greenbelt, Lake Merced, McLaren Park, Mount Davidson, and Sharp Park. Routine maintenance tree removal could occur at these Natural Areas plus Corona Heights and Dorothy Erskine Park.

Windthrow¹ is used to describe the effects of wind on a stand of trees. When the wind blows a tree over, this action is called windthrow. When trees are removed from a stand, windthrow can increase if wind-toughened edge trees are removed, exposing the interior of the stand to unusual wind conditions. Windthrow is a natural part of forest ecosystems.

The following discussion focuses on ground-level wind hazards and windthrow risks or instances where tree removal could substantially alter windthrow rates for a given stand. Public safety hazards associated with windthrow are discussed in Section V.I, Hazards and Hazardous Materials. Wind hazard impacts resulting from the proposed project were analyzed for public areas, such as residential areas, sidewalks, and trails.

Programmatic Impacts

Impact WS-1: Implementation of the programmatic projects under the SNRAMP would not result in significant ground-level wind hazards and windthrow risks. (Less than Significant)

The proposed programmatic projects do not include any aboveground structures that would alter wind. Programmatic projects include tree removal projects that exceed half an acre at any one time

¹Windthrow—The effects of wind on a stand of trees.

or more than 20 trees at one location. Tree removal of wind-toughened edge trees² could expose the interior of a stand of trees to wind conditions that they are not adapted to. Trees removed within San Francisco would be replaced at a one-to-one ratio, although not necessarily at the same location or within the same Natural Area. In Sharp Park, trees would be removed in the upper canyon in an inaccessible area and would be replaced with native grassland and scrub species. Trees would be removed in accordance with the Urban Forestry Statements in Appendix F of the SNRAMP. In general, tree removal in the Natural Areas is planned to take individual trees or very small groups of trees in forest and scrub habitats to avoid altering the wind conditions and increasing ground-level wind hazards.

Bayview Park

Five hundred eleven trees would be removed at Bayview Park, with 5,489 trees to remain. Bayview Hill is relatively exposed to winds blowing in from San Francisco Bay or southerly storm winds. However, the risk of ground-level wind hazards and windthrow at Bayview Park is minimal because there are no homes, sidewalks, or trails near enough to be affected. Most of the tree removal would be well below the trails or more than 100 feet from trails. With much of the removal planned to occur along the edges of stands, there could be an increase in ground-level wind hazards along trails and an increase in windthrow if a large number of trees were removed at once. Most of the stands at Bayview Park are expected to be relatively wind toughened due to their level of wind exposure. To minimize the potential increase in ground-level wind hazards and windthrow, trees would be removed from forest edges gradually, in accordance with the SNRAMP. This would avoid creating an edge gap large enough that wind speed would become a substantial problem within the stand. Further, the removal of dead or aging trees would reduce the potential windthrow hazards. Therefore, increases in wind levels and windthrow hazards at Bayview Park as a result of the programmatic projects would be *less than significant*.

Glen Canyon Park and O'Shaughnessy Hollow

One hundred twenty of an overall 6,000 trees would be removed at Glen Canyon Park. Trees to be removed are mostly on the slope near O'Shaughnessy Boulevard. Only selected trees would be removed, which would not substantially affect the density of the urban forest or result in high wind speeds. Further, trees would be gradually removed; therefore, trees to be removed would not expose nearby residential areas, sidewalks, and trails to increased ground-level wind hazards.

²Wind-toughened edge trees—Trees in a stand that have become tough or resistant to the wind.

The potential windthrow hazards to people from removing trees at Glen Canyon Park would be minimal because most of the trees are downslope of residences surrounding the Natural Area. Additionally, Glen Canyon Park is within a canyon and is sheltered from strong prevailing westerly winds. Windthrow is likely to occur naturally within the stand and along its edges. However, tree removal would not increase potential hazards of these events. This area is sheltered from prevailing winds, so removing trees from this stand is not likely to increase windthrow and cause significant wind impacts. Therefore, programmatic projects would have *less than significant* wind impacts at Glen Canyon Park.

Golden Gate Park Oak Woodlands

Eighty-two trees would be removed from Golden Gate Park Oak Woodlands, with 818 trees to remain. Individual trees are expected to be selected for removal from within the stands of this Natural Area. The Golden Gate Park Oak Woodlands is one of the few places within the Natural Areas system where a large stand of native trees persists. Implementation of the SNRAMP at the Golden Gate Park Oak Woodlands would not change significantly the overall look of the park and would enhance native oak woodland by preventing invasive tree species from becoming established. Removing dead or aging trees would reduce the potential windthrow hazards; therefore, tree removal as part of the programmatic projects of the SNRAMP would not result in high wind speeds or windthrow hazards. Any increase in wind levels at Golden Gate Park Oak Woodlands as a result of the programmatic projects would be *less than significant*.

Interior Greenbelt

One hundred forty trees would be removed from Interior Greenbelt, with 5,860 trees to remain. Individual trees are expected to be selected for removal from within the stands of this Natural Area. Most of the trees to be removed are near the eastern boundary and the western tip of this Natural Area. There would not be a substantial change in edge conditions or an increase in wind exposure in any of the areas where trees are to be removed. The site is on the northeast-facing slope of Mount Sutro and is protected from the prevailing westerly winds. Therefore, programmatic projects at the Interior Greenbelt would not result in high wind speeds. Further, there are no houses, sidewalks, or trails close enough to the tree removal areas to increase the risk from windthrow or ground-level wind hazards. For this reason, any increase in wind levels at Interior Greenbelt as a result of the programmatic projects would be *less than significant*.

Lake Merced

At Lake Merced, 134 of the approximately 12,000 trees would be removed from stands surrounding the lake, as part of the management activities. Removal would be focused near “the Mesa” and next

to the golf course on the eastern shore of South Lake. The closest existing and proposed trails are approximately 100 feet from the trees to be removed. In general, the potential ground-level wind hazard is minimal because there are no residential areas or sidewalks near the stands where trees would be removed, and trails are not next to the tree removal areas. Therefore, trees would not be removed near public areas, and wind impacts at Lake Merced would be *less than significant*.

Most of the trees at Lake Merced are relatively exposed to the prevailing westerly winds, resulting in wind-hardened trees throughout the stand. Windthrow likely occurs naturally within the stands and along their edges, and proposed tree removal is not expected to substantially increase the potential for windthrow hazards because most of the trees to remain are wind hardened. Further, the removal of dead or aging trees would reduce the potential windthrow hazards. Any increase in ground-level wind hazards and windthrow would be minimal at Lake Merced, and wind impacts resulting from the proposed programmatic projects would be *less than significant*.

McLaren Park

Eight hundred five of the 19,500 trees would be removed at McLaren Park. Tree removal at McLaren Park is planned mostly for individual trees or small groups of trees within grasslands. In the area downslope of Mansell Street, near the water tanks, the overall plan is to remove enough trees to preserve the grasslands and allow coastal scrub and oak woodland communities to become established. This would involve thinning the stand, which would leave the edges intact and would not result in a substantial change in ground-level wind hazards and windthrow. Also, this area is sheltered from the prevailing westerly winds by the topography of McLaren Park and by trees lining the adjacent golf course. Therefore, programmatic projects at McLaren Park would not result in high wind speeds and would not substantially alter wind patterns; any increase in wind levels at McLaren Park as a result of the programmatic projects would be *less than significant*.

Mount Davidson

At Mount Davidson, 1,600 trees would be removed as part of the management activities, and 9,400 trees would remain. Most of the trees would be removed from the center of this Natural Area. Removing trees at Mount Davidson would not create ground-level wind hazards near residential areas because of the trees' locations within the stand or away from homes. Ground-level wind hazards also would not increase along the trails of Mount Davidson because mostly small and medium trees would be selectively removed. Some trees within the restoration zones would remain, as would most of the trees on the wind-hardened edges. Therefore, tree removal would not substantially decrease the density of the urban forest, expose the trails to excess wind, or result in high wind speeds.

Prevailing winds at Mount Davidson are from the west and southwest, so removing edge trees on the west side of the park could increase the rate of windthrow within the stand; however, no trees are proposed to be removed in these areas, minimizing or avoiding windthrow impacts in those locations. The forest grassland ecotone is not subject to prevailing winds, and trees could be removed from the forest edge without increasing the windthrow risk. Some windthrow is likely to occur naturally within the stand and its edges, but removing trees from Mount Davidson is not expected to substantially alter the windthrow rates. Further, the removal of dead or aging trees would reduce the potential windthrow hazards. Therefore, wind levels at Mount Davidson resulting from the programmatic projects would not substantially increase ground-level hazards or alter the windthrow rates. Therefore, wind impacts of the programmatic projects at Mount Davidson would be *less than significant*.

Sharp Park

Fifteen thousand trees would be removed at Sharp Park, with 39,000 trees to remain. Trees to be removed are near the eastern border and in the center of the park, away from the golf course. Tree removal in some areas would be between 50 and 75 percent of the stand, depending on the area; no trees would be removed in other areas. The risk to people from a potential increase in ground-level wind hazard is minimal because these areas are inaccessible to the park visitors and no residences or sidewalks are near the trees to be removed. Therefore, the gradual removal of trees would not substantially increase wind speeds in public areas.

The windthrow rates at Sharp Park may be relatively higher following tree removal. This Natural Area is exposed to the strong westerly winds that funnel up off the beach and through the canyon. However, the trees would not be removed all at once, and gradual removal would not substantially elevate windthrow rates. Even if windthrow were to increase substantially in this portion of the Natural Area, the risk to people is minimal because there are no residences or sidewalks and very few visitors to this Natural Area, and the canyon east of the archery range is inaccessible. Therefore, increase in wind levels at Sharp Park resulting from the programmatic projects would be *less than significant*.

Project-level Impacts (Routine Maintenance)

Impact WS-2: Implementation of the routine maintenance activities under the SNRAMP would not result in significant ground-level wind hazards and windthrow risks. (Less than Significant)

As part of routine maintenance, trees could be removed at the Natural Areas analyzed under the programmatic projects above. During routine maintenance, individual or groups of fewer than 20

trees would be removed in areas that are less than half an acre. Removed trees would mostly be those that are decaying and aging and that would likely fall naturally over time. Tree removal during routine maintenance in the Natural Areas analyzed under the programmatic projects would not create significant windthrow hazards because the bulk of the stands would remain intact. Further, the removal of dead or aging trees would reduce the potential windthrow hazards. Therefore, tree removal would not increase ground-level wind hazards near any residential areas or trails in these Natural Areas. Wind impacts at these Natural Areas resulting from routine maintenance would be *less than significant*.

Corona Heights

Fifteen trees would be removed at Corona Heights, with 185 trees to remain. Trees selected for removal would be isolated individuals scattered through the Natural Area. Because only 15 trees are planned to be removed, the bulk of the stand would remain intact. Further, most trees to be removed are at the northeast slope, below the ridge at Corona Heights, and are somewhat sheltered from the prevailing westerly winds. There are also aging and dying trees that would likely fall naturally. Tree removal in this location would not increase ground-level wind hazards to any residential areas or trails in Corona Heights and would not result in high wind speeds. Further, tree removal would not create any windthrow hazards because a very small number of trees is planned to be removed, and the bulk of the stand would remain intact. As with any forest, windthrow is likely to occur naturally within the stand and at its edges, and tree removal under routine maintenance would not increase this potential. Further, the removal of dead or aging trees would reduce the potential windthrow hazards. Therefore, wind impacts at Corona Heights resulting from routine maintenance would be *less than significant*.

Dorothy Erskine Park

Dorothy Erskine Park supports approximately 100 trees, 14 of which are planned for removal. The trees would be removed from the northeastern tip and the center of this Natural Area. These areas are somewhat sheltered from the prevailing westerly winds by stands that would remain. Further, removal of individual trees would not affect the density of the urban forest at Dorothy Erskine Park. The selection of individual trees would not create situations where the nearby residential area's sidewalks and trails are exposed to high winds or where the remaining stand is exposed to wind conditions that are substantially different from current levels. Removal of dead or aging trees would reduce the potential windthrow hazards and is not expected to increase ground-level wind hazards or windthrow. As such, tree removal would not result in high wind speeds and would not increase ground-level wind hazards on nearby residents or expose trees in a stand to high winds. Therefore,

the potential ground-level wind hazard and windthrow that would result from routine maintenance would be *less than significant*.

Project-Level Impacts (Sharp Park Restoration)

Impact WS-3: Implementation of the Sharp Park restoration under the SNRAMP would not result in ground-level wind hazards and windthrow risks. (No Impact)

A few individual trees may be removed as part of the wetland and upland habitat restoration, but no ground-level wind hazard or windthrow would result. As such, Sharp Park restoration would result in *no impact* from wind hazards and windthrow risks.

Cumulative Impacts

Impact WS-4: The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively significant impact related to wind and shadow. (Less than Significant)

The geographic context for an analysis of cumulative impacts from wind effects is limited to the area near the project sites. None of the reasonably foreseeable future developments in these areas include structures with heights greater than 100 feet, which would intercept a large volume of wind and result in high wind speeds in the Natural Areas. The Hunters Point Shipyard/Candlestick Park Redevelopment could result in wind impacts on Bayview Hill with the construction of high-rise buildings. However, in compliance with the requirements of the San Francisco Planning Code, this is expected to minimize the level of wind impacts from high-rise construction to less than significant levels. The EIR prepared for the Hunters Point Shipyard/Candlestick Park Redevelopment includes a mitigation measure for building design wind analysis. The measure requires a wind study for buildings higher than 100 feet. The study is to assist in identifying design changes that would mitigate the adverse wind conditions to below the threshold of 26-mph-equivalent wind speed for a single hour of the year. Implementation of appropriate design changes would reduce hazardous wind effects on pedestrians to a less than significant level. Other cumulative projects include the University of California San Francisco Mount Sutro Open Space Reserve Management Plan, which proposes management actions for the 61-acre forest that include thinning of the forest, native plant restoration and enhancement, and removal of nonnative trees and plants and conversion to native species. Tree removal could increase the ground level wind speed in this area, possibly exposing areas to high winds and therefore resulting in high wind impacts. However, one of the objectives of the project is minimizing windthrow hazards and improving the health of the remaining trees.

Therefore, the Mount Sutro project would not contribute significantly to the wind hazards within the project area.

Under cumulative conditions without the proposed project, wind speeds in the vicinity of the other Natural Areas would not significantly increase, and the project contribution to cumulative wind impacts would not be considerable. Therefore, cumulative wind impacts would be *less than significant*.

V.F RECREATION

This section describes the recreation activities within the Natural Areas and evaluates the potential for the proposed management activities to result in environmental impacts. Due to the diversity of attractive natural features, topography, and proximity to San Francisco, each of the 32 Natural Areas identified in the SNRAMP are valued for their recreational opportunities. As such, these lands support a substantial amount of outdoor recreation use by both local residents and visitors to the area.

Comments related to recreation received during the NOP scoping process included concerns about:

- The quality of the public recreation experience;
- Consideration of bicycling trails;
- Effects of off-leash dog areas on recreational resources;
- Effects of the introduction of endangered/threatened species on recreational opportunities, public access, and the administration of local public lands;
- Effects of restricting access and limiting activity uses in Natural Areas on recreation.

V.F.1 Regulatory Setting

Federal Regulations

There are no applicable federal regulations related to recreation for the proposed project.

State Regulations

California Coastal Act

The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. The act also permanently established the California Coastal Commission. The policies of the act are the statutory standards that apply to planning and regulatory decisions made by the commission and by local governments, pursuant to the act. Implementation of the act's policies is accomplished primarily through the preparation of local coastal programs that include land use plans. To ensure that coastal resources are effectively protected in light of changing circumstances, such as new information and changing development pressures and impacts, the

commission is required to review each certified local coastal program at least once every five years. The only Natural Areas with recreation resources that fall within the jurisdiction of the California Coastal Act are India Basin Shoreline Park and Sharp Park.

Regional and Local Regulations

San Francisco Bay Plan

The San Francisco Bay Plan (Bay Plan) contains policies pertaining to the development of parks and recreational facilities in and near the Bay and public access to the Bay. The Bay Plan identifies priority use(s) for the Bay shoreline, an area defined as 100 feet inland from the mean high water line. These priority uses are identified on the plan maps and are defined as Ports, Water-related Industry, Water-oriented Recreation, Airports, and Wildlife Refuges. The only Natural Area with recreation resources that overlap the Bay shoreline is India Basin Shoreline Park.

Golden Gate Park Master Plan

Golden Gate Park is a 1,017-acre urban park located on the northern part of the San Francisco peninsula. The Golden Gate Park Master Plan contains objectives and policies to be used as guidelines for preservation, use, and development of the park. Objectives in the plan pertain to land use and activities, landscape preservation and renewal, park circulation, buildings, structures, and monuments, recreational uses and facilities, park management and security, and community involvement. Golden Gate Park contains the 26-acre Oak Woodlands Natural Area.

San Francisco General Plan, Recreation and Open Space Element

The Revised Draft Recreation and Open Space Element of the General Plan of the City and County of San Francisco was released for public review in the summer of 2011. The Revised Draft incorporates public and agency comments received since the release of the initial draft plan in May 2009. The revised draft contains objectives and policies regarding the short-term and long-term management of the open space network in the City and County of San Francisco as well as acting as a resource and planning guide for agencies with open space holdings in the City and County of San Francisco. Thirty-one of the 32 Natural Areas fall within the jurisdiction of the Recreation and Open Space Element of the General Plan for the City and County of San Francisco and must therefore be in compliance with the General Plan. The only Natural Area that falls outside the jurisdiction of the General Plan is the Sharp Park Natural Area, which is in San Mateo County.

San Francisco Dog Policy

The SFRPD released the Final Dog Policy in May 2008, which established designs and policies for specific parks that support off-leash dog use. The Dog Policy provides specific rules and regulations concerning dog use on lands within the City limits, including DPA siting criteria, boundaries, amenities, required signage, and specific criteria each dog must meet before entering an area, such as vaccinations and age requirements. There are 19 designated areas that support off-leash dog use within San Francisco, seven of which are Natural Areas. They are Bernal Hill, Buena Vista Park, Corona Heights, Oak Woodlands, Lake Merced, McLaren Park, and Pine Lake.

V.F.2 Environmental Setting

The predominant types of passive recreation activities that take place in Natural Areas are walking, hiking, running, dog walking, and nature watching. Active recreation is not supported by the Natural Areas, but some biking does take place on the paved trails around Lake Merced. Almost all of the Natural Areas include hiking trails, and most provide scenic views of San Francisco. Walking and biking trails were identified as one of the most important recreation facility needs for San Francisco residents, according to the 2004 SFRPD Recreation Assessment (SFRPD 2004). Of the individuals surveyed for that assessment, 67 percent participated in running or walking, the highest percentage for any of the 26 activities identified in the survey. Other activities that San Francisco residents participate in included visiting nature areas (61 percent, second on the activities list), bicycling (38 percent, fifth on the activities list), volunteering (22 percent, tenth on the activities list), and dog walking (20 percent, twelfth on the activities list).

For the purposes of the SNRAMP, recreation facilities refer primarily to trails, DPAs, and lakes within the 32 Natural Areas analyzed in this EIR.

As described in Section III.E.1, the recreation goals for the Natural Areas are as follows:

- To provide opportunities for passive recreation uses (e.g., hiking and nature observation) that are compatible with conservation and restoration goals; and
- To improve and develop a recreation trail system that provides the greatest accessibility, while protecting natural resources.

Approximately 211,303 feet (40.0 miles) of trails exist within the Natural Areas. This includes primary (those officially designated as main routes into a Natural Area from large neighborhoods, main roadways, or parking areas) and secondary trails (those officially designated as routes and social trails that have not been officially designated and are usually trails created by users). There

are 95.2 acres of SFRPD DPAs within the Natural Areas that are designated off-leash areas for dogs. In addition, the Sharp Park Natural Area in Pacifica surrounds the Sharp Park Golf Course and archery range, which are not part of the Natural Area. The 18-hole golf course is at the foot of Sharp Park Road, bisected by Highway 1, and covers approximately 120 acres of the 411-acre Sharp Park.

V.F.3 Impacts

Significance Thresholds

A proposed project would have a significant recreation impact if it were to result in the following:

- Increase the use of neighborhood and regional parks or other recreation facilities such that the physical deterioration of the facilities would be substantial or accelerated;
- Include recreation facilities or require the construction or expansion of recreation facilities that might have an adverse physical effect on the environment; or
- Physically degrade existing recreation resources.

Trails and trail-related activities are a main component of recreation within the Natural Areas, and trail users generally benefit from the presence of natural resources. As such, the SNRAMP provides recommendations to develop site stewardship and recreation uses compatible with natural resource protection. Three of the major actions proposed by the SNRAMP that would impact recreation are modifying and closing trails, reducing space allotted for DPAs, and continuing to allow off-leash dog recreation in areas where the Natural Areas' resources have the potential to deteriorate. As a result, paved, social, and hiking trails, as well as DPAs are the primary recreation facilities discussed in the impacts section. In addition to these actions, proposed modifications to the Sharp Park Golf Course are also discussed in this analysis.

The SNRAMP outlines an adaptive management approach (Section III.E.4). Through this process, the ongoing management of recreation facilities in the Natural Areas would be monitored to ensure that the recreation goals and the intent of the adaptive management process are being met. This would be achieved by evaluating the success of site-specific recreation facility recommendations that are in this impacts section and are outlined in Section III.I.

Impacts Addressed in the Initial Study

The Initial Study and NOP did not address the SNRAMP's potential to affect recreational resources. Therefore, this EIR evaluates the impacts of the SNRAMP's management action for each of the 32

Natural Areas as they relate to recreational resources. Recreational impacts are identified based upon the CEQA significance criteria set forth on page 255.

Significant Natural Resource Areas Management Plan Impacts

Impacts related to the second CEQA significance threshold identified above, related to adverse physical impacts of new or expanded recreation facilities, are addressed in the other sections of Chapter V; proposed project is a recreation/management project and as such this EIR evaluates the physical environmental impacts of the SNRAMP on the natural environment in the other Chapter V sections. For the other two CEQA significance thresholds, this analysis addresses the potential impacts of the proposed SNRAMP's programmatic projects followed by project-level impacts (routine maintenance and the Sharp Park restoration activities).

Increased Use of Neighborhood and Regional Parks

Programmatic Impacts

Impact RE-1: Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities such that increased physical deterioration of those facilities would occur. (Less than Significant)

Programmatic projects with the potential to affect recreational resources include trail related activities and modifications to dog play areas, as addressed below.

Trails

According to the SFRPD Recreation Assessment, the condition of many SFRPD facilities is deteriorating, and the recreation facilities most important to residents are walking, running and visiting nature (SFRPD 2004). As a programmatic project, the SNRAMP calls for closing 54,411 feet (10.31 miles) of social trails and creating 5,897 feet (1.1 miles) of new trails, resulting in a net decrease of 48,514 feet (9.2 miles), or 23.0 percent of the trails with Natural Areas. Trail closures would focus primarily on eliminating social trails because they are considered unsafe, to protect sensitive species or habitat, or to prevent soil erosion. It is unlikely that closing social trails, redundant trails, or trails near sensitive species or habitat would deter a substantial number of people from using Natural Areas and increase the use of other recreational facilities because general access would remain unimpeded and may improve through the creation of new trails and improving existing trails. Therefore, it is unlikely that closing trails in Natural Areas would

substantially increase the use of other recreational facilities to an extent that would result in substantial deterioration or the acceleration of deteriorating conditions at those facilities.

To accommodate the recreating public, approximately 1.1 miles of new trails would be created, and existing primary trails would be improved to provide a more manageable trail system with greater access and easier navigation through the parks. An improved trail system in Natural Areas could result in an increase in visitor use by making them more attractive and accessible to more types of users.

The new trail locations in the SNRAMP are conceptual and require further refinement and evaluation when resources become available to construct them. While the basic concept for primary and secondary trails would continue to guide trail creation in the Natural Areas, the exact routes and configurations may be subject to further refinements, based on topography and other site-specific conditions.

The construction of new trails could impact trail users in the short-term by altering the landscape and introducing noise and equipment that diminish the recreational experience. However, these impacts would be temporary and limited in extent and duration. In the long-term, trail users would benefit from improved trail conditions and from potential connections with the existing City street bicycle system, resulting in direct beneficial impacts. Therefore, construction of new trails would have a *less than significant* impact on recreational resources.

Dog Play Areas

Of the 95.2 acres of DPAs within the Natural Areas, 19.3 acres (20.3 percent) are proposed for closure (Recommendations GR-8a, GR-8b, and GR-8c). This accounts for 16.4 percent of the total acres of SFRPD-maintained DPAs. Under the SNRAMP, SFRPD would remove the Lake Merced DPA and would decrease the area of two DPAs, one on Bernal Hill and the other in McLaren Park. These DPAs are in areas with high erosion potential and sensitive vegetation or habitat, and additional protection is required. Although the Lake Merced DPA would be closed in accordance with the SFRPD Final Dog Policy (SFRPD 2002) and SFPUC's Lake Merced Watershed Report (SFPUC 2011), all Natural Areas would still be open to on-leash dog use. The SNRAMP also calls for monitoring the potential impact of DPAs on oak woodlands at Buena Vista Park, Golden Gate Park Northeast, and MA-1 areas of the McLaren Park Shelley Loop. At Bernal Hill, at least 2.5 acres of the proposed closures are largely inaccessible due to slopes of between 45 and 90 degrees. The possibility for an increase in users at the DPAs in McLaren Park and on Bernal Hill depends on the current and reasonably foreseeable future use of the DPAs and enforcement of the citywide dog

policy. According to the SFRPD Final Dog Policy (SFRPD 2002), DPAs should be reviewed every three years for, among other things, degradation of the area. Similarly, the likelihood that Lake Merced recreation users would use other DPAs within or outside of the Natural Areas largely depends on the users' proximity to another DPA; the next closest DPA is at Pine Lake, less than one mile north of Lake Merced. As the distance between a user and a DPA increases, the likelihood that the user would visit that DPA decreases. Thus, it is unlikely that DPAs within and outside of the Natural Areas would experience increased use to the point of physical degradation from the loss of 19.3 acres distributed among three DPAs; the remaining six DPAs (Bernal Hill, Buena Vista Park, Corona Heights, Golden Gate Park Oak Woodlands, McLaren Park, and Pine Lake) would have 75.9 acres available for off-leash use. The closure of the Lake Merced DPA would have two potential direct, adverse long-term impacts: reducing access to DPA users and concentrating DPA users into the areas that remain open. However, because the DPA at Lake Merced is not heavily used and the Bernal Hill and McLaren Park DPA reductions represent a small portion of otherwise large DPAs, the increase in DPA users at other areas would not be substantial enough to result in the physical deterioration or accelerated deterioration of recreational facilities. As a result, the programmatic activities related to dog use would have a *less than significant* impact with respect to the physical deterioration of recreation facilities from increased use.

Project-Level Impacts (Routine Maintenance)

Impacts RE-2: Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities such that increased physical deterioration of those facilities would occur. (No Impact)

While improving primary trails in Natural Areas could encourage use, regular routine maintenance of trails, such as clearing deposited soil from steps and replacing steps or trail edging, would help mitigate any deterioration of those facilities; routine maintenance is not likely to increase use of recreational facilities outside the Natural Areas, for example by deterring visitors from using the Natural Areas. Such activities as removing invasive weeds and trees and maintaining trails and catchment basins are not considered activities that would deter the recreating public from visiting the Natural Areas. Rather, routine maintenance activities would likely enhance the recreation experience offered by the Natural Areas. As a result, the proposed routine maintenance activities would not be expected to increase the use of the neighborhood or regional parks, and the proposed routine maintenance activities would have *no impact* related to the physical deterioration of such recreation facilities.

Project-Level Impacts (Sharp Park Restoration)

Impact RE-3: Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial adverse effect on the use of recreation facilities in neighborhood and regional parks or other recreation facilities such that increased physical deterioration of those facilities would occur. (Less than Significant)

The habitat restoration effort proposed to take place at Sharp Park would modify about 19 acres of the golf course. The impact of the Sharp Park restoration activities on the golf course is addressed further below under Impact RE-6. The restoration effort entails removing a hole and reducing the size of other holes, which could affect the playability and might deter people from using the Sharp Park Golf Course, potentially resulting in an increased use of other nearby golf courses. There are approximately 16 public and municipal golf courses within reasonable driving distance of the Sharp Park Golf Course (the farthest is 32 road miles away), 12 of which are on the San Francisco peninsula. Ten courses, including the closest course (Harding Park) at approximately eight miles north of Sharp Park, offer a full 18 holes, and the remaining six offer nine holes. Visitation to these public golf courses may increase slightly during the short-term restoration of Sharp Park and renovation of the golf course. However, due to the relatively large number of nearby golf courses, and because any increase in visitation would be dispersed among the many other public and municipal golf courses along the San Francisco peninsula, Sharp Park restoration activities are not expected to result in a substantial increase of users at any one golf course such that physical deterioration would be expected to occur. Also, increased use of other golf courses would not exceed the maximum daily capacity established by those courses. Based on the above, the proposed habitat restoration efforts at Sharp Park would result in a *less than significant* impact on other nearby golf courses.

*Physical Degradation of Existing Recreation Facilities**Programmatic Impacts*

Impact RE-4: Implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on the physical characteristics of existing recreation facilities. (Less than Significant)

One of the objectives of the proposed project is to provide guidelines for recreational uses compatible with San Francisco's natural resources. These guidelines are intended to promote passive recreation, including improving and developing a recreational trail system within the Natural Areas. As such, the SNRAMP calls for the creation of 5,897 feet (1.1 miles) of new trails and

the closure or rerouting of 54,411 feet (10.31 miles) of trails. However, trail access would be maintained in all Natural Areas. Creating new trails and closing some existing social trails could enhance the recreation experience offered by the Natural Areas by upgrading trails to be more user friendly through increased accessibility and improved trail conditions.

The creation of new trails is not expected to have an adverse impact on fishing and water access at Lake Merced and India Basin. Current levels of access to the lakes would remain over the long-term, and fishing would continue to be offered in these Natural Areas.

As a result, the proposed project would not limit access to, or result in the physical deterioration of the Natural Areas or any other recreation facilities. For the reasons stated above, the impact of the SNRAMP on recreational resources would be considered *less than significant*.

Project-Level Impacts (Routine Maintenance)

Impact RE-5: Implementation of routine maintenance projects under the SNRAMP would not have a substantial adverse effect on the physical characteristics of existing recreation facilities. (Less than Significant)

Impacts on recreation facilities from routine maintenance are similar to those described above under Impact RE-2. Routine maintenance may create short-term disturbance of recreation facilities, but over the long-term it would enhance those facilities, resulting in a *less than significant* impact with respect to the physical deterioration of recreational resources.

Project-Level Impacts (Sharp Park Restoration)

Impact RE-6: Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on the physical characteristics of existing recreation facilities. (Less than Significant with Mitigation)

The proposed habitat restoration effort at Sharp Park would modify about 19 acres of the Sharp Park Golf Course. The golf course is on the western side of Sharp Park, and restoration would primarily affect the layout of the golf course holes, including Holes 10, 12, 14, 15, and 18 on the eastern edge of Laguna Salada. The proposed habitat corridor between Horse Stable Pond and Laguna Salada also would be constructed requiring Holes 10 and 13 to be slightly shortened or narrowed and Hole 12 to be closed. This habitat corridor would be approximately six acres, bringing the total of modified area at the golf course to about 19 acres. Although the approximately 19 acres includes both playable and unplayable space, removing a hole would affect the playability of the 18-hole course,

significantly affecting this recreation facility. However, with implementation of M-RE-6, which calls for retaining the golf course as an 18-hole course, this impact would be reduced to *less than significant*. CEQA requires an analysis of impacts of mitigation measures (CEQA Guidelines Section 15126.4(a)(1)(D)); therefore, pages 264 through 269 address the impacts of M-RE-6.

Due to the location of the archery range on the opposite side (eastern side) of Sharp Park, the archery range would not be impacted by the proposed Sharp Park restoration project.

M-RE-6: Restoration of the Sharp Park Golf Course to 18 Playable Holes

The SFRPD shall coordinate with a golf course consultant to restore the playability of the Sharp Park Golf Course, which would involve replacing Hole 12 either on the west (Option 1) or east (Option 2) side of Highway 1. Replacing the hole on the west side of Highway 1 may also require moving an additional hole west of the highway to retain playability and flow of the course, thereby increasing the number of holes west of the highway to 15 and decreasing to three the number of holes to the east. Creating a new hole east of Highway 1 would decrease the number of holes west of the highway to 13 and increase to five the number of holes to the east. The determination of where the replacement hole is constructed and whether additional holes need to be moved would require additional environmental review.

Cumulative Impacts

Impact RE-7: The proposed project, in combination with other planned and foreseeable future projects, would result in a cumulatively considerable significant impact related to recreation. (Significant and Unavoidable)

The geographic scope of this analysis includes San Francisco and Pacifica. Cumulative projects that would have an impact on recreation resources include those that reduce the overall recreation experience provided by the Natural Areas. This includes projects that may result in a significant increase in the regional population resulting in overcrowding of the Natural Area, a decrease in currently available recreation opportunities, consequently putting increased pressure that is unable to be absorbed by other Natural Areas, or a physical or visual change in the landscape that adversely impacts the appeal of a Natural Area. Implementation of the proposed GGNRA Dog Management Plan may further restrict dog access and off-leash areas within GGNRA land holdings, including Fort Funston (near Lake Merced), Milagra Ridge (near Sharp Park), Mori Point (near Sharp Park), and Sweeney Ridge (near Sharp Park). In addition, the SNRAMP proposes to close the Lake Merced DPA and reduce the size of the DPAs at Bernal Hill and McLaren Park. On-leash dog use would still be allowed at these and all other Natural Areas. The combined reductions in off-

leash areas proposed by the GGNRA and the SFRPD could result in an increase in dog use at the remaining Natural Areas. An increase in dog use at the Natural Areas could accelerate the physical deterioration of those DPAs and the Natural Areas in general. Given the speculative nature of the increased level of use that could result from these proposals, the impacts to recreation are conservatively determined to be significant from the combined cumulative projects. The contribution of the SNRAMP project to this potentially significant impact would be cumulatively considerable, specifically as a result of the closure of the Lake Merced DPA.

DPAs within the Natural Areas would continue to be evaluated in accordance with the SFRPD's Dog Policy; the SFRPD would monitor DPAs for their effects on the Natural Areas and develop solutions to any identified issues. These established procedures are considered adequate, and further monitoring procedures would not be expected to reduce the impact. The potentially significant impact to recreational resources as a result of increased use resulting from cumulative actions could be mitigated by adding a new DPA at a nearby Natural Area or other nearby property. However, as discussed in this document, there is a current moratorium¹ on new DPAs, and the mitigation therefore would not be feasible. As a result, this impact would be *significant and unavoidable*.

The Natural Areas are within parks throughout San Francisco and in Pacifica. They are insulated from the urban environment and are open environments composed of vegetation, trails, lakes, and geologic features. Most of the projects that may cumulatively impact recreation resources within Natural Areas are residential/commercial developments and recreation facility construction occurring outside the Natural Areas. New developments could bring additional recreation users to the Natural Areas, which could increase the use of those natural areas, resulting in some crowding, degrading the overall passive recreation experience over time. The residential/commercial development that would have the greatest potential impact on cumulative recreation resources is the Candlestick Point-Hunters Point Shipyard Phase II Development project, which would have a permanent workforce of over 10,000 people and provide housing for over 25,000 residents. The Natural Areas most affected by the Candlestick Point-Hunters Shipyard project are Bayview and India Basin Shoreline Park, both of which are in eastern San Francisco. These areas offer recreation trail uses, views of the City, and abundant wildlife observation. Bayview Park is a popular Natural

¹There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

Area where most public use is confined to a looping primary paved path that is in generally good condition. However, this paved path is experiencing minor erosion issues due to use, which may further deteriorate if increased visitation and use were to occur as a result of the Candlestick Point project and without regular maintenance. Natural open space is included as part of the Candlestick Point project, which would offer additional public recreational opportunities, reducing the potential for overuse of the Natural Areas due to the anticipated increase in population from the Candlestick project. India Basin Shoreline Park is also a popular Natural Area that offers shoreline access to the Bay for fishing, kayaking, and other water-dependent recreation. Improvements to this Natural Area are ongoing and include the addition of picnic tables, pathway improvements, landscaping, irrigation, and wetland restoration and creation.

Some of the key goals identified in the SNRAMP include those related to conservation and restoration, environmental stewardship, monitoring the health of the Natural Areas, as well as aesthetic viewsheds. Regular maintenance activities, such as those discussed in Impact RE-2 above, would help achieve these goals and minimize any potential cumulative impacts of additional development around the Natural Areas. In addition to aforementioned improvements and regular maintenance, as a part of the SFRPD Trails Program, trails would be improved with SFRPD- and/or grant-funded capital projects. Trail improvement in areas surrounding the 32 Natural Areas would dissipate recreation users throughout the trail system and overall would enhance the experience of passive recreation users, resulting in a beneficial and *less than significant* cumulative impact on recreational facilities.

Other potential projects proposed outside the SNRAMP include creating additional recreation opportunities at McLaren Park (outside the Natural Area) and Oak Woodlands in Golden Gate Park. Additionally, replacing existing turf fields with new artificial turf and adding new amenities such as benches, bleachers, picnic tables, barbeque pits, new maintenance sheds, and new pedestrian pathways (at such locations as Buena Vista Park, Lily Pond, Oak Woodlands, Strawberry Hill, and Whiskey Hill Natural Areas) could shift some passive activities and visitors away from some of the recreation areas in these Natural Areas. However, these projects are designed to improve the recreation experience in these areas, making the overall cumulative impact on recreational resources beneficial and *less than significant*.

V.F.4 Impacts of Mitigation Measures

Implementation of Mitigation Measure M-RE-6 could result in additional environmental impacts; other mitigation measures identified in this EIR would not result in environmental impacts. In accordance with CEQA and CEQA Guidelines Section 15126.4(a)(1)(D), impacts of mitigation measures must be addressed.

M-RE-6: Restoration of the Sharp Park Golf Course to 18 Playable Holes

The SFRPD would coordinate with a golf course consultant and would restore the playability of the Sharp Park Golf Course, which would involve replacing Hole 12 either on the west (Option 1) or east (Option 2) side of Highway 1. Replacing the hole on the west side of Highway 1 may also require moving an additional hole west of the highway to retain playability and flow of the course, thereby increasing the number of holes west of the highway to 15 and decreasing to three the number of holes to the east. Creating a new hole east of Highway 1 would decrease the number of holes west of the highway to 13 and increasing to five the number of holes to the east. The determination of where the replacement hole is constructed and whether additional holes require moving would be evaluated under a separate environmental review.

Implementation of Mitigation Measure M-RE-6 could result in additional environmental impacts. While it is speculative to precisely identify all potential impacts related to its implementation, discussed below are the types of impacts that could result from the range of activities under this mitigation measure.

Land Use and Land Use Planning

Implementing M-RE-6 would change the layout of the golf course holes and ensure playability of the Sharp Park Golf Course. This would not impact land use and land use planning.

Aesthetics

This mitigation measure would occur within the area of the existing golf course. While trees and other vegetation may be removed, alterations to the landscape under this mitigation measure would be consistent with the existing use and character of the area. No buildings or structures would be constructed that could block or alter general scenic vistas. No new lighting would be installed that could alter nighttime darkness or create glare. As a result, there would be less than significant impacts on aesthetics.

Population and Housing

Implementation of the Mitigation Measure M-RE-6 would have no impacts on population and housing because it would only reconfigure the golf course within the Sharp Park area and not induce population growth or result in displacement of houses or people.

Cultural and Paleontological Resources

Impacts on archaeological resources and human remains would be similar to those identified under Impacts CP-16 and CP-22, but more likely to occur as a result of this mitigation measure because there is the potential for ground disturbance outside the existing landscaped golf course and east of Highway 1.

Impacts on paleontological resources would be the same as those identified under Impact CP-19.

Impacts on historical resources, specifically the Sharp Park Golf Course, would result in significant impacts if any reconfiguration of the course resulted in additional holes east of Highway 1. Adding holes on the east side of the freeway diminishes the historic integrity of the landscape because it changes the balance of holes that were originally on the east and west side of Highway 1 and creates a hole in an area that was not originally planned and not originally part of the Mackenzie-designed course. As a result, these impacts could be significant and unavoidable. Increasing the number of holes west of Highway 1 would be beneficial to the Sharp Park Golf Course because it would restore some of the elements that Mackenzie had implemented in his original design of this course, such as coast side holes. This mitigation measure would change the layout of the holes, but the new holes would be in areas of the course where Mackenzie situated holes in his original design, and would be in keeping with the historic boundaries of the golf course. As a result, impacts to architectural historic resources could be less than significant if the hole is placed west of Highway 1.

Transportation and Circulation

Implementation of this mitigation measure would have no impact on roadway capacity or level of service near the project area. The reconfiguration activities would result in a temporary increase of construction vehicles. However, this increase would be minor and is not expected to result in a substantial impact on the nearby roadways. Therefore, impacts on transportation and circulation would be less than significant.

Noise

The replacement of Hole 12 to restore the playability of the Sharp Park Golf Course would result in additional construction activities potentially on either side of Highway 1. Noise generated from

these construction activities would be on the north side of the golf course, at least 500 feet away from residential areas. Further, potential noise impacts are expected to be discontinuous and of short duration during the day time. Therefore, noise impacts would be less than significant.

Air Quality

This mitigation measure could result in additional air pollutant emissions on the east and west sides of Highway 1. Because the SFRPD would comply with the San Francisco Dust Control Ordinance and submit a dust control plan, impacts from fugitive dust emissions would be less than significant. Because of the nature and timeline for these activities, these emissions may exceed the daily criteria pollutant thresholds of significance established by the Bay Area Air Quality Management District (BAAQMD). As would be done for the Sharp Park restoration, the SFRPD would implement mitigation measures to reduce the impacts of these emissions. However, even with the implementation of those measures, criteria pollutant levels may remain above the BAAQMD daily threshold and could result in significant and unavoidable air quality impacts. Although the degree of excavation and cut and fill to maintain the playability of the golf course is unknown, it is anticipated that the level of activity would be lower than that associated with the Sharp Park restoration activities. A quantitative health risk assessment of the Sharp Park restoration activities indicated that the BAAQMD health risk thresholds would not be exceeded; therefore, health risk impacts on sensitive receptors from this mitigation measure also would be less than significant. Equipment exhaust could occasionally emit odors attributed to gasoline combustion, but these odors would be less than significant.

Greenhouse Gas Emissions

Increased construction vehicles and equipment operation under this mitigation measure would contribute short-term emissions to the annual increases in GHGs. The BAAQMD has not identified a significance threshold for construction-related GHG impacts. Rather, the BAAQMD recommends consideration of best management practices, including the use of alternative fueled equipment and recycling or reuse of construction waste or demolition materials. All municipal projects are required to comply with the City's Construction Demolition and Debris Ordinance. The Construction Demolition and Debris Ordinance requires recycling or diversion of at least 75 percent of construction waste. SFRPD would be required to comply with these applicable regulations. Furthermore, as discussed in Section VI, Other CEQA Issues, the Sharp Park restoration activities are anticipated to result in construction-related GHG emissions on the order of 796 metric tons of carbon dioxide equivalents. Although the degree of excavation and cut and fill to maintain the playability of the golf course is unknown, any construction-related GHG emissions would be

negligible compared to annual emissions within the region, and all municipal projects would be required to comply with the aforementioned City regulations, ensuring that any impacts would be less than significant.

Wind and Shadow

Implementation of M-RE-6 may result in tree removal, which is not expected to alter wind patterns or result in a net increase in shadow. Any tree removal would not be anticipated to increase ground-level wind speeds substantially. Further, the mitigation measure would not result in new structures and therefore would not have the potential to increase shadow on open spaces. Therefore, the mitigation measure would have no impacts related to wind and shadow.

Utility and Service Systems

Implementation of M-RE-6 would not increase the demand related to wastewater treatment, water supply, or stormwater drainage. Further, no additional solid waste would be generated as a result of this mitigation measure. Therefore, it would have no impacts on utility and service systems.

Public Services

This mitigation measure would not result in the increase of population and therefore would not require the need for new or expansion of existing public services; therefore, it would have no impacts on public services.

Biological Resources

The impacts to biological resources as a result of Mitigation Measure M-RE-6 may include the additional removal of trees on the east side of Highway 1 to accommodate potential new hole construction. The potentially impacted environment east of Highway 1 is composed primarily of urban forest which is dominated by nonnative tree species. Creating a new hole to the west of Highway 1 would require the conversion of a small amount of coastal scrub habitat which has been identified as a sensitive natural community. These activities would have temporary impacts as well as potential long-term impacts, specifically potential for disturbance of special status bird species and the removal of coastal scrub habitat. With implementation of biological mitigation measures identified in Section V.G, such as M-BI-1a and M-BI-1b, M-BI-5, and M-BI-13, the impacts from this mitigation measure would be reduced to less than significant.

Geology and Soils

This mitigation measure may result in short-term disturbance of soils and vegetation that could increase the erosion potential within the active project areas. This potential would be minimized by

the use of the erosion control BMPs included as part of the SNRAMP. Over the long-term, disturbed areas would be revegetated or otherwise landscaped, resulting in negligible net changes in the erosion potential following completion of the mitigation actions. As a result, the impacts on geology and soils would be less than significant.

Hydrology and Water Quality

Under this mitigation measure, the golf course boundary may be expanded into the Natural Area. Hydrologic and water quality impacts could result from activities associated with this land conversion. One of the potential areas where expansion could occur is between the seawall and Laguna Salada south of current Hole 16, although expansion could also potentially occur east of Highway 1. Short-term impacts on water quality could occur if soil or spilled fuels or other substances were transported from new construction sites to Laguna Salada or Sanchez Creek via storm water runoff. Such occurrences would be prevented or minimized by implementation of construction storm water BMPs in accordance with National Pollutant Discharge Elimination System (NPDES) permit requirements and Mitigation Measure M-HZ-13. Expansion of the golf course into new areas could alter existing drainage and infiltration patterns, either increasing or reducing storm water runoff. Due to the small land areas involved and because the golf course would involve a change in vegetation cover rather than any increase in impervious surface area, any change in runoff volume is likely to be insignificant to flooding potential. As the amount of land area devoted to golf course use would not change significantly, the net quantities of agricultural chemicals (fertilizers, herbicides) used on the golf course, and the net loading to surface water or groundwater is not expected to change significantly. Therefore, this mitigation measure would have a less than significant effect.

Hazards and Hazardous Materials

Implementation of M-RE-6 would not have significant impacts on hazards and hazardous materials. Replacement of Hole 12 would require the use of motor vehicles which includes the use of hazardous materials such as fuel, oil, solvents, and lubricants. Hazardous materials would be used in marginal quantities, and activities involving hazardous materials and hazardous waste would be conducted in accordance with strict health and safety standards mandated by the Occupational Safety and Health Administration (OSHA). Further, with the implementation of M-HZ-13, which requires the preparation of an emergency response plan, potential impacts related to the transport, use, or release of hazardous materials would further ensure that impacts of this mitigation measure would be less than significant.

Mineral and Energy Resources

The Natural Areas are not designated areas of significant mineral deposits. Therefore, implementation of M-RE-6 would have no impacts on mineral resources. Use of energy resources, such as diesel and gasoline, is expected to be minor and is considered a less than significant impact. Additionally, implementing Improvement Measure I-ME-1 to increase energy efficiency and Mitigation Measure M-AQ-4 to limit idling of diesel-fueled vehicles would reduce the potential impacts on the use of energy resources.

Agriculture and Forest Resources

Implementation of M-RE-6 would have no impacts on agriculture or forest resources because there are no farmlands at Sharp Park. Further, any removal of trees to replace Hole 12 would not impact zoning of forest land or timberland and would not result in a substantial loss or conversion of forest land. Tree removal would not include trees designated for commercial harvest. Further, tree removal would be in a very small area that would not result in a substantial conversion of the urban forest to non forest use. The Sharp Park Golf Course would continue to be used for recreational activities. Therefore, implementation of M-RE-6 would have no impacts on agriculture and forest resources.

V.G BIOLOGICAL RESOURCES

This section describes the biological resources of the Natural Areas and the potential for the proposed project to impact those resources. The environmental setting information is largely based on the data generated and gathered for the SNRAMP (SFRPD 2006); additional sources of information are cited in the text and are listed in Chapter VIII, References.

Comments related to biological resources received during the NOP scoping process included concerns about the following:

- The use of wood chips on wildlife, including bees and birds, some of which use dirt areas for dust baths;
- India Basin Shoreline waterfowl species that are present from fall through spring;
- Great blue herons at Lake Merced;
- The impacts on several nesting bird species from having access to Lake Merced's East Lake shoreline between September 1 and March 31;
- Non-breeding birds that use the Natural Areas during some part of the year;
- An updated inventory of all species of concern;
- Effects of mosquito control measures on the California red-legged frog population and on residential neighbors of Sharp Park;
- Impacts of tree removal on bird and wildlife habitat;
- Impacts of Sharp Park activities on the long-term survival and recovery of the San Francisco garter snake;
- Effects of dog impacts on plants and wildlife;
- Impacts on common wildlife from clearing underbrush and blackberry;
- Failure to replace eucalyptus trees with native plants;
- Discussion of important bird habitat at Interior Greenbelt for yellow warblers, Steller's jays, bush-tits, song sparrows, owls, and red-tailed hawks and impacts on sensitive bird species living in or using the Interior Greenbelt from the removal of eucalyptus trees and brush;
- Impacts of new trails through sensitive natural areas and wildflower fields;
- Impacts on endangered species that use Sharp Park lands;
- Impacts on beach areas used for roosting and breeding;

- Impacts on newts in the pond in east Sharp Park;
- Effects of ecosystem changes;
- Impacts of tree removal at Mount Davidson and Sharp Park;
- Impacts of off-leash dog areas in sensitive Natural Areas;
- Impacts on people, animals, and insects from herbicide application;
- Impacts on amphibians from chloramine in the water; and
- Impacts from leaving tree stumps on the ground that create a breeding medium for mosquitoes, which are vectors of dog and cat heartworm.

V.G.1 Regulatory Setting

Federal Regulations

Endangered Species Act of 1973

The Endangered Species Act (ESA) (16 USC, 1531-1543) and subsequent amendments establish legal requirements for the conservation of endangered and threatened species and the ecosystems they depend on.

Section 7 of the ESA requires federal agencies, in consultation with, and with the assistance of, the Secretary of the Interior or the Secretary of Commerce, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or to destroy or adversely modify critical habitat for these species. The USFWS and National Marine Fisheries Service (NMFS) share responsibilities for administering the ESA. Regulations governing interagency cooperation under Section 7 are found at 50 CFR, Part 402. The biological opinion (BO) issued at the conclusion of formal Section 7 consultation may include a statement authorizing a take (i.e., to harass, harm, pursue, hunt, wound, kill) that may occur incidental to an otherwise legal activity.

Section 9 of the ESA lists those actions that are prohibited, including take of listed species of fish and wildlife without special exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns, such as breeding, feeding, or sheltering. "Harass" is further defined as actions that create the likelihood of injury to listed species to an extent that significantly disrupts normal behavior patterns, which include breeding, feeding, and sheltering.

Clean Water Act

The Clean Water Act (33 USC, 1251-1376) establishes legal requirements for restoring and maintaining the chemical, physical, and biological integrity of the nation's waters.

Section 401 of the Clean Water Act requires an applicant for a federal license or permit that allows activities that discharge to waters of the United States to obtain a state certification that the discharge complies with other provisions of the Clean Water Act. The Regional Water Quality Control Boards administer the certification program in California.

Section 404 of the Clean Water Act establishes a permit program, administered by the U.S. Army Corps of Engineers (USACE), regulating the discharge of dredged or fill material into waters of the United States, including wetlands. An area is classified as a wetland under Section 404 of the Clean Water Act if it contains all three of the following parameters: hydric soils, hydrophytic vegetation, and wetland hydrology.

Implementing regulations by the USACE are found at 33 CFR, Parts 320-330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines and were developed by the EPA in conjunction with the USACE (40 CFR, Part 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

In order to be protected under Sections 404 and 401 of the Clean Water Act, wetlands and other waters of the US must be classified as one of the following:

- Traditional navigable waters;
- Wetlands next to traditional navigable waters;
- Nonnavigable tributaries of traditional navigable waters that are relatively permanent, where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months); or
- Wetlands that directly abut the tributaries described in the previous bullet (USACE 2008).

The USACE would decide jurisdiction over the following waters, based on a fact-specific analysis, to determine whether they have a significant nexus with a traditional navigable water:

- Nonnavigable tributaries that are not relatively permanent;

- Wetlands next to nonnavigable tributaries that are not relatively permanent; or
- Wetlands next to but that do not directly abut a relatively permanent nonnavigable tributary.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) (16 USC, 703-711) implements a treaty signed by the United States, Canada, Mexico, and Japan that makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law also applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season. The MBTA states that it is unlawful to take these species, their nests, their eggs, or their young anywhere in the United States.

Noxious Weed Act of 1974

This act provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health. Under this act, the Secretary of Agriculture has the authority to designate plants as noxious weeds and to inspect, seize, and destroy products and to quarantine areas, if necessary, to prevent the spread of such weeds.

State Laws and Regulations

California Environmental Quality Act

CEQA (PRC. 21000 et seq.) was enacted in 1970 to provide for full disclosure of environmental impacts to the public before state and local public agencies issue a permit. With regard to biological resources, CEQA gives consideration to “sensitive” (or “special status”) plants, in addition to federally or state listed species. Sensitive species also include wildlife species of special concern listed by the CDFG. Sensitive species include plants on the California Native Plant Society’s (CNPS) List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), or List 2 (rare, threatened, or endangered in California but more common elsewhere; eligible for state listing). To be conservative, CNPS List 3 (plants for which more information is needed) and List 4 (plants of limited distribution) are also considered sensitive.

California Endangered Species Act

The California Endangered Species Act (CESA) (Fish and Game Code 2050 et seq.) establishes the policy of the state to conserve, protect, restore, and enhance threatened or endangered species and their habitats. CESA mandates state agencies to not approve projects that would jeopardize the

continued existence of threatened or endangered species if reasonable and prudent alternatives are available that would avoid jeopardy. There are no state agency consultation procedures under CESA. For projects that affect a species listed under both CESA and the federal ESA, compliance with the federal ESA would satisfy CESA if the CDFG were to determine that the federal incidental take authorization is consistent with CESA under Fish and Game Code Section 2080.1. For projects that would result in a take of only a state listed species, the applicant must apply for a take permit under Section 2081(b) of the CESA.

Native Plant Protection Act

California's Native Plant Protection Act (Fish and Game Code, 1900-1913) requires all state agencies to use their authorities to carry out programs to conserve endangered and rare native plants. Provisions of the Native Plant Protection Act prohibit the taking of listed plants from the wild and require notification to the CDFG at least 10 days in advance of any change in land use. This allows the CDFG to salvage listed plant species that would otherwise be destroyed. The applicant is required to conduct botanical inventories and consult with the CDFG during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

California Fish and Game Code, Sections 1600-1616

Under these sections of the Fish and Game Code, CDFG jurisdiction is determined to occur within the water body of any natural river, stream, or lake. The term stream, which includes creeks and rivers, is defined in Title 14, CCR, Section 1.72. The applicant is required to notify CDFG before constructing any project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When a fish or wildlife resource may be substantially adversely affected, CDFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications, and bid documents for the project.

California Fish and Game Code, Sections 3511, 4700, 5515, and 5050

The classification of fully protected species was the state's initial effort to identify and provide additional protection to those animals that were rare or that faced possible extinction. Lists were created for fish, amphibians and reptiles, birds, and mammals. Most of the species on these lists have subsequently been listed under either the state or federal endangered species act or both, although there are several exceptions, including the golden eagle.

The Fish and Game Code sections dealing with fully protected species state that these species "...may not be taken or possessed at any time and no provision of this code or any other law would be construed to authorize the issuance of permits or licenses to take any fully protected" species, although take may be authorized for necessary scientific research. This language arguably makes the "fully protected" designation the strongest and most restrictive regarding the take of these species. In 2003, the code sections dealing with fully protected species were amended to allow the CDFG to authorize the taking of those species for necessary scientific research, including efforts to recover fully protected, threatened, or endangered species. The San Francisco garter snake, which occurs at the Sharp Park Natural Area, is listed as fully protected under the Fish and Game Code.

California Fish and Game Code, Sections 3503 and 3513

Section 3503 prohibits the take and possession of any bird egg or nest, except as otherwise provided by this code or subsequent regulations. Further, Section 3513 provides for the adoption of the MBTA's provisions. As with the MBTA, this state code offers no statutory or regulatory mechanism for obtaining an incidental take permit for the loss of nongame migratory birds. The administering agency for these sections is the CDFG.

California Coastal Act

The California Coastal Act applies to projects that result in the diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes occurring in the coastal zone. The act limits these activities to certain types of projects (restoration projects, for example, are included among the permitted projects) and stipulates criteria under which development is permitted. Under the act, an area is classified as a wetland if it meets only one or more of the three parameters required by Section 404 of the Clean Water Act's definition of a wetland: hydric soils, hydrophytic vegetation, or wetland hydrology. The portion of the Sharp Park Natural Area extending 1,000 feet inland from the sea wall levee is in the coastal zone; of this area, the portion surrounding Laguna Salada and Horse Stable Pond falls within the jurisdiction of the California Coastal Commission, with the remainder under the City of Pacifica's Local Coastal Program. The proposed Sharp Park wetland restoration activities in the coastal zone would require a coastal development permit from the California Coastal Commission.

The Balboa Natural Area, the Lake Merced Natural Area, and the India Basin Shoreline Park Natural Areas are also within the coastal zone. None of the proposed routine maintenance activities at these Natural Areas are expected to require a coastal development permit. For programmatic projects, the SFRPD would determine the need for a coastal development permit at which time project details are known and a specific project is proposed. Although within the coastal zone,

shoreline areas within San Francisco Bay, including the India Basin Shoreline Park Natural Area, are under the jurisdiction of the Bay Conservation and Development Commission, which regulates shoreline development and other activities within 100 feet of the Bay shoreline. For programmatic projects at India Basin Shoreline Park, the need for a Bay Conservation and Development Commission permit would be determined at which time a specific project is proposed.

Regional and Local Regulations

The regional and local plans that contain policies protecting biological resources in the Natural Areas include the following and are discussed in more detail in Section IV, Plans and Policies:

- San Francisco General Plan, including the Draft Update of the Recreation and Open Space Element;
- Golden Gate Park Master Plan;
- San Francisco Sustainability Plan;
- Endangered Species Compliance Plan for the Sharp Park Golf Course;
- City of Pacifica General Plan;
- City of Pacifica Local Coastal Land Use Plan; and
- City of San Francisco Urban Forestry Council Landmark Tree Ordinance.

The SFRPD and the SNRAMP are not subject to the City of Pacifica's regulations protecting biological resources, such as its logging ordinance; for informational purposes, these regulations are presented in Section IV.B. However, activities may be subject to the Local Coastal Land Use Plan. No Habitat Conservation Plans or Natural Community Conservation Plans overlap with the Natural Areas. The goals of the SNRAMP are discussed in Chapter III, Project Description.

V.G.2 Environmental Setting

As discussed in Chapter III, the 32 Natural Areas are scattered mostly throughout the central and southern portions of San Francisco and constitute approximately four percent of the total city area; one Natural Area is in Pacifica. Most of the Natural Areas are used as recreational open spaces by residents and visitors. There are a number of designated trails and DPAs within the Natural Areas. As a result, although these are Natural Areas, use has impacted the habitat within the Natural Areas.

Other than a wetland delineation (described below), no additional field surveys were performed in preparation of this EIR to characterize the biological resources in the Natural Areas. Biological information for the Natural Areas is available in the SNRAMP and was based on extensive previously conducted field surveys performed specifically to characterize the biological resources in the Natural Areas; the information in the SNRAMP is assumed to have not changed substantially because the SFRPD conducted extensive surveys of the Natural Areas for preparation of the SNRAMP and ongoing maintenance activities have not revealed any new information that is not reflected in this EIR.

Special Status Species

The analysis of special status species in this EIR addresses all special status species anticipated to occur within each of the Natural Areas. For this EIR, special status species are those that are 1) legally protected by the CDFG, the USFWS, or the MBTA or 2) are locally significant sensitive species, including species on the National Audubon Society's Watch List or those under threat of local extirpation, as determined by the Yerba Buena chapter of the CNPS or the Golden Gate chapter of the National Audubon Society. State and federally listed species known to occur or that have been recorded historically in Natural Areas are presented in Table 9.

Legally protected species include species that are federally listed as endangered, threatened, or candidate species (USFWS 2009), that are state listed as endangered, rare, threatened, California fully protected, or species of special concern (CDFG 2009), or that are listed in the MBTA (protected species). Protected species also include those listed as 1A or 1B on the CNPS plant list; that is, the 1A list is for plants presumed to be extinct in California, and the 1B list is for plants that are rare or endangered in California and elsewhere (CNPS 2009). Protected species deserve special consideration and are therefore treated differently from locally significant species.

CEQA Guidelines Section 15380 further provides that a plant or animal species may be treated as rare or endangered even if it is not on one of the official lists but otherwise meets the criteria for an endangered or rare species (e.g., it is likely to become endangered in the foreseeable future). For this reason, this EIR also addresses locally significant species, which include species on CNPS List 2 (rare, threatened, or endangered in California but more common elsewhere and eligible for state listing), CNPS List 3 (plants for which more information is needed), and List 4 (plants of limited distribution). Locally significant species also include species on the National Audubon Society's Watch List or those under threat of local extirpation, as determined by the Yerba Buena chapter of

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas

Common Name	Scientific Name	Federal/State/ CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Invertebrates				
Bay checkerspot butterfly	<i>Euphydryas editha bayensis</i>	FT/--/--	Native grasslands on outcrops of serpentine soil. Primary host plant is <i>Plantago erecta</i> ; secondary host plants are <i>Orthocarpus densiflorus</i> and <i>O. purpurascens</i> .	P/Reported from Mount Davidson and Twin Peaks in 1980. Not currently present at either Natural Area.
Mission blue butterfly	<i>Icaricia icarioides missionensis</i>	FE/--/--	Grasslands. Larval host plants include <i>Lupinus albifrons</i> , <i>L. variicolor</i> , and <i>L. formosus</i> .	C/Reported at Sharp Park and McLaren Park in 1988 and at Bayview Park in 2001. Currently breeds on Twin Peaks and has been recorded in the Sharp Park upper canyon.
San Francisco silverspot butterfly	<i>Speyeria callippe callippe</i>	FE/--/--	Coastal scrub. Host plant is <i>Viola pedunculata</i> .	P/Historical population on Twin Peaks is presumed extirpated. ¹

Federal Status

FE = Endangered. Species in danger of extinction throughout all or a significant portion of its range.
 FT = Threatened. Species likely to become endangered within foreseeable future throughout all or a significant portion of its range.
 FPD = Proposed delisting.

California State Status

SE = Endangered. Species whose continued existence in California is jeopardized.
 ST = Threatened. Species, although not presently threatened with extinction, that is likely to become endangered in the foreseeable future.
 CSC = Species of Concern.
 SFP = State Fully Protected under Sections 3511 and 4700 of the Fish and Game Code.
 SR = State Rare.

California Native Plant Society

1A = Plants presumed extinct in California.
 1B = Plants that are rare or endangered in California and elsewhere.

Occurrence

P = Potential
 C = Confirmed
 U = Unlikely

*Indicates species that may occur at Sharp Park only.

¹ Extirpate—to remove or destroy totally.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (continued)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Reptiles and Amphibians				
California red-legged frog	<i>Rana aurora draytonii</i>	FT/CSC/--	Lowlands and foothills in or near permanent sources of deep water, with dense, shrubby, or emergent riparian vegetation. Requires 11-20 weeks of permanent water for larval development.	C/Historically observed at Lake Merced, believed to be extirpated. Recently observed at Sharp Park.
San Francisco garter snake	<i>Thamnophis sirtalis elegans</i>	FE/SE, SFP/--	Freshwater marshes, ponds, and slow-moving streams. Prefers dense cover and water depths of at least one foot.	C/Reported near Horse Stable Pond in Sharp Park in 2008.
Western pond turtle	<i>Clemmys marmorata</i>	--/CSC/--	Ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Needs basking sites and upland habitat for egg-laying.	C/Presently occurs at Lake Merced and Sharp Park. Historically occurred at Pine Lake; however, presumed extirpated at this location.
Fish				
Tidewater goby*	<i>Eucyclogobius newberryi</i>	FPD (FE)/CSC/--	Shallow lagoons and lower stream reaches. Needs fairly still but not stagnant water and high oxygen levels.	P/Historically collected (1895), not recently observed in San Francisco.
Central California coast steelhead*	<i>Oncorhynchus mykiss irideus</i>	FT/--/--	Cold flowing freshwater.	P/Not available.
Birds				
Bank swallow	<i>Riparia riparia</i>	--/ST/--	Requires vertical banks/cliffs with fine-textured sandy soils near streams, rivers, lakes, and the ocean to dig a nesting hole.	C/Currently nests at Fort Funston and forages over Lake Merced.
California black rail	<i>Laterallus jamaicensis coturniculus</i>	--/ST/--	Freshwater marshes, wet meadows, and shallow margins of saltwater marshes bordering larger bays.	P/Historically reported, not recently observed in San Francisco.
Double-crested Cormorant	<i>Phalacrocorax auritus</i>	--/CSC/-	Nests on coastal cliffs and in trees.	C/Presently nests at Lake Merced.
Salt marsh common yellowthroat	<i>Geothlypis trichas sinuosa</i>	--/CSC/--	Saltwater and freshwater marshes. Requires thick cover for foraging and dense vegetation for nesting.	C/Presently occurs at Lake Merced and Sharp Park.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (continued)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Yellow warbler	<i>Dendroica petechia</i>	--/CSC/--	Riparian woodlands.	C/Observed at Lake Merced in spring 2000, breeding undocumented.
Mammals				
American badger	<i>Taxidea taxus</i>	--/CSC/--	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Digs burrows and preys on burrowing rodents.	P/Not available.
Big free-tailed bat*	<i>Nyctinomops macrotis</i>	--/CSC/--	Needs high cliffs or rocky outcrops for roosting sites. Feeds principally on large moths.	P (foraging habitat)/Not available.
Pallid bat*	<i>Antrozous pallidus</i>	--/CSC/--	Deserts, grasslands, shrublands, woodlands, and forests.	P (foraging habitat) /Not available.
San Francisco dusky-footed woodrat*	<i>Neotoma fuscipes annectens</i>	--/CSC/--	Forest habitat of moderate canopy and moderate to dense understory.	C/Observed in Sharp Park.
Western red bat	<i>Lasiurus blossevillii</i>	--/CSC/--	Roosts primarily in trees, 2-40 feet above the ground. For foraging, prefers habitat edges and mosaics with trees that are protected from above and open below.	C/Recorded in Golden Gate Park (2000), and at Mount Davidson, Twin Peaks, Pine Lake, and McLaren Park.
Plants				
Adobe sanicle	<i>Sanicula maritime</i>	--/SR/1B	Meadows and seeps, grasslands, chaparral, and coastal prairie.	P/Not available.
Alkali milk-vetch	<i>Astragalus tener</i> var. <i>tener</i>	--/--/1B	Low ground, alkali flats, and flooded lands; in annual grassland, playas, or vernal pools between 1 and 170 meters elevation.	P/Not available.
Beach layia	<i>Layia carnosa</i>	FE/SE/1B	On sparsely vegetated, semistabilized coastal dunes, usually behind foredunes, between 0 and 75 meters elevation.	P/Historically reported from San Francisco, location not well mapped, presumed extirpated.
Bent-flowered fiddleneck*	<i>Amsinckia lunaris</i>	--/--/1B	Woodlands and grasslands between 50 and 500 meters elevation.	P/Not available.
California seablite	<i>Suaeda californica</i>	FE/--/1B	Restricted to the upper intertidal zone of coastal salt marsh along the perimeter of a bay.	C/Recorded at India Basin.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (continued)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Choris' popcorn-flower	<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	--/--/1B	Chaparral, coastal scrub, coastal prairie. On mesic sites between 15 and 100 meters elevation.	P/Not available.
Coast yellow leptosiphon*	<i>Leptosiphon croceus</i>	--/--/1B	Coastal bluff scrub and coastal prairie between 10 and 150 meters elevation.	P/Not available.
Coastal marsh milk-vetch*	<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	--/--/1B	Mesic sites in dunes or along streams or coastal salt marshes between 0 and 30 meters elevation.	P/Not available.
Coastal triquetrella	<i>Triquetrella californica</i>	--/--/1B	Coastal bluff scrub or coastal scrub habitats. Grows on moss growing on soil between 10 and 100 meters elevation.	C/Recorded on Tank Hill and several other locations within San Francisco.
Compact cobwebby thistle	<i>Cirsium occidentale</i> var. <i>compactum</i>	--/--/1B	On dunes and on clay in chaparral; also in grassland, coastal prairie, and coastal scrub. Found between 5 and 155 meters elevation.	P/Historically recorded near Lake Merced.
Crystal Springs lessingia*	<i>Lessingia arachnoidea</i>	--/--/1B	Coastal sage scrub, grasslands, and woodlands. Found on grassy slopes on serpentine; also along roadsides. Between 60 and 200 meters elevation.	P/Not available.
Dark-eyed gilia	<i>Gilia millefoliata</i>	--/--/1B	Coastal dunes between 2 and 20 meters elevation.	P/Historically recorded within San Francisco.
Dune gilia	<i>G. capitata</i> ssp. <i>chamissonis</i>	--/--/1B	Coastal dunes and coastal scrub between 2 and 200 meters elevation.	C/Presently occurs at Hawk Hill and Lake Merced.
Fragrant fritillary	<i>Fritillaria liliacea</i>	--/--/1B	Coastal scrub, grassland, and coastal prairie between 3 and 410 meters elevation.	C/Presently occurs at Bernal Heights.
Franciscan onion*	<i>Allium peninsulare</i> var. <i>franciscanum</i>	--/--/1B	Woodlands and grasslands, on dry hillsides. Found on clay soils or serpentine between 100 and 300 meters elevation.	P/Not available.
Franciscan thistle	<i>C. andrewsii</i>	--/--/1B	Coastal bluff scrub, broadleaved upland forest, coastal scrub. Sometimes serpentine seeps. Between 0 and 135 meters elevation.	P/Historically recorded within San Francisco.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (*continued*)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Hairless popcorn flower	<i>Plagiobothrys glaber</i>	--/--/1A	Alkali meadows, seeps, coastal salt marshes, and swamps between 5 and 180 meters elevation.	P/Not available.
Hickman's cinquefoil*	<i>Potentilla hickmanii</i>	FE/SE/1B	Freshwater marshes, seeps, and small streams in open or forested areas along the coast. Found between 5 and 125 meters elevation.	P/Not available.
Kellogg's horkelia	<i>Horkelia cuneata</i> ssp. <i>Sericea</i>	--/--/1B	Closed-cone coniferous forest, coastal scrub, chaparral, old dunes, coastal sandhills. Between 10 and 200 meters elevation.	P/Recorded within San Francisco.
Marin checker lily	<i>Fritillaria lanceolata</i> var. <i>tristulis</i>	--/--/1B	Coastal scrub, coastal bluff scrub, or coastal prairie between 15 and 150 meters elevation.	P/Not available.
Marin western flax	<i>Hesperolinon congestum</i>	FT/ST/1B	In serpentine barrens and in serpentine grassland and chaparral at 30 and 365 meters elevation.	U/Historically recorded on Mount Davidson.
Marsh microseris	<i>Microseris paludosa</i>	--/--/1B	Closed-cone coniferous forest, woodlands, and grasslands between 5 and 300 meters elevation.	P/Not available.
Marsh sandwort	<i>Arenaria paludicola</i>	--/--/1B	Grows up through dense mats of <i>Typha</i> spp., <i>Juncus</i> spp. and <i>Scirpus</i> spp. in freshwater marshes and swamps between 10 and 170 meters elevation.	P/Not available.
Pale yellow hayfield tarplant	<i>Hemizonia congesta</i> ssp. <i>Congesta</i>	--/--/1B	Valley and foothill grassland (sometimes roadsides) between 20 and 560 meters elevation.	P/Not available.
Pappose tarplant*	<i>Centromadia parryi</i> ssp. <i>parryi</i>	--/--/1B	Vernally mesic, often alkaline sites in coastal prairie, meadows, seeps, coastal salt marshes, and grassland. Found between 2 and 420 meters elevation.	P/Not available.
Point Reyes bird's-beak	<i>Cordylanthus maritimus</i> ssp. <i>Palustris</i>	--/--/1B	Coastal salt marsh with <i>Salicornia</i> spp., <i>Distichlis</i> spp., and <i>Spartina</i> spp. between 0 and 15 meters elevation.	P/Habitat exists at India Basin Park.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (continued)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Point Reyes horkelia*	<i>Horkelia marinensis</i>	--/--/1B	Sandy flats and dunes near the coast, in grassland or scrub plant communities between 5 and 30 meters elevation.	P/Not available.
Robust spineflower*	<i>Chorizanthe robusta</i> var. <i>robusta</i>	FE/--/1B	Sandy terraces and bluffs or in loose sand in coastal habitats between 3 and 120 meters elevation.	P/Not available.
Rose leptosiphon	<i>Leptosiphon rosaceus</i>	--/--/1B	Coastal bluff scrub between 0 and 100 meters elevation.	P/Not available.
Round-headed Chinese houses	<i>Collinsia corymbosa</i>	--/--/1B	Dunes and coastal prairie between 10 and 30 meters elevation.	P/Not available.
San Francisco Bay spineflower	<i>Chorizanthe cuspidata</i> var. <i>cuspidate</i>	--/--/1B	Coastal scrub and coastal dunes on sandy slopes and terraces between 5 and 550 meters elevation.	C/Presently occurs at Fort Funston, Golden Gate Heights, and Lake Merced.
San Francisco campion	<i>Silene verecunda</i> ssp. <i>Verecunda</i>	--/--/1B	Coastal scrub, grassland, coastal bluff scrub, chaparral, coastal prairie at elevations between 30 and 645 meters.	C/Presently occurs at Mount Davidson and Rock Outcrop.
San Francisco collinsia	<i>Collinsia multicolor</i>	--/--/1B	Closed-cone coniferous forest and coastal scrub between 30 and 250 meters elevation.	C/Presently occurs at Bayview Park.
San Francisco gumplant	<i>Grindelia hirsutula</i> var. <i>maritime</i>	--/--/1B	Coastal scrub and grasslands between 15 and 400 meters elevation.	C/Presently occurs at Mount Davidson, Twin Peaks, Corona Heights, and Balboa Natural Area.
San Francisco lessingia	<i>Lessingia germanorum</i>	FE/SE/1B	Open sandy soils relatively free of competing plants, between 20 and 125 meters elevation.	P/Historically recorded at Lake Merced. Only current population found in the Presidio.
San Francisco owl's-clover	<i>Triphysaria floribunda</i>	--/--/1B	Coastal prairie and grassland between 10 and 160 meters elevation.	P/Historically recorded near Lake Merced.
San Francisco popcorn-flower	<i>Plagiobothrys diffuses</i>	--/SE/1B	Grassland and coastal prairie with marine influence between 60 and 485 meters elevation.	P/Not available.
San Mateo woolly sunflower*	<i>Eriophyllum latibum</i>	FE/SE/1B	Woodlands between 45 and 150 meters elevation. Found on and off serpentine.	P/Not available.

Table 9
State and Federally Listed Species That May Occur Within the Natural Areas (continued)

Common Name	Scientific Name	Federal/State /CNPS Status	Habitat	Likelihood of Occurrence/Notes on Occurrence
Santa Cruz microseris	<i>Stebbinsoseris decipiens</i>	--/--/1B	Broadleaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub. Found in open areas in loose or disturbed soils between 10 and 500 meters elevation.	P/Not available.
Western leatherwood*	<i>Dirca occidentalis</i>	--/--/1B	On mesic, brushy slopes. Mostly in mixed evergreen and foothill woodland communities between 3 and 550 meters elevation.	P/Not available.
White-rayed pentachaeta	<i>Pentachaeta bellidiflora</i>	FE/SE/1B	Open, dry, rocky slopes and grassy areas, often on soils derived from serpentine bedrock. Found between 35 and 620 meters elevation.	P/Not available.

Sources: CDFG 2009; USFWS 2009; CNPS 2009; SFRPD 2008b.

Federal Status

FE = Endangered. Species in danger of extinction throughout all or a significant portion of its range.
 FT = Threatened. Species likely to become endangered within foreseeable future throughout all or a significant portion of its range.
 FPD = Proposed delisting.

California State Status

SE = Endangered. Species whose continued existence in California is jeopardized.
 ST = Threatened. Species, although not presently threatened with extinction, that is likely to become endangered in the foreseeable future.
 CSC = Species of Concern.
 SFP = State Fully Protected under Sections 3511 and 4700 of the Fish and Game Code.
 SR = State Rare.

California Native Plant Society

1A = Plants presumed extinct in California.
 1B = Plants that are rare or endangered in California and elsewhere.

Occurrence

P = Potential
 C = Confirmed
 U = Unlikely

*Indicates species that may occur at Sharp Park only.

the CNPS or the Golden Gate chapter of the National Audubon Society. The SFRPD has worked closely with such groups as the CNPS and the Audubon Society to develop a list of locally significant species. The CNPS and Golden Gate Audubon Chapter lists are in draft form and are presented in Appendix D. Currently the SFRPD does not have data on the locations of all locally significant species with the potential to occur within the Natural Areas.

The species from all lists are important for local conservation efforts and thus are analyzed in this EIR. However, impacts on federal, state, and CNPS 1A and 1B listed species are given additional consideration because of their protected status by federal and/or state laws.

Recovery Action Plan for the Mission Blue Butterfly

There is currently only one recovery action plan and associated Biological Opinion in effect for SFRPD operations in the Natural Areas. The Recovery Action Plan for the Mission Blue Butterfly (*Icaricia icarioides missionensis*) at Twin Peaks Natural Area (SFRPD 2009d) was initiated after a series of monitoring efforts suggested that the population of mission blue butterflies at Twin Peaks was extremely low. The Twin Peaks Natural Area is a relatively intact remnant of San Francisco's indigenous landscape, containing a mix of coastal scrub and grassland habitats. The grasslands at Twin Peaks currently support several colonies of lupine (*Lupinus albifrons* and *L. variicolor*), which are known host plants for the mission blue butterfly larvae. The Recovery Action Plan includes the relocation of individuals from populations at nearby San Bruno Mountain, the initiation of a captive rearing program, implementation of specific habitat enhancement activities, and the continued monitoring of reintroduction success. This plan was approved by the USFWS in 2009. The SFRPD manages the Twin Peaks Natural Area as prescribed in the Recovery Action Plan, which includes measures regarding habitat restoration and management, trash and debris removal, and recreation trail use and maintenance. The SFRPD continues to adhere to the Trail Maintenance and Construction BMPs and conducts annual monitoring of mission blue butterfly eggs and larvae each spring.

Habitat Types

Habitat types within the Natural Areas include annual grassland, perennial grassland, wetland, other herbaceous vegetation, northern Franciscan coastal scrub, central dune scrub, central coast riparian scrub, nonnative scrub, mosaic, native forest, nonnative forest, and "other," which is a general category for areas that either are not dominated by vegetation or are dominated by ornamental vegetation. These correspond roughly to the classification system of Sawyer et al. (2009). Special status species that may use these habitat types are presented in Table 9.

Riparian Habitat, Wetlands, and Other Sensitive Habitats

The sensitive habitats and natural communities identified in this EIR include riparian habitat, wetlands, and those identified in the SNRAMP, in local or regional plans, policies, or regulations, or by the CDFG or USFWS. Coastal scrub, while not identified as sensitive habitat in local or regional plans, policies, or regulations, or by the CDFG or USFWS, was identified in the SNRAMP as a sensitive habitat.

Riparian habitat within the Natural Areas consists of willow scrub, which can be found within the central coast riparian scrub vegetation type. This habitat type occurs at Glen Canyon Park, Lake Merced, McLaren Park, and Sharp Park.

Several different types of wetlands are present within the Natural Areas, such as free-flowing creeks (Glen Canyon Park and Sharp Park), tidal salt marsh wetland (India Basin), open water (Lake Merced, Pine Lake, and Sharp Park), wet meadow (Bayview Park, Lake Merced, McLaren Park, and Sharp Park), willow scrub, and freshwater marsh (Lake Merced, McLaren Park, Pine Lake, and Sharp Park).

A wetland delineation was conducted for the Laguna Salada wetland complex at Sharp Park. Most of the wetlands delineated were characterized as freshwater marsh (19.5 acres), followed by wet meadow (2.5 acres) and willow scrub (1 acre) (SFRPD 2008a). These areas meet the USACE's technical criteria for classification as wetlands. The unvegetated open water (4.5 acres) met the USACE technical criteria for "other waters of the US." due to the presence of an ordinary high water mark. Although wetland delineations have not been conducted in areas other than Sharp Park within the Natural Areas, other wetland types in these areas likely meet the USACE technical criteria for wetlands or other waters of the US.

Areas that meet the USACE technical criteria for wetlands or other waters of the US may be protected under Section 1600 of the California Fish and Game Code and thus may be regulated by the CDFG. In addition, these areas are considered wetlands and thus are protected, under the California Coastal Act. However, these areas may or may not be protected by Section 404 of the Clean Water Act, depending on whether they are one of the following:

- Traditional navigable waters;
- Wetlands next to traditional navigable waters;
- Non-navigable tributaries of traditional navigable waters that are relatively permanent; or

- Wetlands that directly abut the tributaries described in the previous bullet.

Under the California Coastal Act, an area is classified as a wetland if it meets only one of the three parameters required by Section 404 of the Clean Water Act's definition of a wetland: hydric soils, hydrophytic vegetation, or wetland hydrology. Some wetlands may also meet criteria as "waters of the state" and be regulated by the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). Additionally, wetlands meeting CCC criteria may also occur at Lake Merced and India Basin which are both within the coastal zone jurisdiction. The SNRAMP maps all wetland features throughout the Natural Areas. Although not evaluated as to whether they meet USACE jurisdiction standards, all wetland features have been identified. A wetland delineation of each of these areas would be required prior to implementation of programmatic projects to determine the exact jurisdiction of the USACE, SFBRWQCB or CCC. It is expected that no additional wetland areas within the Laguna Salada wetland complex would be identified based on the SFBRWQCB and CCC classifications.

Several types of other sensitive habitat exist within the Natural Areas, including coastal scrub, dune habitat, oak woodlands, and native grasslands. These were all conspicuous components of the historic San Franciscan landscape and are considered regionally sensitive due to acreage lost to urban development, high value to special status species, and lack of recruitment (within oak woodlands). Table 10 presents the locations of riparian, wetland, and other sensitive habitat types in the Natural Areas.

The SFRPD's Final Dog Policy (SFRPD 2002) excludes dogs (on- and off-leash) from sensitive habitat areas, such as sensitive wildlife areas (e.g., breeding habitat for birds), sensitive remnant native plant communities (e.g., wetlands), sensitive plant populations (e.g., locally rare wildflower species), and high erosion-prone areas and excludes them temporarily from restoration areas. This policy attempts to reconcile conflicting priorities between dog walkers and other recreational uses.

Native Resident and Migratory Fish

Native resident and migratory fish are limited in the Natural Areas but do exist in Lake Merced and Pine Lake. Native resident fish in Lake Merced are hitch (*Lavinia exilicauda*), hardhead (*Mylopharodon conocephalus*), Sacramento blackfish (*Orthodon microlepidotus*), Sacramento sucker (*Catostomus occidentalis*), threespine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), and Sacramento perch (*Archoplites interruptus*). Rainbow trout (*Oncorhynchus mykiss*) are present in Lake Merced, but there is no spawning habitat for them in the lake, so they cannot reproduce.

Table 10
Sensitive Habitat Types Identified in the SNRAMP

	Natural Area																									
	Lake Merced	Glen Canyon Park	Sharp Park	McLaren Park	O'Shaughnessy Hollow	Twin Peaks	Hawk Hill	Oak Woodlands*	Balboa	Buena Vista	Strawberry Hill*	Corona Heights	Lily Pond*	Whiskey Hill*	15th Avenue Steps	Everson-Digby	Mount Davidson	Rock Outcrop	Brooks Park	Duncan-Castro	Bayview Park	Palou-Phelps	Bernal Hill	Pine Lake	India Basin	
Habitat Type																										
Riparian	X	X	X	X			X											X				X		X		
Coastal scrub	X	X	X	X	X	X		X				X			X		X		X		X				X	
Dune	X						X	X	X		X							X								
Oak Woodland	X	X	X	X		X		X		X	X	X										X				
Native Grasslands	X	X	X	X	X	X						X	X	X	X	X		X	X	X	X	X	X			
Wetlands	X	X	X	X	X																	X			X	X

*Part of the Golden Gate Park Oak Woodlands Natural Area

Ongoing stocking occurs to maintain this fishery. Threespine stickleback are found at Pine Lake. The one migratory fish found in the Natural Areas is coho salmon (*O. kisutch*), which was historically recorded at Lake Merced (Appendix D); coho salmon are federally listed as threatened along the northern California coast and as endangered along the central California coast, but they are not listed in the project area. Lake Merced has been disconnected from the ocean for many years and coho salmon are no longer present at this Natural Area. No fish are known to exist in Laguna Salada or Horse Stable Pond at Sharp Park.

Migratory Birds

Many migratory birds use the Natural Areas for foraging, nesting, and perching habitat, as the Natural Areas provide habitat in an area that is otherwise highly urbanized. Migratory birds that use the Natural Areas are presented in Appendix D.

Some of the larger Natural Areas, such as Lake Merced, McLaren Park, and Sharp Park, provide a complex mosaic of habitats that migratory and resident birds use for foraging, nesting, and roosting and thus are more important bird habitat than the smaller natural areas. In particular, Lake Merced provides open water, freshwater marsh, riparian, and upland habitats that are heavily used by bird species. This location serves as an important resting area for migratory birds and is a nesting area for approximately 50 species of resident birds (SFRPD 2006). Almost 70 species of birds have been documented nesting within the Lake Merced area, and several of these are of special concern or locally rare or are neotropical migrants.

Among the Natural Areas, India Basin is the only one that borders San Francisco Bay and provides the only habitat for migratory shorebirds. There are ten species of birds that are considered locally sensitive that have been observed at India Basin, and several of these are not found at other Natural Areas: black oystercatcher (*Haematopus bachmani*), pelagic cormorant (*Phalacrocorax pelagicus*), Brandt's cormorant (*P. penicillatus*), and pigeon guillemot (*Cephus columba*). None of the locally significant species that have been observed are known to breed at India Basin. The restored wetlands and mudflats support nesting American avocet (*Recurvirostra americana*) and killdeer (*Charadrius vociferus*). If restored, the more extensive saltgrass/pickleweed area could provide habitat for California black rail (*Laterallus jamaicensis coturniculus*) and California clapper rail (*Rallus longirostris obsoletus*), both protected under the state and federal Endangered Species Acts.

Smaller Natural Areas, such as Hawk Hill and Grandview Park, may provide suitable nesting and foraging habitat for small songbirds and may support a prey base for foraging raptors.

Wildlife Corridors

Overall, the Natural Areas provide a mosaic of habitats that are accessible to mobile wildlife species, particularly birds. They offer foraging, nesting, and roosting habitats for many species as they travel within San Francisco and beyond.

Lake Merced is the largest freshwater coastal lake and wetland system between the Pescadero Marsh in south San Mateo County and the Point Reyes Peninsula in Marin County. As such, it provides refuge for many migratory birds, as described previously.

Sharp Park is bordered in part by undeveloped areas, including Sweeny Open Space and Milagra Ridge, which allows it to serve as a relatively undisturbed corridor for wildlife, particularly birds. Sharp Park's connectivity to high-quality natural habitats also allows it to support medium size and large mammals, including numerous general wildlife species, such as the black-tailed deer (*Odocoileus hemionus columbianus*), bobcat (*Lynx rufus californicus*), common porcupine (*Erethizon dorsatum epixanthum*), coyote (*Canis latrans*), and mountain lion (*Puma concolor californicus*).

Glen Canyon Park, Twin Peaks, and the Interior Greenbelt also serve as important wildlife corridors.

Native Wildlife Nursery Sites

All of the Natural Areas support potential or confirmed native bird nesting habitat and potential breeding habitat for other wildlife species. Native birds that may nest within the Natural Areas are shorebirds, songbirds, and raptors and include such habitats as nonnative forests, grasslands, riparian scrub, and mudflats.

V.G.3 Impacts

Significance Thresholds

As stated in Appendix G, the Environmental Checklist Form, of the CEQA Guidelines, a proposed project would have a significant biological resources impact if it were to result in any of the following:

- A substantial adverse effect, either directly or indirectly through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by the CDFG or USFWS;
- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the CDFG or USFWS;

- A substantial adverse effect on federally protected wetlands, as defined by Section 404 of the Clean Water Act (including marsh, vernal pool, and coastal wetlands), through direct removal, filling, hydrological interruption, or other means;
- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of native wildlife nursery sites; or
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

For the purpose of this EIR, the definition of “substantial,” as used in the significance criteria threshold above, has three principal components, each of which contributes to the determination of impacts on biological resources and their significance:

- Magnitude and duration of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity); and
- Susceptibility of the affected resource to disturbance

The evaluation of significance must also include the interrelationship of these three components. For example, a relatively small-magnitude of impact on a protected species could be considered significant because the species is rare and believed to be very susceptible to disturbance. Conversely, a natural community such as California annual grassland is not necessarily rare or sensitive to disturbance, and thus a much larger magnitude of impact might be required to result in a significant impact. Impacts on biological resources are considered significant when project-related habitat modifications (e.g., trail modification, erosion control measures, or large-scale vegetation removal) could reduce special status species populations to the extent that they become locally less numerous; impacts on habitats are considered significant where the habitats could not continue to support viable populations of associated plant and animal species as a result of project implementation. Impacts may also be considered significant where they would result in the direct injury or mortality of protected species. Potentially significant impacts are those that might not be sufficiently reduced through nondiscretionary regulatory requirements. For impacts determined to be either significant or potentially significant, the SFRPD would need to implement mitigation measures to reduce the potential level of an impact to less than significant.

Impacts Addressed in the Initial Study

In the Initial Study (Appendix A), no significant impacts related to the following criteria were identified:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

As a result, this CEQA significance criterion is not evaluated further in this EIR.

Significant Natural Resource Areas Management Plan Impacts

Most project activities would benefit biological resources over the long term, as project management actions aim to achieve the following:

- Maintain viable populations of all special status species;
- Maintain and enhance native plant and animal communities;
- Maintain and enhance local biodiversity;
- Reestablish native community diversity, structure, and ecosystem function where degraded;
- Improve natural area connectivity; and
- Decrease the extent of invasive exotic species cover.

Overall, project activities would protect and enhance special status species habitat, riparian habitat, wetlands, migratory wildlife habitat, nursery sites, and other sensitive habitats in the Natural Areas.

Projects implemented under the SNRAMP can be categorized as either routine maintenance or programmatic projects involving large-scale weed removal, large-scale erosion control projects, trail modification, or other projects involving an increased use of an area. Trail modification projects may include the creation of new trails, the rerouting of existing trails, or the decommissioning of trails. For this analysis, programmatic projects are considered to be those that are greater than half an acre, whereas routine maintenance projects are considered to be those under half an acre. Routine maintenance activities are similar to those daily maintenance activities currently being conducted by the SFRPD. Impacts associated with programmatic projects are analyzed at the programmatic level. Additional environmental review of those projects would be undertaken, in accordance with CEQA requirements, once funding is available and preliminary design of specific projects has been completed or other additional project level details are developed. In addition, programmatic impacts of the SNRAMP (e.g., use of the Natural Areas) are also addressed in the programmatic

analysis. Impacts associated with routine maintenance and the Sharp Park restoration project are analyzed at the project level.

The purpose of the Sharp Park restoration project is to enhance the Laguna Salada wetland complex in a manner that provides higher quality habitat for the San Francisco garter snake and one of its primary food sources, the California red-legged frog. As such, the Sharp Park restoration project, consistent with the California Fish and Game Code, is intended as a recovery action for the San Francisco garter snake.

All routine maintenance activities proposed in the Laguna Salada wetland complex are discussed below in the sections addressing the Sharp Park restoration project.

Before implementing the proposed Sharp Park restoration, the SFRPD would be required to undertake the following, consistent with state and federal laws:

- Prepare a Biological Assessment and consult with the USFWS to obtain a Biological Opinion and incidental take permit in accordance with the ESA;
- Coordinate with CDFG for a consistency determination for federally and state protected species (San Francisco garter snake and California red legged frog)
- Apply for a take permit for state-only listed species (western pond turtle) pursuant to Section 2081(b) of the CESA;
- Obtain a permit from the US Army Corps of Engineers under Section 404 of the Clean Water Act;
- Obtain a water quality certification from the SFBRWQCB under Section 401 of the Clean Water Act;
- Obtain a Streambed Alteration Agreement from the CDFG under Section 1602 of the California Fish and Game Code; and
- Obtain a Coastal Development Permit, as required by the CCC.

These regulatory requirements may also apply to other programmatic activities in the SNRAMP. At the time a specific project is proposed, the SFRPD would determine the appropriate regulatory requirements.

Special Status Species

Programmatic Impacts

Impact BI-1: The SNRAMP and implementation of programmatic projects proposed under the SNRAMP would have a substantial adverse effect on special status plant species. (Less than Significant with Mitigation)

Programmatic project activities include invasive weed and tree removal, trail modification, and large-scale erosion control measures. Vegetation removal and ground disturbance associated with heavy equipment use as part of these activities have the potential to inadvertently remove special status plant species that may occur in the Natural Areas and could directly impact habitat for protected and locally significant plant species. In addition, the use of herbicides and pesticides for vegetation removal could directly impact protected and locally significant plant species in the area. Operational impacts associated with the SNRAMP include increased foot traffic in areas of new trail creation, which could increase trampling of any protected and locally significant plant species if present next to new trails. The continued use of DPAs may impact protected and locally significant species by trampling, erosion, or defecation. Table 9 above lists the protected species (CNPS List 1B and 1A) and the Natural Areas they occur in or where they may potentially occur. The following protected plant species have been identified as occurring in the Natural Areas: California seablite (*Suaeda californica*) at India Basin; coastal triquetrella (*Triquetrella californica*) at Tank Hill; dune gilia (*Gilia capitata* ssp. *chamissonis*) at Hawk Hill and Lake Merced; fragrant fritillary (*Fritillaria liliacea*) at Bernal Heights; San Francisco Bay spineflower (*Chorizanthe cuspidate* var. *cuspidate*) at Golden Gate Heights and Lake Merced; San Francisco campion (*Silene verecunda* ssp. *verecunda*) at Mount Davidson and Rock Outcrop; San Francisco collinsia (*Collinsia multicolor*) at Bayview Park; and San Francisco gumplant (*Grindelia hirsutula* var. *maritima*) at Mount Davidson, Twin Peaks, Corona Heights and Balboa. Other Natural Areas may contain suitable habitat for other protected plant species and may have historically supported protected plant species. The SFRPD maintains a GIS database with all recorded locations of protected and special status plants within the Natural Areas.

In addition, the SNRAMP identifies other plant species that may be classified as locally significant. Appendix D includes a list of locally significant plant species and the Natural Areas they occur in.

Protected Species

Invasive Vegetation Removal. Removing invasive vegetation under programmatic projects could result in the inadvertent removal of protected species that may occur in the Natural Areas. Disturbance

associated with the removal of invasive species at or near the locations of protected plant species habitat, could directly impact those species through removal or crushing. As a result of the potential injury or mortality to protected species, vegetation removal as part of programmatic projects could have significant adverse impacts on protected species. The SFRPD would avoid significant impacts to protected plant species by implementing Mitigation Measure M-BI-1a, which requires pre-activity surveys for protected plant species during the proper blooming period to confirm their presence or absence in a project area. If a population of a protected species were present in the disturbance footprint, Mitigation Measure M-BI-1a requires the SFRPD to avoid impacts to these species wherever feasible. Where avoidance is not feasible, Mitigation Measure M-BI-1a requires that the SFRPD would adhere to the following procedures: 1) minimize impacts on protected plant species by, for example, installing exclusion fencing or other appropriate minimization measures; 2) restore impacted areas, which for plants, may include collecting seed from the species affected and replanting the site after disturbance; or 3) compensate for loss of these plant species; this may be accomplished by enhancing the habitat or planting seeds at other locations within or outside of the Natural Areas. This measure would reduce impacts to protected plant species by avoiding and minimizing impacts to the degree feasible and mitigating for any loss of protected plant species either through habitat restoration and enhancement or compensation. By implementing Mitigation Measure M-BI-1a, short-term programmatic project impacts from vegetation removal on protected plant species would be *less than significant*.

Of the Natural Areas where known populations of protected plant species occur, invasive trees are proposed to be removed from Lake Merced, Mount Davidson, Bayview Park, Twin Peaks, and Corona Heights. Tree removal could impact the protected dune gilia, San Francisco spineflower, San Francisco champion, San Francisco gumplant, and San Francisco collinsia. Impacts from removing invasive trees from these Natural Areas are the same as those described in the previous paragraph. With implementation of Mitigation Measure M-BI-1a, short-term programmatic project impacts to protected plant species from the removal of invasive trees also would be *less than significant*.

The use of herbicides and pesticides for invasive vegetation removal projects could directly impact protected plant species in the area by direct mortality through inadvertent exposure. Chemicals are intended to be used on invasive nonnative vegetation and not on special status species. The SFRPD staff, knowledgeable in the location of all special status species, would apply the herbicides and pesticides, the toxicity of which is further discussed in Section V.I.3 (page 388). Because these treatment methods would be used only to prevent the spread of nonnative invasive species and other pests, impacts would ultimately benefit protected species by removing competing vegetation, thereby providing a higher quality habitat. The elimination of nonnative species would provide a

greater area of suitable habitat for native species to naturally recruit and thrive. To minimize the potential impacts of herbicide application, the SFRPD would adhere to the City's IPM Program, in which pesticide use in the Natural Areas would be as little as possible to achieve the desired results and carefully monitored. The SFRPD would use the least toxic methods and materials that are appropriate for the environment in which they are applied (this is detailed in Section III.E.5 on page 90). As a result, short-term impacts to protected plant species by the use of herbicides and pesticides as part of programmatic projects would be *less than significant*.

Invasive species removal projects would replace the removed invasive trees and other vegetation with native plants, thus improving native habitats and reducing competition from invasive species. Additionally, one of the primary goals of the SNRAMP is to protect and restore sensitive habitats; to this end, the SNRAMP includes recommended actions for augmenting special status plant populations, such as VP-1d² and EM-1d³, which recommends augmenting sensitive plant populations to prevent extinction of rare or uncommon plants, and CH-1c,⁴ which recommends reintroducing populations of rare plant species. As a result, protected plant species populations may increase, so long-term impacts on protected plant species from vegetation removal are anticipated to be beneficial.

Trail Modification. Of the Natural Areas where known populations of protected plant species occur, new trail creation is proposed at Lake Merced, Bernal Heights, Golden Gate Heights, and Bayview Park. Trail creation at these Natural Areas could impact the following protected plant species: dune gilia, San Francisco Bay spineflower, fragrant fritillary, and San Francisco collinsia. Ground-disturbing activities associated with the use of heavy equipment to reroute trails and construct new trails could directly impact habitat for protected plant species; this could result in the inadvertent removal of these species. Indirect impacts to protected species could occur through the creation of new trails; this would increase foot traffic in an area, thus increasing the instances of these plant species located next to new trails being trampled. However, as stated in Section III.E.5 (page 92), as part of the BMPs used by the SFRPD, new trail placement and construction access routes would be designed to avoid sensitive vegetation and habitats, thus avoiding short-term construction and long-term operational impacts on protected plant species. Furthermore, M-BI-1a, as discussed above, requires that plant surveys be conducted and that avoidance and minimization measures be employed that include the installation of exclusion fencing or other appropriate minimization

²VP-1d—Augment existing sensitive plant populations

³EM-1d—Augment existing sensitive plants to prevent extinction of rare or uncommon plant species

⁴CH-1c—Reintroduce populations of rare plant species to help prevent local extinctions of these species in San Francisco

measures, the restoration of impacted areas (which may include collecting seed from protected plant species affected, salvaging affected plants, and replanting the site after disturbance), or compensating for the loss of protected species (this may be accomplished by enhancing the habitat and/or planting protected plant seeds at other locations in or outside of the Natural Areas). With the SNRAMP's proposed avoidance and minimization measures for trail creation and mitigation measures outlined in M-BI-1a, impacts to protected species from trail modification would be *less than significant*.

Erosion Control. Large-scale erosion control projects may result in ground disturbance, which could directly impact habitat for protected plant species and could inadvertently remove protected plant species in the Natural Areas. Erosion control projects identified in the SNRAMP are to occur at Bayview Park, Glen Canyon/O'Shaughnessy Hollow, and Sharp Park. Of these, Bayview Park is the only Natural Area with the recorded presence of a protected plant species, San Francisco collinsia, which is found in closed-cone coniferous forest and coastal scrub habitat. Habitat for other protected plant species may occur at the other Natural Areas. As a result, large-scale erosion control projects may significantly impact protected plant species. Implementing Mitigation Measure M-BI-1a would require the SFRPD to take measures to avoid, minimize, restore, or compensate for impacts to special status plants from large-scale erosion control projects. With implementation of Mitigation Measure M-BI-1a, programmatic project impacts on protected plant species from large-scale erosion control projects would be *less than significant*.

Other Impacts to Protected Species

Continued use of existing trails could directly impact protected plant species through trampling and could introduce invasive plant species. This could result in an indirect impact on protected plant species through the degradation of habitat quality. As a result, implementation of the SNRAMP would have potentially significant impacts on these species. Implementing Mitigation Measure M-BI-1a requires that SFRPD post signs or install fences along trails in sensitive habitat areas if impacts on vegetation are observed as a result of visitors straying from trails. Additionally, Mitigation Measure M-BI-1a also requires that the SFRPD consider rerouting trails if necessary to avoid impacts on protected species. With implementation of Mitigation Measure M-BI-1a, impacts from the continued use of trails on protected plant species would be *less than significant*.

DPAs in certain Natural Areas may be impacting protected plant species by trampling, erosion, or defecation. DPAs in Natural Areas that contain known populations of protected plant species include Bernal Hill and Lake Merced. Protected plant species at these Natural Areas that could be

impacted by dogs are fragrant fritillary, dune gilia and San Francisco Bay spineflower. Dog activity in DPAs is an existing use, and the SNRAMP does not propose increasing this activity; however, closing or reducing DPAs under the SNRAMP could intensify dog use in the remaining DPAs. In addition, because resources to enforce leash laws are limited, dogs would likely continue to be let off leash in parts of Natural Areas outside of DPAs, even though that activity is prohibited. As a result, dogs may currently be impacting and may continue to impact protected plant species in or near DPAs. Pet owners may contribute to disturbance via trampling. As a result, implementation of the SNRAMP could have significant adverse impacts on these species. The dune gilia and San Francisco Bay spineflower are only located at Lake Merced; under LM-7a,⁵ the SNRAMP proposes to close this DPA. Due to the current restrictions on new DPAs, the DPA at Lake Merced would not be relocated as stated in recommended management action LM-7a, in which case it would be removed, restoration of the site would continue following removal, and these two protected species would not be impacted. With implementation of Mitigation Measure M-BI-1a, which requires fencing or decommissioning DPAs, programmatic impacts of dog use on protected plant species would be *less than significant*.

Locally Significant Species. Impacts on locally significant species from programmatic project activities would be similar to those described for protected species. Impacts to these special status species could also be significant. If a significant population of a locally significant plant species were present in the disturbance footprint, Mitigation Measure M-BI-1b requires the SFRPD to avoid impacts on these species wherever feasible. Where avoidance is not feasible, Mitigation Measure M-BI-1b requires that SFRPD minimize impacts and restore the habitat in impacted areas. With implementation of Mitigation Measure M-BI-1b, impacts from programmatic project activities on locally significant plant species would be *less than significant*.

M-BI-1a: Protection of Protected Species and Riparian and Wetland Habitat

Where there is potential for protected species or their habitats (plants, birds, terrestrial, and aquatic species) or other protected habitats, namely riparian and wetland habitat (as protected by CDFG, CCC, SFBRWQCB and/or USACE) to be affected directly or indirectly by a programmatic project, the SFRPD will prepare and provide for ERO review a compliance plan that details the proposed project, whether any protected species, protected species habitat, riparian habitat, or wetland habitat exists, the appropriate life histories of such resources (as applicable to special status species), and how the project will achieve compliance with this mitigation measure, including details as to how the SFRPD will first avoid, then minimize and if necessary restore, and/or compensate for any

⁵LM-7a—Relocate the DPA to a different area to avoid disturbing breeding birds in the current location

impacts to protected species and/or their habitats or other regulated habitats. Where there is potential for impacts to protected species and/or riparian and wetland habitats that are regulated by state, federal and/or local agencies, the compliance plan shall identify those agencies, and the SFRPD shall coordinate with all applicable resource agencies to obtain the appropriate permits and/or consultation as required by state or federal law. This mitigation measure requires SFRPD to implement the following, subject to modification through the regulatory approval processes required for an individual project:

1. To avoid disturbance to protected species, their habitats, and riparian or wetland habitat, the following measures will be implemented by the SFRPD:
 - a. For protected species, a qualified SFRPD biologist⁶ shall survey for suitable habitat within the project area before the project begins, according to USFWS and CDFG protocol for the protected species having the potential to occur. If no protocol exists, surveys shall be conducted according to generally accepted survey methods. If individuals were found or if it is determined that the potential exists for protected species to be present, the SFRPD shall redesign the proposed project to avoid impacts on protected species. Avoidance/minimization measures shall include conducting project activities during periods of the species lifecycle when the species would not be affected or may be minimally affected by project activities. If it is infeasible to avoid disturbance of protected species, the SFRPD will contact the USFWS or CDFG and undertake appropriate consultation according to the CESA or ESA (unless an existing Biological Opinion is already in place and the proposed activities fall under the actions of that Biological Opinion, as may be the case for impacts to the mission blue butterfly at Twin Peaks). Any additional requirements agreed to during consultation with the USFWS and CDFG, or other regulatory agencies, to protect the species would be implemented, including restoration and compensation, where required.
 - b. Where there is potential for wetland or riparian areas to be affected by programmatic activities, the SFRPD shall coordinate with CDFG, CCC, SFBRWQCB, USACE and/or other applicable agencies to determine the jurisdictional boundaries of protected riparian and wetland habitat. SFRPD shall apply for all appropriate permits for effects to riparian areas and wetlands (including, but not limited to, USACE 404

⁶ A SFRPD biologist knowledgeable about protected species occurring within the area proposed for disturbance. If no SFRPD biologists are familiar with the protected species occurring in the area proposed for disturbance, the SFRPD would be required to obtain a qualified biologist to conduct protected species surveys.

permits, CDFG Section 1602 permits, SFBRWQCB 401 Water Quality Certifications, and coastal development permits). Any additional requirements to protect riparian and wetland habitat resulting from the regulatory approval processes would be implemented, including restoration and compensation, where required.

- c. As discussed in Section III.E.5 (page 92), new trails would be designed to avoid sensitive species habitat and riparian and wetland habitat. Where habitat for protected species or riparian and wetland habitat cannot be avoided, the programmatic project would be required to restore and/or compensate for habitat losses in accordance with measures 4 and 5 of this mitigation measure. Restoration and/or compensation shall be required at a minimum of a 1:1 ratio of habitat affected to habitat restored and/or compensated.
2. To minimize disturbance to protected species, their habitat, and wetland and riparian habitat, as a result of programmatic projects, the following minimization measures will be implemented by SFRPD, as applicable.
 - a. Post signs or install flagging and temporary fencing around protected species habitats and riparian and/or wetland habitats that are not being directly restored. No activities shall be allowed within fenced areas, including moving equipment, storing materials, or temporarily stockpiling soils. All exclusion fencing will be removed when work in the project area is completed.
 - b. Where stream crossings are necessary, temporary stream crossings will be located in previously disturbed areas lacking riparian vegetation, pools, side ponds or other sensitive habitats unless otherwise permitted by natural resource agencies for habitat improvement activities or hazard abatement. At a minimum, all temporarily impacted areas shall be restored to their previous condition.
 - c. In or near riparian or wetland habitat, programmatic project activities shall be limited to the dry season (generally April 15 to October 15) and include protective practices such as the use of geotextile cushions and other materials if heavy equipment will result in rutting or soil displacement (i.e. timber pads, prefabricated equipment pads, thick vegetative slash, geotextile fabric) and/or vehicles with balloon tires shall be employed.
 - d. Where protected species are potentially present, a biological monitor shall be required (as determined after appropriate consultation with USFWS and CDFG) during implementation of the proposed project. The biological monitor shall survey

for protected species to ensure avoidance of those species, wherever feasible; where avoidance is not feasible, the monitor would relocate any species throughout implementation of the programmatic project, as permitted and approved by natural resource agencies. The exact relocation sites and requirements for relocation shall be determined through consultation/coordination with USFWS and/or CDFG.

3. To minimize impacts from the continued use of the Natural Areas on protected species, their habitats, and riparian and wetland habitat, the SFRPD shall undertake the following:
 - a. If visitor use of the Natural Areas is resulting in impacts on protected species, their habitat and/or riparian and wetland habitat, the SFRPD shall post signs or install fences along trails to protect those habitats. Fences would allow public access on designated trails but would discourage dogs and people from drifting off-trail. If use continues to adversely impact protected species, their habitats, riparian and/or wetland habitat, the SFRPD shall reroute trails and/or restore affected habitat to avoid continued impacts of human disturbance.
 - b. DPAs within the Natural Areas shall continue to be evaluated in accordance with the SFRPD's Dog Policy and shall be monitored for adverse effects to biological resources. If substantial adverse impacts to protected species are confirmed, the SFRPD shall take actions to protect those species, which may include installing signs, fencing, or protections including, but not limited to, decommissioning DPAs, in accordance with the SFRPD Dog Policy.
4. Where disturbance of protected species, their habitat, or riparian or wetland habitat cannot be avoided or sufficiently minimized, the SFRPD shall restore the habitat functions and services of areas that are subject to disturbance during programmatic project activities at a minimum of a 1:1 ratio, in accordance with a detailed restoration plan or plans prepared by a qualified restoration ecologist and would be consistent with all required permits. Final restoration plans would include the following:
 - a. Detailed work descriptions for the restoration actions; and
 - b. Ecologically based criteria that shall be used to determine whether the restoration project(s) were achieving identified performance objectives. A schedule for monitoring and reporting on monitoring results shall be included, as agreed upon in coordination with applicable permitting agencies, and as needed to verify whether the vegetation is fully established. The final restoration plan may include the following:

- Detailed description of restoration activities;
 - Restoration goals;
 - Restoration work plan;
 - Management and maintenance plan;
 - Success criteria and performance indicators;
 - Monitoring plan; and
 - Site protection measures.
5. Where avoidance and minimization measures are not sufficient to prevent a programmatic project from permanently removing protected species habitat, riparian, and/or wetland habitat and on- or off-site restoration or enhancement is not practicable, SFRPD shall provide compensatory mitigation for the impacts created at a minimum of a 1:1 ratio, unless otherwise determined by natural resources agencies. Examples include mitigation banking, in-lieu funds to parks for their restoration, or off-site preservation. Such activities would be evaluated in subsequent environmental reviews.

M-BI-1b: Protection of Locally Significant Plant Species during Implementation of Programmatic Projects

Where there is potential to impact locally significant plant species and SFRPD has not substantially enhanced the habitat for that species through restoration activities implemented by the SNRAMP already, SFRPD shall undertake the following measures to avoid and minimize impacts to locally significant plant species:

- A qualified SFRPD biologist shall survey suitable habitat within the project area before the project begins. If locally significant plant species are found, the SFRPD shall redesign the proposed project to avoid or minimize impacts on locally significant plant species.
- Where impacts to locally significant plant species cannot be avoided, SFRPD shall harvest the seeds of, or salvage, the affected species and use collected plants or seeds to enhance and/or restore similar habitat within the Natural Areas or outside of the Natural Areas, if necessary. To the extent feasible, habitat enhancement or restoration shall take place at sites already planned for other mitigation for the project or as part of other restoration activities carried out by SFRPD; if habitat is not suitable at those sites, habitat enhancement or restoration shall be carried out at appropriate nearby sites through strategies such as transplantation, relocation or seed harvest. Enhancement and/or restoration of locally

significant plant species habitat shall be designed to meet a minimum of a 1:1 ratio of affected plants/habitat to enhanced and/or restored habitat.

Impact BI-2: The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on special status bird species. (Less than Significant with Mitigation)

Similar to impacts on protected and locally significant plant species (Impact BI-1), vegetation removal, trail modification, and the use of herbicides and pesticides have the potential to directly affect nesting birds and habitat for special status bird species that may occur in the Natural Areas or result in direct impacts, such as injury, mortality, or destruction of nests for those species protected by the MBTA and California Fish and Game Code and other protected bird species. Under the proposed project, approximately five percent, or 3,329, of the invasive trees within the MA-1 and MA-2 areas in San Francisco would be removed and replaced with native trees; in Sharp Park, approximately 28 percent, or 15,000, of the invasive trees within the MA-1 and MA-2 management areas would be removed and replaced with other native vegetation; these trees may provide nesting habitat for bird species protected under the MBTA and the California Fish and Game Code.

State and federally listed bird species have been recorded nesting at Sharp Park and Lake Merced. The double-crested cormorant (*Phalacrocorax auritus*) presently nests at Lake Merced and the salt marsh common yellowthroat (*Geothlypis trichas sinuosa*) presently occurs at Lake Merced and Sharp Park. The yellow warbler (*Dendroica petechia*) and bank swallow (*Riparia riparia*) have also been observed at Lake Merced. The double-crested cormorant nests on coastal cliffs and in trees. The salt marsh common yellowthroat requires saltwater or freshwater marsh and dense vegetation for nesting. The yellow warbler requires riparian woodlands and the bank swallow requires vertical cliffs near water bodies. Bird species protected by the MBTA may occur at these and other Natural Areas.

Invasive Vegetation Removal. Removing invasive vegetation under programmatic projects could result in unintended impacts on protected bird species or their nests that may be present in the Natural Areas. Disturbance associated with the removal of invasive weeds and trees could directly impact those species and other bird species through injury, mortality, or destruction of nests. As a result, vegetation removal as part of programmatic projects could have significant adverse impacts on these species. The double-crested cormorant, which nests on coastal cliffs and in trees, and the salt marsh common yellowthroat, which requires dense riparian or wetland vegetation for nesting, are known to nest at Lake Merced. Tree removal activities proposed at Lake Merced include the

removal of 134 invasive trees with 11,866 trees remaining. The small percentage of trees being removed would have a short-term impact through disturbance and potential destruction of nests on the salt marsh common yellowthroat but would not result in any long-term habitat loss for this species. There would be no impacts from vegetation removal on the double-crested cormorant because LM-3a in the SNRAMP calls for avoiding removal of trees used by cormorants and prohibits removing trees within 150 feet of occupied nests. The yellow warbler and bank swallow have been observed foraging over Lake Merced, but have not been observed nesting there and would therefore not be impacted by invasive vegetation removal at Lake Merced. In compliance with the MBTA, the SFRPD would avoid harming or removing the nests of these species and any migratory bird species. Implementation of GR-4b in the SNRAMP (page 109) would ensure that all vegetation management activities would be conducted outside the breeding season for bird species (February 1 through August 31, as designated by CDFG), unless these activities had already begun before the breeding season and had already removed nesting habitat, or if a breeding bird survey was conducted prior to vegetation removal activities and had determined that no nesting birds were present. If active nests (or large abandoned stick nests) are discovered as part of the breeding bird survey, a 150-foot-radius avoidance buffer would be centered on the nest sites to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest. Measure GR-4b in the SNRAMP would ensure that direct impacts to nesting birds, including special status bird species, would be avoided and minimized. In accordance with Mitigation Measure M-BI-1a, SFRPD would be required to consult with appropriate regulatory agencies when there is potential for protected bird species to be affected by a programmatic project. Additionally, where protected or nesting bird habitat is temporarily or permanently removed, Mitigation Measure M-BI-1a would ensure that measures are taken to restore or compensate for indirect impacts as a result of habitat loss. With implementation of these measures and compliance with the MBTA, short-term impacts from programmatic vegetation removal on protected and nesting bird species would be *less than significant*.

Invasive vegetation removal projects would replace the removed invasive trees and other vegetation with native plants, thus improving native habitat conditions and reducing competition from invasive species. As a result of habitat enhancement, the populations of protected bird species may increase. As such, the long-term programmatic project impacts from vegetation removal on protected bird species are expected to be beneficial.

The use of herbicides and pesticides for large-scale weed removal projects could potentially impact protected bird species in the area over the short-term through the inadvertent removal of habitat. Due to the low toxicity of the herbicides and pesticides that would be applied, accumulation in the

environment would not likely result in adverse impacts to protected bird species. Because these treatment methods would be used only to control undesirable weeds and pests in order to prevent the spread of nonnative invasive species and other pests, their use would have limited impacts on habitat for protected bird species. Due to the selective application of these treatment methods, birds could use other suitable vegetation that would be preserved adjacent to the treatment areas. The removed vegetation would be replaced with native vegetation, which would tend to provide higher quality habitat. The elimination of nonnative species would provide a greater area of suitable habitat for native species to naturally recruit and thrive, thus impacts to protected birds are expected to be beneficial over the long-term. To minimize impacts, the IPM Program (page 90) would employ the least-toxic decision-making model in its vegetation management and thus would only impact target invasive plant species, leaving viable habitat intact and avoiding direct impacts to birds from pesticide and herbicide use. Therefore with the implementation of the IPM Program and native species revegetation as part of the SNRAMP, impacts from herbicide and pesticide use on protected and nesting bird species would be *less than significant*.

Trail Modification. The creation of new trails may require ground disturbing activities and the use of heavy equipment, and could increase foot traffic in an area, which could result in an increase in noise and disturbance to protected bird species as well. In compliance with the MBTA, the SFRPD would avoid harming or removing the nests of these species and any migratory bird species. Measure GR-4b (page 109) in the SNRAMP requires that vegetation management activities be conducted outside the breeding season (February 1 to August 31), unless these activities had already begun before the breeding season and had already removed nesting habitat or if a breeding bird survey was conducted prior to vegetation removal activities and had determined that no nesting birds were present. If active nests (or large abandoned stick nests) of a sensitive species are discovered, a 150-foot-radius avoidance buffer would be centered on the nest site(s) to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest. This measure ensures that direct impacts to nesting birds, including special status bird species, would be avoided. With the implementation of Measure GR-4b and compliance with the MBTA, impacts from programmatic trail modification projects on special status bird species would be *less than significant*.

Dog Play Areas. The DPA located at Lake Merced may be impacting special status bird species by the disturbance to nesting birds that may occur from the presence of dogs. Protected bird species that presently occur at Lake Merced include the double-crested cormorant, salt marsh common yellowthroat, yellow warbler, and bank swallow. The double-crested cormorants are known to nest next to the mesa, which is where the existing Lake Merced DPA is located. DPAs are an existing use,

and the SNRAMP does not propose increasing this activity. As a result, dogs may currently be impacting and may continue to impact protected or nesting birds within the DPA. However, recommended management action LM-7a of the SNRAMP requires the relocation of the DPA to a different area to avoid disturbing breeding birds in the current location. The Lake Merced DPA would not be relocated at this time due to the current restrictions on new DPAs, in which case it would be removed and restoration of the site would continue following removal. With implementation of this measure, impacts to protected or nesting birds at Lake Merced would be beneficial and *less than significant*. Other Natural Areas may similarly experience impacts to biological resources as a result of continued dog use. These impacts may be potentially significant if, for example, dog use results in direct impacts to breeding birds (i.e., mortality, harassment, etc.). However, with implementation of Mitigation Measure M-BI-1a, which requires measures to reduce impacts of DPAs on special status species, programmatic impacts of dog use on special status bird species at all other Natural Areas would be *less than significant*.

Locally Significant Species. Locally significant bird species occurring in the Natural Areas may be impacted by the above programmatic project activities. Some habitat loss may occur as a result of project activities. However, the goal of the SNRAMP is to improve habitat quality for all native wildlife within the Natural Areas and given the amount of habitat that would remain and be restored, *no impacts* would occur to locally significant bird species. If nesting locally significant bird species are present, in compliance with the MBTA, the SFRPD would avoid damaging or removing the nests of these species and any migratory bird species. Additionally, GR-4b in the SNRAMP (page 109), as described above, would ensure that impacts from programmatic project activities to nesting locally significant birds would be *less than significant*.

Impact BI-3: The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on other protected terrestrial wildlife species (other than bird species). (Less than Significant with Mitigation)

Similar to impacts on special status bird species (Impact BI-2), invasive weed and tree removal, trail modification, and implementation of large-scale erosion control measures have the potential to directly affect habitat for other protected terrestrial species (e.g., invertebrates and mammals) that may occur in the Natural Areas or result in direct impacts, such as injury or mortality to protected terrestrial species.

Mission Blue Butterfly. Impacts to protected butterfly species could occur from disturbances to their host plants through invasive vegetation removal and trail modification activities. While the Bay

checkerspot butterfly, mission blue butterfly, and San Francisco silverspot butterfly have historically occurred within the Natural Areas, the mission blue butterfly is the only protected butterfly species that has been recorded in the Natural Areas in recent years. This butterfly is known to breed at Twin Peaks and has been recorded in the upper canyon at Sharp Park, and its host plants include *L. albifrons*, *L. varicolor*, and *L. fimosus*. Programmatic project activities at Twin Peaks include the removal of 83 invasive trees as well as the closure of 2,303 feet of trail and the creation of 501 feet of trail. These activities would result in vegetation removal and could require the use of heavy equipment that may adversely impact areas containing the host plants, which would result in habitat loss and potential mortality of the mission blue butterfly, a significant adverse impact. Programmatic project activities at Sharp Park that occur within mission blue butterfly habitat include invasive plant removal. These activities could result in significant impacts on protected butterflies at Twin Peaks and Sharp Park. The SFRPD currently operates under the Recovery Action Plan for Mission Blue Butterfly at Twin Peaks Natural Area and the associated Biological Opinion. The SFRPD continues to adhere to the Trail Maintenance and Construction BMPs and conducts annual monitoring of mission blue butterfly eggs and larvae each spring. In addition to current operations, the implementation of Mitigation Measure M-BI-1a would require pre-activity surveys. If a population of protected butterfly species or suitable habitat is present in or adjacent to the disturbance footprint or has the potential to occur within the areas disturbed, Mitigation Measure M-BI-1a requires the SFRPD to consult with the USFWS and to, in the following order, avoid potential impacts to this species, minimize impacts, restore the species' habitat, or, if necessary, compensate for impacts to these species. With the implementation of M-BI-1a, short-term programmatic project impacts on protected butterflies would be *less than significant*.

The programmatic projects at Twin Peaks would replace the removed invasive trees and other vegetation with native plants, thus improving native habitat conditions and reducing competition from invasive species. Recommended management actions TP-2a⁷ and TP-2b⁸ call for the population of mission blue butterflies to be monitored as well as for augmenting host plant populations whenever possible. As a result of habitat improvements, the populations of protected butterfly species may increase. Additionally, the SFRPD will continue to adhere to the maintenance and monitoring strategies as stated in the Mission Blue Butterfly Recovery Action Plan. As such, the long-term programmatic project impacts on protected butterflies are anticipated to be beneficial.

⁷TP-2a—Continue to monitor the mission blue butterfly population

⁸TP-2b—Augment host plant populations whenever possible

San Francisco Dusky-Footed Woodrat. The San Francisco dusky-footed woodrat, which inhabits forests with moderate canopy and moderate to dense understory, has been recorded in the upper canyon at Sharp Park. Under the proposed programmatic project, invasive vegetation removal at Sharp Park would include the removal of invasive trees and vegetation within the MA-1 and MA-2 management areas. Sharp Park programmatic project activities also include the closure of 653 feet of trail and the creation of 1,792 feet of trail. Tree removal, trail modification and large-scale erosion control measures that require the use of heavy equipment could result in habitat loss and potential mortality of this species, which would be a significant impact. With implementation of Mitigation Measure M-BI-1a, pre-activity surveys would be required. If woodrats or woodrat middens are present in the disturbance footprint, Mitigation Measure M-BI-1a requires the SFRPD to avoid impacts to this species to the greatest degree practicable. If avoidance is not feasible, M-BI-1a requires SFRPD to minimize impacts to woodrats, restore woodrat habitat, and if necessary compensate for loss of woodrats and/or their habitat. With the implementation of M-BI-1a, programmatic project impacts on the San Francisco dusky-footed woodrat would be *less than significant*.

Western Red Bat. The western red bat has been recorded at Golden Gate Park, Mount Davidson, Twin Peaks, Pine Lake, and McLaren Park. Western red bats roost primarily in the foliage of large shrubs and trees. Bat mortality or habitat destruction could result from removing invasive trees and other vegetation. Tree removal in the winter or spring and early summer could affect winter hibernacula or maternity roosts for the western red bat. With implementation of Mitigation Measure M-BI-1a, pre-activity surveys would be required. If western red bats or roosting trees are present in the disturbance footprint, Mitigation Measure M-BI-1a requires the SFRPD to avoid, minimize, restore, or compensate for impacts to these species. With the implementation of M-BI-1a, programmatic project impacts on the western red bat would be *less than significant*.

Impact BI-4: The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on protected aquatic species. (Less than Significant with Mitigation)

Invasive vegetation removal, use of heavy equipment or installation of permanent structures within aquatic habitat (including riparian areas and wetlands), and the use of herbicides and pesticides have the potential to impact habitat for protected aquatic species and/or to injure or kill protected aquatic species expected to occur in those areas (e.g., San Francisco garter snake, California red-legged frog, western pond turtle). These activities could also adversely impact water quality, by increasing the rate of sedimentation and turbidity, which could affect aquatic species and their

habitat by limiting the amount of oxygen in the water as well as reducing visibility. No protected species beyond those listed below are expected to be affected by project activities at Sharp Park, including common newts or other species that may inhabit Arrowhead Lake in the eastern portion of Sharp Park. Specific impacts on these species associated with the Sharp Park restoration project are assessed under Impact BI-6.

California Red-Legged Frog. California red-legged frogs have been identified at Sharp Park and historically at Lake Merced; the population at Lake Merced is presumed to be extirpated (EIP Associates 2000). This species requires habitat near permanent sources of deep water, with dense, shrubby or emergent vegetation. California red-legged frogs have been identified within Sharp Park at both Laguna Salada and the upper canyon. Impacts to California red-legged frogs associated with the Laguna Salada restoration project are addressed under Impact BI-6. Programmatic project activities in the upper canyon at Sharp Park that would impact California red-legged frogs include the removal of invasive trees, large-scale erosion control projects, and the use of herbicides and pesticides. While use of herbicides and pesticides could affect water quality when applied near water bodies, the SNRAMP IPM program would apply only aquatic-specific herbicides to wetlands and to areas next to water bodies (page 91), minimizing the effects of this treatment method on water quality and aquatic species. At Sharp Park, the continued mosquito treatments by the San Mateo County Mosquito and Vector Control District (SMCMVCD) would not substantially affect the California red-legged frog because the SMCMVCD employs pesticides for control at the larval stage that are less toxic to the environment, are highly specific to mosquitoes, and are applied to smaller areas. Sharp Park tree removal, erosion control projects, and the use of heavy equipment associated with these activities could result in the crushing of frogs, increased turbidity of water within the wetlands from disturbed soils, and removal of wetland vegetation. These activities could result in the temporary loss of habitat and potential mortality of this species, a significant impact. Implementing Mitigation Measure M-BI-1a would ensure that measures are taken to avoid and minimize direct impacts on California red-legged frogs and their habitat during implementation of programmatic projects by avoiding construction activities during the breeding season, installing flagging and temporary fencing around the frog habitat, and restoring habitat when necessary. Implementing Mitigation Measure M-BI-1a would also ensure that a biological monitor is present during project activities as required by CDFG and USFWS, if there is a potential for California red-legged frogs to occur in the project area. The biological monitor would be responsible for relocating the species out of harm's way, in accordance with direction from the natural resource agencies. Mitigation Measure M-BI-1a would ensure that proper consultations were conducted with the USFWS and CDFG for potential impacts on California red-legged frogs and that any additional

measures required by these agencies were implemented. Therefore, with implementation of Mitigation Measures M-BI-1a, short-term programmatic impacts on California red-legged frogs would be *less than significant*.

The programmatic projects would replace the removed invasive trees and other vegetation with native plants appropriate to a given habitat, or would otherwise improve aquatic habitat conditions, potentially improving the health of the California red-legged frog populations. As such, the long-term programmatic project impacts on this species are expected to be beneficial.

San Francisco Garter Snake. San Francisco garter snakes have been identified at Sharp Park. The snake's habitat requirements include freshwater marshes, ponds and slow-moving streams with dense cover and water depths of at least one foot. San Francisco garter snakes have been identified within Sharp Park at Laguna Salada and have the potential to occur at the irrigation pond in the upper canyon. Impacts to San Francisco garter snakes associated with the Laguna Salada restoration project are addressed under Impact BI-6. Programmatic project activities at Sharp Park that would impact San Francisco garter snakes include large-scale erosion control projects and the use of herbicides and pesticides. While use of herbicides and pesticides could affect water quality when applied near water bodies, the SNRAMP IPM program would apply only aquatic-specific herbicides to wetlands and to areas next to water bodies (page 91), minimizing the effects of this treatment method on water quality and aquatic species. The heavy equipment associated with erosion control projects could crush snakes, disturb soils and increase the turbidity of water within the wetlands, and remove wetland vegetation. These activities could result in the temporary loss of habitat and potential mortality of this species, a significant impact. Implementing Mitigation Measures M-BI-1a would ensure that measures are taken to avoid and minimize direct impacts on the San Francisco garter snake and its habitat during implementation of programmatic projects. In compliance with M-BI-1a, programmatic projects would be required to avoid impacts to the San Francisco garter snake, which may include conducting activities outside the time in which garter snakes are inactive in their winter burrows, as well as installing flagging and temporary fencing around snake habitat. Following programmatic project activities, Mitigation Measure M-BI-1a also ensures that any temporary or permanent impacts to this species' habitat are restored or compensated for. Mitigation Measure M-BI-1a requires that a biological monitor be present during project activities, as required by CDFG and USFWS, if there is a potential for San Francisco garter snakes to occur in the project area. The biological monitor would be responsible for relocating the species out of harm's way, in accordance with direction from the resource agencies. Mitigation Measure M-BI-1a would require the SFRPD to consult with the USFWS and CDFG prior to implementing any programmatic project with the potential to affect San Francisco garter snakes and that additional measures required by

these agencies be implemented. Therefore, with implementation of Mitigation Measures M-BI-1a, programmatic impacts on San Francisco garter snakes would be *less than significant*.

The programmatic projects would replace the removed invasive trees and other vegetation with native plants appropriate for a given habitat or would otherwise improve aquatic habitat conditions, thereby improving the health of the San Francisco garter snake population. As such, the long-term programmatic project impacts on this species are anticipated to be beneficial.

Western Pond Turtle. Western pond turtles occur at Sharp Park and Lake Merced. They have been historically reported at Pine Lake. Recommended management action PL-4b⁹ proposes to relocate this species to Lake Merced, if found at Pine Lake. Therefore, this species is considered potentially present at Pine Lake. Any relocation efforts would be coordinated with the appropriate agency to minimize any adverse effects. Western pond turtle habitat includes ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. This species requires basking sites and upland habitat for egg-laying. Western pond turtles have been identified within Sharp Park at Laguna Salada and have the potential to occur near the irrigation pond in the upper canyon. Impacts to western pond turtles associated with the Laguna Salada restoration project are addressed under Impact BI-6. Programmatic project activities at these Natural Areas that could impact western pond turtles include the removal of invasive vegetation within wetlands at Lake Merced, large-scale erosion control projects at Lake Merced and Sharp Park and the use of herbicides and pesticides. While use of herbicides and pesticides could affect water quality when applied near water bodies, the SNRAMP IPM program would apply only aquatic-specific herbicides to wetlands and to areas next to water bodies (page 91), minimizing the effects of this treatment method on water quality and aquatic species. Programmatic project activities and the heavy equipment associated with these activities could result in the crushing of turtles, increased turbidity of water within the wetlands from disturbed soils, and removal of wetland vegetation. The resulting impact from the temporary loss of habitat and potential mortality of this species would be significant. Implementing Mitigation Measures M-BI-1a would require pre-activity surveys, would ensure that measures are taken to avoid and minimize direct impacts on western pond turtle habitat during implementation of programmatic projects, and require that affected habitat be restored. Implementing Mitigation Measure M-BI-1a would also ensure that a biological monitor is present during project activities as required by CDFG, if there is a potential for western pond turtles to occur in the project area. The biological monitor would be responsible for relocating the species out of harm's way, in accordance with direction from the resource agencies. Mitigation Measure M-BI-1a would ensure that proper

⁹ PL-4b—Relocate any western pond turtles to the higher-quality habitat at Lake Merced

consultations were conducted with CDFG for potential impacts on western pond turtles and that additional measures required by these agencies were implemented. Therefore, with implementation of Mitigation Measures M-BI-1a, short-term programmatic impacts on western pond turtles would be *less than significant*.

The programmatic projects would replace the removed invasive trees and other vegetation with native plants appropriate to a given habitat, or would otherwise improve aquatic habitat conditions, improving the health of the western pond turtle population. As such, the long-term programmatic project impacts on this species are expected to be beneficial.

Project-Level Impacts (Routine Maintenance)

Impact BI-5: Implementation of routine maintenance activities under the SNRAMP would result in a substantial adverse effect on special status species. (Less than Significant with Mitigation)

Routine maintenance activities that could impact special status species include the removal of invasive weeds by hand, the installation of plants, the removal of invasive trees, trail maintenance, and the maintenance of catchment basins and sediment dams. Impacts to special status species as a result of these activities could result from ground disturbance, noise, vegetation removal and trampling. While these types of activities and impacts are similar to those proposed as part of the programmatic projects, the scope of routine maintenance would occur on a much smaller scale. For purposes of this EIR, invasive vegetation removal under routine maintenance would typically occur on less than half an acre and involve removing 20 or fewer trees, while vegetation removal as part of programmatic projects would typically involve areas greater than half an acre or removal of more than 20 trees.

The goals of routine maintenance activities are to maintain trails as well as remove invasive weeds and trees and other vegetation and replant these areas with native plants. Routine maintenance activities are intended to gradually improve native habitat conditions by reducing competition from invasive species. Recommended actions within the SNRAMP include specific actions for the majority of the Natural Areas to augment special status plant species through replanting, the reintroduction of species in areas they are known to have historically occurred, as well as maintaining existing populations. As a result of habitat improvements, the populations of special status species may increase. As such, routine maintenance is anticipated to result in long-term beneficial impacts to biological resources.

Impacts of routine maintenance activities within the Laguna Salada wetland complex are addressed under Impact BI-6.

Plants. Protected plant species occur at India Basin, Tank Hill, Hawk Hill, Lake Merced, Bernal Heights, Golden Gate Heights, Mount Davidson, Bayview Park, Twin Peaks, Corona Heights and the Balboa Natural Area. As described in Section III.F.2 (page 96), the proposed routine maintenance activities include the removal of invasive weeds which would be done by hand in areas of up to half an acre. Ground disturbance from this activity would occur within the top inch of ground around the root zone. Tree removal would occur manually, limb-by-limb, with no more than 20 trees (less than half an acre) being removed at one time. Planting would be done using hand tools with plants in one-gallon containers or smaller. Trail maintenance would include clearing deposited soil from steps, replacing or installing steps or trail edging, and rerouting and benching trails. Ground disturbance for this activity is usually six inches or less. All routine maintenance activities would be conducted by, or overseen by, the Natural Areas Program staff, a division of the SFRPD, which is composed of biologists, ecologists, and natural resource managers who are knowledgeable about both the ecology and presence/locations of special status species within the Natural Areas. Routine maintenance activities that involve removing invasive vegetation, planting, herbicide and pesticide application and trail maintenance activities could result in the inadvertent damage or mortality of the protected and locally significant plants that may occur in the Natural Areas through removal or crushing, resulting in significant impacts. Implementing Mitigation Measure M-BI-5 would reduce impacts to special status plant species by avoiding disturbance to special status plant species through an education program for SFRPD staff and field personnel, avoiding direct impacts to special status plants, and limiting activities in the vicinity of special status plant species to the minimum necessary to achieve the maintenance goals. As a result, the impacts of routine maintenance activities on special status plant species would be *less than significant*.

Birds. Protected and locally significant bird species may occur at all Natural Areas. As described in Section III.F.2 (page 97), the removal of invasive trees (mostly eucalyptus), as well as overhanging tree limbs, will occur manually and would use minimally invasive limb-by-limb removal techniques. Following removal, stumps would be left in place, resulting in little, if any, ground disturbance. Typically, no more than 20 trees (or half an acre) are treated at one time. Tree removal as part of routine maintenance would include removal of saplings and any tree over 15 feet high. Trees over six inches dbh would be removed by tree crews at a rate of one to a few trees at a time. Routine maintenance activities that involve the removal of invasive weeds and trees could also result in the inadvertent damage or mortality of nesting birds that may occur in the Natural Areas. Measure GR-4b proposed in the SNRAMP (page 109) would require that vegetation management

activities be conducted outside the breeding season (February 1 to August 31), unless a nesting bird survey was conducted prior to maintenance activities and confirmed that no active nests were present within the maintenance area. If active nests (or large abandoned stick nests) are discovered, maintenance activities would be limited to removal of vegetation by hand no closer than 50 feet from the nest. Measure GR-4b in the SNRAMP would ensure that direct impacts to nesting birds, including special status bird species, would be avoided. As a result, the impacts of routine maintenance activities on protected or locally significant bird species would be *less than significant*.

Terrestrial Wildlife. Protected terrestrial wildlife includes the mission blue butterfly, which occurs at Twin Peaks and in the upper canyon of Sharp Park, and the western red bat which occurs at Golden Gate Park, Mount Davidson, Twin Peaks, Pine Lake and McLaren Park. The dusky-footed woodrat also occurs in the upper canyon of the Sharp Park Natural Area. Routine maintenance activities that involve the removal of invasive trees and trail maintenance could result in the inadvertent injury or mortality of protected terrestrial wildlife that may occur in these Natural Areas. As a result, routine maintenance activities could have significant adverse impacts on these species. Implementing Mitigation Measure M-BI-5 would reduce impacts to wildlife by avoiding impacts to protected wildlife species. Mitigation Measure M-BI-5 requires that SFRPD conduct an annual training program for SFRPD's Natural Areas Program staff and Natural Areas Program staff conduct an education program for field personnel. The education program would ensure that all field personnel are properly trained on the proper protocol should a protected species be encountered. Mitigation Measure M-BI-5 further limits activities where there is the potential to impact special status wildlife species to the minimum necessary to achieve the goals of individual maintenance actions. In addition, long-term vegetation management and maintenance strategies are outlined in the Mission Blue Butterfly Recovery Action Plan. Implementation of Mitigation Measure M-BI-5 requires continued compliance with the Mission Blue Butterfly Recovery Action Plan's measures to avoid and minimize impacts to this species as a result of routine maintenance activities. Avoidance and minimization measures include habitat restoration from seeding and planting, the removal of invasive vegetation surrounding lupines and trail closures in which maintenance activities would not occur during overwintering periods. Mitigation Measure M-BI-5 also includes measures to avoid impacts to western red bats from maintenance activities by avoiding work within a 150 foot buffer of trees in which roosting western red bats have been encountered. Mitigation Measure M-BI-5 also requires measures to avoid impacts to San Francisco dusky-footed woodrats by avoiding maintenance work within a 10-foot buffer of active or potentially active woodrat middens. As a result, the impacts of routine maintenance activities on protected terrestrial wildlife species would be *less than significant*.

Aquatic Species. Protected aquatic species include the California red legged frog, which occurs at Sharp Park, including the upper canyon, and has historically been recorded at Lake Merced, but is thought to be extirpated from that site (EIP Associates 2000); the western pond turtle, which occurs at Sharp Park and Lake Merced; and the San Francisco garter snake, which occur only at Sharp Park, including the upper canyon. The western pond turtle has historically been documented at Pine Lake, although it is believed to be extirpated at that site. If found at Pine Lake, the SNRAMP proposes that the SFRPD relocate this species to Lake Merced. Any relocation efforts would be coordinated with the appropriate agency to minimize any adverse effects. Therefore, western pond turtle is considered potentially present at Pine Lake. Impacts to California red-legged frog, western pond turtle and San Francisco garter snake as a result of maintenance activities following completion of the restoration activities at Laguna Salada are addressed under Impact-BI-6. Routine maintenance activities that involve the maintenance of catchment dams and sediment basins would occur at Glen Canyon and McLaren Park. These Natural Areas do not contain protected aquatic species, so these activities would have no impact on protected aquatic species.

Some weed removal activities may occur within aquatic habitat and this disturbance has the potential to impact habitat for protected aquatic species and/or to injure or kill protected aquatic species expected to occur in those areas, resulting in potentially significant impacts. Implementing Mitigation Measure M-BI-5 would avoid impacts to aquatic species by avoiding and minimizing disturbance through an education program for field personnel and limiting activities where there is the potential to impact protected aquatic species to the minimum necessary to achieve the goals of individual maintenance actions. Mitigation Measure M-BI-5 requires that work take place outside of the designated breeding/nesting season for protected aquatic species. If this is not feasible, pre-activity reconnaissance surveys would be required to determine the presence or absence of protected aquatic species within the work zone. In the event a protected aquatic species is encountered during work activities, Mitigation Measure M-BI-5 requires field work to stop immediately and the onsite SFRPD staff member be notified. SFRPD would confirm that the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species. Additionally, SFRPD staff would be required to provide verbal notification to the USFWS and/or to the local CDFG warden or biologist within 24 hours of the sighting. As a result, the impacts of routine maintenance activities on protected aquatic species would be *less than significant*.

M-BI-5: Protection of Special Status Species during Routine Maintenance

The SFRPD shall avoid disturbance to biological resources by undertaking the following measures during routine maintenance activities:

- Natural Areas Program staff and/or SFRPD staff engaged in routine maintenance activities as part of the SNRAMP shall receive annual training on the special status species that occur within the Natural Areas. The training shall identify the special status species that occur within the Natural Areas, their life history, measures to be implemented to avoid impacts to those species, and the proper protocol for encountering special status species. The SFRPD shall confirm that all SFRPD staff engaged in routine maintenance activities as part of the SNRAMP has been trained appropriately.
- An education program for other field personnel (e.g. volunteers) shall be conducted by the SFRPD staff before field activities begin at a new site that has the potential to contain special status species. The field education program will consist of a brief presentation by persons knowledgeable in the applicable special status species and will include identifying the locations of protected species and locally significant plant species and an explanation of the measures being taken to avoid these species. The SFRPD shall confirm that all workers and volunteers have been trained appropriately.
- Disturbance of special status plant species shall be avoided. SFRPD staff shall conduct a reconnaissance survey of maintenance areas prior to undertaking routine maintenance activities to ensure that no special status plant species are present. If such species are found to be present, activities in those areas would be relocated or modified so as to avoid potentially affecting those species. SFRPD staff shall ensure that all volunteers and others involved in maintenance or restoration activities follow protection protocols.
- Vehicle operators shall use existing access roads and would remain outside of habitat supporting protected species to the extent feasible.
- All vehicles shall be brought in clean and free of weeds to prevent the spread or introduction of invasive plant species.
- Protected terrestrial and aquatic species impacts shall be avoided during routine maintenance activities by implementing the following measures:
 - **California Red-Legged Frog and San Francisco Garter Snake:** These species both potentially occur at the Sharp Park upper canyon. The following measures shall apply to this Natural Area:
 - To avoid disturbance of these species, maintenance work shall not occur in the vicinity of ponds and wetlands between November 15 and April 15, the breeding season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows.

- If maintenance cannot be avoided during the abovementioned time period, the SFRPD staff will conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to ensure that no California red-legged frogs or San Francisco garter snakes are present.
 - Vegetation in all maintenance areas will be progressively cleared by hand equipment to a height of 4 inches and checked for the presence of snakes prior to disturbance and prior to equipment or vehicles entering the sites. Once vegetation is cleared, an additional pre-activity survey for the San Francisco garter snake and California red-legged frog shall be conducted in the maintenance area.
 - In the event that a California red-legged frog or San Francisco garter snake is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species.
 - SFRPD staff shall provide verbal notification to the USFWS and/or to the local CDFG warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to the USFWS and/or CDFG (as applicable) within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with USFWS and/or CDFG. Field personnel shall submit all observations of protected species to the California Natural Diversity Database (CNDDDB).
- **Western Pond Turtle:** This species occurs at Lake Merced and Sharp Park and may occur at Pine Lake. The following measures shall apply to these Natural Areas:
- To avoid disturbance of this species, routine maintenance work shall be avoided within wetlands, ponds and adjacent uplands, between May 15 and July 15, the nesting season for western pond turtles.
 - If maintenance work cannot be avoided during the abovementioned time period, the SFRPD staff shall conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to ensure that no western pond turtles or their nests are present.

- In the event that a western pond turtle is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species.
- SFRPD staff shall provide verbal notification to the local CDFG warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to CDFG within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with CDFG. Field personnel shall submit all observations of protected species to the CNDDDB.
- **San Francisco Dusky-Footed Woodrat:** This species occurs in the Sharp Park upper canyon. The following measure shall apply to this Natural Area:
 - SFRPD staff will conduct reconnaissance surveys of maintenance areas prior to undertaking maintenance work to identify locations of woodrat middens.
 - To avoid disturbance of the San Francisco dusky-footed woodrat, no vegetation shall be cleared within a 10-foot buffer of an active or potentially active woodrat middens.
- **Western Red Bat:** If an occupied or active roost is identified during maintenance activities, the roost shall not be disturbed. No maintenance work within 150 feet of the potentially occupied roost shall occur until it has been determined that bats are no longer using the site.
 - In the event that a western red bat is encountered, all field work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who shall confirm that the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species.
 - SFRPD staff shall provide verbal notification to the local CDFG warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to CDFG within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with CDFG. Field personnel shall submit all observations of protected species to the CNDDDB.

- **Mission Blue Butterfly:** This species occurs at Twin Peaks and Sharp Park. The following measures shall apply to these Natural Areas:
 - To avoid impacts to this species, SFRPD shall adhere to the long-term management and monitoring guidelines as described in the Recovery Action Plan for the Mission Blue Butterfly at Twin Peaks Natural Area and the corresponding Biological Opinion and as agreed to with the USFWS. These guidelines include conducting vegetation removal by manual, mechanical and chemical treatments that would be applied consistent with the SFRPD IPM program, such as hand pulling, cutting and grubbing. To avoid impacts from trampling of host plants by recreational users, the SFRPD shall continue to conduct regular maintenance on the existing trail network including trimming trailside vegetation and replacing trail base materials.

Project-Level Impacts (Sharp Park Restoration)

Impact BI-6: Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on special status species. (Less Than Significant with Mitigation)

The improvements to protect and enhance the California red-legged frog and San Francisco garter snake at Laguna Salada under measure SP-4a are focused on restoring the marsh complex and associated uplands. Restoration of the Laguna Salada wetland complex would occur during the dry season. Summarized below are the main features of the project to restore the Laguna Salada wetland complex and associated uplands at Sharp Park (these are further detailed in Section III.F.2):

The main components of the restoration are as follows:

- Dredging up to 60,000 cubic yards of material to remove sediment and decaying vegetation in Laguna Salada, Horse Stable Pond, and the channel that connects the two water bodies, resulting in the conversion of freshwater marsh, willow scrub, and wet meadow wetland habitat to open water, achieving no net loss of Waters of the US (as defined by the Clean Water Act);
- Recontouring freshwater marsh wetland and ruderal (disturbed) habitat along the Laguna Salada, Horse Stable Pond, and channel shorelines to create shallow water habitat; this recontouring would achieve no net loss of Waters of the US (as defined by the Clean Water Act);

- Creating an upland and wetland habitat corridor between Horse Stable Pond and Laguna Salada in the area currently occupied by the Sharp Park Golf Course;
- Converting about half an acre of wet meadow/freshwater marsh wetland to an upland refuge in the middle of the lagoon to provide snakes and frogs with refugia from feral cats and other predators; creating about an acre of replacement wet meadow wetland along the northern and western edges of the lagoon in place of coastal scrub habitat, achieving no net loss of wetland habitat; and
- Constructing up to four acres of upland mounds on landscaped grass on the east side of the lagoon and between Laguna Salada and Horse Stable Pond. These mounds would be placed in the area currently occupied by the Hole 13 fairway, which would be narrowed and reconfigured.

During the restoration activities, temporary equipment staging and materials storage would occur on about an acre at the northwest corner of Sharp Park, at or near Hole 17 of the golf course. Equipment access to the project area from the north would be from Clarendon Street, which runs along the north side of Sharp Park. Access to the southern part of the project area would be from the sea wall levee road and the dirt road near the Horse Stable Pond pump house (see Figure 2 in Chapter III).

To facilitate deepening of Laguna Salada and Horse Stable Pond, and the channel that connects them, the water levels would be lowered temporarily to allow equipment to access the shoreline. Following lowering of the water levels, a qualified USFWS-approved biologist would survey the entire project area for California red-legged frogs, San Francisco garter snakes, and western pond turtles. If individuals are found during the survey, the biologist would relocate them to appropriate aquatic habitat, such as that near Mori Point, located south of Horse Stable Pond; these activities would be conducted in coordination with the USFWS and CDFG to minimize any adverse effects.

An upland and wetland habitat corridor between the lagoon and the pond would be constructed with upland features designed to support the San Francisco garter snake. Sediment basins would be installed in two locations, one where Sanchez Creek enters a culvert to pass under Highway 1 and the other located at the northern boundary of Sharp Park; the former sediment basin would be developed on about half an acre of the golf course (primarily upland Monterey pine habitat), and the latter sediment basin would be expanded onto about half an acre of ruderal and upland Monterey pine habitat. A fence would also be installed along the seawall to the west of the lagoon,

with additional fencing around the wetland complex, to discourage human and pet intrusion into the restored habitat area.

The majority of the restoration footprint shown in Figure 2 is subject to temporary disturbance during the restoration activities. Following completion of restoration activities, those areas that are not permanently modified would be scarified, recontoured, and hydroseeded with native vegetation to approximate their pre-disturbance condition.

The restoration goals and actions are presented in Section III.F.2 and further detailed in the Sharp Park Conceptual Restoration Alternatives Report (SFRPD 2009a), included in Appendix I. Heavy equipment and ground-disturbing activities associated with the project activities listed above could injure or kill the San Francisco garter snake, California red-legged frog, and western pond turtle, which have been observed in and near aquatic habitat at Sharp Park (SFRPD 2008b). In addition, an increase in noise and human presence during restoration may also adversely impact these species. Limited tree removal at Sharp Park may adversely impact special status bird species. The San Francisco dusky-footed woodrat occurs at Sharp Park, but is limited to the upper canyon and would not be impacted by the restoration activities. Implementing the Sharp Park restoration project would alter the hydrology of the wetland system over the long term, which would improve habitat quality for special status aquatic species. These alterations are intended to benefit special status species (California red-legged frog, western pond turtle and San Francisco garter snake) by restoring and increasing their habitat and providing better connectivity to adjacent habitat. Temporary impacts have the potential to occur within the entire project footprint (see Figure 2). Impacts that could occur during restoration include temporary habitat loss and disturbance as well as an increase in the potential for direct injury or mortality. Over the long-term, impacts to these species at Sharp Park are expected to be beneficial. Permanent impacts would occur through the loss of 5.5 acres of freshwater marsh and 0.5 acres of willow scrub. These losses will be compensated by the increase of 5.5 acres of open water and the addition of one acre of wet meadow.

Following completion of the restoration activities, the SFRPD would conduct maintenance to ensure the success of those activities. The scope of the maintenance is subject to modification during consultation with the USFWS pursuant to the ESA. Temporary impacts from maintenance would occur from weeding and maintaining the restored areas. Maintenance of the wetland areas may include removal of invasive and encroaching plant species and additional planting of wetland plant species. As needed, the SFRPD also would conduct small-scale dredging of accumulated sediments from the wetlands using a backhoe or similar equipment. Maintaining the sediment basins would involve the periodic removal of accumulated sediment. Temporary impacts to California red-legged

frog, San Francisco garter snake and western pond turtle may occur as result of maintenance activities.

Prior to implementing the proposed Sharp Park restoration activities, the SFRPD would consult with CDFG and USFWS and prepare a Biological Assessment and obtain a Biological Opinion and incidental take permit from the USFWS pursuant to the ESA.

Due to their occurrence within the Laguna Salada wetland complex, the only protected species expected to be affected by the restoration project are the San Francisco garter snake, California red-legged frog, western pond turtle, and salt marsh common yellowthroat.

San Francisco Garter Snake. During the restoration activities, impacts to San Francisco garter snakes could occur from construction activities, including the dredging and recontouring of wetlands, which could result in the temporary loss of both basking and foraging habitat for the San Francisco garter snake. Temporary impacts and possible mortality of individuals would also occur from the conversion of approximately half an acre of wet meadow wetlands to an upland refuge in the middle of the lagoon. Temporary impacts of the restoration activities would result in disturbance to feeding, dispersal and breeding behavior and may affect snake burrows. Noise and vibration may also disturb San Francisco garter snakes. The removal of large vegetation may disturb or harm the snakes by causing them to move out of their resident habitat, possibly causing injury or mortality due to lack of adequate forage or cover. To compensate for this disturbance and conversion of habitat, in-kind creation of approximately one acre of wetlands, which would serve as San Francisco garter snake habitat, would occur in several upland locations around the northern and western edges of the lagoon. The goal of converting some wetland habitat to uplands is to increase the currently limited basking, foraging, and refugia habitat for the San Francisco garter snake. Impacts to San Francisco garter snakes could occur from construction activities involving vehicle traffic and the use of heavy equipment which could result in direct mortality of individuals. The habitat disturbance and injury and mortality described above would be a significant impact on San Francisco garter snakes.

Implementing Mitigation Measure M-BI-6a requires a pre-activity survey to identify snakes and snake habitat. It also includes a worker education program to train all workers on how to identify and avoid harm to San Francisco garter snakes. Prior to construction equipment or vehicles entering the site, vegetation will be cleared by hand equipment to a height of 4 inches and checked for the presence of snakes. Additionally, prior to construction near wetlands and ponds, rodent burrows in the construction areas will be hand excavated in order to ensure absence of snakes. No restoration

activities would occur between November 15 and April 15, and a biological monitor would be present during construction activities, in addition to an on-call specialty environmental monitor with a valid 10(a)(1)(A) permit to handle San Francisco garter snakes and relocate them to an area consisting of suitable habitat if needed. Any relocation efforts would be coordinated with the appropriate agency to minimize any adverse effects. Mitigation Measure M-BI-6a would ensure that measures are taken to avoid impacts to San Francisco garter snakes during construction by the use of silt fencing or exclusion fencing around the project and staging areas and all onsite restoration. This measure would reduce temporary construction impacts by avoiding and minimizing impacts to San Francisco garter snakes to a degree sufficient to ensure no injury or mortality of individuals to the maximum extent feasible. With implementation of M-BI-6a, the short-term impacts of Sharp Park restoration on the San Francisco garter snake would be *less than significant*.

Over the long-term, the Laguna Salada restoration project would result in beneficial impacts to San Francisco garter snake by creating upland sites adjacent to aquatic sites that will provide basking habitat and refugia for the snakes near their foraging habitat. The enhancements to the wetland areas would increase breeding and foraging habitat for the San Francisco garter snakes. The conversion of freshwater marsh habitat to open water would discourage the growth of dense stands of bulrush and cattails which overgrow the wetlands thus diminishing habitat quality for the California red legged frog, the primary food source for the San Francisco garter snake.

California Red-Legged Frog. During restoration, impacts to California red-legged frogs from the Sharp Park restoration project would be similar to those described above for San Francisco garter snakes. Temporary impacts from construction activities would result in the disturbance of feeding, breeding, and dispersal behaviors. The removal of encroaching vegetation may disturb California red-legged frogs sheltering within the plants. Project activities that may cause California red-legged frogs to move out of their resident habitat may cause injury or mortality due to lack of adequate forage or cover. Impacts also would occur from construction activities involving vehicle traffic and the use of heavy equipment which could result in direct mortality of individuals. Short-term impacts of construction activities that result in injury, mortality and habitat disturbance would result in significant impacts on the frog. Implementing Mitigation Measure M-BI-6a includes pre-activity surveys, a worker education program, a biological monitor during construction activities, in addition to an on-call specialty environmental monitor with a valid 10(a)(1)(A) permit to handle California red-legged frogs and relocate as needed, and additional avoidance and minimization measures which include vegetation being cleared by hand equipment to a height of 4 inches and checked for the presence of frogs prior to construction and vehicles entering the site. Any relocation efforts would be coordinated with the appropriate agency to minimize any adverse effects. These

measures would reduce impacts to California red-legged frogs from restoration activities. As described above, Mitigation Measure M-BI-6a would ensure that measures are taken to effectively move individuals out of harm's way. This measure would reduce the impact to California red-legged frogs by avoiding and minimizing impacts sufficiently to ensure no injury or mortality of individual frogs to the maximum extent feasible.

Additionally, California red-legged frogs may be adversely affected by increased sedimentation caused by runoff associated with the project activities. Erosion control measures such as straw mulch, sediment traps, and wattles would be installed to eliminate the potential for sediment discharge in to the wetlands during the construction process, as described under Mitigation Measure M-HY-1. Implementing Mitigation Measures M-HY-1 and M-BI-6a, which includes measures to install silt fencing would reduce impacts to California red-legged frogs from sedimentation during restoration by avoiding and minimizing impacts to the California red-legged frog and its habitat to sufficiently avoid injury or mortality of the frog. With implementation of M-BI-6a and M-HY-1, the short-term impacts of Sharp Park restoration activities on the California red-legged frog would be *less than significant*.

Over the long-term, the Laguna Salada restoration project would result in beneficial impacts to California red-legged frogs by converting freshwater marsh, where tadpoles are often unable to penetrate the dense vegetation and where female frogs may lay their eggs only to be left stranded above water, to open water habitat. The removal of dense emergent vegetation will allow for a higher quality of breeding habitat for the frogs which will result in an increased survival of egg masses and tadpoles. The conversion of freshwater marsh habitat to open water would discourage the growth of dense stands of bulrush and cattails that have overgrown the wetlands and reduced the quality of habitat for California red-legged frogs.

Western Pond Turtle. During the restoration activities, impacts to the western pond turtle from the Sharp Park restoration project would be similar to those described above for California red-legged frog. However, because the restoration activities may occur during the western pond turtle nesting season, the magnitude of those impacts would be greater for this species. Temporary impacts from construction activities would result in the disturbance of feeding, breeding, aestivation sites and dispersal behaviors. The removal of nonnative vegetation may disturb western pond turtles sheltering within the plants as well as remove basking sites along the wetland banks. Increased sedimentation could adversely affect shallow water habitat for hatchlings as well as basking sites along the banks. These would result in significant impacts to western pond turtles. Implementing Mitigation Measures M-HY-1 (erosion control measures) and M-BI-6a, which includes a worker

education program, pre-activity surveys, a biological monitor during construction activities and avoidance and minimization measures, including the use of silt or exclusion fencing around project and staging areas and the hand clearing of upland vegetation prior to vehicles entering the site, would reduce short-term impacts to western pond turtles from Sharp Park restoration activities to *less than significant*.

Over the long-term, the Laguna Salada restoration project would result in beneficial impacts to western pond turtles. The removal of dense emergent vegetation would allow for a higher quality of breeding habitat for the turtles. Additional upland mounds would improve habitat quality by providing suitable basking sites. The conversion of freshwater marsh habitat to open water would discourage the growth of dense stands of bulrush and cattails that have overgrown the wetlands and reduced the quality of habitat for western pond turtles.

Salt Marsh Common Yellowthroat. Construction activities associated with the restoration project could result in the temporary disturbance of the salt marsh common yellowthroat as a result of vegetation removal and an increase in noise, vehicle traffic, and human presence. This is the only protected bird species known to nest at Sharp Park. The salt marsh common yellowthroat requires saltwater or freshwater marsh habitat with dense vegetation for nesting. The Laguna Salada restoration project may result in temporary impacts to this species through the disturbance and loss of nesting habitat from construction activities. Of the existing 19.5 acres of freshwater marsh, 14 acres would remain following restoration. While some habitat would be lost as a result of project activities, the majority of the freshwater marsh habitat would not be impacted, and sufficient saltmarsh common yellowthroat habitat would remain undisturbed. Limited tree removal would also occur as part of the restoration project, but is not expected to significantly impact this species because this species is not known to nest in the vegetation that is proposed for removal (Monterey pine). These impacts would be temporary and would not result in a substantial loss of salt marsh common yellowthroat habitat. Implementing GR-4b of the SNRAMP requires that all vegetation management activities be conducted outside the breeding season for bird species (February 1 through August 31, as designated by CDFG), unless these activities had already begun before the breeding season and had already removed nesting habitat or a breeding bird survey was conducted prior to vegetation removal activities and had determined that no nesting birds were present. If active nests (or large abandoned stick nests) are discovered as part of the breeding bird survey, a 150-foot-radius avoidance buffer would be centered on the nest sites to prevent the nesting birds from being disturbed by construction activities. As a result, the Sharp Park restoration would result in *less than significant* impacts to the salt marsh common yellowthroat.

Over the long-term, the Laguna Salada restoration project would result in beneficial impacts to the salt marsh common yellowthroat. The removal of dense stands of cattails and bulrush would temporarily impact salt marsh common yellowthroat habitat. However, following restoration, biodiversity surrounding the wetland complex is anticipated to increase, creating a higher quality nesting habitat for the salt marsh common yellowthroat.

Maintenance Activities. As described in more detail beginning on page 98, the restoration project is a recovery action for the San Francisco garter snake. Maintenance would occur following completion of the Sharp Park restoration project. The scope of the maintenance is subject to some modification during consultation with the USFWS pursuant to the ESA. Maintenance would include weeding and maintaining the restored areas. Maintenance of the wetland areas may include removal of invasive and encroaching plant species and additional planting of wetland plant species. As needed, the SFRPD also would conduct small-scale dredging of accumulated sediments from the wetlands using a backhoe. Maintaining the sediment basins would involve the periodic removal of accumulated sediment. Impacts to special status species associated with maintenance activities would be potentially significant and similar to routine maintenance impacts. Significant impacts to protected species could occur from ground disturbance through trampling, vegetation removal, and sediment removal. Implementing Mitigation Measure M-BI-6b, designed to avoid disturbance caused by maintenance activities performed by the Natural Areas Program staff to the maximum extent feasible, would ensure that impacts from and maintenance of the Sharp Park restoration project are avoided or minimized, resulting in *less than significant* impacts.

M-BI-6a: Protection of Protected Species during Implementation of the Sharp Park Restoration Project

The SFRPD shall implement the following, subject to modification during the required regulatory approval processes:

Avoidance Measures:

- The number of access routes, the size of staging areas, and the total area of activity would be the minimum necessary to achieve the project goals and to the extent feasible access routes shall be located in upland areas;
- Vehicle and equipment operators would use existing access roads and would remain outside of wetlands and riparian areas that are not integral to the restoration project;
- After surveying the construction site for special status species in accordance with this mitigation measure, silt fencing or exclusion fencing would be placed around the project and

staging areas to reduce the potential for animals to enter the construction site. Fencing will be monitored throughout construction to ensure no snakes, frogs, or turtles enter the area; fencing will meet CDFG specifications so as to avoid impacts to species potentially getting trapped in the fence.

- No restoration and construction shall occur between November 15 and April 15, the breeding season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows, although shrubs and willow posts may be planted by hand after the first rains, and weeds may be removed within 15 feet of aquatic areas during these times;
- Before moving any vehicles that remain stationary for longer than 30 minutes, the biological monitor would inspect those vehicles to ensure that no animals had crawled beneath them for cover;
- During project activities, all trash that could attract predators would be properly contained, removed from the work site, and disposed of regularly. Following project completion, all trash and construction debris would be removed from work areas.

Pre-Construction Activities:

- A worker education program shall be implemented to familiarize workers, including all vehicle operators, of the importance of avoidance of harm to special-status species and the proper protocol should a protected species be encountered. The training shall include a discussion of the importance of maintaining speed limits and respecting exclusion zones. The SFRPD and its construction contractor shall confirm that all workers have been trained appropriately.
- Two weeks prior to the commencement of work activities and immediately prior to commencement of work, a qualified biologist will survey aquatic habitat that is suitable for the California red-legged frog, San Francisco garter snake, and western pond turtle that would be affected by the project. If individuals in any life stages of these species are found, the biologist will contact the USFWS and/or CDFG to determine whether relocating any life stages is appropriate. Collection of frogs, snakes, and turtles would be done with hand nets, and shall be relocated to areas of appropriate habitat;
- Upland vegetation in all construction areas will be progressively cleared by hand equipment to a height of 4 inches and checked for the presence of protected species prior to disturbance and prior to construction equipment or vehicles entering the sites. Once vegetation is

cleared, an additional pre-activity survey for the San Francisco garter snake, western pond turtles, and California red-legged frogs will be conducted in the impact area.

- Prior to construction near wetlands or ponds, all rodent burrows in the construction area will be hand excavated until the burrows terminate or to a maximum depth of 30 centimeters in areas where soil or fill will be removed or placed.

Biological Monitor:

- A biological monitor familiar with the identification and life history of California red-legged frog, San Francisco garter snake, western pond turtle, and other potentially present protected species, and with the appropriate agency authorization, shall be designated to periodically inspect onsite compliance with all mitigation measures.
- The biological monitor shall perform a daily survey of the entire project area during construction activities. During these surveys, the monitor shall inspect the exclusion fencing for individuals trapped within the fence and determine the need for fence repair. Throughout the duration of the project, the monitor shall continue to perform daily fence surveys and compliance reviews at the project site. The monitor shall be designated prior to project implementation and shall have at least one specialty environmental monitor on call, with a valid 10(a)(1)(A) permit to handle listed species. The specialty monitor shall direct all personnel in regards to interactions with protected species, perform authorized species relocations, and supervise all reporting on such species.
- Bullfrog monitoring will occur and egg masses detected shall be removed.

M-BI-6b: Protection of Protected Species during Maintenance of the Sharp Park Restoration Project

The SFRPD shall implement the following, subject to modification during the required regulatory approval processes:

- To avoid disturbance of the San Francisco garter snake, California red-legged frog and western pond turtle, maintenance work shall not occur in the vicinity of ponds and wetlands between November 15 and April 15, the breeding/nesting season for California red-legged frog and the season when San Francisco garter snakes are inactive in their winter burrows.
- If maintenance cannot be avoided during the abovementioned time period, the Natural Areas Program will conduct reconnaissance surveys of maintenance areas prior to

undertaking maintenance work to ensure that no California red-legged frogs, western pond turtles or San Francisco garter snakes are present.

- Heavy equipment would remain outside of wetlands to the extent feasible. If it is infeasible to avoid wetlands, no heavy equipment shall be used within wetlands between October 15 and April 15.
- In the event that a California red-legged frog, western pond turtle or San Francisco garter snake is encountered, all work shall immediately stop. Field personnel shall notify the onsite SFRPD staff member who will confirm that the species has moved outside of the work zone, or the work zone shall be adjusted to avoid the species.
- SFRPD staff shall provide verbal notification to the USFWS and/or to the local CDFG warden or biologist (as applicable) within one working day of the encounter. The SFRPD shall follow up with written notification to the USFWS and/or CDFG (as applicable) within five working days. Maintenance activities in the location of the encounter would be prohibited until SFRPD has contacted and properly consulted with USFWS and/or CDFG. Field personnel shall submit all observations of protected species to the CNDDDB.

Sensitive Natural Communities

The sensitive natural communities identified in Table 9 are important biological resources because they and the plants and wildlife they support have been identified as complexes that are worthy of protection in the SNRAMP. As discussed on page 85, the SNRAMP project management actions related to sensitive natural communities aim to 1) maintain and enhance local biodiversity, 2) reestablish native community diversity, structure, and ecosystem function where degraded, and 3) decrease the extent of invasive exotic species cover, achieving long-term beneficial impacts to sensitive natural communities.

Programmatic Impacts

Impact BI-7: The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on sensitive natural communities. (Less than Significant with Mitigation)

For purposes of this EIR, sensitive natural communities in the Natural Areas consist of riparian, native grassland, oak woodland, coastal dune and scrub, and wetland habitats. The habitat types in the Natural Areas are listed in Table 9. Impacts to wetland habitat are analyzed separately under Impact BI-10. The impacts of implementing programmatic projects are similar to those discussed under Impacts BI-1 through BI-4, with respect to changes in vegetation. Any construction (e.g., use

of heavy equipment) or installation of permanent structures within these sensitive habitats, or the use of herbicides and pesticides near these areas, have the potential to impact sensitive natural communities. Large-scale invasive vegetation removal (either by hand or through herbicide application) may also result in incidental impacts to sensitive natural communities. As discussed under Impact BI-1, herbicides are intended to be used on invasive, nonnative vegetation, and are not intended for use on special status plants or sensitive natural communities. One of the purposes of invasive vegetation removal is to promote conditions that support native plants and the sensitive natural communities they thrive within. One of the goals of the SNRAMP is to restore natural community diversity. This includes recommended actions to replant native vegetation, as well as sensitive and rare species in order to increase their populations within the Natural Areas. Therefore, although there may be short term temporary impacts to native plant species, encroaching vegetation removal is expected to result in a net benefit to sensitive natural communities.

Riparian Habitat. Impacts to riparian habitat within the Natural Areas would occur from ground-disturbing activities and the use of heavy equipment during invasive vegetation removal, trail modification, and large-scale erosion control measures. Potential impacts include the loss of riparian vegetation due to direct removal or damage from heavy equipment. Heavy equipment use may also cause soil compaction, thus reducing the quality of riparian habitat. Where vegetation is removed or crushed as a result of project activities in or near riparian habitat, invasive plant species could become established. However, as discussed above, a goal of invasive vegetation removal is to provide more suitable habitat for native plants, therefore invasive vegetation removal is anticipated to result in a net benefit to native plants and the sensitive natural communities within which they live. Riparian habitat has been identified at the following Natural Areas: Lake Merced, Glen Canyon, Sharp Park, McLaren Park, Hawk Hill, Rock Outcrop, Bayview Park, Bernal Hill and Pine Lake. Of these Natural Areas, tree removal would occur at Lake Merced and Bayview Park. Large-scale erosion control projects could impact riparian habitat at Sharp Park, Bayview Park and Glen Canyon Park. The creation of new trails is proposed at all of the above-listed Natural Areas, with the exception of Rock Outcrop. As described in Section III.E.5 (page 92), the SFRPD would design new trails to avoid sensitive vegetation and habitat to the extent possible, including riparian habitat.

While the goals of the SNRAMP are to protect sensitive habitats, impacts from large-scale erosion control projects could affect riparian habitat by reducing it in quality and functionality. The impacts of programmatic projects on riparian habitat that is considered protected by USACE, RWQCB or CCC regulations could be significant depending on the degree and severity of the impact. Implementing Mitigation Measure M-BI-1a requires SFRPD to avoid riparian habitat to the extent

feasible. If avoidance is infeasible, Mitigation Measure M-BI-1a requires the installation of flagging and temporary fencing around riparian habitat that is not being directly restored, or worked within, in order to avoid damage or further disturbance. Where impacts to riparian habitat as a result of large-scale erosion control projects would occur, Mitigation Measure M-BI-1a would require coordination with the applicable regulatory agencies (for example, CCC, RWQCB and USACE) to determine the jurisdictional boundaries of protected riparian habitat and that the SFRPD apply for all appropriate permits. Additionally, riparian restoration and compensation would occur where needed. Mitigation Measure M-BI-1a also requires that fences be installed along existing trails in sensitive habitat areas if impacts on sensitive habitat were observed as a result from visitors straying from the trails. Additionally, the SFRPD would consider rerouting those trails. Implementing Mitigation Measure M-BI-1a would ensure that measures are taken to avoid and minimize impacts on riparian habitat to the greatest degree practicable, and that SFRPD restore riparian habitat when minimization is not sufficient, resulting in a *less than significant* impact.

Native Grassland Habitat. Impacts to native grassland habitat within the Natural Areas could occur from ground-disturbing activities, such as the use of heavy equipment for large-scale erosion control projects. As discussed under Section III.E.5, the SFRPD would design new trails to avoid sensitive vegetation and habitat to the extent possible. Any impacts to native grasslands as a result of trail creation would be short-term, temporary, and limited in extent. Therefore, trail creation is not anticipated to result in a significant impact to native grasslands. The SNRAMP includes the restoration of decommissioned trails, which would result in long-term net benefits to native grassland habitat throughout the Natural Areas. Additionally, as described above under Riparian Habitat, invasive vegetation removal is anticipated to result in beneficial impacts to sensitive natural communities. Therefore, the following analysis focuses on impacts to native grasslands that could result from large-scale erosion control projects.

Potential impacts to native grasslands, as a result of large-scale erosion control projects include the loss of native grassland habitat if plants are directly removed, as well as the reduction in quality and functionality if damaged during project activities. Although incidental temporary disturbance to native grassland habitat may result from erosion control activities, as part of the SNRAMP, these activities would be followed by the replanting of native vegetation, resulting in long-term beneficial impacts. For example, large scale erosion control is proposed within native grasslands at Bayview Park. Under the SNRAMP recommended management action VP-9a,¹⁰ following construction

¹⁰ VP-9a—Create a detailed and complete erosion control plan before beginning work on the large gully near the summit

activities associated with the erosion control project, the site would be seeded with native grasses. In addition, many actions identified in the SNRAMP are directed at restoring native grasslands. Therefore, should implementation of an individual programmatic project result in temporary disturbances or even a loss in native grassland habitat, on the whole, the actions in the SNRAMP are designed to protect native grasslands and would result in an overall increase of native grassland habitat. Therefore, programmatic project impacts on native grasslands would be offset by restoration activities in the SNRAMP and the resulting impacts to native grasslands would be *less than significant*.

Oak Woodland Habitat. While oak trees would not be removed as part of the programmatic projects, invasive vegetation removal within oak woodland understory would occur. The manual removal of invasive vegetation surrounding oak trees would not be sufficient to cause oak tree damage or death or result in habitat conversion. The removal of invasive vegetation would ultimately benefit oak woodland habitat by eliminating competition from nonnative species. Additionally, many of the recommended management actions of the SNRAMP include oak woodland restoration. Therefore, *no impact* to oak woodlands resulting from programmatic project activities would occur.

Coastal Dune and Scrub Habitat. Coastal dune habitat has been identified at the following Natural Areas: Lake Merced, Hawk Hill, Oak Woodlands, Balboa, Strawberry Hill, and Rock Outcrop. Coastal scrub habitat has been identified at the following Natural Areas: Lake Merced, Glen Canyon Park, Sharp Park, McLaren Park, O'Shaughnessy Hollow, Twin Peaks, Oak Woodlands, Corona Heights, 15th Avenue Steps, Mount Davidson, Brooks Park, Bayview Park, and Pine Lake. Impacts to coastal dune and scrub habitat within the Natural Areas could occur from ground-disturbing activities, such as invasive weed and tree removal, trail modification and the use of heavy equipment.

As discussed above the SFRPD would design new trails to avoid sensitive vegetation and habitat. Therefore, trail creation is not anticipated to result in a significant impact to dune and scrub habitat. Any impacts to these habitats as a result of trail modification would be short-term, temporary, and limited in extent. Trailside planting of native vegetation would occur following the creation of new trails. The SNRAMP includes the restoration of about ten miles of decommissioned social trails, which would result in a net benefit to coastal scrub habitat to the extent that those trails are located in such habitat. Additionally, as described above, invasive vegetation removal is anticipated to result in beneficial impacts to sensitive natural communities.

Management actions in the SNRAMP are designed to maintain and enhance coastal dune and scrub habitat. Therefore, should implementation of an individual programmatic project result in temporary disturbances or even a loss in dune or scrub habitat, on the whole as with impacts to native grasslands, the actions in the SNRAMP are designed to protect these habitats and would result in an overall increase coastal dune and scrub habitat. Therefore, programmatic project impacts on coastal dune and scrub would be offset by restoration activities and the resulting impacts to coastal dune and scrub habitats would be *less than significant*.

Project-Level Impacts (Routine Maintenance)

Impact BI-8: Implementation of routine maintenance under the SNRAMP would not result in a substantial adverse effect on sensitive natural communities. (Less than Significant)

Routine maintenance impacts for wetlands are analyzed under Impact BI-11. Routine maintenance activities that could impact sensitive natural communities include the removal of invasive weeds by hand in areas of less than a half an acre, the installation of plants, the removal of invasive trees, trail maintenance, and the maintenance of catchment basins and sediment dams. Impacts to sensitive natural communities as a result of these activities could result from ground disturbance, vegetation removal, and trampling. Ground disturbance from hand-weeding would occur within the top inch of ground around the root zone and is not anticipated to result in substantial impacts to sensitive natural communities. Tree removal would be minimally invasive, occurring manually, limb-by-limb, with no more than 20 trees (less than half an acre) being removed at one time. Planting would be done using hand tools with plants in one-gallon containers or smaller. Trail maintenance would include clearing deposited soil from steps, replacing or installing steps or trail edging, and rerouting and benching trails. Ground disturbance from these activities are usually six inches and up to twelve inches. Maintenance of catchment basins could result in incidental trampling of riparian vegetation. However, any impacts to individual plants would be minimal and would not be anticipated to substantially affect sensitive natural communities. Recommended actions within the SNRAMP include revegetation with native species, which would ultimately benefit sensitive natural communities throughout the Natural Areas.

Furthermore, all routine maintenance activities will be conducted or overseen by the Natural Areas Program staff which is composed of biologists, ecologists, and natural resource managers who are knowledgeable about both the ecology and presence/locations of sensitive natural communities within the Natural Areas. Due to the small scale and manual nature of the routine maintenance activities, any impacts to individual plant species are expected to have minimal short-term effects on the sensitive communities in which they occur. Long-term beneficial impacts to the sensitive natural

communities would be expected as a result of these maintenance activities, which include the removal of invasive vegetation and replacement with native vegetation. As a result, the impacts of routine maintenance activities on sensitive natural communities would be *less than significant*.

Project-Level Impacts (Sharp Park Restoration)

Impact BI-9: Implementation of the Sharp Park restoration activities under the SNRAMP would not have a substantial adverse effect on sensitive natural communities. (Less than Significant)

The only sensitive natural communities in the Sharp Park restoration area are coastal scrub, riparian and wetland habitats. Impacts on protected wetland habitats from Sharp Park restoration activities are analyzed under Impact BI-12. The restoration goals and actions are described in detail in Section III.F.2 (Page 97) and in the Sharp Park Conceptual Restoration Alternatives Report (SFRPD 2009a), included in Appendix I. Sharp Park restoration would not adversely impact any sensitive riparian habitat because project activities would occur outside the riparian zone.

Short-term, temporary impacts to coastal scrub habitat would occur from ground disturbance as a result of vehicle traffic and heavy equipment use. Permanent impacts to coastal scrub habitat would occur from restoration activities that include the conversion of up to one acre of habitat to wetlands on the west side of the lagoon; this loss would be more than offset by the creation of 19.5 acres of additional scrub habitat within the restoration footprint, in particular scrub habitat proposed for the corridor between Laguna Salada and Horse Stable Pond and on the southwest side of Laguna Salada. Following restoration of the Laguna Salada wetland complex, temporarily impacted coastal scrub habitat to the west of the lagoon would be restored. Therefore, impacts of the Sharp Park restoration on sensitive natural communities would be *less than significant*.

Maintenance would also occur following the Sharp Park restoration project. Maintenance would include weeding and maintaining the restored areas. Maintenance of the wetland areas may include removal of invasive plant species and additional planting of wetland plant species. As needed, the SFRPD would also conduct small-scale dredging of accumulated sediments from the wetlands using a backhoe. Maintaining the sediment basins would involve the periodic removal of sediment. These activities would not result in the removal of or damage to coastal scrub habitat. As a result, maintenance activities would have *no impact* on sensitive natural communities.

Wetlands*Programmatic Impacts***Impact BI-10: The SNRAMP and implementation of programmatic projects under the SNRAMP would have a substantial adverse effect on wetlands. (Less than Significant with Mitigation)**

Vegetation removal and ground-disturbing activities associated with the project could result in direct and indirect impacts on wetlands at Lake Merced, Glen Canyon/O'Shaughnessy Hollow, Bayview Park, Pine Lake, India Basin, and Sharp Park, the only Natural Areas where they are known to occur. Programmatic project activities that occur within these Natural Areas could adversely impact wetlands as a result of invasive vegetation removal within the wetlands and adjacent uplands. As described in Section III.E.5, the SFRPD would design new trails to avoid sensitive vegetation and habitat to the degree feasible. No trail creation is planned in or adjacent to wetland habitat. However, modifications to existing trails through riparian and wetland habitat could result in temporary or permanent adverse impacts to wetland habitat. Where wetland habitat is impacted by trail modifications, trailside native vegetation would be replanted. Invasive tree removal may occur within wetlands at Lake Merced. Tree removal would result in a temporary adverse impact to wetlands through soil compaction from vehicle equipment, the potential loss of wetland vegetation from the tree removal processes, and increased sedimentation of the wetlands. Large-scale erosion control measures would occur at Glen Canyon/O'Shaughnessy Hollow, Bayview Park and Sharp Park. These construction projects have the potential to impact wetland habitat through disturbance from construction activities, loss of wetland habitat, and increased sedimentation of the wetlands. As such, programmatic projects may have a significant impact on wetlands. Implementing Mitigation Measures M-BI-1a requires that measures are taken avoid and minimize impacts to wetlands from programmatic projects. Implementing Mitigation Measure M-BI-1a requires that construction and vehicle traffic in and around wetlands be limited to the maximum extent possible. Temporary exclusion fencing would be used to protect wetland habitat, and projects would be conducted during the spring and summer to avoid saturated or ponded wetlands and streams. Where wetland disturbance cannot be avoided, Mitigation Measure M-BI-1a requires restoration of the site, which would include the replanting of native vegetation and/or maintaining the hydrologic connections which characterize the wetland. Mitigation M-BI-1a would also require the acquisition of Section 401 and 404 permits from the USACE for those Natural Areas where wetlands may be affected by project activities. Where necessary, restoration, enhancement, or compensatory mitigation would be required to offset any temporary and/or permanent impacts to

wetlands. With implementation of M-BI-1a, impacts on wetlands as a result of programmatic projects would be *less than significant*.

Project-Level Impacts (Routine Maintenance)

Impact BI-11: Implementation of routine maintenance under the SNRAMP would not result in a substantial adverse effect on wetlands. (Less than Significant)

The potential impacts of routine maintenance on wetlands could result from a small level of ground disturbance from the removal of invasive weeds by hand in areas of less than half an acre, planting, the removal of invasive trees or limbs, trail maintenance and the maintenance of catchment basins and sediment dams. The following Natural Areas have been identified in the SNRAMP as containing wetlands, although no formal USACE wetland delineation has been conducted (with the exception of Sharp Park): Lake Merced, Sharp Park upper canyon, Glen Canyon/O'Shaughnessy Hollow, Bayview Park, Pine Lake and India Basin.

Routine maintenance activities may result in minimal disturbance as a result of invasive vegetation removal and the maintenance of catchment basins and sediment dams. These impacts would be temporary and are not anticipated to result in permanent impacts to the quality and extent of wetlands. Overall, routine maintenance is expected to have a beneficial impact on wetlands by eliminating invasive species, augmenting native wetland communities, and reducing soil erosion by planting native vegetation. Therefore, impacts of routine maintenance activities on wetlands would be *less than significant*.

Project-Level Impacts (Sharp Park Restoration)

Impact BI-12: Implementation of the Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on wetlands. (Less than Significant with Mitigation)

Restoring the Laguna Salada wetland complex would affect wetland habitat during construction activities, which include the use of heavy equipment for vegetation and sediment removal and other earthmoving activities. These activities would result in the short-term disturbance of wetlands and long-term conversion of wetlands to open water habitat and upland habitat. As shown in Table 11, there would be an overall decrease in the amount of wetlands from the Sharp Park restoration project.

Table 11
Laguna Salada Wetland Habitat Types within the Restoration Footprint

Type of Habitat	Existing Acreage*	Post-Restoration Acreage*
Freshwater Marsh	19.5	14.0
Willow Scrub	1.0	0.5
Wet Meadow	2.5	3.0
Total:	23	17.5

*Rounded to the half acre

Short-term impacts associated with the Laguna Salada restoration project include soil compaction and vegetation loss as a result of vehicle and heavy equipment use in and around the wetlands. As described in Section III.F.2 (page 104), following completion of each season's restoration activities, these areas would be scarified, recontoured, planted and hydroseeded with native vegetation to approximate their pre-disturbance condition, as needed based on the level of disturbance.

Long-term impacts to wetlands at Sharp Park would occur as a result of restoration activities that would include dredging existing wetlands and recontouring the shoreline to create optimal habitat for California red-legged frog and San Francisco garter snake. These activities would result in a loss of approximately 5.5 acres of freshwater marsh. Wetland habitat would be altered through the conversion of up to half an acre of wet meadow wetland and freshwater marsh to upland habitat through the creation of an upland refuge in the middle of the lagoon to provide breeding and basking habitat for snakes and frogs. Up to one acre of replacement wet meadow wetland would be created along the northern and western edges of the lagoon (See Table 11).

The project proposes to convert existing vegetated wetland to open water habitat consistent with historical conditions of the Laguna Salada wetland complex, which previously provided productive San Francisco garter snake and California red-legged frog habitat. Over the years, cattails and other vegetation have encroached into the historically open water habitat, converting this habitat to freshwater marsh and/or wet meadow and limiting its value as breeding habitat for the California red-legged frog. Removing accumulated sediments and encroaching vegetation would reverse the effects of a trend that would eventually result in the conversion of the remaining open water to vegetated wetland and ultimately conversion of those wetlands to upland. The project proposes to convert vegetated wetland habitat back to open water, resulting in a permanent loss of vegetated wetland. This conversion of wetland to open water habitat would not result in a loss of waters of the US and would be consistent with the historical conditions of Laguna Salada. Freshwater marsh habitat at Laguna Salada is currently dominated by dense stands of cattails (*Typha angustifolia*) and

bulrush (*Scirpus* sp.). These species tend to form monostands and prevent the growth of other species. By converting these wetlands to open water, not only will a higher quality habitat be created for protected species, but the biodiversity of native wetland vegetation along the periphery of the open water will increase. This condition would be more consistent with historical conditions of the wetland complex that allowed for a productive population of San Francisco garter snake. Overall, there would be no net loss of waters of the US as a result of the restoration activities. Restoration activities would be consistent with the ultimate goals of the Sharp Park restoration, which are to enhance habitat quality for protected species and other native wildlife, in addition to diversifying existing wetlands. The Sharp Park restoration project would restore and enhance the biological functionality of the wetland and upland complex to better support the various species present within that habitat system and would not be considered a substantial adverse effect to the Laguna Salada wetland complex. As a result, the Sharp Park restoration project is expected to result in long-term beneficial impacts to the wetland complex. However, as discussed above, implementation of the Sharp Park restoration would result in short-term construction-related impacts to wetlands, which would be significant. Mitigation Measures M-BI-12a and M-BI-12b have been identified to reduce construction-related impacts to less than significant. These mitigation measures are further described below.

Prior to implementing the proposed Sharp Park restoration activities, the SFRPD would be required to obtain a USFWS Biological Opinion, SFRWQCB Section 401 water quality certification, a USACE Section 404 permit, and a coastal development permit from the California Coastal Commission; a CDFG streambed alteration agreement may also be required. These resource agencies may require protective wetland measures in addition to Mitigation Measures M-BI-12a and M-BI-12b, as discussed below.

Implementing Mitigation Measure M-BI-12a requires the SFRPD to limit impacts on wetlands and water quality. Mitigation Measure M-BI-12b requires SFRPD to prepare a mitigation plan as part of the application for Section 401 water quality certification. Mitigation Measure M-BI-12a also incorporates requirements of both Sections 401 and 404 of the Clean Water Act and the CCC. Mitigation Measure M-BI-12b requires that the SFRPD prepare a monitoring program which would ensure that success criteria would be established to ensure that restoration of the Laguna Salada wetland complex is achieving the project objectives. Success criteria may include annual goals for the percent cover of native wetland vegetation, limitations on the amount of invasive species cover permissible, and the presence of hydric soils and wetland hydrology. With implementation of Mitigation Measures M-BI-12a and M-BI-12b, the Sharp Park restoration would not have a

substantial adverse effect on wetlands protected under Section 404 of the Clean Water Act, resulting in a *less than significant* impact.

Maintenance would occur following the Sharp Park restoration project. Monitoring for wetland functionality would include assessing ecologically based criteria such as the dominance of wetland vegetation, the presence of hydric soils or evidence of hydrology to determine success of the project objectives. Maintenance of the wetland areas may include removal of invasive and encroaching plant species and additional planting of wetland species. Maintaining the sediment basins would involve the periodic removal of accumulated sediment. As needed, the SFRPD would also conduct small-scale dredging of accumulated sediments from the wetlands using a backhoe or similar equipment. These maintenance activities have the potential to impact wetland habitat by disturbing and damaging wetland vegetation, resulting in significant impacts on a regular basis. Implementing Mitigation Measure M-BI-12a requires the SFRPD to limit impacts on wetlands and water quality. With implementation of Mitigation Measures M-BI-12a and M-BI-12b, implementation of the Sharp Park restoration project maintenance activities would be *less than significant*.

M-BI-12a: Protection of Wetlands during the Sharp Park Restoration Project

The SFRPD shall obtain all applicable permits from SFBRWQCB, CCC, USACE, and CDFG for impacts to wetland habitat. Measures identified in these permits shall be applied, in addition to the following measures, unless otherwise specified by resource agencies:

- Except for those areas directly being restored, a minimum 100-foot buffer surrounding all wetlands, ponds, streams, drainages, and other aquatic habitats located on or within 100 feet of the project site shall be clearly designated on the final project construction plans and marked on the site with orange construction fencing or silt fencing. If the area is on a slope, silt fencing or other comparable management measures will be installed to prevent polluted runoff, as well as equipment, from entering the buffer area. Signs shall be installed every 100 feet on or adjacent to the buffer fence that read, "Environmentally Sensitive Area – Keep Out." Fencing and management measures shall be installed and inspected prior to project implementation and maintained throughout the restoration period. No equipment mobilization, grading, clearing, storage of equipment or machinery, vehicle or equipment washing, or similar activity, may occur until a representative of the SFRPD has inspected and approved the fencing and/or management measures installed around these features;
- Vehicle and equipment operators would use existing access roads and would remain outside of wetlands and riparian areas that are not directly associated with habitat restoration.

Project construction and staging areas would be delineated with construction fencing and shall avoid wetland habitat to the maximum extent feasible;

- All vehicles would be brought in clean and free of weeds to prevent the spread or introduction of invasive plant species. Vehicles and equipment would be fueled, maintained, and parked at least 100 feet from wetlands. Each morning, operators would inspect all equipment that requires the use of fuel or fluids for leaks;
- Silt barriers, such as sand bags, silt fences/curtains, or basins, would be installed before the project begins;
- Wet sediments taken from the wetlands would be stockpiled so water could drain or evaporate before removal. Stockpiles would be placed in upland areas with the perimeters protected by BMPs to avoid polluted runoff;
- All soil stockpiles shall be protected against wind and rainfall erosion at all times. Plastic sheeting or other similar material shall be used to cover soils and would be securely anchored by sandbags or other suitable means. At no time would any stockpiled materials be allowed to erode into any water body or drainage facility or onto any roadway; and
- Ground disturbing construction and maintenance activities shall be avoided during the rainy season and consistent with Mitigation Measure M-BI-6a.

M-BI-12b: Laguna Salada Restoration Project Wetland Mitigation Plan

Consistent with the requirements for a Section 401 water quality certification permit, the SFRPD shall prepare a mitigation plan. Additionally, because this is a restoration project, the CCC may require an objective performance evaluation to determine project success which would include a monitoring program and methods for evaluating performance, which could be accomplished through implementation of the wetland mitigation plan. The wetland mitigation plan shall include, at a minimum, a description of the following:

- Proposed project's physical and biological impacts;
- Mitigation goals;
- Mitigation work plan;
- Management and maintenance plan;
- Success criteria and performance indicators
- Monitoring plan; and
- Site protection measures.

The components of the above mitigation plan may be altered, supplemented, or deleted during the SFBRWQCB's review process, as the SFBRWQCB has final authority over the terms of the water quality certification.

Fish and Wildlife Movement, Migratory Corridors, and Nursery Sites

Programmatic Impacts

Impact BI-13: The SNRAMP and implementation of programmatic projects under the SNRAMP would not have a substantial adverse effect on fish and wildlife movement, migratory corridors, or nursery sites. (Less than Significant)

Programmatic project activities include vegetation removal consisting of invasive weed or tree removal and ground-disturbing activities associated with the use of heavy equipment for trail modification and implementation of large-scale erosion control measures. These activities have the potential to directly impact wildlife movement, migratory corridors, or nursery sites.

Migratory fish are limited in the Natural Areas. Coho salmon is the only identified migratory fish, recorded in Lake Merced. Lake Merced has been disconnected from the ocean for several decades; therefore, this species is not expected to occur here. Implementation of programmatic projects is not expected to impact migratory or resident fish.

Many migratory birds use the Natural Areas for foraging, nesting, and perching habitat, as the Natural Areas provide habitat in an area that is otherwise highly urbanized. All of the Natural Areas support potential or confirmed native bird nesting and foraging habitat, which includes nonnative forests, grasslands, and riparian scrub. Migratory birds that use the Natural Areas are presented in Appendix D. Removing a large area of vegetation would have a temporary adverse impact on migratory species that may use the habitat, potentially disturbing nesting or foraging behaviors. Following the removal of invasive vegetation, replanting with native vegetation would occur, thus restoring habitat quality for migratory species. While resulting in some ground disturbance and habitat loss, the development of trails would be relatively minor and would not significantly fragment wildlife movement corridors. Long-term beneficial impacts to migratory birds would occur as a result of invasive vegetation removal by creating a higher quality habitat. Measure GR-4b ensures vegetation management activities occur outside the breeding season (February 1 to August 31) if breeding birds could be affected, unless the following specific conditions are met: projects begun before the breeding season have already disturbed the area, or a breeding bird survey is conducted first. If active nests (or large abandoned stick nests) of a sensitive species are discovered,

a 150-foot-radius avoidance buffer would be centered on the nest site(s) to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest. These measures, combined with the short-term nature of vegetation or ground disturbance incurred by programmatic project activities, would ensure that potential impacts of programmatic projects on wildlife movement and migratory corridors would be *less than significant*.

Project-Level Impacts (Routine Maintenance)

Impact BI-14: Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on fish and wildlife movement, migratory corridors and nursery sites. (Less than Significant)

Routine maintenance activities include the removal of invasive weeds by hand in areas of less than a half an acre, revegetation, the removal of invasive trees, trail maintenance, and the maintenance of catchment basins and sediment dams. These activities are not expected to interfere with wildlife movement and migratory corridors.

Nursery sites have the potential to be impacted from vegetation removal that is conducted as part of routine maintenance. As part of the project, SFPRD would conduct tree removal activities using previously described minimally invasive techniques. Tree removal would be conducted limb-by-limb and would leave the tree stump and root ball intact to hold the soil and minimize subsurface disturbance; stumps may be ground to below grade where necessary to avoid tripping hazards. Measure GR-4b ensures vegetation management activities occur outside the breeding season (February 1 to August 31) if breeding birds could be affected, unless the following specific conditions are met: projects begun before the breeding season have already disturbed the area, or a breeding bird survey is conducted first. If active nests (or large abandoned stick nests) of a sensitive species are discovered, a 150-foot-radius avoidance buffer would be centered on the nest site(s) to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest. These measures, combined with the small area of vegetation or ground disturbance incurred by routine maintenance activities, would not significantly alter nursery sites and would not interfere with wildlife movement. Therefore, potential impacts of routine maintenance on fish and wildlife movement, migratory corridors, and nursery sites would be *less than significant*.

*Project-Level Impacts (Sharp Park Restoration)***Impact BI-15: Implementation of Sharp Park restoration activities under the SNRAMP would have a substantial adverse effect on fish and wildlife movement, migratory corridors and nursery sites. (Less than Significant with Mitigation)**

Sharp Park is bordered in part by undeveloped areas, including Sweeny Open Space, Mori Point, and Milagra Ridge, which allows it to serve as a relatively undisturbed corridor for wildlife, particularly birds. The potential impacts on fish and wildlife movement, migratory corridors, and nursery sites as a result of the Sharp Park restoration include the temporary disturbance from human presence as well as the disturbance of foraging and nesting habitat from vegetation removal, dredging open water, recontouring the shoreline, and constructing upland mounds.

These Sharp Park activities may result in significant temporary impacts on wildlife movement due to equipment and human presence and the amount of disturbance from earthmoving and dredging activities; however, the restoration project would ultimately result in long-term beneficial impacts on wildlife movement by improving habitat quality for native species and allowing for greater habitat connectivity between Sharp Park and contiguous areas. The project also includes creating an upland and wetland habitat corridor between Laguna Salada and Horse Stable Pond to support the San Francisco garter snake. Additionally, maintenance would also occur following the Sharp Park restoration project. These efforts would ensure achievement of the goals of the restoration project, which include greater wildlife connectivity within Sharp Park and with contiguous areas. Mitigation Measures M-BI-6a, M-BI-6b, M-BI-12a and M-BI-12b would minimize the potential temporary impacts to wildlife movement within the Laguna Salada wetland complex by implementing protection measures to avoid and minimize impacts to protected species as well as wetland and riparian areas. These measures require pre-construction surveys, worker education programs, biological monitoring, exclusion fencing, consultation with the USFWS and CDFG, and a wetland mitigation plan. With implementation of Mitigation Measures M-BI-6a, M-BI-6b, M-BI-12a and M-BI-12b, impacts of Sharp Park restoration activities and associated maintenance activities on fish and wildlife movement, migratory corridors, and nursery sites would be *less than significant*.

Conflicts with Local Plans and Policies*Programmatic Impacts*

Impact BI-16: The SNRAMP and implementation of programmatic projects under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources. (No Impact)

The SFRPD developed the SNRAMP and its management actions in compliance with all applicable local policies and ordinances protecting biological resources; all programmatic projects would also be designed to comply with these protective measures. These include tree protection ordinances, such as the San Francisco Urban Forestry Ordinance. Several Landmark Trees are found in or near the Natural Areas, but would not be disturbed or removed by any of the programmatic projects. These include a blue elderberry tree (*Sambucus mexicana*) within Bernal Hill, a Canary Island Date Palm (*Phoenix canariensis*) near Palou-Phelps, and a New Zealand Christmas Tree (*Metrosideros excelsus*) adjacent to the Interior Greenbelt. Management actions would not conflict with these or other applicable policies or ordinances. As a result, the programmatic projects would have *no impact* due to conflicts with local policies or ordinances.

Project-Level Impacts (Routine Maintenance)

Impact BI-17: Implementation of routine maintenance activities under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources. (No Impact)

The SNRAMP management actions were developed in compliance with all applicable local policies and ordinances protecting biological resources; as a result, routine maintenance would have *no impact* due to conflicts with local policies or ordinances.

Project-Level Impacts (Sharp Park Restoration)

Impact BI-18: Implementation of Sharp Park restoration activities under the SNRAMP would not conflict with any local policies or ordinances protecting biological resources. (No Impact)

The SNRAMP management actions were developed in compliance with all applicable local policies and ordinances protecting biological resources; as a result, the Sharp Park restoration activities would have *no impact* due to conflicts with local policies or ordinances.

Cumulative Impacts

Impact BI-19: The proposed project, in combination with other planned and foreseeable future projects, would result in a cumulatively considerable significant impact related to biological resources. (Significant and Unavoidable)

Projects that temporarily disturb or permanently remove open space and wildlife habitat include the Candlestick Point-Hunters Point Shipyard Phase II Development and 150 acres of proposed residential development and 85,000 square feet of proposed commercial development in Pacifica. These projects may remove and fragment habitat, possibly resulting in increased use of the Natural Areas by common and special status wildlife, making those areas more critical for biological conservation efforts. Additional recreation facilities also are proposed at McLaren Park and Oak Woodlands in Golden Gate Park. The cumulative projects also include construction and development in the vicinity of such Natural Areas as the 15th Avenue Steps, Corona Heights, and the San Francisco Botanical Garden (Lily Pond and Buena Vista Park). As with all projects that include ground disturbance, development, or vegetation removal, there is potential to adversely impact biological resources. An increase in pedestrian traffic in the Natural Areas over time may result in impacts to special status plant species and sensitive natural communities due to trampling; however, improved trail systems, fencing, and signs would reduce any such impacts. In combination with the SNRAMP, the cumulative regional projects proposed to occur within the vicinity of several Natural Areas would have potentially significant adverse impacts on biological resources over both the short-term and the long-term. The goal of the SNRAMP is to preserve and maintain open space in the region and the mitigation measures identified previously in this section would be implemented to protect biological resources; as a result, the SNRAMP would not result in a cumulatively considerable adverse impact on biological resources.

Implementation of the proposed GGNRA Dog Management Plan may further restrict dog access and off-leash areas within GGNRA land holdings. In addition, the SNRAMP proposes to close the Lake Merced DPA and reduce the size of the DPAs at Bernal Hill and McLaren Park; on-leash dog use would still be allowed at these and all other Natural Areas. The reductions in off-leash areas proposed by the GGNRA could result in an increase in both on-leash and off-leash dog use at the Natural Areas. The actions proposed by the GGNRA and the SNRAMP could result in concentrated dog use within the remaining off-leash areas. Increased use may result in impacts to biological resources within the Natural Areas DPAs, including disturbance of breeding birds and damage to special status plants. The cumulative combination of proposed dog management for the Natural Areas and the GGNRA project could result in indirect significant impacts on biological resources in

the Natural Areas. The comparative contributions of the each project to this potentially significant cumulative impact cannot be determined based on the speculative nature of the behavioral and physical factors contributing to that determination. The potentially significant impact to biological resources as a result of increased use resulting from cumulative actions could be mitigated by adding a new DPA at a nearby Natural Area or other nearby property. However, there is a current moratorium¹¹ on new DPAs, and the mitigation therefore would not be feasible. As a result, it is conservatively concluded that the proposed project's contribution would be potentially *significant and unavoidable*.

Overall, potential net cumulative long-term impacts on biological resources associated with the SNRAMP are expected to be beneficial. Implementing the plan's measures would increase the amount of wildlife habitat, would preserve and augment special status species and sensitive habitats, would improve habitat connectivity and biodiversity, would reduce nonnative and invasive vegetation, and would increase native vegetative cover. Other existing and future foreseeable cumulative projects in the area that would add to these beneficial effects include the SFRPD trails program, which would improve trails to protect natural resources and sensitive habitats, and the SFRPD forestry program, which would focus on native tree planting and restoration.

¹¹There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

V.H HYDROLOGY AND WATER QUALITY

Comments related to hydrology and water quality received during the NOP scoping process included concerns about the following:

- Effects of off-leash dogs on water contamination at Pine Lake, Buena Vista Park, Lake Merced, and McLaren Park;
- Effects of reducing or ceasing irrigation at Sharp Park Golf Course on the salinity of Laguna Salada, Horse Stable Pond, and their associated wetlands;
- Effects of reducing or ceasing irrigation at Sharp Park Golf Course on the strength and integrity of the seawall;
- Effects on drainage patterns and flood hazards in Sharp Park and adjacent residential areas;
- Effects of sea level rise on the western portion of Sharp Park;
- Runoff effects from removing trees at Mount Sutro Forest;
- Effects of herbicides on groundwater;
- Increased water consumption required for the native plantings;
- Effects of tree removal on drainage patterns in all Natural Areas; and
- Drainage from Horse Stable Pond to the beach, including water level of the outflow pipe, pump capacity, pump condition, water level and capacity of the gravity outflow line, and the operational status of the gravity outflow line.

V.H.1 Regulatory Setting

Federal

Clean Water Act

The US Army Corps of Engineers and the EPA regulate the discharge of dredged or fill material into waters of the United States, including wetlands, under Section 404 of the Clean Water Act (33 USC, Section 1344). Waters of the United States are defined in Title 33 CFR, Part 328.3(a), and include a range of wet environments, such as lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds. Activities in waters of the United States regulated under Section 404 include fill for development, water resource projects (such as dams and levees), infrastructure developments (such as highways and airports), and mining projects. Section 404 requires a federal license or permit before dredged or

fill material may be discharged into waters of the United States, unless the activity is exempt from regulation.

Section 401 of the Clean Water Act (33 USC, Section 1341) applies to any applicant for a federal license or permit to conduct any activity that may discharge a pollutant into waters of the United States. It requires the applicant to obtain a certification from the state in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency with jurisdiction over the affected waters where the discharge originates or would originate. This ensures that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The responsibility for protecting water quality in California rests with the State Water Resources Control Board and its nine RWQCBs. The SFBRWQCB would conduct Section 401 Water Quality Certification for all Corps of Engineers Section 404 permit decisions related to the SNRAMP. This is to ensure consistency with state water quality regulations.

Section 402 of the federal Clean Water Act authorizes the EPA to regulate water quality in California by controlling the discharge of pollutants to water bodies from point sources (a municipal or industrial discharge at a specific location or pipe) and nonpoint sources (diffuse runoff of water from adjacent land uses) through the NPDES. Federal regulations issued in November 1990 and revised in 2003 expanded the authority of the State Water Resources Control Board to permit stormwater discharges from municipal storm sewer systems, industrial processes, and construction sites that disturb areas larger than one acre. Within the San Francisco limits, NPDES permits are administered by the SFBRWQCB.

Construction that disturbs one acre or more of land and construction on smaller sites that are part of a larger project must comply with the California State Water Resources Control Board General Permit for Discharges Associated with Construction Activity (NPDES General Construction Permit), which regulates stormwater leaving construction sites. Site owners must notify the state, prepare and implement a stormwater pollution prevention plan (SWPPP), monitor the effectiveness of the plan, and perform regular reporting to the SFBRWQCB.

State

Porter-Cologne Water Quality Control Act

Article 4 Waste Discharge Requirements of the Porter-Cologne Act (Section 13260) requires that any person discharging waste or proposing to discharge waste that could affect the quality of the waters

of the state, other than into a community sewer system, shall file with the appropriate RWQCB a report of the discharge. The RWQCB determines if a project should be regulated under the Porter-Cologne Act based on the likelihood that it would pose any threat to water quality. Placing clean fill in waters of the state is considered pollution because it could alter water quality, which may adversely affect its beneficial uses.

California Coastal Act of 1976

Section 30233 (Article 4) of the California Coastal Act applies to projects that result in diking, filling, or dredging open coastal waters, wetlands, estuaries, and lakes in the coastal zone. This section limits these activities to certain types of projects (restoration projects, for example) and stipulates criteria under which development is permitted (for example, those disposing of dredge and spoils shall avoid significant disruption to marine and wildlife habitats and water circulation; if carried out in a wetland, they should maintain and enhance the functional capacity of the wetland; and projects should be designed so as not to impede the continued delivery of sediments to the littoral zone [shallow coastal waters]). The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Those policies applicable to hydrology and water quality are discussed in Section IV.A.12.

Regional/Local

Water Quality Control Plan for the San Francisco Bay Basin

The SFBRWQCB regulates water quality in San Francisco Bay under the Porter-Cologne Water Quality Control Act through regulatory standards and objectives in the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan; SFBRWQCB 2009b). The Basin Plan identifies existing and potential beneficial uses and provides numerical and narrative water quality objectives to protect those uses. The Basin Plan identifies the following existing beneficial uses for the San Francisco Bay: ocean, commercial, and sport fishing; estuarine habitat; industrial service apply; fish migration; navigation; preservation of rare and endangered species; water contact recreation; noncontact water recreation; shellfish harvesting; and wildlife habitat.

The beneficial uses of Lake Merced identified in the Basin Plan are cold and warm freshwater habitat, fish spawning, wildlife, and contact and noncontact recreation. Municipal use for emergency

water supply is identified as a potential beneficial use. The SFPUC is implementing a water quality monitoring program at Lake Merced.

The State of California and EPA identify central San Francisco Bay, Islais Creek, and Lake Merced as impaired water bodies. The pollutants impairing the central San Francisco Bay, as they appear on the 2006 Section 303(d) list of impaired water bodies (the latest EPA-approved list), in addition to selenium and exotic species, are chlordane, DDT, dieldrin, dioxin and furan compounds, mercury, polycyclic aromatic hydrocarbons, and polychlorinated biphenyls in sediments (EPA 2007).

The SFBRWQCB has developed total maximum daily loads for polychlorinated biphenyls and mercury. In 2008, the SFBRWQCB recommended adding to the list of water quality impairments trash along the shoreline of San Francisco Bay (SFBRWQCB 2009a). The EPA has not yet approved the 2008 list.

Pollutants identified as impairing water quality in Islais Creek are ammonia, chlordane, dieldrin, hydrogen sulfide, polycyclic aromatic hydrocarbons, and sediment toxicity.

Pollutants contributing to impairment of Lake Merced water quality are low dissolved oxygen and low pH (acidity).

Along the Pacific Coast, a number of San Mateo County streams are identified as impaired due to coliform bacteria; however, Sanchez Creek is not among the streams listed.

San Francisco Public Utilities Commission Municipal Stormwater Permit

Most of San Francisco is served by a combined storm sewer system, where stormwater, along with residential and commercial sewage, is directed to treatment plants before being released to San Francisco Bay or the Pacific Ocean. There are, however, some areas in San Francisco that are served by a separate storm sewer. In these areas, stormwater that goes into street storm drains flows directly to receiving water bodies, such as the bay, ocean, and local lakes. The SFPUC has developed a stormwater management plan (SWMP) to manage stormwater in those areas of San Francisco that are served by separate storm and sewer collection systems. The SWMP describes specific programs that the SFPUC will implement to minimize stormwater pollution in these areas, which account for about 10 percent of San Francisco. The SWMP will be implemented to ensure that San Francisco is in compliance with state water quality mandates. These mandates are commonly referred to as Phase II regulations, which municipalities must comply with in order for stormwater discharges to be covered under California's General Permit for the Discharge of Stormwater from Small Municipal

Separate Storm Sewer Systems Water Quality Objective, No. 2003-0005-DWQ (Small MS4, or Phase II, General Permit). The SFBRWQCB approved San Francisco's SWMP in January 2004.

The SWMP applies only to areas of San Francisco that are served by separate storm and sewer systems; these are areas where the water that goes down storm drains discharges directly into water bodies. The only areas in San Francisco for which the SWMP applies are Lake Merced, Lobos Creek, Pine Lake in Stern Grove, and Stow Lake, Middle Lake, and Elk Glen Lake in Golden Gate Park.

For discharges associated with construction, coverage under the NPDES General Construction Permit is required if the area disturbed is part of the municipal stormwater system and disturbs one or more acres of soil or is part of a larger development that disturbs one or more acres of land.

Coverage under the NPDES General Construction Permit is not required for regular maintenance performed within the original line, grade, or capacity of a facility (for example, slurry sealing a parking lot). Coverage under the NPDES General Construction Permit is also not required for projects in areas of San Francisco that drain to the combined sewer system. However, the SFPUC requires that all construction sites must implement BMPs to prevent illicit discharge into the combined sewer and that all contractors have a sediment and erosion control plan for projects that are within the Combined Sewer System. The expectation is that SNRAMP projects will have to comply with both the state General Construction Permit (for Sharp Park restoration) and the SFPUC's discharge requirements to the combined sewer system.

V.H.2 Environmental Setting

This section describes the hydrology and water quality conditions in the project sites and vicinity and evaluates the potential for the project to result in environmental impacts from surface water and groundwater quality and flooding. The project sites are the 32 Natural Areas identified in the SNRAMP. Thirty-one of these Natural Areas are in San Francisco, and the thirty-second, Sharp Park, is in Pacifica, approximately six miles south of San Francisco along the Pacific Ocean.

Climate

The climate in the San Francisco Bay Area is generally characterized as a Mediterranean pattern of cool and mild temperatures along the coast, with higher temperatures inland, cool wet winters, and relatively warm dry summers. San Francisco receives approximately 21 inches of precipitation a year, mostly between October and April. For precipitation measurements, a "water year" is typically considered to run from October 1 through September 30. Average monthly temperatures range from 50.3 degrees Fahrenheit in January to 62.3 degrees in September (SFRPD 2006). Temperature and

moisture gradients exist within San Francisco, with cooler temperatures and wetter conditions in the western part of the city and warmer temperatures and slightly drier conditions in the eastern part. The temperature and moisture gradients, coupled with diverse topography, result in microclimates throughout San Francisco. The climate in Pacifica is similar to the climate in the western portion of San Francisco.

Regional Hydrology

San Francisco is surrounded on three sides by water, with San Francisco Bay to the east and north and the Pacific Ocean to the west. San Francisco and Pacifica are in the San Francisco Bay watershed, US Geological Survey (USGS) hydrologic unit code 18050004 (EPA 2009a). The California State Water Resources Control Board and the nine RWQCBs manage water quality in California and administer federal water pollution control laws. The state board administers water rights and water pollution control, while the RWQCBs conduct planning, permitting, and enforcement. Within this context, San Francisco and Pacifica are in the San Francisco Bay Basin, which is administered by the SFBRWQCB and covers approximately 4,500 square miles. The SFBRWQCB has developed a water quality control plan (Basin Plan) for the San Francisco Bay region, dividing the basin into several hydrologic planning areas. Most of San Francisco and Pacifica are in the San Mateo Coastal Hydrologic Planning Area, although the northern and western portions of San Francisco are in the Central Hydrologic Planning Area (SFBRWQCB 1995).

Many of the Natural Areas do not contain water bodies; the Natural Areas that have or will have permanent surface water features are Bayview Park (proposed detention basin/seasonal wetland), Lake Merced, Pine Lake, India Basin Shoreline Park (San Francisco Bay), McLaren Park, Glen Canyon Park and O'Shaughnessy Hollow (Islais Creek), and Sharp Park (Sanchez Creek, Arrowhead Lake, Laguna Salada, and Horse Stable Pond). Next to the Golden Gate Park Oak Woodlands are Stow Lake and Lily Pond. Lake Merced is the only surface water body in the Natural Areas that the SFBRWQCB identifies as a significant surface water body (SFBRWQCB 1995). The water bodies associated with each of these Natural Areas are described below.

Lake Merced

With an area of about 30 acres, Lake Merced in southwestern San Francisco is the largest freshwater lake in the city (Metcalf & Eddy 2008). It contains the largest expanse of wetland habitat in San Francisco and provides refuge for thousands of migratory birds (SFRPD 2006). The lake overlies the North Westside Basin Aquifer, and the lake level reflects groundwater elevations in the shallow aquifer. During the past 80 years, for a variety of reasons, including variations in rainfall and runoff, groundwater pumping, and changes in sources of inflow, water levels in Lake Merced have

fluctuated over a range of about 23 feet (Metcalf & Eddy 2008). The maximum recorded elevation was at about 24.5 feet above mean sea level, an elevations falling to about 1.5 feet above mean sea level. In response to concerns about falling lake levels during the 1980s and 1990s and declines in the underlying aquifer, a number of management actions have been undertaken aimed at stabilizing the lake level, including reducing groundwater pumping from the Westside Aquifer and recharging the lake with stormwater. Management of the lake level and water quality is the responsibility of the SFPUC, which is developing a Lake Merced Watershed Plan. Furthermore, the North Westside Basin Groundwater Management Plan (SFPUC 2005) calls for ensuring that pumping groundwater wells in the basin does not lead to declines in water levels in Lake Merced or Pine Lake. The SFPUC, in collaboration with North San Mateo County Sanitation District, initiated the Lake Merced Pilot Stormwater Enhancement Project in 2003 to use stormwater in the Vista Grande Canal, which would normally flow to the ocean, to recharge Lake Merced. The Vista Grande Canal runs parallel to John Muir Drive near the southwest shoreline of South Lake and Impound Lake. The stormwater is treated by filtration through a riparian buffer along the shoreline of the lake.

Pine Lake

Pine Lake, with a surface area of about 1.7 acres, occupies a narrow forested depression between sand dunes west of Sigmund Stern Grove and is one of the few natural lakes in San Francisco. The lake was originally known as Laguna Puerca or, alternatively, as Mud Lake, perhaps owing to fluctuating seasonal water levels. Sigmund Stern Grove and Pine Lake are on the southern boundary of the Parkside District, which was originally founded in 1905 (Brandi and LaBounty 2008). The watershed of Pine Lake is currently about 35 acres but historically was larger, draining the western slope of Mount Davidson. Although the drainage area of the lake has been reduced by urban development and diversion of runoff to storm sewers, like Lake Merced, Pine Lake is maintained by groundwater levels in the North Westside Basin Aquifer, which underlies both lakes.

Among the hydrologic issues confronting Pine Lake are fluctuating water levels, bank erosion, water quality degradation from urban runoff, and nutrient loading that can result in algae growth followed by decay and reductions in dissolved oxygen levels.

San Francisco Bay

India Basin Shoreline Park is in southeastern San Francisco and borders San Francisco Bay, which is identified as an impaired water body, as described above.

Stow Lake

Stow Lake encircles Strawberry Hill, part of the Golden Gate Park Oak Woodlands Natural Area, in the northeast corner of Golden Gate Park (SFRPD 2006). Stow Lake is not in the Natural Area but receives runoff from Strawberry Hill.

Lily Pond

Lily Pond, in the Golden Gate Park Oak Woodlands Natural Area, is south of the Conservatory of Flowers. The pond occupies a quarried depression next to the Natural Area. It receives runoff from the Natural Area but is not within the boundary of the Natural Area.

McLaren Park

McLaren Park lies on a ridge between three watersheds. A small part of the western side of the park surrounding Excelsior Middle School drains to the west into the Islais Creek watershed. The northern portion of the park, generally the part north of Mansell Street, lies within the Yosemite Creek Basin, the area historically drained by Yosemite Creek, which ran north of Bayview Hill and Candlestick Park, to Yosemite Slough on San Francisco Bay. Today, except for remnants of the headwater drainage in McLaren Park, most of the drainage network of Yosemite Creek has been diverted to underground storm sewers. The combined storm sewers collect stormwater and sanitary sewage and transport it via force mains and tunnels to the Southeast Water Pollution Control Plant (SFPUC 2009a).

The most notable surface water features in McLaren Park are in the Yosemite Creek watershed. These include Yosemite Marsh, a small natural wetland within the Natural Area of the park, near the intersection of Oxford and Bacon Streets; Gray Fox Creek, which drains to the north, in the direction of McNab Lake, along the south side of the amphitheater; McNab Lake, a small artificial impoundment that borders the Natural Area in the northeast corner of the park, near the Louis Sutter Playground; and a reservoir, surrounded on three sides by the Natural Area, on the northwest side of the park (SFRPD 2006). Yosemite Marsh and Gray Fox Creek each lie at the head of branches of the former Yosemite Creek (Ramirez-Herrera et al. 2006).

The southern half of McLaren Park is in the Sunnydale Basin/Visitacion Valley watershed, which drains to San Francisco Bay south of Candlestick Point. This watershed is considerably smaller than the watershed of Yosemite Creek and therefore historically contained smaller and less competent streams (Ramirez-Herrera et al. 2006; SFPUC 2007b).

Islais Creek

The Islais Creek Basin, which extends south to Daly City and drains most of the southeast quadrant of San Francisco, covers an area of nearly 7,000 acres (SFPUC 2009b). Until the late 1800s, Islais Creek provided about 85 percent of San Francisco's drinking water (SFPUC 2007a). With urban growth, nearly all of the streams that drain the basin have been undergrounded. The last remaining aboveground reach of the creek drains the upper portion of Glen Canyon Park. The Glen Canyon Park reach is an intermittent stream but supports willows and other riparian vegetation. The creek enters a five-foot-diameter underground culvert at the lower end of Glen Canyon Park and continues underground in the combined storm and sanitary sewage conveyance system to the Southeast Water Pollution Control Plant. This plant discharges treated wastewater to San Francisco Bay via the concrete-lined Islais Creek Channel, just north of Islais and Napoleon Streets, east of Interstate 280 (SFPUC 2009b).

Sanchez Creek

Sanchez Creek is in Sharp Park in Pacifica. It originates on a ridge above the park and flows through the park to Horse Stable Pond near the Pacific Ocean. Sanchez Creek feeds Arrowhead Lake, which is a former irrigation reservoir in the upper canyon. Sanchez Creek is directed through culverts in the lower part of the park (SFRPD 2006).

Arrowhead Lake

Arrowhead Lake is in the eastern portion of Sharp Park, in the upper reaches of the watershed near the archery range. It formerly served as a reservoir to store irrigation water for the park in the dry season.

Laguna Salada and Horse Stable Pond

Laguna Salada, in the western portion of Sharp Park, is a large brackish lake, occupying approximately 27 acres. Laguna Salada is up to 7.5 feet deep under typical conditions, which is when there are no storms (SFRPD 2009a). Laguna Salada was originally a coastal lagoon with intermittent periods of connection and disconnection with the ocean. Construction of a berm and then a levee in the 1940s and 1980s resulted in permanently preventing direct tidal influence, except for rare events when storms overtop or breach the levee (SFRPD 2006).

Horse Stable Pond is south of Laguna Salada and consists of an open water pond and a freshwater wetland. It is connected to Laguna Salada via an approximately 1,000-foot-long channel that was constructed to drain water from the lagoon to the pond, and together these three features form a wetland complex. In addition to water from Laguna Salada, Horse Stable Pond receives water from

Sanchez Creek from the east. Horse Stable Pond is shallower and smaller than Laguna Salada, and typical water depths range from one to three feet. Seven wetland series are found around and within Laguna Salada. Flood waters in the wetland complex are drained by pumps in Horse Stable Pond, which pump water into the Pacific Ocean during the winter, when water levels in the pond get too high (SFRPD 2009a).

The Report for the Hydrologic Assessment and Ecological Enhancement Feasibility Study: Laguna Salada Wetland System (KHE 2009) was prepared for the SFRPD to improve the understanding of the hydrologic processes that affect the distribution of ecological habitats in the Laguna Salada wetland system and flooding of the adjacent golf course. The assessment characterized the variability of water level fluctuations from year to year in the Laguna Salada wetland system. Hydrologic monitoring at the site documented water level fluctuations over a range of 3.2 feet from April 2008 through February 2009. Observers noted a gradual recession of the water surface elevation in Laguna Salada, from 7.3 feet (NAVD 88) in May 2008 to 6.1 feet in October 2008. Rainfall in early November 2008 quickly filled Laguna Salada, and the water surface elevation remained near seven feet through the early winter (NAVD 88). A storm in mid-February 2009 increased the water surface to 9.3 feet (KHE 2009).

Results from a water budget investigation reveal that the system is supplied with adequate water to fill the ponds even in dry years. The hydrologic assessment and a previous hydrologic site assessment (Philip Williams & Associates et al. 1992) were both completed during multiyear droughts. The assessments reflect worst-case scenarios with respect to water supply and water quality in the Laguna Salada wetlands. However, conditions observed and monitored during these studies reflect suitable conditions to sustain desired ecological habitats (KHE 2009).

Variability of water levels in the wetlands from year to year is low due to the operation of the pumping station. Early spring water levels in the ponds are consistent among dry, normal, and wet water years because the water level is controlled by the pumping station. Dry season losses due to evapotranspiration and seepage do not likely vary much year to year. Surface water inflows associated with winter storms provide the primary source of water to the wetland system. Groundwater inflow exceeds groundwater outflow (seepage); as a result, groundwater inflows contribute to the overall water budget of the system, and dry season water level recession occurs at a slightly slower rate than would be expected due to evapotranspiration losses alone (KHE 2009).

The hydraulic connectivity of the wetland system was evaluated by monitoring concurrent water surface elevations in Laguna Salada and the Horse Stable Pond. The connector channel enables

hydraulic exchange of water between the pond areas at water surface elevations greater than 6.2 feet (NAVD 88). The connector channel limits the rate at which water can be exchanged between the two pond areas. Dense vegetation growth in the channel creates hydraulic friction, which slows the movement of water (KHE 2009).

The seasonal variation of salinity in the wetland system was monitored to characterize conditions and to assess potential impacts of saltwater encroachment. Salinity is a concern because of its potential to affect the survival of sensitive species that use this wetland habitat. During the monitoring period, salinity in the pond areas ranged between 0.7 and 2.5 parts per thousand. Salinity in Laguna Salada appears uniform and well mixed. The total mass of dissolved salts in the wetland system increased by eight percent during the monitoring period. Relatively saline groundwater, with a salinity of 15 parts per thousand, was observed in the sandy flat between Laguna Salada and the seawall; however, measured groundwater gradients indicate net groundwater movement in this area is westward or from Laguna Salada toward the ocean. The small net increase observed in the total mass of dissolved salts may be explained by short-term encroachments of salt water toward the wetlands or concentration of salts by evaporation of relatively fresh (low salinity) sources. However, the observed increase falls within the likely range of uncertainty associated with the accuracy of data sources and the mass balance calculations. Any encroachment of salt water in recent years has not produced cumulative effects on the salinity of the pond areas. Salinity observed in 2008 ranged within the values reported in the Draft Laguna Salada Resource Enhancement Plan for observations in 1990-1991 (KHE 2009).

A modeling system was developed to integrate the rainfall-runoff, flood routing, and pond storage characteristics of the wetland system. Findings from the modeling investigation illustrate the water level responses to a range of storms, based on conditions at the site. The model provides an analytical tool that can be used in future investigations to evaluate the potential impacts on flood hazards from various conceptual design alternatives (KHE 2009).

Flood Protection

The Federal Emergency Management Agency (FEMA) issued a preliminary flood insurance rate map (FIRM) for San Francisco in 2007. FEMA anticipates publishing a revised preliminary FIRM in 2011. FIRMs identify flood-prone areas, including those that are subject to inundation during a flood having a one percent chance of occurrence in a given year (also known as a base flood or 100-year flood). FEMA refers to a floodplain that is at risk from a flood of this magnitude as a special flood hazard area (SFHA). SFHAs are further delineated with such designations as Zone A or Zone V. Moderate flood-prone areas are designated by Zone B or Zone X. Zone B is areas subject to a 1 in 500

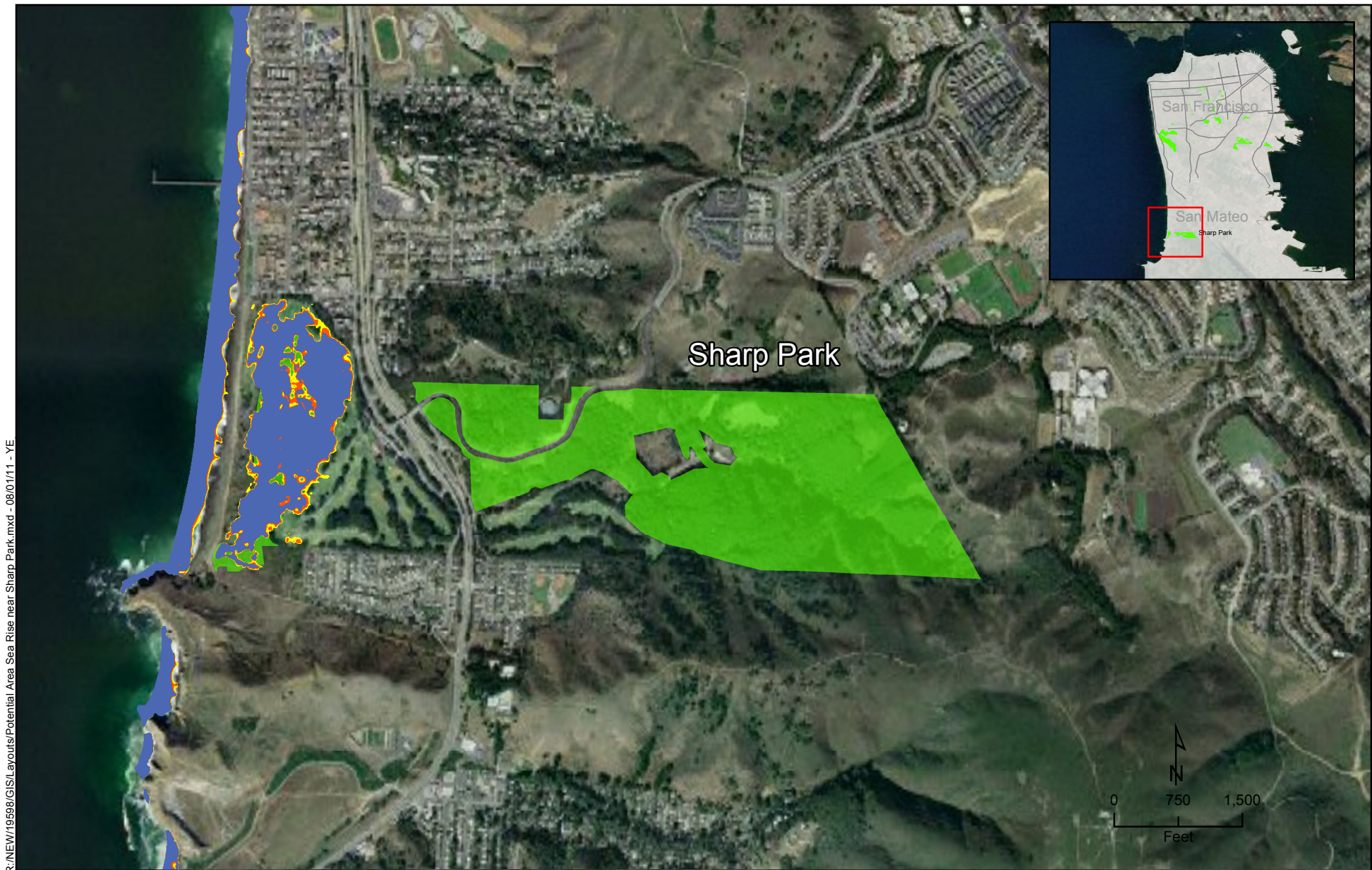
chance of flooding in a given year, or flooding to a depth of less than one foot. According to the preliminary map, the only Natural Area in San Francisco within a preliminary SFHA is India Basin, which is in Zone V (an area of coastal flooding subject to wave hazards). Because FEMA has not yet published a final FIRM, San Francisco adopted the preliminary flood zones identified in FEMA's preliminary FIRM in Final Draft Interim Floodplain maps, which were published in July 2008 (CCSF 2008e).

Currently, San Francisco does not participate in the National Flood Insurance Program (NFIP). On June 10, 2008, the Board of Supervisors introduced a floodplain management ordinance to govern construction and substantial improvements in flood-prone areas of San Francisco and to authorize San Francisco's participation in the NFIP. The ordinance includes a requirement that any construction or substantial improvement of structures in a designated flood zone must meet the flood damage minimization requirements in the ordinance, pending publication of a final FIRM by FEMA. The NFIP regulations allow a local jurisdiction to issue variances to its floodplain management ordinance under certain narrow circumstances, without jeopardizing the local jurisdiction's eligibility in the NFIP. The ordinance was revised at FEMA's request, and the final ordinance was passed by the Board of Supervisors on September 23, 2010 (CCSF 2010a).

Flood hazard zones in Sharp Park, which is outside the corporate limits of San Francisco, are identified in a FIRM published in 1987 (FEMA 1987). The FIRM identifies Laguna Salada and the lower reach of Sanchez Creek as Zone A (areas with a one percent annual chance of flooding). A larger area that includes a portion of the golf course southeast of Laguna Salada is identified as Zone B (areas subject to a 1 in 500 chance of flooding in a given year, or flooding to a depth of less than one foot). Recent computer modeling performed for this project indicates the potential for more widespread flooding of the golf course next to Laguna Salada (KHE 2009), including inundation as a result of sea level rise.

Sea Level Rise

Sea levels have risen over seven inches along the California coast in the past century and are projected to rise another 12 inches by 2040 and as much as 4.6 feet by 2100, in response to global climate change (California Natural Resources Agency 2009). Sea level rise could increase flooding potential in coastal areas. The two Natural Areas at greatest risk of flooding from this projected sea level rise are Sharp Park and India Basin; Figures 7 and 8 illustrate potential sea level rise of 50 centimeters (1.6 feet), which could occur around mid-century.



R:\NEW\19598\GIS\Layouts\Potential Area Sea Rise near Sharp Park.mxd - 08/01/11 --YE

The projected sea level rise of 150 centimeters.

Potential Sea Level Rise near Sharp Park

- Natural Area
- 10 yr recurrence interval
- Roadway
- 50 yr recurrence interval
- 100 yr recurrence interval



Figure 7



R:\NEW\19598\GIS\Layouts\Potential Area Sea Rise for San Francisco Bay.mxd - 08/01/11 - YE

The projected sea level rise of 150 centimeters.

Potential Sea Level Rise for San Francisco Bay

- Natural Area
- 10 yr recurrence interval
- Roadway
- 50 yr recurrence interval
- 100 yr recurrence interval



Figure 8

Sea level rise will put additional stress on the seawall at Sharp Park and could result in more frequent overtopping (SFRPD 2009a). Rising sea levels will also result in higher groundwater levels near the coast, as the water table rises to maintain net groundwater outflow to the ocean. Higher groundwater levels will reduce storage capacity of Laguna Salada somewhat and will require more frequent or increased rates of pumping to maintain the water level in Laguna Salada below the elevation at which flooding impacts could occur.

The Sharp Park Seawall Evaluation (Arup 2009) summarizes the results of efforts to assess and rank the current condition of the seawall, evaluates performance in five years and under projected sea-level rise in years 2040, 2060, and 2100, and assesses salt water intrusion into the wetlands. During the site assessment, no signs of seawater penetration through the seawall were observed. However, elevated salinity levels and a seep have been reported near the western edge of Horse Stable Pond, at the southern end of the seawall. This is the location of an abandoned drainage pipe, and it is possible that seawater is seeping along the drainage pipe during high tides (Arup 2009).

While portions of the seawall are in fair to good condition, mainly in armored areas, there are other portions of the seawall that are in poor condition. Significant erosion rills, near-vertical slope faces, and beach sand within two feet of the seawall are all issues that negatively affect the condition of the wall. If improvements are not performed to alleviate these conditions, it is very likely that the seawall would be overtopped and breached during a 100-year storm or as a result of future sea level rise (Arup 2009).

India Basin is the only Natural Area in San Francisco that borders San Francisco Bay. Elevations in the park range from sea level to approximately 25 feet above sea level. There are approximately 2.8 acres of tidal wetland in the 6.2-acre Natural Area (SFRPD 2006). A 4.6-foot sea level rise in this area would likely submerge the wetland, but upland areas would likely not be affected by the projected increase in sea level.

Water Quality

Islais Creek, Lake Merced, and San Francisco Bay next to India Basin are identified as impaired water bodies under Section 303(d) of the Clean Water Act. This is because they contain pollutants above levels considered consistent with their designated beneficial uses. The law requires determination of total maximum daily loads of the pollutants that cause the impairment and implementation of plans to maintain loadings below these levels.

V.H.3 Impacts

Significance Thresholds

A proposed project would have a significant hydrology and water quality impact if it were to result in the following:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of nearby wells would drop to a level that would not support land uses or planned uses for which permits have been granted);
- Substantially alter the drainage pattern of the site or area, including altering the course of a stream or river, in a manner that would result in substantial on-site or off-site erosion or siltation;
- Substantially alter the drainage pattern of the site or area, including altering the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in on-site or off-site flooding;
- Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
- Otherwise substantially degrade water quality.

Impacts Addressed in the Initial Study

In the Initial Study in Appendix A, impacts related to the following criteria were identified as not significant:

- Place housing within a 100-year flood hazard area as mapped on a federal flood hazard boundary or FIRM or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; and
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mud flow.

As a result, these CEQA significance criteria are not evaluated further in this EIR.

Significant Natural Resource Areas Management Plan Impacts

While the SFRPD has considered management options for the Sharp Park seawall, including a naturally managed seawall and shoreline, those options are not proposed as part of the SNRAMP and would require additional CEQA review before they could be implemented. As such, they are not addressed in this EIR.

SNRAMP activities that could have a significant impact on water quality (programmatic projects and Sharp Park restoration) are generally mitigated, based on the following categories:

- Ground-disturbing actions (such as clearing, grading, grubbing, and excavation) on one or more acres of land that would require compliance with the conditions of the state NPDES General Construction Permit, which includes development of a SWPPP;
- Ground-disturbing actions of less than one acre of land that drains to local water bodies and that are not covered by the NPDES General Construction Permit but require erosion control and stormwater pollution prevention measures to comply with state discharge requirements and to maintain consistency with the SFPUC State-approved SWMP; or
- Ground-disturbing activities that could result in discharges to San Francisco's combined sewer system, regulated by the SFPUC under San Francisco's municipal NPDES stormwater permit, which requires erosion control and stormwater pollution prevention measures.

Many of the Natural Areas, including Glen Park and McLaren Park, are in drainages that discharge to a combined sewer system, while others, such as India Basin, Pine Lake, and Lake Merced, are not. Construction that involves discharges to combined sewer systems is not covered under the NPDES general construction permit because the stormwater in these systems is treated at wastewater treatment plants. Discharges to combined sewer systems in San Francisco are regulated by the SFPUC under San Francisco's municipal NPDES stormwater permit.

In addition, for the Sharp Park restoration, the SFRPD would obtain the appropriate permits and regulatory approvals for dredge and fill activities under Sections 401 and 404 of the Clean Water Act; these requirements may also apply to other SNRAMP activities. Conditions of approval may include measures to protect water bodies from increased turbidity and suspended sediments, as well as to avoid overall water quality degradation. These approvals are discussed further in Section V.G, Biological Resources.

Water Quality*Programmatic Impacts***Impact HY-1: Implementation of programmatic projects under the SNRAMP would violate water quality standards or otherwise degrade water quality. (Less than Significant with Mitigation)**

Ground-disturbing activities can expose soils to erosion, increasing the amount of sediment in runoff from the site, which may ultimately discharge to surface water bodies. Project activities that would involve ground disturbance and therefore could increase erosion and sediment loading to stormwater runoff include removing large nonnative trees and other invasive vegetation, creating trails, and implementing large-scale erosion control projects. Short-term ground disturbance may occur where slopes or drainages are modified, even when the modification is designed to reduce erosion in the long term. Erosion that results in an increase in sediment load to receiving water bodies could result in significant water quality impacts.

While these activities could contribute some sediment to water bodies in or near the Natural Areas, the proposed activities would be implemented in a way to lessen the impacts on water quality. As discussed in Section III.E.5 (page 92), tree removal would be selective, would be implemented gradually over several years, would involve limb-by-limb removal, and would leave tree stumps and root balls intact; areas around the remaining stumps would be revegetated. Other types of vegetation would be removed selectively and would include revegetation of the affected areas. Ground disturbance would be further reduced by minimizing the use of heavy equipment and relying on manual techniques to remove vegetation.

Trail creation and erosion control projects would involve soil disturbance and may also remove vegetation, resulting in short-term increases in the potential for soil erosion. To reduce the erosion potential, slopes would be stabilized and revegetated. BMPs to reduce or prevent soil erosion would be used in areas where ground-disturbing activities take place, including installing silt fences and straw wattles to slow sediment movement and by using run-on controls to divert surface runoff from work areas. The specific erosion control measures to be implemented for each programmatic project would be in accordance with General Recommendations GR-12a (revegetate steep slopes) and GR-12b (phased invasive species removal to reduce erosion).

However, substantial erosion that results in an increase in sediment load to receiving waters could result in significant impacts on water quality. Mitigation Measure M-HY-1 requires the SFRPD to implement applicable pollution avoidance measures, erosion and sediment controls, hazardous

waste management, post-construction BMPs, and other water quality protection measures. Mitigation Measure M-HY-1 would ensure that measures are taken to reduce potential water quality impacts, unless equally or more protective measures are identified during project specific environmental review. As a result, the impacts of programmatic projects on water quality resulting from sediment discharge to water bodies would be *less than significant*.

Pesticide and herbicide use in the Natural Areas would be in accordance with the SFRPD's Integrated Pest Management (IPM) Program and San Francisco's Integrated Pest Management Ordinance, which are described in Section III.E.5 (page 90) and further detailed in Chapter 4 of the SNRAMP (SFRPD 2006). As stated in the SNRAMP, the Natural Areas Program uses a least toxic decision making model in its vegetation management, and workers applying herbicides are trained and required to follow the manufacturer's label (SFRPD 2006).

The primary herbicides used by the SFRPD in the Natural Areas are glyphosate (under the trade names Roundup, Aquamaster, and Rodeo), imazapyr (Habitat and Polaris), triclopyr (Garlon), and aminopyralid (Milestone). Glyphosate, the primary product used, is a broad spectrum, nonselective systemic herbicide that is effective against weeds; it has low toxicity to wildlife but moderate toxicity to fish (Monsanto 2005). Roundup binds tightly to soil, which reduces the potential for migration to surface water or groundwater. Garlon is a selective systemic herbicide that controls broadleaf weeds without harming grasses. It degrades quickly in the environment and has low toxicity to aquatic species (Dow 2009). Garlon is being phased out from use in Natural Areas and is only used for invasive plants in biologically diverse grasslands due to its target specificity. As described in Section III.E.5, only aquatic-specific herbicides, such as Rodeo, Aquamaster, and Habitat, would be applied to wetlands and to areas next to water bodies.

In 2004, the Natural Areas Program accounted for less than 10 percent of the overall SFRPD pesticide use, even though the Natural Areas account for approximately 25 percent of the land managed by the SFRPD (SFRPD 2006). Pesticides would be used as infrequently as possible in the Natural Areas to achieve the desired results. Pesticide use would be carefully monitored, would involve the use of least toxic methods and materials that are appropriate to the environment in which they are applied, and would adhere to the IPM Program. As a result, water quality impacts from herbicide and pesticide use as part of programmatic projects would be *less than significant*.

Water quality could also be impacted by spills of petroleum products, such as gasoline, diesel, or hydraulic oil used in powered equipment, or of other contaminants that might be used in the project area. Released to the environment, these materials could contaminate and degrade the quality of

surface water bodies in the Natural Areas, resulting in a significant impact. Mitigation Measure M-HY-1 involves implementing stormwater pollution prevention measures designed to avoid polluted runoff and minimize impacts on water quality. Additionally, Mitigation Measure M-HZ-13 requires SFRPD to prepare an emergency response plan for accidental releases of hazardous materials and that equipment be refueled at least 100 feet from a water body, further reducing potential water quality impacts.

With implementation of Mitigation Measures M-HY-1 and M-HZ-13, the impacts of programmatic projects on water quality would be reduced to *less than significant*.

M-HY-1: Implementation of Stormwater Pollution Prevention Measures

Construction projects that do not drain to San Francisco's combined sewer system and involve one or more acres of land disturbance are required to obtain coverage under the NPDES General Permit for Stormwater Discharges Associated with Construction Activity. In accordance with the NPDES General Permit requirements, the SFRPD or its contractors would submit a notice of intent to the SWRCB's Division of Water Quality, would develop a SWPPP, and would implement site-specific BMPs to prevent discharges of nonpoint source pollutants in construction-related stormwater runoff to storm drains and water bodies. As required by the NPDES General Construction Permit, trained and certified persons would prepare the SWPPPs and would conduct inspections to ensure the effectiveness of the BMPs.

Listed below are BMPs that would be implemented at the Natural Areas to meet the minimum requirements of the NPDES General Construction Permit. These measures may be altered, supplemented, or deleted during the SFBRWQCB's review process, as it has final authority over the terms of the SWPPP.

Other programmatic projects shall implement the following measures, where applicable to a project, unless other equally or more effective measures are determined to be necessary during future project-specific environmental review. These projects are those on less than one acre and that do not require a NPDES General Construction Permit or that drain to San Francisco's combined sewer system and are regulated by the SFPUC.

a. Schedule to Avoid or Minimize Impacts

- Schedule construction to minimize ground disturbance during the rainy season;
- Sequence construction to minimize the amount of time that soils remain disturbed;

- Stabilize all disturbed soils as soon as possible following the completion of ground-disturbing work in any area of the project site;
- Provide plans to stabilize soil with vegetation or physical means in the event rainfall is expected; and
- Install erosion and sediment control BMPs before starting any ground-disturbing activities.

b. Erosion and Sediment Controls

- Preserve vegetation in areas where no construction is planned or where construction will occur at a later date;
- Stabilize and revegetate disturbed areas as soon as possible after construction with planting, seeding, or mulch (e.g., straw or hay, erosion control blankets, hydromulch, or other similar material), except in cultivated areas;
- Install silt fences, coir rolls, and other suitable measures around the perimeter of the construction zone, staging areas, storm drains, temporary stockpiles, spoil areas, stream channels, swales, down-slope of all exposed soil areas, and other locations determined necessary to prevent off-site sedimentation;
- Install temporary slope breakers during the rainy season on slopes greater than 5 percent, where the base of the slope is less than 50 feet from a water body, wetland, or road crossing, at spacing intervals required by the SFBRWQCB;
- Use filter fabric or other appropriate measures to prevent sediment from entering storm drain inlets; and
- Detain and treat stormwater and water produced by construction site dewatering using sedimentation basins, sediment traps (when water is flowing and there is sediment), baker tanks, or other measures to ensure that discharges to receiving waters meet applicable water quality objectives

c. Housekeeping

- Store all equipment, materials, fuels, lubricants, solvents, and other possible contaminants away from waterways and in secured locations;
- Check equipment for leaks regularly;
- Wash construction equipment in a designated enclosed area regularly; and

- Refuel all vehicles and equipment at least 100 feet from any water bodies.
- d. Waste Management and Hazardous Materials Pollution Control
- Remove trash and construction debris from the project area daily;
 - Locate sanitary facilities a minimum of 300 feet from water bodies;
 - Maintain sanitary facilities regularly;
 - Maintain spill containment and cleanup equipment on-site and properly label and dispose of wastes;
 - Locate waste collection areas close to construction entrances and away from roadways, storm drains, and water bodies;
 - Inspect trash receptacles and other waste and debris containers regularly for leaks and remove and properly dispose of any hazardous materials and liquid wastes placed in these containers; and
 - Train construction personnel in proper material delivery, handling, storage, cleanup, and disposal procedures.
- e. BMP Inspection, Maintenance, and Repair
- Inspect all BMPs regularly to confirm proper installation and function;
 - Inspect all stormwater BMPs daily during storms;
 - Inspect sediment basins, sediment traps, and other detention and treatment facilities regularly throughout the construction period;
 - Provide sufficient devices and materials (e.g., silt fence, coir rolls, and erosion blankets) throughout project construction to enable immediate repair or replacement of failed BMPs; and
 - Inspect all seeded and revegetated areas regularly for failures and remediate or repair them immediately.
- f. Post-Construction BMPs
- Revegetate all temporarily disturbed areas as required after construction;
 - Remove any remaining construction debris and trash from the project site and area on project completion;

- Phase the removal of temporary BMPs as necessary to ensure stabilization of the site;
- Maintain post-construction site conditions to avoid any unintended drainage channels, erosion, or areas of sedimentation; and
- Correct post-construction site conditions as necessary to comply with the SWPPP and any other pertinent SFBRWQCB requirements.

Project-Level Impacts (Routine Maintenance)

Impact HY-2: Implementation of routine maintenance activities under the SNRAMP would violate water quality standards or otherwise degrade water quality. (Less than Significant with Mitigation)

The potential to violate water quality standards or degrade water quality from routine maintenance is considered minimal because of the small scale and low intensity of ground disturbance from these activities. Weeds and trees would be removed, plants would be installed, and trails would be maintained predominately using hand tools, without large mechanized equipment, and in small increments; this would avoid soil erosion and other waste discharges and the potential to degrade water quality. Weed removal would be phased in in small increments, and areas would be stabilized and revegetated where needed to avoid bare soils. Trees would be removed limb-by-limb, tree stumps and root balls would be left intact, and areas around the remaining stumps would be revegetated. Trails would be maintained using hand tools to compact eroded soil and to clear overgrown or fallen vegetation, with the intent of preserving the basic functionality of the trails. Typically, only one to a few workers would be present at a time in a Natural Area, further reducing the likelihood of erosion impacts.

Pesticides and herbicides may be used as part of routine maintenance in the Natural Areas to control invasive vegetation and other pests. Introduced pollutants from herbicides applied in the Natural Areas could degrade water quality, although incidences are unlikely due to the controlled manner and small scale of use. Use of these materials would be in accordance with the IPM Program and San Francisco's Integrated Pest Management Ordinance, which are described in Section III.E.5 (page 90) and are further detailed in Chapter 4 of the SNRAMP (SFRPD 2006). Under the SNRAMP, only aquatic-specific herbicides would be applied to wetlands and to areas next to water bodies. As stated in the SNRAMP, the Natural Areas Program uses a least toxic decision making model in its vegetation management, and those applying herbicides are trained and are required to follow the manufacturer's label (SFRPD 2006). Pesticide use in the Natural Areas would have less than significant environmental impacts to water quality because SFRPD would use as little pesticide as

possible to achieve the desired results, would be carefully monitored, would involve the use of the least toxic methods and materials that are appropriate to the environment in which they are applied, and would adhere to the IPM Program.

Introduction of pollutants from inadvertent spills of petroleum products could degrade water quality. The likelihood of substantial spills of petroleum products is low because maintenance activities would rely primarily on manual methods, and only small equipment, such as chain saws and mowers, and small quantities of associated fuels would be used. However, any spills near or in water bodies could have a significant impact on water quality. Implementing Mitigation Measure M-HZ-14, which calls for preparation of a general emergency response plan for routine management activities using gasoline- or diesel-powered equipment, would reduce this impact to *less than significant*.

For the reasons described above, routine maintenance activities would have *less than significant* impacts on water quality with implementation of Mitigation Measure M-HZ-14 (described in Section V.I.3).

Project-Level Impacts (Sharp Park Restoration)

Impact HY-3: Implementation of the Sharp Park restoration under the SNRAMP would violate water quality standards or otherwise degrade water quality. (Less than Significant with Mitigation)

The Sharp Park restoration program would result in short-term deterioration in water quality in Laguna Salada and Horse Stable Pond during project activities that disturb bottom sediments.

Approximately 60,000 cubic yards of sediment spoils are expected to be generated by deepening Horse Stable Pond and Laguna Salada by about one to three feet and deepening the connecting channel between the two water bodies. To the extent possible, depending on the amount of organic matter entrained in the dredged material, some of this dredged material would be placed on the golf course or would be used to create upland habitat. Soil disturbance or placement of dredge material in upland areas could result in enhanced erosion until vegetation cover stabilizes the soils.

Dredged materials could result in potential impacts on water quality through conversion of the chemical characteristics of the soil after exposure to oxygen. Coastal lagoons, such as Laguna Salada and Horse Stable Pond, are sometimes favorable environments for the accumulation of sulfide minerals from biological decay and lack of oxygen. The sulfides can be converted to sulfuric acid

when exposed to atmospheric oxygen by dredging them and placing them on the ground surface. Although not expected to significantly alter surface water pH, acidic soils could have undesirable localized effects on sensitive aquatic habitat. As described in Section III.F.2 (page 99), sediments would be tested to determine if elevated concentrations of sulfides are present and if the sediments could serve as soils suitable for supporting desired vegetation. Treatment of acidic soils may include spreading and mixing the dredged material with native soil to avoid concentrating acidic soils, placing the dredged material in a nonsensitive location, or treating the dredged material with lime to neutralize the acid.

Dredging would be regulated by the SWRCB and SFBRWQCB through Section 401 of the Clean Water Act. The intent of this regulation is to prevent any degradation of water quality that would impair beneficial uses of the receiving water bodies. The SFRPD would be required to obtain a Section 401 water quality certification and to implement Mitigation Measures M-BI-12a and 12b, which include measures to avoid, minimize and restore affected wetlands and waters of the state (described in Section V.G.3).

Under typical dry season conditions, inflow from the watershed to Laguna Salada is not sufficient to trigger pumping from Horse Stable Pond to the Pacific Ocean. Under normal conditions, water levels in both water bodies tend to decline during the dry season. As part of the Laguna Salada restoration project, Laguna Salada and Horse Stable Pond would be drained before the dredging and deepening begin. Dredging would be conducted during the dry season (April 15 through October 15), when inflow to Laguna Salada is lowest. Lowering the water levels of Laguna Salada and Horse Stable Pond would provide additional storage capacity to contain inflow that may occur during construction and would help reduce the amount of wet sediment to be managed. As a result, the SFRPD does not propose to discharge water from Laguna Salada or Horse Stable Pond to the Pacific Ocean during restoration.

Historic rainfall records for Pacifica indicate that storms capable of generating significant runoff occasionally occur during the dry season. In the event that significant runoff occurs during construction, excess runoff would be managed in accordance with conditions established during the Section 404 and 401 regulatory approval processes for the project. Since it is desirable to maintain the low water levels in Laguna Salada and Horse Stable Pond during dredging activities, if permissible under the permits, excess runoff may be pumped to the Pacific Ocean. Discharge of suspended sediment to the ocean is not expected to adversely impact ocean waters, and sediment discharge is a natural function of all streams. Alternatively, excess runoff could be stored in Laguna Salada during dredging to avoid the need for discharge to the Pacific Ocean.

After construction, a monitoring program would be designed and implemented, as described in Mitigation Measure M-BI-12b, which would ensure that water quality is suitable for survival of the aquatic species of concern. This measure also would ensure that water quality is adequate to meet any discharge requirements that may be required for the project. Impacts on water quality from disturbance of sediment during dredging would be *less than significant* by avoiding discharges during construction or ensuring that sediment-laden water is discharged in compliance with the permits issued for the project and by monitoring water quality to demonstrate that it is suitable for aquatic species (M-BI-12b).

Use of heavy equipment near Laguna Salada for dredging and restoring wetlands could result in spilled fuels, hydraulic fluid, or lubricants. In accordance with Mitigation Measure M-HZ-13, a project emergency response plan would be prepared, identifying training and spill prevention and control equipment and procedures that must be implemented by work crews at the site. Implementing M-HZ-13 would reduce water quality impacts from potential contaminant spills or releases to *less than significant*.

Disturbance of more than one acre of land would trigger the need for a NPDES General Construction Permit, which requires a qualified stormwater or erosion control professional to prepare a SWPPP. M-HY-1, Implementation of Stormwater Pollution Prevention Measures, would avoid and minimize impacts on water quality from disturbance of upland areas during construction, through such measures as ensuring the work is done during the dry season; implementing erosion and sediment control BMPs; ensuring that hazardous materials and hydrocarbons are managed properly; and ensuring that disturbed soils are revegetated or otherwise stabilized. Therefore, with implementation of M-HY-1, any stormwater impacts would be *less than significant*.

Groundwater

Programmatic Impacts

Impact HY-4: Implementation of the programmatic projects under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. (Less than Significant)

The proposed project does not include any activities that would require the use of groundwater. Actions designed to reduce erosion by slowing the rate of runoff could increase infiltration of runoff, potentially increasing groundwater recharge.

The foliage of large trees on some forested areas, such as Mount Davidson and the Interior Greenbelt, can capture and condense the moisture in fog. The condensed moisture precipitates, creating conditions analogous to a light rain. In areas where this occurs, this fog-derived moisture can contribute significantly to soil moisture and at times may produce runoff and groundwater recharge, which supports understory vegetation growth. Therefore, removing large trees in sufficient numbers could reduce precipitation in these areas. However, the project calls for removing a relatively small percentage of trees and replanting trees, which would be implemented gradually, resulting in minor reductions in fog-capture precipitation, compared to current conditions. In Sharp Park, where a larger percentage of the trees within the Natural Area (about 27 percent of the invasive trees) would be removed, the amount of precipitation captured by these trees represents a relatively small percentage of the total precipitation that falls in the watershed and ultimately recharges groundwater. While the reduction in the tree canopy might have a localized impact on soil moisture beneath the trees, it is not likely to significantly affect groundwater levels. Therefore, programmatic projects would result in *less than significant* impacts on groundwater.

Project-Level Impacts (Routine Maintenance)

Impact HY-5: Implementation of routine maintenance under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. (No Impact)

Routine maintenance would not require use of groundwater and is not expected to impact groundwater levels; therefore, routine maintenance would have *no impact* on groundwater.

Project-Level Impacts (Sharp Park Restoration)

Impact HY-6: Implementation of the Sharp Park restoration under the SNRAMP would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. (Less than Significant)

In Sharp Park, the Laguna Salada wetland system is naturally maintained by groundwater during periods of low surface water inflow, such as during the summer. At these times, the water elevation in Horse Stable Pond and Laguna Salada represents the groundwater table. Groundwater flow from the watershed to the ocean maintains the pond elevations above sea level. Over the course of the year, surface inflows to Laguna Salada exceed groundwater inflows to Laguna Salada by 600 percent (KHE 2009). Some of the excess surface water inflow is lost to evaporation and uptake by plants,

some flows as groundwater to the sea, and some is pumped to the ocean during periods of high inflow.

If the water level of Laguna Salada or Horse Stable Pond were lowered below the elevation of the groundwater table, groundwater levels in the surrounding aquifer would be depressed and salt water from the ocean would migrate inland (salt water intrusion). The operation of pumps to control water levels in Horse Stable Pond and Laguna Salada would be designed to maintain water levels for the protected species and would also reduce the frequency of flooding of the golf course. Water levels in Laguna Salada and Horse Stable Pond would not be drawn down more than necessary to prevent flooding and would therefore not draw down groundwater levels, such that salt water would intrude.

Although the project would have an impact on groundwater levels by maintaining the elevation of the ponds, the groundwater impacts would be *less than significant* because the Sharp Park restoration project would not deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in groundwater volume or a lowering of the local groundwater table.

Erosion and Siltation

Programmatic Impacts

Impact HY-7: Implementation of the programmatic projects under the SNRAMP would result in substantial erosion or siltation. (Less than Significant with Mitigation)

The potential for erosion to impact surface water quality has been described and analyzed under Impact HY-1. Some of the proposed project activities, such as repairing gullies, recontouring or repaving roads, and implementing stream bank erosion control measures, might initially increase erosion, but they are anticipated to have long-term erosion reduction benefits. Vegetation removal/replacement and trail creation may slightly alter drainage patterns at the different Natural Areas and might even lead to a temporary increase in stormwater runoff until new vegetation becomes established. However, the small scale of these activities would not result in substantial erosion or siltation. The potential for erosion would be *less than significant* through implementation of the GR-12a (revegetate steep slopes) and GR-12b (phased invasive species removal to reduce erosion) erosion control measures and the erosion and sediment control BMPs described in M-HY-1, Implementation of Stormwater Pollution Prevention Measures.

*Project-Level Impacts (Routine Maintenance)***Impact HY-8: Implementation of the routine maintenance activities under the SNRAMP would not result in substantial erosion or siltation. (Less than Significant)**

As discussed in HY-2, routine maintenance would involve minimal potential for soil disturbance and is not expected to cause substantial erosion or siltation that would affect adjacent water bodies. The potential is minimal for routine maintenance to violate water quality standards or to degrade water quality because of the small scale and low intensity of ground disturbance associated with these activities. Weeds and trees will be removed, plants will be installed, and trails will be maintained predominately using hand tools, without large mechanized equipment, and in small increments; this would avoid soil erosion and waste discharges and the potential to degrade water quality. Weed removal would be phased in small increments, and areas would be stabilized and revegetated where needed to avoid bare soils. Trees would be removed limb-by-limb, tree stumps and root balls would be left intact, and areas around the remaining stumps would be revegetated. Trails would be maintained using hand tools to compact eroded soil and to clear overgrown or fallen vegetation, with the intent of preserving the basic functionality of the trails. Typically, only one to a few workers would be present at a time in a Natural Area, further reducing the likelihood of erosion impacts. Therefore, erosion and siltation impacts from routine maintenance would be *less than significant*.

*Project-Level Impacts (Sharp Park Restoration)***Impact HY-9: Implementation of the Sharp Park restoration under the SNRAMP would not result in substantial erosion or siltation. (Less than Significant with Mitigation)**

Within Sharp Park, the SNRAMP proposes to create shallow pools in Laguna Salada by thinning the tule vegetation and removing vegetation in Horse Stable Pond and in the channel that connects Laguna Salada to the pond. Additionally, wetland complex restoration would include dredging to remove sediment and decaying vegetation, recontouring the shoreline to create shallow water habitat, creating an upland refuge in the middle of Laguna Salada, and constructing upland mounds on the east side of Laguna Salada. The project calls for deepening the open water areas of Laguna Salada and Horse Stable Pond by one to three feet and extensively excavating the eastern portion of Laguna Salada and Horse Stable Pond to restore open water habitat.

During construction, ground-disturbing activities, modification of the contours of the shoreline and perimeter of Laguna Salada, and use of construction equipment, could result in short-term erosion

or siltation impacts. These impacts would be mitigated through preparation and implementation of a SWPPP, as described in M-HY-1. With implementation of Mitigation Measure M-HY-1, short-term erosion and siltation impacts of Sharp Park restoration activities would be *less than significant*.

Restoration activities are intended to reverse the effects of past siltation. Installing sediment traps, including one at the mouth of Sanchez Creek upstream of Horse Stable Pond and one at the north end of Laguna Salada, would reduce the rate of siltation of these two water bodies, resulting in long-term *less than significant* impacts.

Flooding

Programmatic Impacts

Impact HY-10: Implementation of the programmatic projects under the SNRAMP would not result in flooding. (Less than Significant)

There are no activities included in the project that would significantly alter the drainage pattern of the sites or that would substantially increase runoff such that flooding would occur, with the possible exception of modifying the wetland complex in Sharp Park, as discussed below.

In Sharp Park, removing eucalyptus trees in the upland area would increase incident rainfall that reaches the ground and could increase the rate of runoff into Sanchez Creek, the main drainage for this watershed. However, the increase is not expected to be substantial in comparison to the size of the drainage area and considering the normal range of runoff volume; additionally, the area would be revegetated following tree removal. Over time, the proposed project would reduce surface runoff by dispersing water more widely over the ground surface and slowing runoff velocities, thereby increasing infiltration. Therefore, the flooding impacts of the programmatic projects would be *less than significant*.

Project-Level Impacts (Routine Maintenance)

Impact HY-11: Implementation of routine maintenance activities under the SNRAMP would not result in flooding. (No Impact)

Routine maintenance is not expected to alter stormwater flows, to reduce the capacity of stormwater conveyances, or to alter drainage patterns in a way that might lead to increased potential for flooding in any of the Natural Areas. Therefore, there would be *no impact* on flooding from routine maintenance.

*Project-Level Impacts (Sharp Park Restoration)***Impact HY-12: Implementation of the Sharp Park restoration under the SNRAMP would not result in flooding. (Less than Significant)**

Flooding of Sharp Park Golf Course has been a recurring problem since the 1940s. The pump system in Horse Stable Pond was installed in 1941 to control the water level in Laguna Salada by pumping water from the pond into the Pacific Ocean. One objective of pumping is to reduce the drawdown of the pond from December through March in order to create suitable habitat for the California red-legged frog to reproduce (SFRPD 2006). Another objective is to prevent excessive flooding of the golf course so that red-legged frogs would not lay their eggs high above the normal shoreline of Laguna Salada during floods, which would make them vulnerable to predators, and to maintain water levels that sustain tadpoles through metamorphosis. Computer modeling of storm scenarios shows that the pump capacity is likely to be exceeded at a frequency of about once every two years (SFRPD 2009a).

The golf course floods whenever the pumps in Horse Stable Pond are not able to keep up with the inflow from the watershed. Because the watershed east of Highway 1 is much larger than the golf course, most of the runoff from the watershed drains via Sanchez Creek to Horse Stable Pond. As water levels rise in Horse Stable Pond, water flows through the connecting channel into Laguna Salada. The capacity of Laguna Salada would be slightly increased through dredging that is proposed for Sharp Park, but the increase in volume would be small compared to the amount of runoff generated by a moderate to large storm. Therefore, changes to Laguna Salada would not significantly alter the frequency of flooding, which is regulated primarily by the rate at which the pumps in Horse Stable pond are able to discharge water to the ocean and by the intensity of rainfall in the watershed that governs the rate at which water is delivered to Horse Stable Pond via Sanchez Creek. Proposed regrading and filling of topographic depressions on the land surrounding Laguna Salada could allow more complete drainage to Laguna Salada and prevent localized ponding in low-lying areas.

Overall, implementing the project would not substantially alter the drainage pattern of the site or area and would not substantially increase the rate or amount of surface runoff so as to cause additional flooding, resulting in *less than significant* flooding impacts from the Sharp Park restoration project.

Stormwater Runoff*Programmatic Impacts***Impact HY-13: Implementation of the programmatic projects under the SNRAMP would affect stormwater runoff quantity or quality. (Less than Significant with Mitigation)**

Programmatic project activities would not create a net increase in impervious surfaces and would not contribute additional runoff that would exceed the capacity of existing or planned stormwater drainage systems. Over time, programmatic projects, such as vegetative plantings, stream bank stabilization, and erosion control, would reduce impervious surfaces and the amount of water flowing to storm drains or water bodies and would increase infiltration into the ground. Thus, the project would result in a net benefit by reducing stormwater quantity.

As described under Impact HY-1, programmatic projects may impact stormwater runoff during construction of individual projects or while implementing larger scale tree or vegetation removal. The specific erosion control measures to be implemented for each programmatic project would be in accordance with General Recommendations GR-12a (revegetate steep slopes) and GR-12b (phased invasive species removal to reduce erosion). In addition, applicable pollution avoidance measures, erosion and sediment controls, hazardous waste management, post-construction BMPs, and other water quality protection measures listed in Mitigation Measure M-HY-1 would be implemented to improve stormwater runoff quality, unless equally or more protective measures are identified during project-specific environmental review. As a result, the impacts of programmatic projects on stormwater quality would be *less than significant*.

*Project-Level Impacts (Routine Maintenance)***Impact HY-14: Implementation of the routine maintenance activities under the SNRAMP would not substantially affect stormwater runoff quantity or quality. (Less than Significant with Mitigation)**

Routine maintenance would not change conditions in the Natural Areas and result in a net increase in impervious surfaces, and no changes to stormwater runoff quantity are expected.

As described above for HY-2, the potential for routine maintenance to degrade water quality is minimal because of the small scale and low intensity of ground disturbance. Weeds and trees would be removed, plants would be installed, and trails would be maintained predominately using hand

tools, without large mechanized equipment, and in small increments, thus avoiding soil erosion and other waste discharges and the potential to degrade water quality.

Also as described in HY-2, routine maintenance could contribute to contamination of surface runoff as a result of inadvertent spills or use of chemicals, such as pesticides. However, the impacts would be reduced to be *less than significant* by implementing Mitigation Measure M-HZ-14, which requires preparation of a general emergency response plan for routine management activities using gasoline- or diesel-powered equipment and by implementing the SFRPD's Integrated Pest Management Program.

Project-Level Impacts (Sharp Park Restoration)

Impact HY-15: Implementation of the Sharp Park restoration under the SNRAMP would affect stormwater runoff quantity or quality. (Less than Significant with Mitigation)

In Sharp Park, overland flow and runoff mostly drains into Sanchez Creek. None of the restoration project activities would increase impervious surfaces or would contribute runoff water that would exceed the capacity of an existing or planned stormwater drainage system. Therefore, the Sharp Park restoration would have *less than significant* impacts from creating or contributing runoff water.

As discussed in HY-3, construction proposed for the Laguna Salada wetland complex could result in erosion and potential sediment discharges and would require the use of heavy diesel-powered equipment near Laguna Salada. It is possible for such sediments to be transported in runoff and for equipment to leak oil and fluids that would be washed into the receiving water bodies, which would constitute a significant impact. However, implementing Mitigation Measures M-HY-1, Implementation of Stormwater Management Measures, M-HZ-13, Preparation of Emergency Response Plan for Accidental Releases of Hazardous Materials, and M-BI-12a and M-BI-12b, which require measures to protect wetland and riparian communities, would ensure that potential pollution impacts from construction and equipment would be *less than significant*.

As described under HY-3, there is a potential for sediments dredged from Laguna Salada and placed on land to leach acids or other constituents that may be present in the dredged sediment to the adjacent surface water. Although not expected to be substantial, the potential for these effects would be evaluated by testing the sediments before dredging, as described in Section III.F.2 (page 99). If necessary, the sediment would be managed to reduce the chemical effects, and dredged sediment stockpiles would be protected from wind and water mobilization by using erosion control and

stockpile BMPs included in M-HY-1, Implementation of Stormwater Management Measures. This would result in a *less than significant* impact on the quality of stormwater runoff.

Cumulative Impacts

Impact HY-16: The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively considerable significant impact related to hydrology and water quality. (Less than Significant)

The geographic context for the analysis of cumulative impacts on hydrology and water quality includes areas that are within a quarter mile of the Natural Areas and multiple projects in Pacifica that may impact Sharp Park. Cumulative projects could result in impacts to water quality through the discharge of sediment or other pollutants (for example, petroleum hydrocarbons, herbicides and pesticides, metals, and pharmaceuticals) to waterways or through increased erosion.

Overall, potential net cumulative long-term impacts on hydrology and water quality from the SNRAMP are expected to be beneficial by reducing erosion and therefore the potential for water quality impacts, as well as reducing flooding on the Sharp Park Golf Course.

A number of projects have been implemented, are planned, or are being conducted on a pilot scale that could impact groundwater elevations and quality in the North Westside Basin in San Francisco. These projects also could affect water elevations and water quality in Pine Lake and Lake Merced. Conjunctive use of groundwater in the North Westside Basin could alter water levels in the lakes, likely making lake levels more stable, which is consistent with the goals of the project. Continued or expanded use of stormwater to recharge Lake Merced may also help to stabilize the lake level. Recycled treated wastewater recharging the North Westside Basin aquifer could also help to maintain and stabilize lake levels, reducing reliance on natural recharge to replenish the aquifer. Lake elevations might be maintained at higher elevations than in previous years, resulting in the need to alter or adapt operation and maintenance of the lakes and shorelines to future conditions that differ from current conditions. The proposed project would not contribute to any groundwater effects associated with these projects.

The SFPUC is evaluating low impact design projects (2009a, 2009b, 2009c) to help reduce the frequency of spills of untreated sanitary wastewater from the combined sewer systems in the Islais Creek, Yosemite Creek, and Sunnydale Basins. Proposed SNRAMP projects also include infiltration or storage of stormwater in open space areas, such as McLaren Park, Glen Canyon Park, and other Natural Areas, to reduce the quantity of runoff that enters the combined sewer system. In

combination with low impact design projects throughout San Francisco, implementation of these SNRAMP projects would make a cumulatively beneficial contribution to reducing the potential for wastewater spills to the San Francisco Bay.

Management actions proposed for the Mount Sutro Open Space Preserve, which is next to, and to the east of, the Interior Greenbelt Natural Area, could result in cumulative hydrologic impacts in conjunction with the proposed project. Opponents of initial plans to remove invasive trees and invasive understory vegetation to increase recreation access to the Mount Sutro Open Space Preserve have expressed concern that removing trees would reduce capture and precipitation of moisture from fog, resulting in drier conditions on the forest floor. The prevailing wind direction is westerly, and trees on the Mount Sutro Open Space Preserve may also block wind and protect trees in the Interior Greenbelt. Current plans for the Mount Sutro Open Space Preserve call for demonstration projects in limited areas to evaluate the effects of tree and vegetation removal. Tree removal from the SNRAMP program would be phased and would primarily involve thinning forested areas. Removed trees would be replaced with native trees and vegetation to preserve the function of the forested areas. Based on the relatively small percentage of trees proposed to be removed in the demonstration project and the smaller number of trees to be removed from the Interior Greenbelt Natural Area, the potential contribution of hydrologic impacts from the SNRAMP in combination with these other projects is not considered to be cumulatively considerable (*less than significant*).

Proposed development projects in Pacifica include residential development of approximately 261 units on an estimated 150 acres and commercial development of approximately 85,000 square feet of building space. All of these projects could increase surface runoff and erosion and increase sedimentation in the Sanchez Creek watershed, which would increase sediment in the wetland complex. The SFPUC Recycled Water Project would also discharge to Sanchez Creek. Because the project would implement erosion and sediment control measures in Sharp Park, including installing sedimentation basins at the mouth of Sanchez Creek and on the north side of the wetland complex, the project would help to reduce cumulative impacts on water quality from these other projects. Therefore, the project is expected to have a cumulatively beneficial impact on water quality and hydrology in the Sanchez Creek watershed.

During the 20-year project planning period for the project, the sea level is expected to rise less than one foot. Although sea level rise may continue over time, a sea level rise at India Basin Shoreline Park of less than one foot during the project's 20-year planning period is unlikely to result in significant flooding or salt water intrusion impacts. Similarly, a small rise in sea level is not expected

to impact Balboa, which lies inland of the Ocean Beach seawall. An increase in sea level may lead to a rise in regional groundwater levels in the coastal aquifer. The elevation of Lake Merced would need to rise proportionally to maintain the existing hydraulic balance and barrier to salt water intrusion into the aquifer. There is adequate freeboard above the current lake elevation of Lake Merced to accommodate the anticipated rise in sea level without inducing flooding or increasing potential for salt water intrusion. At Sharp Park, sea level rise would increase the base level elevations of Laguna Salada and Horse Stable Pond. Fresh water must continue to discharge to the ocean underground, and in order for this to happen, the elevation of the water table would rise in proportion to the rise in sea level. The freshwater/saltwater interface, which is a zone of mixing, would move inland somewhat. Salinity in Laguna Salada may increase, especially during dry periods when outflow of fresh groundwater from the watershed above Sharp Park is lowest. The magnitude of sea level rise during the project planning period would probably be too small to result in significant erosion of the sea wall, but the effects are difficult to predict. Higher sea levels will result in faster erosion of the rocky headlands and would probably change the beach profile in front of the sea wall, which in turn may lead to erosion of the foot of the seawall, especially during the winter, when wave runup is greatest and beach sand is normally depleted.

Over a longer term, sea level rise is expected to continue, and could rise to levels that would cause significant impacts. Because these impacts would be experienced on a regional scale, the efforts to mitigate these impacts would be addressed through future projects on the regional scale.

Among the cumulative effects on water resources of sea level rise are increased frequency of flooding of low-lying areas, increased salt water intrusion in coastal wetlands, increased coastal erosion, and increased potential for contamination of receiving waters because of inundation of areas containing hazardous substances. One approach to mitigating these and similar long-term cumulative effects is to move vulnerable development and activities out of low-lying coastal areas and to encourage coastal and shoreline uses, such as open space, that can accommodate sea level rise. In general, Natural Areas are expected to have low impacts on water resources and therefore are not expected to contribute to the cumulative impacts on water quality that may result from sea level rise, resulting in a less than cumulatively considerable (*less than significant*) contribution to sea level rise impacts.

V.I HAZARDS AND HAZARDOUS MATERIALS

The topic of hazards and hazardous materials was discussed in the Initial Study. However, due to comments received during the NOP scoping period, this section has been included in the EIR to address the following additional topics that required clarification or additional analysis:

- Concerns regarding mosquito-borne disease vectors;
- Herbicide application;
- Hazardous soils contaminants; and
- Fire hazards.

Comments about hazards and hazardous materials received during the NOP scoping process concerned the following:

- Effects on the California red-legged frog and on residential neighbors from Sharp Park;
- Aerial spraying for mosquito control;
- Impacts of herbicide application on people, animals, and insects;
- Effects of hazardous materials used to control mosquitoes and invasive species;
- Effects of creating habitat that encourages mosquito breeding, increasing the public health risk from West Nile virus;
- Effects of leaving tree stumps on the ground that would create an ideal breeding medium for treehole mosquitoes, as well as other types of mosquitoes;
- Impacts of prohibiting pesticide use on mosquito populations, especially the mosquito carrying the West Nile virus;
- The potential for tree removal to dry out the Mount Sutro Forest and alter the wind patterns, increasing the fire hazard for homes near the forest;
- The observation that restored landscape of native grassland and dune scrub is not less flammable than the nonnative species that would be removed;
- Public safety issues at every park, especially at Sharp Park;
- Possible effects of toxic lead in the soil east of Highway 1 leaching into the groundwater and the stream in the canyon and flowing to Laguna Salada wetlands, contaminating restoration sites; and

- Removal of nonnative plants and trees enhancing habitat for small mammals that carry ticks and cause the spread of Lyme disease.

V.I.1 Regulatory Setting

Federal

Federal Insecticide, Fungicide, and Rodenticide Act

The Federal Insecticide, Fungicide, and Rodenticide Act provides federal control of pesticide distribution, sale, and use. The EPA was given authority under the act to study the consequences of pesticide usage and to require users (farmers, utility companies, and others) to register when purchasing pesticides. Later amendments to the law required users to take exams for certification as applicators of pesticides. All pesticides used in the United States must be registered (licensed) by the EPA. Registration assures that pesticides will be properly labeled and that if used in accordance with specifications, they will not cause unreasonable harm to the environment.

Clean Water Act

The Clean Water Act is the cornerstone of surface water quality protection in the United States. The act does not deal directly with groundwater or with water quantity issues. The statute employs a variety of regulatory and non-regulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water."

State

At the state level, the Department of Toxic Substances Control administers laws and regulations related to hazardous waste and hazardous substances, in accordance with Division 20, Chapters 6.5 and 6.8, of the California Health and Safety Code and CCR, Title 22. The SFBRWQCB enforces laws and regulations governing releases of hazardous substances and petroleum, in accordance with Division 20, Chapters 6.7, 6.75, and 6.8, of the California Health and Safety Code (Sections 25100, 25200, and 25300 et seq.), and the Porter Cologne Water Quality Control Act (Division 7, Section 13100 et seq., of the California Water Code) and CCR, Title 23. In particular, the SFRWQCB focuses on all petroleum releases and those hazardous substance releases that may impact groundwater or surface water.

In addition, the California Department of Public Health is responsible for ensuring that facilities that use, store, or dispose of radiological materials are properly investigated, decontaminated, and decommissioned or licensed, or that they are properly exempted from such requirements, in accordance with state and federal laws and regulations. These include the state Radiation Control Law (California Health and Safety Code, Section 114960 et seq., and CCR Title 17, Division 1, Chapter 5).

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

In January 1996, the California Environmental Protection Agency adopted regulations implementing a Unified Hazardous Waste and Hazardous Materials Management Regulatory Program. The program has six elements: Hazardous Materials Release Response Plans and Inventories; California Accidental Release Prevention Program; Underground Storage Tank Program; Aboveground Petroleum Storage Act Program; Hazardous Waste Generator and Onsite Hazardous Waste Treatment (tiered permitting) Programs; and California Uniform Fire Code: Hazardous Material Management Plans and Hazardous Material Inventory Statements. The program is implemented at the local level. The San Francisco Department of Public Health is the Certified Unified Program Agency responsible for the implementation of this program through its local oversight program.

California Coastal Act

The California Coastal Act includes specific policies that address issues such as shoreline public access and recreation, lower cost visitor accommodations, terrestrial and marine habitat protection, visual resources, landform alteration, agricultural lands, commercial fisheries, industrial uses, water quality, offshore oil and gas development, transportation, development design, power plants, ports, and public works. Those policies applicable to hazards and hazardous materials are discussed in Section IV.A.12.

V.I.2 Environmental Setting

Conventional control methods attempt to address the symptoms of a pest problem. The Natural Areas Program employs IPM, a multistep ecologically based approach that enables staff to make decisions regarding where, when, and how resources should be best allocated to control pests. IPM is a proactive strategy that focuses on identifying and reducing, or eliminating, the root cause of a pest problem and implementing effective long-term management solutions by using a range of expertise, a combination of treatment methods, and a comprehensive monitoring and evaluation process. The IPM program complies with the San Francisco IPM Ordinance which promotes nonchemical use strategies and the elimination of all but exempted pesticides. The ordinance requires that those who apply pesticides to be trained and to follow the manufacturer's label. San

San Francisco has posting requirements for pesticide use, which include notifying the local community about the pesticides planned for the area four days before the application.

The San Francisco Department of the Environment oversees and implements IPM practices citywide. The SFPRD staff has mandatory annual pesticide use training that includes personal protective equipment, labels, spill response, and safe transport and use of pesticides.

Vegetation Control

Current management methods used in the Natural Areas Program include the following:

- Physical control methods, which range from hand pulling weeds to the use of hand and mechanical tools to uproot, girdle, or cut plants;
- Biological control, which involves revegetating cleared areas and introducing native plants to compete/outcompete with weedy species;
- Chemical control, which involves the use of herbicides to suppress wildland weeds, in compliance with the San Francisco Pest Management Ordinance;
- Treatment of tree stumps with San Francisco-approved pesticides (such as Roundup and Garlon); and
- Public education and outreach.

Mosquito and Tick Control

The SFRPD coordinates with the San Francisco Department of the Environment to control mosquitoes and insects in the Natural Areas within San Francisco. The San Francisco Department of the Environment implements the San Francisco IPM program to control mosquitoes and to prevent insect-borne diseases, including the West Nile virus. The city's program emphasizes the elimination of breeding habitat and the use of least-toxic larvicides to target mosquitoes at their most vulnerable stage, before they emerge as adults (San Francisco Department of the Environment 2005). As indicated above, San Francisco has posting requirements for pesticide use. These requirements include notifying the local community about the pesticides planned to be used in the area four days before the application.

SMCMVCD provides mosquito and insect control at Sharp Park. The SMCMVCD has programs for the control of mosquitoes and ticks, including mosquito-borne diseases such as the West Nile virus. The SMCMVCD's integrated pest management for mosquito control includes a preventive approach, underground source control, and mosquito control within pools, ponds, fountains,

marshes, and creeks. The SMCMVCD's integrated management includes controlling mosquitoes in their immature stages before emerging as biting adults (SMCMVCD 2009). Further, the SMCMVCD programs include a Lyme disease program, a tick prevention and removal program, and a tick-borne diseases program (SMCMVCD 2009). The SMCMVCD uses mainly the following mosquito larva treatments:

- Golden Bear 1111—A refined petroleum distillate that breaks down in a few days. It is applied to the surface of standing water and causes mosquito larvae to drown.
- Methoprene—A juvenile growth hormone that targets specific mosquito larvae. When methoprene is applied to the water, it keeps the larvae in a juvenile stage.
- *Bacillus thuringiensis israelis*—A bacteria that is toxic to mosquito larvae. The bacteria causes the stomach lining of mosquito larvae to rupture, ultimately killing the larvae.
- Mosquito fish (*Gambusia affinis*)—These fish eat mosquito larvae.

Fire Hazards

Most of the Natural Areas are classified as Urban Unzoned fire hazard areas by the California Department of Forestry and Fire Protection (California Department of Forestry and Fire Protection 2009). Glen Canyon Park, Mount Davidson, Bayview Park, and Lake Merced are in areas with a fire hazard severity rating of moderate (California Department of Forestry and Fire Protection 2009). Sharp Park is within an area classified as high fire hazard and is next to areas classified as “very high fire hazard severe zone” by the California Department of Forestry and Fire Protection (City of Pacifica 1980a; California Department of Forestry and Fire Protection 2009).

Lead in Soils

The SFRPD used to maintain a rifle range in Sharp Park. This facility has been closed for over 13 years. Located near the archery club, this facility is outside of the Natural Areas at Sharp Park. A soil and groundwater investigation identified the presence of lead, polycyclic aromatic hydrocarbons, antimony, and arsenic (DTSC 2009). The Department of Toxic Substances Control issued a Notice of Exemption on August 5, 2009, for the removal action work plan for consolidation of lead-contaminated soil at the former Sharp Park Rifle Range. Implementation of the work plan involves the excavation of approximately 12,000 to 16,000 cubic yards of contaminated soil, which would be placed on-site and covered with imported clean soil (DTSC 2009). These cleanup and remediation activities have been completed.

V.I.3 Impacts

Significance Thresholds

A proposed project would have a significant hazards and hazardous materials impact if it were to result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment; or
- Expose people or structures to a significant risk of loss, injury, or death involving fires.

Impacts Addressed in the Initial Study

In the Initial Study (Appendix A), impacts related to the following criteria were identified as not significant:

- Emit hazardous emissions or be handled within a quarter mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled in accordance with Government Code, Section 65962.5, and, as a result, would create a significant hazard to the public or the environment;
- Be a safety hazard for people residing or working in the project area within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport;
- Be a safety hazard for people residing or working in the vicinity of a private airstrip that is in the project area; and
- Impair implementation of or interfere with an adopted emergency response plan or emergency evacuation plan. As a result, these CEQA significance criteria are not evaluated further in this EIR.

SNRAMP impacts concerning windthrow hazards and their effects on public safety are addressed below and in Section V.E, Wind and Shadow.

Public Health and Safety Hazards*Programmatic Impacts***Impact HZ-1: Implementation of programmatic projects under the SNRAMP would not result in significant impacts on public safety from windthrow effects. (Less than Significant)**

Windthrow effects associated with tree removal projects that exceed half an acre at any one time could result in falling trees, creating a public safety hazard for visitors and nearby residents. Tree removal could affect wind patterns, which could increase windthrow hazards. However, as discussed in Section V.E, Wind, tree removal would not substantially change wind patterns, so windthrow hazards would not cause a significant risk to humans and nearby residents. In general, tree removal would be focused on dead or dying trees, trees with disease or insect infestations, storm-damaged or hazardous trees, and trees that are suppressed because of overcrowding. Removing trees may benefit public safety because damaged and dying trees may be at greater risk of falling and injuring visitors or residents. Alterations in wind patterns and impacts of ground-level wind hazards on pedestrians are analyzed in Section V.E, Wind. Tree removal under the programmatic projects would result in *less than significant* windthrow effects on public safety.

Impact HZ-2: Implementation of the programmatic projects under the SNRAMP would not increase the mosquito and tick population. (Less than Significant)

Programmatic projects would not change the depth or shape of water bodies. As noted in Section III.E.5, to control the spread of mosquito-borne diseases, the SFRPD would implement the following BMPs:

- Educate staff about the most effective ways to avoid being bitten by mosquitoes;
- Remove small water features that contain standing water or treat those features with *Bacillus thuringiensis israelis*, a biological control agent for mosquito larvae, if the features were to remain and Public Health Services were to identify a potential health hazard; and
- Encourage staff to drain any standing water in stored equipment or temporary depressions.

With the implementation of these BMPs, impacts of programmatic projects from mosquitoes and ticks would be *less than significant*.

*Project-Level Impacts (Routine Maintenance)***Impact HZ-3: Implementation of the routine maintenance activities under the SNRAMP would not result in significant impacts on public safety from windthrow effects. (Less than Significant)**

Windthrow associated with routine maintenance tree removal would result in public safety hazards on visitors or nearby residents similar to those of the programmatic projects. Due to the reduced level of tree removal, the magnitude of the impacts would be smaller. During routine maintenance, only invasive trees and overhanging tree limbs would be removed and only in places where trees are expanding into or threatening native habitat or are a safety concern. Removing trees and limbs may benefit public safety because damaged and dying trees may be at greater risk of falling and injuring visitors or residents. Typically, individuals or small groups of trees would be removed; therefore, windthrow hazards from project-level activities would cause a *less than significant* risk to people and nearby residents.

Impact HZ-4: Implementation of the routine maintenance activities under the SNRAMP would not increase the mosquito and tick population. (No Impact)

Routine maintenance would not change the depth or shape of water bodies, so it would not create areas of standing water that could lead to an increase the mosquito or tick population. As such, routine maintenance would have *no impact* on public health from mosquitoes and ticks.

*Project-Level Impacts (Sharp Park Restoration)***Impact HZ-5: Implementation of the Sharp Park restoration activities under the SNRAMP would not impact public safety from windthrow effects. (No Impact)**

The Sharp Park restoration would not result in windthrow that would cause public safety hazards. A few individual trees may be removed as part of the wetland and upland habitat restoration. Further, the proposed restoration would be in Laguna Salada and away from visitors and residents. Therefore, Sharp Park restoration would have *no impact* on public safety with respect to windthrow. The impacts of tree removal in other parts of Sharp Park are addressed under Impact HZ-1 above.

Impact HZ-6: Implementation of the Sharp Park restoration activities under the SNRAMP would not result in a significant increase in the mosquito and tick population. (Less than Significant)

Changes to the depth, shape, and vegetation of Laguna Salada as part of the proposed Sharp Park restoration could increase the mosquito population in that area. The SMCMVCD would continue to

control mosquitoes at Laguna Salada; as discussed in Section III.F.23, the SFRPD would coordinate with the SMCMVCD on the proposed changes to Laguna Salada to minimize the potential for developing mosquito breeding habitat. Over the past several years, sediments have accumulated in Laguna Salada and enhanced the growth of cattails; cattail and tule stands provide ideal habitat for tule mosquitoes. Management activities include thinning stands of tules, which would reduce the habitat of tule mosquitoes. Also, the SMCMVCD would continue to implement the IPM program to control Lyme disease and tick-borne diseases. Further, the SFRPD would implement the BMPs stated in Section III.E.5 to control the spread of mosquito-borne disease. Therefore, Sharp Park restoration would result in *less than significant* impacts from mosquitoes and ticks.

Hazardous Material Use

Programmatic Impacts

Impact HZ-7: Implementation of the programmatic projects under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control. (Less than Significant)

Using herbicides to control invasive species and enhance the growth of native habitats during programmatic projects could have adverse impacts on wildlife, groundwater, and the local population. Impacts from the use of herbicides on wildlife and surface water are discussed in Section V.G, Biological Resources, and Section V.H, Hydrology and Water Quality. The type of control method used for plant pests in the Natural Areas is under the discretion of the SFRPD Natural Areas Program. The program's policy is to comply with the San Francisco IPM Ordinance, which promotes nonchemical control strategies and the elimination of all but exempted pesticides.¹ The Natural Areas Program formalized restoration guidelines in Native Habitat Restoration: A Guide for Citizen Involvement in San Francisco Natural Areas (SFRPD 2000). This document covers preferred removal techniques for 15 invasive species and is intended primarily for use by community groups. Ultimately, human resources, site conditions, and level of infestation would determine the type of control method used.

Factors that make manual and mechanical methods impractical and chemical treatments preferable are as follows:

¹ Pesticide is a general term to describe any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest. Pests can be insects, mice and other animals, unwanted plants (weeds), fungi, or microorganisms, like bacteria and viruses. The term pesticide includes herbicides, insecticides, fungicides, and various other substances used to control pests (EPA 2011a).

- Direct threats to human health and safety (e.g., steep, inaccessible unstable slopes and significant poison oak infestations);
- Large infestations requiring ongoing repeated strenuous physical labor, such as picking and lifting, that may injure staff, contract field crews, or volunteers; and
- Areas where access, human trampling, or soil disturbance may directly or indirectly damage native plant communities or cause soil erosion.

Despite the emphasis on hand, mechanical, and alternative methods of removal, herbicides are used to control invasive weeds in Natural Areas, especially when other methods are not feasible. As noted above, in compliance with the San Francisco IPM Ordinance, the Natural Areas Program staff undergo annual training on the use of herbicides and on BMPs to avoid impacts on the local population, wildlife, and other resources, such as surface water. Herbicide application would comply with the principles of IPM, which uses multiple treatment methods to control undesirable weeds and other pests. Of the over 40 approved pesticides used by the SFRPD, the Natural Areas Program would likely continue to use pesticides similar to those currently used,² classified by the San Francisco Department of the Environment under the medium hazard and high hazard categories. Further, as part of the BMPs under the SNRAMP, and in order to avoid adverse impacts on wildlife and water quality, the staff would apply only aquatic-specific herbicides to areas next to water bodies; aquatic-specific herbicides are those determined safe for aquatic life. As indicated above, pesticides would be implemented only when other means, such as physical or biological control, would not be sufficient. Further, in compliance with the San Francisco IPM Ordinance, the San Francisco Department of Environment would oversee and implement the IPM plan. Those who apply pesticides would be trained and required to follow the manufacturer's label. Also, in compliance with the IPM Ordinance, signs alerting the public of a scheduled spray would be posted in a prominent location three days before the application and would remain up for four days after the application. All use of pesticides would be recorded by the SFRPD and forwarded to the San Francisco Department of the Environment. Further, the Natural Areas Program would use pesticides that are the least toxic option that effectively controls the weed. Therefore, impacts from applying herbicides as part of the IPM for programmatic projects under the SNRAMP would be *less than significant*.

² The primary herbicides currently used by the SFRPD in the Natural Areas are Roundup, Aquamaster, and Rodeo (active ingredient: glyphosate), Habitat and Polaris (active ingredient: imazapyr), Garlon (active ingredient: triclopyr), and Milestone (active ingredient: aminopyralid)..

Impact HZ-8: Implementation of the programmatic projects under the SNRAMP would not disturb lead-contaminated soil. (No Impact)

Lead-contaminated soil was identified in the archery club near the Sharp Park Natural Area. However, soils contaminated with lead are outside the Natural Area, and the proposed programmatic projects would not result in any activities that would disturb the lead-contaminated soil or increase the potential of lead migration into the groundwater or adjacent streams. Therefore, programmatic projects would have *no impact* with respect to disturbing lead-contaminated soil.

Project-Level Impacts (Routine Maintenance)

Impact HZ-9: Implementation of the routine maintenance activities under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control. (Less than Significant)

Use of herbicides during routine maintenance would have impacts similar to those discussed under programmatic projects. However, impacts from routine maintenance would be of a smaller magnitude because herbicides would be used in smaller quantities and on smaller areas. Therefore, impacts from the use of herbicides during routine maintenance would be *less than significant*.

Impact HZ-10: Implementation of the routine maintenance activities under the SNRAMP would not disturb lead-contaminated soil. (No Impact)

Routine maintenance would have impacts from soils contaminated with lead or lead migration into groundwater similar to those described under the programmatic projects. Therefore, routine maintenance would have *no impact* with respect to disturbing lead-contaminated soil.

Project-Level Impacts (Sharp Park Restoration)

Impact HZ-11: Implementation of the Sharp Park restoration activities under the SNRAMP would not create a significant hazard through the use of pesticides for vegetation control. (Less than Significant)

The Sharp Park restoration may require the use of herbicides for vegetation removal and control. The impacts would be similar to those described under Impact HZ-7. The SFRPD would be more restrictive in its selection of herbicides to be employed during Sharp Park restoration activities to ensure that the health and recovery of the California red-legged frog and San Francisco garter snake are not compromised. As a result, the impacts from applying herbicides as part of the Sharp Park restoration project would be *less than significant*.

Impact HZ-12: Implementation of the Sharp Park restoration under the SNRAMP would not disturb lead-contaminated soil. (No Impact)

Soils contaminated with lead are outside the Sharp Park restoration area. The proposed project would not result in any activities that would disturb the lead-contaminated soil near the archery club or increase the potential of lead migration into the groundwater or adjacent streams. Therefore, *no impacts* are expected with respect to disturbing lead-contaminated soil from Sharp Park restoration.

Hazardous Material Accidents*Programmatic Impacts***Impact HZ-13: Implementation of the programmatic projects under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment. (Less than Significant with Mitigation)**

Programmatic projects could result in accidental release of hazardous materials into the environment. Programmatic projects would require the use of motor vehicles and motorized equipment for management activities, such as tree removal, weeding, erosion control, and trail construction. Hazardous materials³ likely to be used during the programmatic projects include fuel, oil, solvents, and lubricants for equipment and equipment maintenance. Hazardous materials would be used in marginal quantities and would be stored off-site. Any activities involving hazardous materials and hazardous waste⁴ would be conducted in accordance with strict health and safety standards mandated by OSHA. However, accidental release of hazardous materials to the environment and nearby water bodies is considered a potentially significant impact. With implementation of M-HZ-13, impacts involving the transportation, disposal, or release of hazardous materials would be *less than significant*.

³ Hazardous materials—Defined in Section 25501(h) of the California Health and Safety Code, these are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a substantial present or potential hazard to human health and safety or to the environment if released to the workplace or environment.

⁴ Hazardous waste—Any material that is relinquished, recycled, or inherently waste-like and falls under Title 22 of the California Code of Regulations. Division 4.5, Chapter 11, contains regulations for classifying hazardous wastes. A waste is considered hazardous if it causes human health effects, has the ability to burn, causes severe burns or damages materials, or causes explosions or generates toxic gases, in accordance with the criteria established in Article 3. Article 4 lists specific hazardous wastes, and Article 5 identifies specific waste categories, including hazardous wastes, as defined by the Resource Conservation and Recovery Act, non-Resource Conservation and Recovery Act hazardous wastes, extremely hazardous wastes, and special wastes.

M-HZ-13: Emergency Response Plan for Accidental Releases of Hazardous Materials

To reduce impacts from the accidental release of hazardous materials, the SFRPD shall prepare an emergency response plan for the Sharp Park restoration and each programmatic project that uses gasoline- or diesel-powered equipment before the project began. The plan shall include emergency procedures for hazardous materials releases. These procedures shall include requirements for the necessary personal protective equipment, spill containment procedures, and worker training to respond to accidental spills and releases. The plan shall also require equipment to be refueled at least 100 feet from any streams or water bodies. During the implementation of programmatic projects, all hazardous materials, including any hazardous wastes, shall be used, stored, transported, and disposed of in accordance with local, state, and federal hazardous materials regulations. Developing and implementing the plan will ensure the proper storage and use of hazardous materials, proper response to accidental releases, and worker training, all of which will minimize contamination from hazardous materials.

Project-Level Impacts (Routine Maintenance)

Impact HZ-14: Implementation of the routine maintenance activities under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment. (Less than Significant with Mitigation)

Potential impacts related to the accidental release of hazardous materials from routine maintenance are similar to those described for programmatic projects. However, the scale and magnitude of these impacts would be smaller for routine maintenance. Smaller quantities of hazardous materials would be used, and the duration of hazardous materials use is expected to be shorter and more intermittent. However, accidental release of these substances to the environment and nearby water bodies is considered a potentially significant impact. M-HZ-14 requires preparation of a general emergency response plan for accidental releases of hazardous materials during routine maintenance and that equipment be refueled at least 100 feet from a water body. With the implementation of M-HZ-14, impacts involving the accidental release of hazardous materials during routine maintenance would be *less than significant*.

M-HZ-14: General Emergency Response Plan for Routine Management Activities Using Gasoline- or Diesel-Powered Equipment

To reduce impacts from accidental releases of hazardous materials, the SFRPD shall prepare a general emergency response plan to address routine management activities that use gasoline- or

diesel-powered equipment. The plan shall include emergency procedures for hazardous materials releases with requirements for the necessary personal protective equipment, spill containment procedures, and worker training to respond to accidental spills and releases. The plan shall also require equipment to be refueled at least 100 feet from any streams or water bodies. During routine maintenance, all hazardous materials, including any hazardous wastes, shall be used, stored, transported, and disposed of in accordance with local, state, and federal hazardous materials regulations. Developing and implementing the plan will ensure the proper storage and use of hazardous materials, proper response to accidental releases, and worker training, all of which will minimize contamination from hazardous materials.

Project-Level Impacts (Sharp Park Restoration)

Impact HZ-15: Implementation of the Sharp Park restoration under the SNRAMP would not create significant hazard to the public or the environment through accident conditions involving the release of hazardous materials into the environment. (Less than Significant with Mitigation)

Potential impacts related to the accidental release of hazardous materials from the Sharp Park restoration are similar to those described for programmatic projects. Accidental release of these substances to the environment and nearby water bodies is considered a potentially significant impact. However, as required under Impact HZ-13 to reduce impacts from accidental hazardous materials releases from programmatic projects, M-HZ-13 involves preparation of an emergency response plan for accidental releases of hazardous materials and that equipment be refueled at least 100 feet from a water body. With the implementation of M-HZ-13, impacts involving the accidental release of hazardous materials during Sharp Park restoration would be *less than significant*.

Fire Hazards

Programmatic Impacts

Impact HZ-16: Implementation of programmatic projects under the SNRAMP would not result in substantial fire hazards. (Less than Significant)

Programmatic projects include invasive weed and tree removals that exceed half an acre at any one time. Removed trees would include those that are diseased and dying, thereby reducing easily combustible fuel loads. Also, implementing recommendation GR-13a would reduce the presence of vegetation with high fire hazard ratings, such as dense and aging French broom and eucalyptus. Tree and invasive weed removal would reduce the amount of available fuel for fires. More important, timber thinning would increase the space between trees, reducing the ability of a fire to

rapidly spread. Additionally, the management activities would result in healthier trees that are less susceptible to stress from drought; healthy trees are less likely to catch fire than dying trees with dead limbs and needles. However, chain saws and other motorized equipment would increase the risk of fire. Natural Areas Program gardeners carry fire extinguishers in their trucks and would use appropriate fire prevention and suppression measures for more extensive tree and shrub removal. The SFRPD would continue to hold regular meetings with the San Francisco Fire Department and would coordinate management activities, such as tree removal, with that department. As Sharp Park and a few Natural Areas within San Francisco are classified as moderate to high fire hazard zones, tree and invasive weed removal as part of the programmatic projects would reduce the potential of fire hazards within these areas. Further, tree removal would be carefully coordinated, fire suppression equipment would be located on-site, and no prescribed burning is planned within the Natural Areas. Because of this, programmatic projects would have *less than significant* fire hazard impacts.

Project-Level Impacts (Routine Maintenance)

Impact HZ-17: Implementation of the routine maintenance activities under the SNRAMP would not result in substantial fire hazards. (Less than Significant)

Routine maintenance includes invasive weed and tree removal in areas of less than half an acre. Similar to the impacts described under the programmatic projects, routine maintenance would reduce the presence of vegetation with high fire hazard ratings, such as dense and aging French broom and eucalyptus. Therefore, tree and invasive weed removal would reduce the amount of available fuel for fires. As such, routine maintenance would result in *less than significant* fire hazard impacts.

Project-Level Impacts (Sharp Park Restoration)

Impact HZ-18: Implementation of the Sharp Park restoration activities under the SNRAMP would not result in substantial fire hazard impacts. (Less than Significant)

The Sharp Park restoration would include removing certain invasive vegetation to enhance habitat and establish native vegetation. Motorized equipment used during restoration would increase the risk of fire. Workers involved in the restoration activities would carry fire extinguishers in their trucks and would use appropriate fire prevention and suppression measures during restoration. Therefore, the Sharp Park restoration would have *less than significant* impacts from fire hazards.

Cumulative Impacts

Impact HZ-19: The proposed project, in combination with other planned and foreseeable future projects, would not result in a cumulatively considerable significant impact related to hazards and hazardous materials. (Less than Significant)

Risks from hazardous materials impacts, including the use of pesticides, are generally localized and site specific, with the exception of those resulting from the transportation of hazardous materials. These risks are generally site specific, so the geographic context for the analysis of the use of hazardous materials and fire hazards is limited to the area surrounding the project site, while cumulative impacts from transporting hazardous materials are analyzed for projects along the transportation routes. As a result, relevant cumulative projects typically involve demolition and construction activities, such as the Hunters Point Shipyard/Candlestick Point Redevelopment project.

Cumulative development and building projects could generate hazardous wastes, such as asbestos from friable building materials, lead-based paint on building surfaces, and polychlorinated biphenyls in lighting fixtures. In addition, previously unknown contamination, possibly the result of improper disposal or housekeeping, may be discovered as structures are demolished. The cumulative effects of demolishing and constructing buildings could expose construction workers to health or safety risks through exposure to hazardous materials, although the individual workers potentially affected would vary from project to project. Hazards and hazardous materials associated with the cumulative projects are anticipated to be discrete and confined to the boundaries of the cumulative project sites. The proposed project would not contribute to these cumulative impacts because the project does not include demolition and new construction.

Although existing, proposed, and reasonably foreseeable development could have unique hazardous materials considerations, the developers would be required to comply with the range of federal, state, and local statutes and regulations applicable to the use, transport, and disposal of hazardous materials. Future project proponents also would be required to comply with the future regulatory programs of applicable enforcement agencies. Compliance with these federal, state, and local laws and regulations pertaining to hazardous materials management would be sufficient to minimize health and safety risks to workers and users of the Natural Areas.

Assuming cumulative projects are conducted in compliance with all applicable statutes and regulations, the overall hazards and hazardous materials cumulative impact would be less than significant. Although it would involve the use and transport of hazardous materials, such as fuel for

maintenance equipment and pesticides, the proposed project would comply with all applicable statutes and regulations. Further, implementing the project mitigation described above would reduce the project's impact contribution from the transportation, disposal, or release of hazardous materials to *less than significant*.

The proposed project, in combination with other cumulative projects, would contribute to reducing the potential impacts of fire hazards. Other projects, such as the seismic upgrade of the Auxiliary Water Supply System and the Mount Sutro Open Space Reserve Management Plan, would similarly contribute to reducing fire hazard impacts. The seismic upgrade of the Auxiliary Water Supply System would improve the emergency response during fires within San Francisco. The Mount Sutro project would reduce the potential for fire hazards in Mount Sutro by thinning and removing hazardous trees in that area. Therefore, the risk of fire hazards resulting from the proposed project in combination with other cumulative projects would be *less than significant*.

V.J AGRICULTURE AND FOREST RESOURCES

Agricultural resources have been adequately analyzed in the Initial Study prepared for the proposed project in April 2009 and are not analyzed in this EIR. Amendments to the CEQA guidelines that became effective on March 18, 2010, included several checklist items to address greenhouse gases and their impacts on the environment. In particular, the agriculture and forest resources section was revised to include analysis of the direct and indirect loss of forest land and compliance with state laws pertaining to forestry. This section analyzes the impacts of the proposed project on the forest resources.

No comments related to agriculture and forest resources were received during the NOP scoping process.

V.J.1 Regulatory Setting

Federal

No federal regulations related to agricultural and forest resources are applicable to the proposed project.

State

The California Public Resources Code 12220 defines forest as land that can support ten percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits. California Public Resource Code 4526 defines timberland as land other than that owned by the federal government and land designated by the California Board of Forestry and Fire Protection as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species are determined by the board on a district¹ basis, after consultation with the district committees and others (California Public Resource 25 Code 4526).

The California Coastal Act includes specific policies that address lands suitable for agricultural and timber purposes adjacent or near the coast and provides direction on potential retention or conversion of these lands. Although Sharp Park borders the Pacific Ocean, it does not contain any primary or suitable agricultural lands, and no trees are used as timber; this is described in greater

¹“District” means a forest district.

detail below in Section V.J.2. Therefore, the proposed restoration effort at Sharp Park is in compliance with the California Coastal Act.

Local

San Francisco

The *San Francisco General Plan* includes Policy 2.9, which is “Maintain and expand the urban forest,” as follows:

Many of the city-maintained trees have reached maturity and need to be replaced. This is particularly true in the City’s older parks, where many trees are dead or visibly decaying. A major reforestation effort should be undertaken by the City in many of the larger parks, on other City properties, and some major public streets. The magnitude of this effort is beyond the current scope of existing tree maintenance programs and budgets. A farsighted program should be developed to adequately maintain San Francisco’s urban forest and to ensure a legacy of green in the century ahead.

The policy states that a reforestation program should include the following major program elements:

- Systematic Inventory. The database elements should include geographic location, tree species, size, age, and disease classes, and other information as may be necessary.
- Planting, Tree Replanting, and Maintenance. The species or variety planted in any area should be chosen for design objectives identified in the Urban Design Element of the General Plan, as well as the tree’s ability to thrive in the area’s microclimate and soil conditions. Guidelines should be developed, as appropriate, for required tree removal. Removal of large areas of naturalistic tree plantings will require treatment significantly different from that used to remove overmature or diseased street trees. When large or overmature trees have been removed, reforestation should proceed as soon as practical. However, a certain number of dead trees should be left standing for their habitat value, if they are not a safety hazard.
- Wood Waste Management and Utilization. Tree removal and reforestation would generate a significant amount of wood and waste products. A program should be developed to use the wood and effectively manage the waste generated. Sale of merchantable timber, cord lumber, wood chips, and bark chips could help to offset the cost of the reforestation program and would reduce the solid waste problem that tree removal and maintenance generates.

City of Pacifica

As a general guide, the *City of Pacifica General Plan* states that the “long-term productivity of soils and timberlands shall be protected and conversions of coastal commercial timberlands in units of commercial size to other uses of their division into units of noncommercial size shall be limited to providing for necessary timber processing and related facilities.”

V.J.2 Environmental Setting

The 32 Natural Areas are scattered mostly throughout the central and southern portions of San Francisco and constitute approximately four percent of the total city area; one area is in Pacifica. They range in size from less than one acre to almost 400 acres. Most of these areas are used as recreational open spaces by residents and visitors. Overall there are an estimated 118,000 trees within the Natural Areas, approximately 54,000 of which are in Sharp Park, leaving 64,000 within San Francisco.

Forest Land

California is composed of a diverse landscape of over 100 million acres. Thirty-three million acres are characterized as forests, over which there is a broad range of forest types and species (California Board of Forestry and Fire Protection 2008). The area of forests in California is split roughly evenly between private and public ownership; 45 percent is private, 52 percent is federal, and three percent is state or local government (California Board of Forestry and Fire Protection 2008). The state Public Resource Code 12220 defines forest land as land that can support ten percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources including biodiversity, water quality, and recreation.

The forest sector is unique in that it is the only sector that removes carbon dioxide (CO₂) from the atmosphere and sequesters it over the long term. Carbon sequestration is the process by which atmospheric carbon dioxide is absorbed by trees and other vegetation through photosynthesis and is stored as carbon in trunks, branches, foliage, roots, and soils. Forests are both a sink and a source of carbon dioxide. Carbon storage in forests and wood products provides a carbon sink, while decay and wildfire ultimately release the absorbed carbon under the natural cycle of forest growth, senescence (aging), and regeneration. Normally when trees die, the stored carbon is released into the atmosphere through decomposition. However, if the biomass from removed trees is used as feedstock for power plants, GHG emissions that would have occurred with other fuel sources are displaced (California Board of Forestry and Fire Protection 2008).

The forest sector represents complex biological systems that are inherently highly variable and difficult to quantify and predict. Furthermore, forests are anticipated to respond to climate change in complex and uncertain ways. It will be challenging to manage forests to enhance sequestration capacity across a landscape that is itself changing in response to climate (California Board of Forestry and Fire Protection 2008). Current projections of sequestration rates under various climate change scenarios show both increases and decreases in carbon storage, depending on various assumptions. To date, few analyses of the potential for additional sequestration over time have considered the future effects of climate change (EPA 2011b).

Carbon dioxide emissions for the California forest sector in 2004 were estimated at approximately 4.9 million metric tons (MMT) from disturbances such as fires and harvesting and 4.5 MMT from the decomposition of forest products in landfills and composting facilities. Atmospheric CO₂ removal by forests was estimated at -14.1 MMT (the minus sign denotes removal of CO₂ from the atmosphere). Taken together, atmospheric CO₂ removals and emissions represent a sector-wide net flux of approximately -4.7 MMT CO₂ for the combination of public and private lands (California Board of Forestry and Fire Protection 2008).

The California Climate Action Registry adopted an Urban Forestry protocol in August 2008 (California Board of Forestry and Fire Protection 2008). The protocol provides guidance to account for and report GHG emissions reductions associated with a planned set of tree planting and maintenance to permanently increase carbon storage in trees. This protocol found that atmospheric CO₂ reductions due to trees result from a number of processes: sequestering carbon in live trees, maintaining sequestered CO₂ in removed trees by storing it in wood products, reducing GHG emissions by conserving energy used for space heating and cooling, or displacing GHG emissions by using urban tree residue as bioenergy fuel; at the same time, GHGs released through tree care and decomposition must be accounted for (California Board of Forestry and Fire Protection 2008).

The principles that guide forest carbon management, based on the state Board of Forestry and Fire Protection Work Plan, recognize that optimal carbon storage may be achieved by enhancing forest stocks, by increasing longevity and reuse of wood products, and by reducing losses from insects, pathogens, and wildfires. The three major agents affecting California's forest are wildfire, insects and disease, and human development/use (California Board of Forestry and Fire Protection 2008).

Climate change in the forest sector can alter disturbance regimes by affecting the timing, frequency, and magnitude of wildfires, pest infestations, and other agents of disturbance (Dale et al. 2001). The resiliency of a forest refers to its ability to recover from disturbance and is a measure of its overall

health. Improving forest and range (grassland) resiliency means that systems are better able to store carbon and resist extreme climatic events. Obtaining better resiliency requires forest management that, among other things, promotes a diverse mix of tree species and a broad range of age classes and that maintains optimum densities for forest health and growth. Promoting resilience increases the ability of a system to withstand negative impacts without losing its basic functions (California Board of Forestry and Fire Protection 2008).

Once trees die or are cut down, they begin to decompose and return stored carbon to the atmosphere. The rate of decomposition differs greatly based on the fate of the wood. Wood that is chipped and applied as mulch decomposes relatively quickly, while wood salvaged for use in wood products can survive 50 years or more, before gradually decomposing. The combustion of gasoline and diesel fuels by vehicle fleets and by such equipment as chainsaws, chippers, stump removers, and leaf blowers also contributes to GHG emissions. CO₂ released by equipment during tree planting, maintenance, and other program-related activities is equivalent to about 2 to 5 percent of the annual CO₂ reductions obtained through sequestration and reduced power plant emissions² (California Climate Action Registry 2008). Also, tree maintenance results in healthier trees that have a better potential to sequester CO₂ for a longer term.

Trees are an important resource to the people of San Francisco and to the varied wildlife species that use the urban forests within the City. As important a resource as the trees are, the species that are present throughout the Natural Areas are almost entirely nonnative, and most are also invasive.

V.J.3 Impacts

Significance Thresholds

A proposed project would have a significant agricultural and forest resources impact if it were to result in the following:

- Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resource Code section 12220[g]) or timberland (as defined in Public Resource Code section 4526);

² Urban forests have two indirect effects on atmospheric CO₂ and other greenhouse gases. First, trees around buildings can reduce heating and air conditioning use, thereby reducing emissions of GHGs associated with the consumption of electricity, natural gas, and fuel oil. Second, normally when trees die, if the biomass from removed trees is used as feedstock for power plants, GHG emissions that would have occurred with other fuel sources are displaced.

- Cause the loss of forest land or convert forest land to nonforest use; or
- Involve other changes in the environment, which, due to their location or nature, could convert farmland to nonagricultural use or convert forest land to nonforest use.

Impacts Addressed in the Initial Study

In the Initial Study (included in Appendix A), impacts related to the following criteria were identified as not significant:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use;
- Conflict with existing zoning for agricultural use; and
- Involve other changes to the environment which could result in conversion of Farmland of Statewide Importance to non-agricultural use.

As a result, these CEQA significance criteria are not evaluated further in this EIR.

Significant Natural Resource Areas Management Plan Impacts

Trees are proposed to be removed from 15 of the 32 Natural Areas: Bayview Park, Brooks Park, Buena Vista Park, Corona Heights, Dorothy Erskine Park, Glen Canyon Park and O'Shaughnessy Hollow, Golden Gate Park Oak Woodlands, Grandview Park, Interior Greenbelt, Lake Merced, McLaren Park, Mount Davidson, Palou-Phelps, Twin Peaks, and Sharp Park. The trees targeted for removal in five of these Natural Areas (Buena Vista Park, Grandview Park, Oak Woodlands, Palou-Phelps, Brooks Park, and Twin Peaks) are not considered to be urban forests (SFRPD 2006).

Zoning for Forest Land or Timberland

Programmatic Impacts

Impact AF-1: Implementation of the programmatic projects under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland. (No Impact)

There are no known uses of trees within the Natural Areas for timberland. Therefore, large-scale tree removal would have no impacts on timberland. Large-scale tree removal is defined as exceeding half an acre or more than 20 trees at any one time. Large-scale tree removal of urban forest could occur at Bayview Park, Glen Canyon Park and O'Shaughnessy Hollow, Interior Greenbelt, Lake Merced, McLaren Park, Mount Davidson, and Sharp Park. As noted above, the state Public Resources Code 12220 defines forest land as land that can support 10 percent native tree cover of

any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources including biodiversity, water quality, and recreation. Although vegetation in some Natural Areas may not meet this criterion (because vegetation composition may be less than 10 percent native), they are considered as such for purposes of this analysis. Large-scale tree removal would not include native trees. New planted trees would be native trees. Further, most of the Natural Areas are used as recreational open spaces by residents and visitors and would continue to be used for that purpose. Further, the SNRAMP is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance activities over the next 20 years. The mission of the program is two-fold: to preserve, restore, and enhance remnant Natural Areas and to develop and support community-based site stewardship of these areas. Therefore, the proposed tree removal under programmatic projects would not conflict with zoning or cause forest land or timberland to be rezoned. The proposed tree removal under programmatic projects would even better support the conditions of forest land by removing dead and dying trees and thinning trees to achieve a healthier forest density. Also, there would be no change in the zoning of the Natural Areas. As such, the proposed tree removal under programmatic projects would have *no impacts* on forest land and timberland zoning.

Project-level Impacts (Routine Maintenance)

Impact AF-2: Implementation of routine maintenance activities under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland. (No Impact)

Trees removal as part of the routine maintenance activities affects less than half an acre and less than 20 trees at any one time. Routine maintenance tree removal could occur at all of the Natural Areas listed above under large-scale tree removal, plus Corona Heights and Dorothy Erskine Park. Impacts of tree removal during routine maintenance activities would be similar to those described above under programmatic projects. Tree removal would focus on dead or dying trees and tree thinning would allow promotion and establishment of a native understory, decrease the site dominance of invasive species, and improve the health of the forest by relieving crowding. Also, there would be no change in the zoning of the Natural Areas. Therefore, tree removal under the routine maintenance activities would not conflict with zoning or cause forest land or timberland to be rezoned. Proposed tree removal as part of routine maintenance activities would have *no impacts* on forest land and timberland zoning,

Project-level Impacts (Sharp Park Restoration)**Impact AF-3: Implementation of the Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on zoning for forest land or timberland. (No Impact)**

A few individual trees may be removed as part of the wetland and upland habitat restoration. As such, the Sharp Park restoration would have *no impact* on zoning for forest land or timberland.

Loss or Conversion of Farmland or Forest LandProgrammatic Impacts**Impact AF-4: Implementation of the programmatic projects under the SNRAMP would not have a substantial adverse effect on the loss or conversion of farmland or forest land. (Less than Significant)**Natural Areas of San Francisco

Because no farmland is present within the Natural Areas, no impacts to this resource would occur from the programmatic projects. Invasive trees removed in San Francisco would be replaced with native tree species at a ratio of roughly one-to-one, although not necessarily at the same location or within the same Natural Area, where other native vegetation instead would be planted. Additional shrubs and grasses also would be planted.

Tree removal in San Francisco would not convert forest land to nonforest land and would not change the existing environment to result in the loss of farmland or forest land. Tree removal in MA-3 urban forests would follow the general urban forest management practices (GR-15), which focus on the removal of dead or dying trees with disease or insect infestations, storm-damaged or hazardous trees, and trees that are suppressed because of overcrowding. These stressed trees do not sequester carbon at the same rate as healthy trees. The sequestration life of trees is about 20 years, after which they sequester carbon at much lower rates. Additionally, isolated trees or small stands of trees would be removed in MA-1 and MA-2 areas for conservation purposes. Removed trees in MA-1 and MA-2 areas would be replaced on a one-to-one basis and additional shrubs and grasses would be planted; therefore, vegetation would increase within the Natural Areas of San Francisco.

Tree removal could affect the forest carbon sequestration process (this topic is discussed in detail in Section E.7 of the Initial Study in Appendix A). Sequestration depends on tree growth and mortality, which in turn depends on species composition, age, structure, and forest health. Newly planted trees accumulate carbon rapidly for several decades, and then the annual increase in sequestered carbon

declines. Old trees can release as much carbon dioxide from decay as they sequester from new growth; however, at the same time they serve as valuable carbon sinks. When trees are stressed they can lose their normal ability to absorb carbon dioxide. Hence, healthy, vigorous growing trees will absorb more CO₂ than will trees that are diseased or otherwise stressed. Management goals in MA-1 forests are approximately 50 to 100 square feet of basal area per acre after trees are removed. The goal for the MA-2 stands is slightly higher basal areas, ranging from approximately 100 to 200 square feet per acre. Tree removal under programmatic projects would prioritize dead or dying trees and would maintain a healthy forest and therefore help in maintaining the carbon sequestered by the urban forest. The total number of trees would not change within the Natural Areas of San Francisco, and the amount of carbon sequestered would increase in the long term from replacing dead, dying, and diseased trees. Therefore, implementation of the programmatic projects in San Francisco would have *less than significant* impacts on the loss or conversion of forest land.

Sharp Park

For tree removal in Sharp Park, many of the trees would be replaced not with trees but with more appropriate native vegetation, as identified in the SNRAMP. The area subject to tree removal is not considered forest land under Public Resource Code 12220 because it contains no native tree cover. Approximately 15,000 trees in Sharp Park would be removed from MA-1 and MA-2 areas. Not all trees in MA-1 and MA-2 areas would be removed. Some scattered large individuals would remain in order to minimize large-scale disturbance and disruption to wildlife and to promote a natural conversion to native scrub habitats. The long-term goal in the MA-1 and MA-2 areas is to slowly convert those areas to native scrub and grassland habitats or oak woodlands. In most cases this conversion would take significantly longer than the 20-year life of the SNRAMP. As trees are removed, the canyon slopes at Sharp Park would gradually support fewer trees and more scrub habitats. The overall character of the canyon would remain that of a wooded area for a long time following tree removal as older trees are allowed to naturally age and die. While a high number of trees would be replaced with native vegetation at Sharp Park, a conversion toward nonforest habitat, those areas would still be maintained as vegetated landscapes capable of carbon sequestration. Further, as most of the trees removed would be older trees, those trees do not act as good sinks for carbon compared to actively growing trees. The active growing period of urban trees is 20 years, depending on tree species, planting density, and location (IPCC 2007). As documented in Section E.7 of the Initial Study in Appendix A, based on research studies, grassland and scrub habitat could act as a significant carbon sink (Conant et al. 2001). The California Registry is

developing flexible mechanisms to address reversals³ if removed trees are not replaced (California Climate Action Registry 2008).

Although the proposed programmatic projects would convert urban forest into grass and scrub land in Sharp Park, it would not affect the general use of those areas. Over the long term, those areas would still be vegetated and used as open spaces for recreation and would not be developed. Tree removal would focus on dead and dying trees that do not sequester carbon at the same rate as healthy trees. Further, conversion of forest land to grassland and scrub habitat would not result in conversion of land to uses that do not sequester carbon, such as new developments, and would not significantly impact the carbon sequestration process within the project area because other plants also sequester carbon. Therefore, the proposed programmatic projects would have *no impact* on farmland or forest land conversion.

Project-level Impacts (Routine Maintenance)

Impact AF-5: Implementation of the routine maintenance activities under the SNRAMP would not have a substantial adverse effect on the loss or conversion of farmland or forest land. (Less than Significant)

Because no farmland is present within the Natural Areas, no impacts to this resource would occur from routine maintenance. Under routine maintenance activities, trees would be removed in areas less than half an acre and affect fewer than 20 trees at one time. Tree removals as part of the routine maintenance activities would have similar impacts on urban forest conversion and carbon sequestration as those described under the programmatic projects for the Natural Areas of the San Francisco and Sharp Park. However, these impacts would be of a smaller scale and magnitude. Therefore, the impacts of tree removal under the routine maintenance activities on farmland or forest land conversion would be *less than significant*.

Project-level Impacts (Sharp Park Restoration)

Impact AF-6: Implementation of the Sharp Park restoration under the SNRAMP would not have a substantial adverse effect on the conversion of forest land (No Impact)

Because no farmland is present within the Natural Areas, no impacts to this resource would occur from the Sharp Park restoration project. A few individual trees may be removed as part of the

³ Reversal is sequestered CO₂ that is released back to the atmosphere.

wetland and upland habitat restoration. As a result, implementation of the Sharp Park restoration would have *no impact* on the loss or conversion of farmland or forest land.

Cumulative Impacts

Impact AF-7: The proposed project, in combination with other planned and foreseeable future projects, would not have a cumulatively considerable substantial adverse effect related to agriculture and forest resources. (Less than Significant)

The geographic scope of this analysis covers San Francisco and Pacifica. Cumulative projects that would have an impact on urban forests include the planning projects that would result in the creation of new open spaces or add a substantial number of trees, such as the Candlestick Point-Hunters Point Shipyard, Executive Park, and Glen Canyon Park projects. As an example, the Candlestick Point-Hunters Point Shipyard development will add approximately 10,000 trees. Further, the SFRPD Forestry Program includes tree planting and restoration within the San Francisco neighborhood parks. Other cumulative projects, such as the Mount Sutro Open Space Reserve Management Plan (Mount Sutro), include removal of hazardous trees and forest thinning projects as a fire mitigation measure. Among the objectives of the Mount Sutro project are replacing highly flammable eucalyptus trees with more fire resistant species, increasing age diversity of trees, and improving the health and safety of the remaining trees. That project includes removing an average of 18 trees per acre in an area with a density of 280 trees per acre. Other cumulative projects might result in the removal of a few individual trees. None of the cumulative projects would convert urban forests to nonforest use. Further, San Francisco trees are protected by the San Francisco Urban Forestry Ordinance which requires the replacement of removed trees on a one-to-one basis. Further, new developments are required to plant one tree for every 20 feet of street frontage pursuant to the Planning Code Section 132 of the Green Landscape Ordinance. Therefore, cumulative projects in San Francisco would not result in significant impacts to the conversion of the urban forest.

Removal of trees in Pacifica is subject to the logging and heritage tree ordinances; these ordinances do not apply to the SFRPD or Sharp Park. Although cumulative projects in Pacifica could result in tree removal, project proponents would have to comply with the local ordinances. Therefore, cumulative tree removal projects in Pacifica would not have significant impacts on the conversion of the urban forest.

As discussed above, the proposed project would not contribute considerably to cumulative impacts on forest land or timberland. As a result, cumulative impacts on forest land and timberland would be *less than significant*.

V.K AIR QUALITY

The purpose of the BAAQMD Guidelines is to assist lead agencies in evaluating the air quality impacts of projects and plans proposed in the San Francisco Bay Area Air Basin. The Guidelines provide procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. Using the 1999 BAAQMD CEQA Air Quality Guidelines, which were in effect at the time of its publication, the NOP/Initial Study prepared for the proposed project addressed air quality and found impacts to be less than significant. Subsequent to publication of the NOP/Initial Study, the BAAQMD issued revised guidelines that supersede the 1999 BAAQMD CEQA Air Quality Guidelines (BAAQMD 2011a). Therefore, this section of the EIR discusses the adopted 2011 BAAQMD CEQA Air Quality Guidelines and CEQA air quality thresholds of significance.

Comments about air quality received during the NOP scoping process concerned the following:

- The effects of prescribed burns on air pollution.

Prescribed burns are no longer proposed as part of the SNRAMP.

V.K.1 Regulatory Setting

Federal Ambient Air Quality Standards

The 1970 Clean Air Act (last amended in 1990) requires that regional planning and air pollution control agencies prepare a regional air quality plan to outline the measures by which both stationary and mobile sources of pollutants will be controlled in order to achieve all ambient air quality standards (Table 12) by the deadlines specified in the Clean Air Act. The ambient air quality standards are intended to protect the public health and welfare, and they specify the concentration of pollutants (with an adequate margin of safety) to which the public can be exposed without adverse health effects. They are designed to protect those segments of the public most susceptible to respiratory distress, known as sensitive receptors, including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels that are somewhat above the ambient air quality standards before adverse health effects are observed.

In general, the Bay Area Air Basin experiences low concentrations of most pollutants when compared to federal standards, except for inhalable and fine particulate matter (PM₁₀ and PM_{2.5}), for which standards are exceeded periodically.

Table 12
State and National Ambient Air Quality Standards

Pollutant	Averaging Time	California Concentration	National Concentration
Ozone	8 Hours	0.070 ppm (137 µg/m ³)	0.075 ppm
	1 Hour	0.09 ppm (180 µg/m ³)	
Carbon Monoxide	8 Hours	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Nitrogen Dioxide	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm
	Annual Arithmetic Mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)
Sulfur Dioxide	24 Hours	0.04 ppm (105 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 µg/m ³	
	24 Hours	50 µg/m ³	150 µg/m ³
Particulate Matter – Fine (PM _{2.5})	Annual Arithmetic Mean	12 µg/m ³	15 µg/m ³
	24 Hours		35 µg/m ³
Sulfates	24 Hours	25 µg/m ³	
Lead	Calendar Quarter		1.5 µg/m ³
	30 Day Average	1.5 µg/m ³	
Hydrogen Sulfide	1 Hour		
Vinyl Chloride (chloroethene)	24 Hours	0.010 ppm (26 µg/m ³)	
Visibility Reducing particles	8 Hour (10:00 to 18:00 Pacific time)		

ppm = parts per million

mg/m³ = milligrams per cubic meterµg/m³ = micrograms per cubic meter

Source: BAAQMD 2011b

In June 2004, the Bay Area was designated as a marginal nonattainment area of the national 8-hour ozone standard. The EPA lowered the national 8-hour ozone standard from 0.80 to 0.75 parts per million effective May 27, 2008. EPA will issue final designations based upon the new 0.75 parts per million ozone standard soon. The Bay Area Air Basin is in attainment for other criteria pollutants, with the exception of the 24-hour standards for PM₁₀ and PM_{2.5}, for which the Bay Area is designated “Unclassified.”

State Ambient Air Quality Standards

Although the federal Clean Air Act established national ambient air quality standards, individual states retained the option to adopt more stringent standards and to include other pollution sources. California had already established its own air quality standards when federal standards were established, and because of the unique meteorological characteristics in California, there is considerable diversity between the state and national ambient air quality standards. California ambient standards tend to be at least as protective as national ambient standards and are often more stringent (Table 12).

In 1988, California passed the California Clean Air Act (California Health and Safety Code Sections 39600 et seq.), which, like its federal counterpart, called for the designation of areas as attainment or nonattainment, but based on state ambient air quality standards rather than the federal standards. The Bay Area Air Basin is designated as “nonattainment” for state ozone, PM₁₀, and PM_{2.5} standards. The Bay Area Air Basin is designated as “attainment” for most other pollutants, such as nitrogen oxides (NO_x), reactive organic gases (ROG), and carbon monoxide (CO).

The federal and state ambient air quality standards are presented in Table 12.

Air Quality Planning Relative to State and Federal Standards

Air quality plans developed to meet federal requirements are referred to as State Implementation Plans. The federal and state Clean Air Acts require plans to be developed for areas designated as nonattainment (with the exception of areas designated as nonattainment for the State PM₁₀ standard). On September 15, 2010, the BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, adopted the *2010 Clean Air Plan* (BAAQMD 2010a), which replaced the *Bay Area 2005 Ozone Strategy*.

The *2010 Clean Air Plan* updated the *2005 Ozone Strategy* in accordance with the requirements of the California Clean Air Act to implement “all feasible measures” to reduce ozone; provide a control strategy to reduce ozone, particulate matter, toxic air contaminants, and greenhouse gases in a single, integrated plan; review progress in improving air quality in recent years; and establish emission control measures to be adopted or implemented in the 2010 – 2012 time frame. The control strategy includes stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission, local governments,

transit agencies, and others. The *2010 Clean Air Plan* represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state one-hour ozone standard.

Air Resources Board Idling Regulations

In 2005, the California Air Resources Board (ARB) approved a regulatory measure to reduce emissions of toxic and criteria air pollutants by limiting the idling of new heavy-duty diesel vehicles. The regulations generally limit idling of commercial motor vehicles (including buses and trucks) within 100 feet of a school or residential area for more than five consecutive minutes or periods aggregating more than five minutes in any one hour. Buses or vehicles also must turn off their engines upon stopping at a school and must not start their engines more than 30 seconds before beginning to depart from a school. Additionally, Senate Bill 351 (SB 351) (adopted in 2003) prohibits locating public schools within 500 feet of a freeway or busy traffic corridor.

Regional/Local Air Quality Planning

Bay Area Air Quality Management District

BAAQMD is the regional agency with jurisdiction over air quality regulations within the nine-county Bay Area Air Basin. The Association of Bay Area Governments, Metropolitan Transportation Commission, county transportation agencies, cities and counties, and various nongovernmental organizations also join in efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

BAAQMD is responsible for attaining and/or maintaining air quality in the Bay Area Air Basin within federal and State air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Air Basin and to develop and implement strategies to attain the applicable federal and State standards.

In 1999, BAAQMD adopted its *CEQA Air Quality Guidelines* as a guidance document to provide lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. In May 2011, BAAQMD published an updated and revised version of its *CEQA Air Quality Guidelines*, which includes updates to the revised thresholds of significance adopted by its board in June 2010. BAAQMD is recognized as the regional agency with special expertise in air quality; therefore, the Air District's guidelines and thresholds are commonly used in CEQA analysis, and are normally relied upon by the Planning Department for its significance determinations.

San Francisco General Plan Air Quality Element

The *San Francisco General Plan (General Plan)* includes the 1997 Air Quality Element, which includes the following objectives:

Objective 1: Adhere to state and federal air quality standards and regional programs.

Objective 2: Reduce mobile sources of air pollution through implementation of the Transportation Element of the *General Plan*.

Objective 3: Decrease the air quality impacts of development by coordination of land use and transportation decisions.

Objective 4: Minimize particulate matter emissions from road and construction sites.

Objective 5: Link the positive effects of energy conservation and waste management to emission reductions.

San Francisco Clean Construction Ordinance

San Francisco Ordinance 70-07, which adds San Francisco Administrative Code Article 6.25, amends San Francisco Administrative Code Article 6.67, and adds San Francisco Environment Code Article 411, is known as the Clean Construction Ordinance. The ordinance requires that contractors on public works construction projects that take 20 days or more to complete reduce vehicle emissions by (1) using a blend of at least 20 percent biodiesel in off-road vehicles and construction equipment and (2) using construction equipment with engines that meet Tier 2 standards or use best available control technology. Many of the programmatic projects would be subject to the Clean Construction Ordinance; however, the Sharp Park restoration project would not be subject to this ordinance.

San Francisco Dust Control Ordinance

San Francisco Health Code Article 22B, and *San Francisco Building Code* Section 106.A.3.2.6, collectively the Construction Dust Control Ordinance, requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the Department of Building Inspection. The Director of Department of Building Inspection may waive this requirement for activities on sites less than one half-acre that are unlikely to result in any visible wind-blown dust.

For project sites greater than one half-acre in size, the Ordinance requires that the project sponsor submit a Dust Control Plan for approval by the San Francisco Health Department. The SFRPD

would be required to comply with the Ordinance and submit a Dust Control Plan for the Sharp Park restoration project and many of the programmatic projects.

V.K.2 Environmental Setting

Criteria Air Pollutants

As required by the 1970 federal Clean Air Act, the EPA has identified six criteria air pollutants that are pervasive in urban environments and for which state and federal health-based ambient air quality standards have been established. EPA calls these pollutants criteria air pollutants because the agency has regulated them by developing specific public-health-and-welfare-based criteria as the basis for setting permissible pollutant levels. Ozone, CO, particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead are the six criteria air pollutants.

The San Francisco Bay Area Air Basin is currently designated as a nonattainment area for state and national ozone standards, state and national PM_{2.5}, and state PM₁₀. For other criteria pollutants, such as NO₂, CO, and SO₂, the San Francisco Bay Area Air Basin is designated as an in attainment or is unclassified. Table 13 presents the current federal and state attainment status for the San Francisco Bay Area Air Basin.

Ozone

Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving ROG and NO_x. The main sources of ROG and NO_x, often referred to as ozone precursors, are combustion processes (including motor vehicle engines) and the evaporation of solvents, paints, and fuels. In the Bay Area, automobiles are the single largest source of ozone precursors. Ozone is referred to as a regional air pollutant because its precursors are transported and diffused by wind concurrently with ozone production through the photochemical reaction process. Ozone causes eye irritation, airway constriction, and shortness of breath and can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO is an odorless, colorless gas usually formed as the result of the incomplete combustion of fuels. The single largest source of CO is motor vehicles; the highest emissions occur during low travel speeds, stop and-go driving, cold starts, and hard acceleration. Exposure to high concentrations of CO reduces the oxygen-carrying capacity of the blood and can cause headaches, nausea, dizziness, and fatigue, impair central nervous system function, and induce angina (chest pain) in persons with serious heart disease. Very high levels of CO can be fatal.

**Table 13
State and National Attainment Status**

Pollutant	Averaging Time	California Attainment Status	National Attainment Status
Ozone	8 Hours	N	N
	1 Hour	N	
Carbon Monoxide	8 Hours	A	A
	1 Hour	A	A
Nitrogen Dioxide	1 Hour	A	U
	Annual Arithmetic Mean		A
Sulfur Dioxide	24 Hours	A	
	1 Hour	A	A
Inhalable Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	N	
	24 Hours	N	U
Fine Particulate Matter (PM _{2.5})	Annual Arithmetic Mean	N	A
	24 Hours		N
Sulfates	24 Hours	A	
Lead	Calendar Quarter		A
	30 Day Average	A	
Hydrogen Sulfide	1 Hour	U	
Vinyl Chloride (chloroethene)	24 Hours	No information available	
Visibility Reducing Particles	8 Hour (10:00 to 18:00 Pacific time)	U	

N = nonattainment

A = attainment

U = unclassified

Source: BAAQMD 2011b

Particulate Matter

Particulate matter is a class of air pollutants that consists of heterogeneous solid and liquid airborne particles from manmade and natural sources. Particulate matter is measured in two size ranges: PM₁₀ for particles less than 10 microns in diameter, and PM_{2.5} for particles less than 2.5 microns in diameter. In the Bay Area, motor vehicles generate about half of the air basin's particulates through tailpipe emissions as well as brake pad and tire wear. Wood burning in fireplaces and stoves, industrial facility operations, and ground-disturbing activities, such as construction, are other sources of such fine particulates. These fine particulates are small enough to be inhaled into the deepest parts of the human lung and can cause adverse health effects. According to the state Air Resources Board (ARB), studies in the United States and elsewhere "have demonstrated a strong link between elevated particulate levels and premature deaths, hospital admissions, emergency room visits, and asthma attacks," and studies of children's health in California have demonstrated

that particle pollution “may significantly reduce lung function growth in children.” The ARB also reports that statewide attainment of particulate matter standards could prevent thousands of premature deaths, lower hospital admissions for cardiovascular and respiratory disease and asthma-related emergency room visits, and avoid hundreds of thousands of episodes of respiratory illness in California.

Among the criteria pollutants that are regulated, particulates appear to represent a serious ongoing health hazard. As long ago as 1999, the BAAQMD was reporting, in its *CEQA Air Quality Guidelines*, that studies had shown that elevated particulate levels contribute to the death of approximately 200 to 500 people per year in the Bay Area. High levels of particulates have also been known to exacerbate chronic respiratory ailments, such as bronchitis and asthma, and have been associated with increased emergency room visits and hospital admissions.

Nitrogen Dioxide

NO₂ is a reddish brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO₂. Aside from a contribution to ozone formation, nitrogen oxides, including NO₂, can increase the risk of acute and chronic respiratory disease and reduce visibility. NO₂ may be visible as a coloring component on high pollution days, especially in conjunction with high ozone levels. The federal 1-hour standard was recently made more stringent by the EPA with a statistical form that allows some hours to exceed the standard before triggering a nonattainment designation. Vehicle exhaust is a dominant urban source of NO₂, and concentrations of NO₂ near major roads can be appreciably higher than those measured at monitors in the current regional monitoring network. Table 13 shows that the standard for NO₂ is being met in the Bay Area. However, existing monitoring methods must be revised by 2013 to determine compliance with the new federal standards.

Sulfur Dioxide

SO₂ is a colorless acidic gas with a strong odor. It is produced by the combustion of sulfur-containing fuels such as oil, coal, and diesel. SO₂ has the potential to damage materials and can cause health effects at high concentrations. It can irritate lung tissue and increase the risk of acute and chronic respiratory disease.

Lead

Leaded gasoline (phased out in the United States beginning in 1973), paint (on older houses, cars), smelters (metal refineries), and manufacture of lead storage batteries have been the primary sources

of lead released into the atmosphere. Lead has a range of adverse neurotoxic health effects; children are at special risk. Some lead-containing chemicals cause cancer in animals.

Toxic Air Contaminants

Toxic air contaminants (TACs) are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Potential human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity. Individual TACs vary greatly in the health risk they present; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

TACs do not have ambient air quality standards, but are regulated by the BAAQMD using a risk-based approach. This approach uses a health risk assessment to determine what sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances is estimated, and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks. 2008 TAC emissions for San Francisco and San Mateo Counties (the counties in which the proposed project would take place) are shown in Table 14. TACs for which data were not available for either county are not included in Table 14.

Table 14
Toxic Air Contaminants, San Francisco and San Mateo Counties

Toxic Air Contaminant	Total Emissions, San Francisco County (pounds per year)	Total Emissions, San Mateo County (pounds per year)
Acetaldehyde	0.22	7.50
Acrylonitrile	ND	32.33
Ammonia (NH ₃)	166.03	28,537.46
Arsenic (all)	1.36	0.22
Benzene	507.78	3,230.81
Benzyl chloride	ND	62.96
Beryllium (all)	0.80	0.10
Cadmium	3.48	0.43
Carbon tetrachloride	ND	12.85
Cellosolve	57.64	277.00
Cellosolve acetate	380.54	27.34
Chlorinated dioxins & furans	0.00	0.00
Chloroform	496.81	2,109.70
Chromium (hexavalent)	0.07	0.04
Dichlorobenzene	31.38	578.69
Diesel Engine Exhaust Particulate	6,345.76	6,999.34
Dioxane, 1,4-	ND	62.78
Ethyl chloride	ND	70.28
Ethylbenzene	636.18	7,229.00

Table 14
Toxic Air Contaminants, San Francisco and San Mateo Counties

Toxic Air Contaminant	Total Emissions, San Francisco County (pounds per year)	Total Emissions, San Mateo County (pounds per year)
Ethylene dibromide	ND	15.03
Ethylene dichloride	ND	75.77
Ethylene glycol	1,539.67	747.10
Ethylene oxide	2.00	0.04
Ethylidene chloride	ND	835.62
Formaldehyde	15,932.76	6,548.89
Hexane	71.85	4,742.73
Hydrochloric acid mist	ND	99.60
Hydrogen Chloride (HCl)	ND	24,287.12
Hydrogen Fluoride (HF)	ND	1.34
Hydrogen Sulfide (H ₂ S)	7,529.52	18,204.58
Isophorone	ND	9.32
Isopropyl alcohol	41,633.98	102,518.21
Lead (all)	4.10	0.46
Manganese	4.53	0.55
Mercury (all)	0.96	2.03
Methyl alcohol	1,788.10	2,888.59
Methyl cellosolve	4.24	ND
Methyl tertiary-butyl ether	ND	12.82
Methylene chloride	1,588.82	19,584.50
Naphthalene	0.11	8.07
Nickel	54.92	6.71
PAHs (benzo[a]pyrene equivalent)	0.85	0.00
Perchloroethylene	50,256.75	50,400.75
Phenol	128.24	16.23
Propylene glycol monomethyl ether	693.56	96.90
Selenium	ND	0.08
Styrene	4,745.83	13,368.91
Tetrachloroethane, 1,1,2,2-	ND	66.61
Toluene	15,018.74	39,746.92
Trichloroethane, 1,1,1- (without dioxane)	ND	4,955.35
Trichloroethane, 1,1,1- (with dioxane)	94.12	1,078.16
Trichloroethylene	127.73	2,226.30
Vinyl chloride	ND	717.27
Vinylidene chloride	ND	17.40
Xylene	16,470.01	26,544.89

ND = no data

Source: BAAQMD 2008

Diesel Particulate Matter

The ARB identified diesel particulate matter as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans. The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Mobile sources such as trucks and buses are among the primary sources of diesel emissions, and concentrations of diesel particulate matter are higher near heavily traveled highways. The estimated cancer risk from

exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region.

Recent air pollution studies have shown an association between respiratory and other non-cancer health effects and proximity to high traffic roadways. The ARB community health risk assessments and regulatory programs have produced air quality information about certain types of facilities for consideration by local authorities when siting new residences, schools, day care centers, parks and playgrounds, and medical facilities (i.e., sensitive land uses, or “receptors”). Sensitive land uses deserve special attention because children, pregnant women, the elderly, and those with existing health problems are especially vulnerable to the non-cancer effects of air pollution. There is also substantial evidence that children are more sensitive to cancer-causing chemicals (ARB 2005).

In 2000, the ARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. As part of the Plan, the ARB in 2008 approved a new regulation for existing heavy-duty diesel vehicles that will require retrofitting and replacement of vehicles (or their engines) over time such that by 2023, all vehicles must have a 2010 model year engine or equivalent. Additional regulations apply to new trucks and to diesel fuel. With new controls and fuel requirements, 60 trucks built in 2007 would have the same soot exhaust emissions as one truck built in 1988 (Pollution Engineering 2006). Despite these reductions, the ARB recommends that proximity to sources of diesel particulate matter emissions be considered in the siting of new sensitive land uses. The ARB notes that these recommendations are advisory and should not be interpreted as defined “buffer zones,” and that local agencies must balance other considerations, including housing and transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, ARB’s position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level.

Roadway-Related Pollutants

Motor vehicles are responsible for a large share of air pollution, especially in California. Vehicle tailpipe emissions contain diverse forms of particles and gases, and also contribute to particulates by generating road dust and through tire wear. Epidemiologic studies have demonstrated that people living in proximity to freeways or busy roadways have poorer health outcomes, including increased asthma symptoms and respiratory infections and decreased pulmonary function and lung development in children. Air pollution monitoring done in conjunction with epidemiological studies

has confirmed that roadway related health effects vary with modeled exposure to particulate matter and nitrogen dioxide. In traffic-related studies, the additional non-cancer health risk attributable to roadway proximity was seen within 1,000 feet of the roadway and was strongest within 300 feet. As a result, the ARB recommends that new sensitive land uses not be located within 500 feet of a freeway or urban roads carrying 100,000 vehicles per day.

Sensitive Receptors

Air quality does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Population subgroups sensitive to the health effects of air pollutants include the elderly and the young, population subgroups with higher rates of respiratory disease such as asthma and chronic obstructive pulmonary disease, and populations with other environmental or occupational health exposures (e.g. indoor air quality) that affect cardiovascular or respiratory diseases. Land uses such as schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Parks and playgrounds are considered moderately sensitive to poor air quality because persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality; however, exposure times are generally far shorter in parks and playgrounds than in residential locations and schools, which typically reduces overall exposure to pollutants. Residential areas are considered more sensitive to air quality conditions compared to commercial and industrial areas because people generally spend longer periods of time at their residences, with associated greater exposure to ambient air quality conditions.

V.K.3 Impacts

Significance Thresholds

A proposed project would have a significant air quality impact if it were to result in any of the following:

- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation; or

- Expose sensitive receptors to substantial pollutant concentrations.

Impacts Addressed in the Initial Study

In the Initial Study (Appendix A), impacts related to the following criteria were identified as not significant:

- Conflict with or obstruct implementation of the applicable air quality plan; and
- Create objectionable odors affecting a substantial number of people.

As a result, odors are not evaluated further in this EIR. As discussed in the Regulatory Setting section, since the completion of the Initial Study, BAAQMD, in cooperation with the Metropolitan Transportation Commission and the Association of Bay Area Governments, adopted the *2010 Clean Air Plan*, which replaced the *Bay Area 2005 Ozone Strategy*. The following discussion addresses compliance with the *2010 Clean Air Plan*.

The *2010 Clean Air Plan* provides a control strategy to reduce ozone, particulate matter, TACs, and greenhouse gases and represents the Bay Area's most recent triennial assessment of the region's strategy to attain the state one-hour ozone standard (see Section V.K.1, Regulatory Setting, for more information). The proposed project, which involves management of the Natural Areas and includes reintroduction of sensitive species, tree removal in conformance with forestry statements, and erosion control measures, would not conflict with the *2010 Clean Air Plan* or obstruct implementation of the plan; therefore, there would be no impact and no additional analysis is required.

Significant Natural Resource Areas Management Plan Impacts

This section addresses the impacts of the project during activity phases related to construction, operation, and routine maintenance. Construction impacts were assessed quantitatively for the Sharp Park Natural Area because those restoration activities are expected to be the largest of the programmatic projects undertaken under the SNRAMP. Other programmatic projects were assessed qualitatively based on the outcome of the analyses of the Sharp Park restoration activities. Operational or routine maintenance impacts were assessed qualitatively. Operational activities, including routine maintenance, would be similar to current activities conducted in the Natural Areas and therefore would not result in a substantial net increase in fugitive dust, criteria air pollutant emissions, or health risks.

The results of the quantitative construction analysis of the Sharp Park restoration activities were compared to the 2011 BAAQMD CEQA Air Quality Guidelines significance thresholds for construction-related activities for criteria air pollutant emissions. The new guidelines also include significance thresholds for operational activities; however, because operational impacts would result in negligible increases of criteria air pollutant emissions, these thresholds would not be exceeded and are not discussed further.

For ROG, NO_x, and PM_{2.5} (exhaust emissions only), a construction-related net increase of 54 pounds per day would be considered significant, while for PM₁₀ (exhaust emissions only), a net increase of 82 pounds per day would be considered significant. There are no quantitative thresholds for construction dust emissions; instead, impacts are considered less than significant if best management practices are employed to control dust during construction activities, including demolition and excavation. The BAAQMD has identified a list of recommended BMPs for controlling fugitive dust to ensure that dust-related impacts are reduced to less than significant.

For health risks and hazards resulting from emissions of toxic air contaminants during project construction, BAAQMD has identified quantitative significance thresholds. The thresholds for project-specific impacts are an increase in lifetime cancer risk equal to or greater than 10 chances in one million, an increase in the non-cancer risk equal to or greater than a chronic or acute Hazard Index¹ of 1.0, or an increase in the annual average concentration of PM_{2.5} equal to or greater than 0.3 micrograms per cubic meter. BAAQMD also recommends cumulative thresholds of 100 in one million cancer risk, a Hazard Index greater than 10.0, and an increased PM_{2.5} concentration greater than 0.8 micrograms per cubic meter. BAAQMD has also determined that projects that comply with a qualified community risk reduction plan would result in a less than significant health risk impact; however, no jurisdiction in the San Francisco Bay Area has completed a qualified community risk reduction plan.

The principal sources of pollutants during the Sharp Park restoration would be the emissions generated by heavy equipment and construction vehicles used during project activities. Exhaust emissions resulting from the restoration activities were estimated using the Urban Land Use Emissions Model (URBEMIS) model and compared to the BAAQMD significance thresholds.

¹ Acute and chronic exposure to non-carcinogens is expressed as a Hazard Index, which is the ratio of expected exposure levels to acceptable reference exposure levels.

For the health risk assessment related to use of diesel-powered equipment during the Sharp Park restoration, hazardous air pollutant impacts on sensitive receptors were assessed using the EPA's Industrial Source Code Short Term Version 3 dispersion model and meteorological data from the Fort Funston meteorological station (the nearest meteorological station approximately 10 miles north of the proposed project). The nearest sensitive receptor was assumed to be at the project boundary to provide a conservative exposure assessment that would be applicable to other programmatic projects. Cancer and non-cancer health risks were calculated using the ARB's Hot Spots Analysis Reporting Program and compared to the BAAQMD criteria to determine if they would be significant. Potential cancer risk was calculated using age-sensitivity factors² from the concentrations produced from the air modeling analysis. Cancer risk was weighted by a factor of 10 for exposure that occurs to an individual from the third trimester of gestation (the period of development of young from conception until birth) to two years of age, and by a factor of three for exposures that occur from two years through 15 years of age. These weighing factors were applied equally to all carcinogens.

Fugitive Dust

Programmatic Impacts

Impact AQ-1: Programmatic projects under the SNRAMP would result in substantial fugitive dust emissions. (Less than Significant with Mitigation)

Programmatic projects proposed under the SNRAMP would result in fugitive dust emissions primarily during construction activities. In response to the need for consistent control measures to reduce fugitive dust during construction, the San Francisco Board of Supervisors approved a series of amendments to the San Francisco Building and Health Codes generally referred hereto as the Construction Dust Control Ordinance (Ordinance 176-08, effective July 30, 2008), with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of onsite workers, minimize public nuisance complaints, and to avoid orders to stop work by the Department of Building Inspection.

The San Francisco Construction Dust Control Ordinance (Dust Control Ordinance) was adopted in July 2008. Under this ordinance, all site preparation work, demolition, and other construction activities in San Francisco must comply with specific dust control measures. The Dust Control

² Age-sensitivity factors were identified in accordance with the guidelines set by the Office of Environmental Health and Hazard Assessment.

Ordinance requires project sponsors and contractors responsible for construction activities to control construction dust on the site or implement other practices that result in equivalent dust control that are acceptable to the director of the San Francisco Department of Public Health.

For projects less than half an acre, the project proponent must comply with the general dust control requirements listed in Section 106.3.2.6.3(c) of the San Francisco Building Code, which are:

- Water all active construction areas sufficiently to prevent dust from becoming airborne. Increased watering frequency may be necessary whenever wind speeds exceed 15 miles per hour (mph). Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. If not required, reclaimed water should be used whenever possible.
- Provide as much water as necessary to control dust (without creating runoff) in any area of land clearing, earth movement, excavation, drillings, and other dust-generating activity.
- During excavation and dirt-moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday.
- Cover any inactive (no disturbance for more than seven days) stockpiles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques.
- Use dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area.

For projects larger than half an acre, the Dust Control Ordinance requires the project sponsor to submit a dust control plan for approval by the San Francisco Department of Public Health before a building permit can be issued by the San Francisco Department of Building Inspection. For project sites that are larger than half an acre and located within 1,000 feet of sensitive receptors, the project sponsor must develop a site-specific dust control plan to be approved by the director of the San Francisco Department of Public Health. The site-specific dust control plan requires the project sponsor to:

- Submit a map to the director of the San Francisco Department of Public Health, showing all sensitive receptors within 1,000 feet of the site;
- Wet down areas of soil at least three times per day;

- Provide an analysis of wind direction, and install upwind and downwind particulate dust monitors;
- Record particulate monitoring results;
- Hire an independent third party to conduct inspections and keep a record of those inspections;
- Establish shutdown conditions based on wind, soil migration, and other factors;
- Establish a hotline for surrounding community members who may be affected by project-related dust;
- Limit the area subject to construction activities at any one time;
- Install dust curtains and windbreaks on the property lines, as necessary;
- Limit the amount of soil in hauling trucks to the size of the truck bed, and secure the load with a tarpaulin;
- Enforce a 15-mph speed limit for vehicles entering and exiting construction areas;
- Sweep affected streets with water sweepers at the end of the day;
- Install and use wheel washers to clean truck tires;
- Stop construction activities when winds exceed 25 mph;
- Apply soil stabilizers to inactive areas; and
- Sweep off adjacent streets to reduce particulate emissions.

Project sponsors are required to designate an individual to monitor compliance with dust control requirements.

The SNRAMP is a City project and construction would be carried out by SFRPD and City contractors. Pursuant to Health Code Article 22B, Section 1247, "All departments, boards, commissions, and agencies of the City and County of San Francisco that authorize construction or improvements on land under their jurisdiction under circumstances where no building, excavation, grading, foundation, or other permit needs to be obtained under the San Francisco Building Code shall adopt rules and regulations to insure that the same dust control requirements that are set forth in this Article are followed." The Construction Dust Ordinance contains the BAAQMD-recommended BMPs. Thus, compliance with Article 22B and all adopted rules and regulations will ensure that potential dust-related air quality impacts would be reduced to less than significant.

The construction activities of programmatic projects in San Francisco would be subject to the Dust Control Ordinance; therefore, impacts from construction-related fugitive dust emissions would be *less than significant*.

Programmatic projects outside San Francisco are not subject to the Dust Control Ordinance; therefore, those projects that include grading or other activities that could generate fugitive dust could result in significant fugitive dust emissions. With implementation of Mitigation Measure M-AQ-1, which would require the SFRPD to comply with the provisions of the Dust Control Ordinance for programmatic projects outside San Francisco, the impact of fugitive dust emissions from programmatic projects outside San Francisco would be reduced to *less than significant*.

M-AQ-1: Fugitive Dust Reduction

The SFRPD would implement the requirements of the Dust Control Ordinance for all programmatic projects that are outside of San Francisco to reduce fugitive dust emissions.

For projects less than half an acre, the SFRPD would comply with the general dust control requirements listed in Section 106.3.2.6.3(c) of the San Francisco Building Code, which are:

- Water all active construction areas sufficiently to prevent dust from becoming airborne. Increased watering frequency may be necessary whenever wind speeds exceed 15 mph. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code. If not required, reclaimed water should be used whenever possible.
- Provide as much water as necessary to control dust (without creating runoff) in any area of land clearing, earth movement, excavation, drillings, and other dust-generating activity.
- During excavation and dirt-moving activities, wet sweep or vacuum the streets, sidewalks, paths, and intersections where work is in progress at the end of the workday.
- Cover any inactive (no disturbance for more than seven days) stockpiles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques.
- Use dust enclosures, curtains, and dust collectors as necessary to control dust in the excavation area.

For projects greater than half an acre, in addition to the general dust control requirements above, the SFRPD would prepare a site-specific dust control plan that requires the project sponsor to:

- Submit a map to the director of the San Francisco Department of Public Health, showing all sensitive receptors within 1,000 feet of the site;
- Wet down areas of soil at least three times per day;
- Provide an analysis of wind direction, and install upwind and downwind particulate dust monitors;
- Record particulate monitoring results;
- Hire an independent third party to conduct inspections and keep a record of those inspections;
- Establish shutdown conditions based on wind, soil migration, and other factors;
- Establish a hotline for surrounding community members who may be affected by project-related dust;
- Limit the area subject to construction activities at any one time;
- Install dust curtains and windbreaks on the property lines, as necessary;
- Limit the amount of soil in hauling trucks to the size of the truck bed, and secure the load with a tarpaulin;
- Enforce a 15-mph speed limit for vehicles entering and exiting construction areas;
- Sweep affected streets with water sweepers at the end of the day;
- Install and use wheel washers to clean truck tires;
- Stop construction activities when winds exceed 25 mph;
- Apply soil stabilizers to inactive areas; and
- Sweep off adjacent streets to reduce particulate emissions.

Project-level Impacts (Routine Maintenance)

Impact AQ-2: The routine maintenance activities under the SNRAMP would not result in substantial fugitive dust emissions. (Less than Significant)

Routine maintenance activities would be similar to current activities conducted in the Natural Areas and therefore would not result in a substantial increase of fugitive dust. Also, the type and scale of

routine maintenance activities would create relatively small amounts of dust. Therefore, the impacts of fugitive dust emissions from routine maintenance at the San Francisco Natural Areas would be *less than significant*.

Project-level Impacts (Sharp Park Restoration)

Impact AQ-3: The Sharp Park restoration under the SNRAMP would result in substantial fugitive dust emissions. (Less than Significant with Mitigation)

The Sharp Park restoration activities are outside San Francisco and therefore are not subject to the Dust Control Ordinance. Construction-related activities could result in significant fugitive dust emissions. As described for the programmatic projects, implementing Mitigation Measure M-AQ-1 would require the SFPRD to comply with the provisions of the Dust Control Ordinance, as described under Impact AQ-1. The project site is over half an acre and therefore, in accordance with M-AQ-1, would require preparation of a dust control plan and implementation of the requirements of that plan. With implementation of M-AQ-1, the impact of fugitive dust emissions from the Sharp Park restoration activities would be *less than significant*.

Criteria Air Pollutants

Programmatic Impacts

Impact AQ-4: Programmatic projects under the SNRAMP would contribute substantially to an existing or projected air quality violation and would result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard. (Significant and Unavoidable with Mitigation)

Programmatic projects would include trail construction, hillside stabilization, erosion control measures, and tree removal projects that exceed half an acre at any one time. The Sharp Park restoration is considered the largest of the projects that would be proposed under the SNRAMP. Therefore, criteria air pollutant emissions resulting from other programmatic projects are expected to be less than those resulting from the Sharp Park restoration; however it is speculative to determine how much less air pollutants would be generated by programmatic projects at this time because programmatic projects proposed under the SNRAMP lack specific details and have not been developed to a point that enables a quantitative air quality analysis. A criteria air pollutant analysis of the Sharp Park restoration project was conducted for the project-level analysis in the SNRAMP and for purposes of conservative analysis, provides information on expected criteria air pollutant impacts from other programmatic projects proposed under the SNRAMP. As discussed in Impact

AQ-6, NO_x average daily emissions for the Sharp Park restoration project would be 153 pounds per day, which exceeds the BAAQMD construction threshold of 54 pounds per day. The SFRPD would implement Mitigation Measure M-AQ-4 (revised from the Initial Study), which requires the use of best available control technology for construction equipment to be included in SFRPD contract specifications, to reduce the impacts of NO_x emissions during the Sharp Park restoration and for programmatic projects.

For purposes of conservative analysis, it is assumed that other programmatic projects would be similar to the Sharp Park restoration activities and would result in similar emissions and therefore criteria air pollutant impacts would be significant. However, as discussed above, the details of the other programmatic projects are not yet known and actual emissions from a given programmatic project could result in substantially lower criteria pollutant emissions. For this reason, M-AQ-4 allows the SFRPD to perform a refined air quality analysis prior to implementation of each programmatic project to determine if the pollutant minimizing contract specifications are necessary. If this refined analysis is not conducted, then Mitigation Measure M-AQ-4 requires the SFRPD to incorporate into its construction specifications measures to reduce construction vehicle emissions. The proposed mitigation measure would reduce NO_x emissions but may not reduce emissions to below the BAAQMD significance threshold. Using Tier 3 or similar engines would be the most effective way to reduce NO_x emissions for each programmatic project. The South Coast Air Quality Management District has performed an assessment of the effectiveness of Tier 3 engines and estimated that a 39 percent emission reduction is possible from replacement of Tier 2 with Tier 3 heavy equipment (South Coast Air Quality Management District 2010). If a 39 percent NO_x reduction were achievable, the estimated 153 pounds per day would be reduced to 93 pounds per day, which still exceeds the BAAQMD threshold of 54 pounds per day. Therefore, given the uncertainty regarding the level of construction required for programmatic projects and the effectiveness of M-AQ-4 to reduce criteria air pollutant emissions to below BAAQMD's significance thresholds, NO_x emissions resulting from programmatic projects may remain above the BAAQMD daily threshold and could result in *significant and unavoidable* criteria air pollutant impacts.

M-AQ-4: Construction Contract Specification to Reduce Construction Vehicle Emissions

The SFRPD will consult with EP before implementing each programmatic project. Under EP's direction, the SFRPD will either conduct a refined air quality analysis prior to project implementation, or EP will provide a list of all feasible mitigation measures to incorporate into the construction specifications to reduce construction vehicle emissions. If SFRPD were to conduct a refined air quality analysis and find that construction-related criteria air pollutant emissions would

be below the BAAQMD thresholds, SFRPD would not be required to incorporate mitigation measures into the project's construction specifications. The following mitigation measures are examples of mitigation measures that EP might direct the SFRPD to incorporate into construction specifications for the Sharp Park restoration project or the programmatic projects.

- For programmatic projects between 2011 and 2015, use Tier 3 equipment with best available control technology where feasible. For programmatic projects conducted after 2015, use Tier 4 equipment or interim Tier 4 equipment equipped with best available control technology where such equipment exists.
- Use temporary power provided by the Pacific Gas & Electric Company instead of diesel generators; where it is not possible to plug into the electric grid, use Tier 4 diesel generators and air compressors.
- Use concrete batched from local plants to limit concrete trucks' travel time and the amount of diesel exhaust emitted.
- Use on-road haul trucks model year 2007 or later.
- Maintain and properly tune construction equipment in accordance with manufacturer's specifications. Have all equipment checked by a certified mechanic to determine that equipment is running in proper condition prior to operation.

Project-level Impacts (Routine Maintenance)

Impact AQ-5: Routine maintenance activities under the SNRAMP would not contribute substantially to an existing or projected air quality violation and would not result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard. (Less than Significant)

Routine maintenance would include removal of invasive weeds and trees and maintenance of trails and catchment basins. Routine maintenance activities would be similar to current activities conducted in the Natural Areas. Therefore, these activities would not result in a net increase of criteria air pollutant emissions. As such, routine maintenance activities would result in *less than significant* criteria air pollutant impacts.

Project-level Impacts (Sharp Park Restoration)

Impact AQ-6: The Sharp Park restoration under the SNRAMP would contribute substantially to an existing or projected air quality violation and would result in a net increase of criteria pollutants for which the project region is in nonattainment under an applicable federal, state, or regional ambient air quality standard. (Significant and Unavoidable with Mitigation)

The Sharp Park restoration would be conducted between May 1 and October 15. The restoration activities would include two main sources of criteria air pollutant emissions:

- Construction Equipment – Construction requires usage of heavy-duty equipment, such as bulldozers, excavators, loaders, etc. Exhaust emissions from this equipment during construction activities would vary daily as activity levels change; and
- Vehicles – Transport vehicles travelling to and from the site, including delivery trucks hauling materials and automobiles carrying workers, generate exhaust emissions.

Criteria pollutant emissions of ROG, NO_x, PM₁₀, and PM_{2.5} generated during the restoration activities would incrementally add to the regional atmospheric loading of these pollutants. The BAAQMD *CEQA Air Quality Guidelines* recommend the quantification of project-related exhaust emissions and comparison of the emissions to its quantitative significance thresholds. Therefore, average daily exhaust emissions that would be associated with the Sharp Park restoration have been estimated and are presented in Table 15.

Table 15
URBEMIS Results for Sharp Park Restoration Criteria Air Pollutant Emissions
(average daily emissions in pounds per day)

Criteria Air Pollutant	Sharp Park Restoration Criteria Air Pollutant Emissions	BAAQMD Thresholds for Construction Emissions
ROG	13	54
NO _x	153	54
PM ₁₀ Exhaust	3.4	82
PM _{2.5} Exhaust	3.1	54

As shown in Table 15, short-term construction emissions from implementation of the Sharp Park restoration project would not exceed the BAAQMD significance thresholds, except for NO_x emissions, for which the restoration activities would result in an average of 153 pounds per day. Although the San Francisco Bay Area Air Basin is designated as an attainment area for NO_x, daily

exceedance of the BAAQMD significance threshold would be considered a significant impact. NO_x is also an ozone precursor, meaning that it can react with other molecules in the atmosphere to form ozone. Therefore, exceedance of the BAAQMD significance threshold for NO_x may result in increases of ozone, for which the Bay Area is designated as a marginal nonattainment area. The SFRPD would implement Mitigation Measure M-AQ-4 to limit construction vehicle emissions, thereby reducing the impacts of NO_x emissions during the Sharp Park restoration. However, even with the implementation of M-AQ-4, NO_x emissions would remain above the BAAQMD daily threshold. Therefore, criteria air pollutant impacts from Sharp Park restoration would be *significant and unavoidable*.

Following completion of the restoration activities, there would be negligible emissions from maintenance activities over the long term, and operational criteria air pollutant impacts would be *less than significant*.

Sensitive Receptors

Programmatic Impacts

Impact AQ-7: Programmatic projects under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)

The Sharp Park restoration would be the largest of the programmatic projects that would be expected to occur under the SNRAMP. Based on the health risk analysis presented for Sharp Park below under Impact AQ-9, hazardous air pollutants generated by the restoration activities would not exceed the significance thresholds of 10 in a million cancer risk and Hazard Index of 1.0 (see air quality report in Appendix H). Further, the restoration activities would not exceed the annual average threshold for PM_{2.5} of 0.3 micrograms per cubic meter. The analysis conducted for the Sharp Park restoration project conservatively assumed a residential child receptor would be located at the Sharp Park construction boundary for the duration of construction activities, allowing the results of this analysis to inform the analysis for programmatic projects proposed under the SNRAMP. Given that this analysis concluded that there would be no significant impacts to the most sensitive receptors from the largest of projects carried out by the SNRAMP, other programmatic projects would also result in health risk impacts that are below the BAAQMD thresholds for cancer risk, hazard index, and PM_{2.5}. As such, health risks associated with the programmatic projects would be *less than significant*.

*Project-level Impacts (Routine Maintenance)***Impact AQ-8: Routine maintenance under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)**

Routine maintenance activities are expected to be substantially similar to current operations within the Natural Areas, and negligible changes are anticipated in the routine maintenance emissions of hazardous air pollutants and their associated health risks, such as from the use of gasoline- or diesel-powered equipment. Therefore, these activities would not be expected to expose sensitive receptors to substantial pollutant concentrations. As such, routine maintenance impacts related to health risk impacts on sensitive receptors would be *less than significant*.

*Project-level Impacts (Sharp Park Restoration)***Impact AQ-9: Sharp Park restoration under the SNRAMP would not expose sensitive receptors to substantial pollutant concentrations. (Less than Significant)**

A quantitative health risk assessment was performed to determine if sensitive receptors would be exposed to substantial pollutant concentrations from the Sharp Park restoration activities. Although the adjacent residential areas located at approximately 300 feet to the north and southeast of Laguna Salada were the nearest identified sensitive receptors, for purposes of the health risk assessment, the nearest sensitive resident child receptor was assumed to be at the project boundary to provide a conservative exposure assessment that would be applicable to other programmatic projects. Health risks associated with diesel particulate matter, PM_{2.5}, and TAC emissions from the restoration activities were evaluated in accordance with the BAAQMD CEQA Air Quality Guidelines. The health risk analysis used the EPA's Industrial Source Code Short Term Version 3 dispersion model and meteorological data from the Fort Funston meteorological station (the nearest meteorological station to the proposed project). Dispersion modeling results for cancer and non-cancer health risks were calculated using the ARB's Hot Spots Analysis Reporting Program and compared to the BAAQMD health risks thresholds. As presented in Table 16, hazardous air pollutant emissions resulting from the restoration activities would be below the BAAQMD health risk thresholds for cancer risks, non-cancer risks, and annual average PM_{2.5} concentrations; therefore, Sharp Park restoration activities would have *less than significant* impacts associated with health risks.

Table 16
Health Risk Assessment Results for Sharp Park Restoration

Source	Cancer Risk (per million)	Chronic Hazard Index	Acute Hazard Index	Annual Average PM_{2.5} (micrograms per cubic meter)
Sharp Park Restoration	0.62	0.0025	0.0088	0.04
BAAQMD Thresholds for Construction Emissions	Less than 10	Less than 1.0	Less than 1.0	Less than 0.3

Cumulative Impacts

Impact AQ-10: Implementation of the proposed project in combination with past, present, and reasonably foreseeable projects in the vicinity would result in cumulatively considerable significant air quality impacts. (Significant and Unavoidable with Mitigation)

The geographic scope of this analysis covers San Francisco and Pacifica. Cumulative projects that would have an impact on air quality are those that would generate fugitive dust, emit criteria air pollutants, and/or result in emissions that could increase health risks to sensitive receptors. Most of the cumulative projects listed in Appendix G involve some amount of construction, demolition, or renovation and thus would generate fugitive dust and criteria pollutant emissions that could increase health risks. Many of these projects are relatively small, such as additions to existing buildings, renovation of existing buildings, and small construction projects such as construction or demolition of one or two buildings. Large projects that could involve a substantial amount of construction, renovation, or demolition, are the California Pacific Medical Center project and the Candlestick Point-Hunters Point Shipyard Phase II Development Project. All of the cumulative projects would be required to comply with the emissions thresholds and other regulatory requirements of the BAAQMD, and those projects in San Francisco would be required to comply with the San Francisco Dust Control Ordinance.

Programmatic Projects

The programmatic projects would result in less than significant fugitive dust impacts because the SFRPD would comply with the applicable provisions of the San Francisco Dust Control Ordinance. Compliance with the Dust Control Ordinance is required by law, therefore, sponsors of cumulative projects in San Francisco would also be required to comply with this ordinance and therefore would not contribute significantly to fugitive dust emissions and cumulative fugitive dust impacts would be *less than significant*. Programmatic projects at Sharp Park would be required to comply with M-

AQ-1 and would therefore not result in a considerable contribution to any potentially significant cumulative fugitive dust impacts.

The programmatic projects would result in significant unavoidable air quality impacts as a result of exceeding the BAAQMD thresholds for NO_x emissions. BAAQMD considers projects that exceed the criteria air pollutant thresholds to also result in a considerable contribution to cumulative criteria air pollutant emissions. Implementing M-AQ-4 would reduce the impacts of the programmatic projects NO_x emissions; however, the impacts would not be reduced to a level below significance. Therefore, cumulative impacts of the programmatic projects associated with criteria air pollutants would be *significant and unavoidable*.

The cumulative health risks of programmatic projects could vary significantly, primarily because roadway and other stationary sources within 1,000 feet of the project boundary would be different for each location and could change over time. Additionally, the locations of the closest sensitive receptors would depend on the boundaries of individual construction activities. Because of this uncertainty, it was assumed that cumulative health risk impacts at the maximally exposed individual for any particular programmatic project would be significant. Implementing Mitigation Measure M-AQ-10 would require that a cumulative site-specific health risk analysis be performed and appropriate mitigation measures be applied before each programmatic project could be implemented. However, due to the uncertainty of the effectiveness of the mitigation measures at reducing health risks below the relevant thresholds, cumulative health risk impacts from programmatic projects are assumed to be *significant and unavoidable*.

M-AQ-10: Cumulative Health Risk Analysis for Programmatic Projects

As part of the environmental review for all programmatic projects, the SFRPD will conduct a cumulative site-specific health risk analysis to determine if nearby sensitive receptors would be affected by those projects in combination with other known sources (e.g., roadway sources and permitted stationary sources) and existing construction projects within 1,000 feet. Based on the results of those analyses, EP would determine the need for and the scope of additional measures to reduce health risk impacts from construction activities. Mitigation measures to reduce construction-related health risks could include those listed under M-AQ-4.

Routine Maintenance

As discussed previously, routine maintenance activities are expected to be substantially similar to current maintenance operations within the Natural Areas and negligible impacts from fugitive dust, criteria air pollutants, and health risk impacts to sensitive receptors. The impacts of routine

maintenance when added to other cumulative impacts are not expected to contribute considerably to any significant cumulative air quality impacts; sponsors of cumulative projects would be responsible for reducing air quality impacts below the level of significance for their project impacts, and the emissions contribution of routine maintenance activities in the regional and cumulative context would not be considerable.

Sharp Park Restoration

The Sharp Park restoration activities would result in less than significant fugitive dust impacts because the SFRPD would be required to implement M-AQ-1, which requires preparation and implementation of a dust control plan; that plan would contain all of the BAAQMD recommended BMPs to control fugitive dust. Since the Sharp Park restoration project would include the BAAQMD-recommended BMPs, it would not be anticipated to result in a considerable contribution to any cumulative fugitive dust impacts as a result of past, present or reasonably foreseeable projects. Therefore, cumulative fugitive dust impacts would be *less than significant*.

The Sharp Park restoration activities would result in significant unavoidable air quality impacts as a result of exceeding the BAAQMD thresholds for NO_x emissions. BAAQMD considers projects that exceed the criteria air pollutant thresholds to also result in a considerable contribution to cumulative criteria air pollutant emissions. Implementing M-AQ-4 would reduce the impacts of the Sharp Park restoration NO_x emissions. However, the impacts would not be reduced to a level below significance. Therefore, cumulative impacts associated with criteria air pollutants would be *significant and unavoidable*.

Cumulative health risks of the Sharp Park restoration activities were calculated by adding the emissions from restoration activities at Sharp Park to all roadway and stationary sources within 1,000 feet of the project boundary. The main roadway emissions near Laguna Salada are from Highway 1.³ The Sharp Park golf course also operates a gasoline dispensing station that is used for golf cart refueling. The refueling station is the only stationary source identified within 1,000 feet of the project's construction activities. Based on a review of the BAAQMD stationary source database, the Sharp Park refueling station would not be a significant source of health risks to nearby sensitive receptors, and risks from this source are considered negligible; furthermore, this station is located

³ Health risks from Highway 1 were estimated based on BAAQMD Roadway Screening Tables for Highway 1 in San Mateo County (April 2011). The distance between construction activities and Highway 1 was conservatively estimated to be no closer than 400 feet. Using the BAAQMD screening tables, cancer, non-cancer and annual average PM_{2.5} risks were extrapolated for a distance of 400 feet. The BAAQMD screening tables are available online at: <http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>. Accessed August 17, 2011.

over 500 feet from the nearest identified sensitive receptor, which is the nearest residence. The BAAQMD's thresholds for cumulative health risks are whether cumulative risks as a result of project construction, stationary and mobile sources exceed a cancer risk of 100 in a million, a hazard index of 10, and an annual average PM_{2.5} concentration of 0.8 microgram per cubic meter. As presented in Table 17 below, cumulative health risk impacts from all roadway and stationary sources of TAC emissions and PM_{2.5} would result in a lifetime cancer risk of 2.22 chances in one million, a Chronic Hazard Index of 0.0045, and an increase in the annual average concentration of PM_{2.5} of 0.061 micrograms per cubic meter. These cumulative health risk levels would not exceed BAAQMD's cumulative construction thresholds for cancer and non-cancer risks and annual average PM_{2.5} emissions. Therefore, cumulative health risk impacts associated with Sharp Park restoration would be *less than significant*.

Table 17
Cumulative Health Risk Assessment Results for Sharp Park Restoration

Source	Cancer Risk (per million)	Chronic Hazard Index	Annual Average PM _{2.5} (microgram per cubic meter)
Sharp Park Restoration	0.62	0.0025	0.04
Highway 1	1.6	0.002	0.021
Cumulative	2.22	0.0045	0.061
BAAQMD Cumulative Threshold	100	10	0.8

VI. OTHER CEQA ISSUES

Section 15126.2 of the CEQA Guidelines requires that an EIR discuss growth-inducing impacts, significant unavoidable impacts, significant irreversible impacts, and significant environmental impacts of the proposed project. These topics, along with areas of known controversy and issues to be resolved and effects found not to be significant, are discussed in the subsections below.

VI.A GROWTH-INDUCING IMPACTS

Due to the nature of its management activities, the proposed project has little potential to induce economic growth or population growth and construction of associated support facilities in the surrounding community. At most, continued improvement of the Natural Areas and their facilities may increase the appeal of the neighborhoods in which they are located. This is more likely to result in minor population shifts within San Francisco and Pacifica neighborhoods, as opposed to population growth. The project would not substantially increase the number of employees within the Natural Areas Program or otherwise lead to economic growth, and it would not induce population growth.

VI.B SIGNIFICANT UNAVOIDABLE IMPACTS

As discussed in Section V and summarized in Table 2 in Section I, the significant unavoidable impacts of the proposed project would be:

- Significant unavoidable impacts to the historic integrity associated with Sharp Park Golf Course from closing Hole 12 and modifying Holes 10 and 13;
- Significant unavoidable impacts from NO_x criteria pollutant emissions, which could exceed the BAAQMD daily threshold even with the implementation of mitigation;
- Significant unavoidable cumulative impacts related to physical deterioration of recreational facilities resulting from increased dog use due to the implementation of the SNRAMP and the GGNRA Dog Management Plan; and
- Significant unavoidable cumulative impacts related to special status plant and wildlife species from increased dog use due to the implementation of the SNRAMP and the GGNRA Dog Management Plan.

None of the other significant impacts resulting from the proposed project are unavoidable; the mitigation measures available to reduce impacts to less than significant also are described and summarized in those sections.

VI.C SIGNIFICANT IRREVERSIBLE IMPACTS

Apart from consumption of nonrenewable resources, the proposed project would have no irreversible impacts. The modifications to the Natural Areas proposed under the SNRAMP do not preclude opportunities for future modification of those areas.

Implementing the management activities would require motorized equipment and vehicles, which would consume nonrenewable fuels (diesel and gasoline). The quantities of these fuels used by the project work crews are expected to be minor and similar to those currently used; under the SNRAMP, the use of these fuels would not substantially increase. Improved Natural Areas may also encourage more local, nonmotorized forms of recreation, potentially resulting in minor reductions in vehicle miles traveled, thus reducing fuel consumption. Project compliance with the San Francisco Clean Construction Ordinance also would reduce fuel consumption. Additionally, implementing Improvement Measure I-ME-1, to increase energy efficiency, and Mitigation Measure M-AQ-4, to limit idling of diesel-fueled vehicles, would further reduce the consumption of nonrenewable resources. The improvement measure is described in the Initial Study (included in Appendix A) and in the Summary of Environmental Impacts and Mitigation Measures (Table 2 in Chapter I).

None of the irreversible impacts would be considered significant.

VI.D SIGNIFICANT ENVIRONMENTAL IMPACTS

As discussed in Section V, the proposed project is expected to have significant environmental impacts on cultural and paleontological resources (Section V.D), recreation (Section V.F), biological resources (Section V.G), hydrology and water quality (Section V.H), hazards and hazardous materials (Section V.I), and air quality (V.K). These impacts are also summarized in Table 2 in Chapter I.

VI.E AREAS OF KNOWN CONTROVERSY AND ISSUES TO BE RESOLVED

Comments on the NOP were grouped into the following categories and are summarized in the scoping report in Appendix A (and in Chapter V and Section VI.F):

- Sharp Park Golf Course;
- General project;
- General CEQA;
- General environmental;
- Cumulative impacts;

- Land use and land use planning;
- Aesthetics;
- Cultural and paleontological resources;
- Transportation and circulation;
- Noise;
- Air quality;
- Wind and shadow;
- Recreation;
- Utilities and service systems;
- Biological resources;
- Geology and soils;
- Hydrology and water quality; and
- Hazards and hazardous materials.

The Draft EIR has considered the CEQA-related concerns and other issues raised through the scoping process. These issues are addressed in Section V (Environmental Setting and Impacts) and Section VI.F (Effects Found Not to be Significant).

VI.F EFFECTS NOT FOUND TO BE SIGNIFICANT

The effects not found to be significant are discussed in more detail in the Initial Study in Appendix A. The following resources are addressed only in the Initial Study:

- Population and housing;
- Public services; and
- Mineral and energy resources.

The following resources are addressed in this EIR:

- Land use and land use planning (Section V.B);
- Aesthetics (Section V.C);
- Cultural and paleontological resources (Section V.D);

- Wind and shadow (Section V.E);
- Recreation (Section V.F);
- Biological resources (Section V.G);
- Hydrology and water quality (Section V.H);
- Hazards and hazardous materials (Section V.I); and
- Agriculture and forest resources (Section V.J); and
- Air Quality (Section V.K).

For the following resources found to have less than significant effects in the Initial Study, additional or clarifying text is provided below to address the concerns expressed in comments received during the NOP scoping process.

VI.F.1 Transportation and Circulation

Comments related to traffic and circulation received during the NOP scoping process included concerns about the following:

- Traffic, air pollution, and global warming effects from people driving farther to walk their dogs in legal off-leash areas, if existing DPAs are closed.

In response to scoping comments, additional discussion of this resource is provided below.

Implementation of the proposed project could result in a minor increase in vehicle trips from Natural Areas Program staff vehicles and visitors due to increased use of the Natural Areas. However, as discussed in the Initial Study (Appendix A, Section E.5), the increase in vehicle trips generated by the workers, volunteers, and visitors to the Natural Areas would be minimal and would not be significant. The proposed project would result in the reduction or closure of DPAs within the Natural Areas. This could result in increased vehicle trips from people visiting other available DPAs that are not within walking distance of the closed DPA. The DPAs that would be affected by the proposed project are at Bernal Hill, McLaren Park, and Lake Merced. The existing DPA at Bernal Hill is approximately 21 acres. The proposed project would partially modify this area by reconfiguring and reducing it by 17 percent. At McLaren Park, DPAs would be reduced by 14 percent. The existing DPAs at this park are 61.7 acres. At Bernal Hill and McLaren Park, the reduction in the DPAs would not result in substantial changes in access or allowed uses. Therefore,

it is not anticipated that users of these DPA would have to access other DPAs in the area and result in new or modified vehicle trips.

At Lake Merced, a designated five-acre DPA is located at the north side of the East Lake. This DPA would be closed as a result of the project. This closure may prompt users to access another DPA in the area. Fort Funston, located approximately 8,000 feet (about 1.5 miles) from the existing Lake Merced DPA, has approximately 200 acres open for off-leash dog use. Current users of the Lake Merced DPA could either walk or drive to the Fort Funston dog area. This could result in a slight increase in the number of vehicles along Lake Merced Boulevard. However, this increase would be minimal considering that the number of dog owners presently using this DPA is minor (San Francisco Dog Owners Group 2009). Also, dog owners could use the Pine Lake DPA, approximately half a mile north of Lake Merced. Therefore, the closure of the five-acre DPA would not significantly increase the number of vehicle trips in the vicinity. As such, reducing or reconfiguring the DPAs as part of this proposed project would not result in significant traffic impacts from increased vehicle trips.

The Natural Areas could experience increased use because of the improved trail system. However, it is expected that the increase use would mostly be from users living near the Natural Areas. Those users would either walk or drive for very short distances using secondary roads. Therefore, the potential increase in the number of users of the Natural Areas would not significantly increase the number of vehicle trips in the vicinity. As such, transportation impacts of the proposed project would be less than significant.

VI.F.2 Noise

Comments related to noise received during the NOP scoping process included concerns about the following:

- The effects of tree removal at Mount Davidson on the quality of the human experience and the hill's viewpoint, including increased noise, altered wind and fog patterns, growth of poison oak, and increased erosion.

In response to scoping comments, additional discussion of this resource is provided below.

Implementation of the proposed project would result in temporary noise sources generated from equipment use. However, as discussed in the Initial Study (Appendix A, Section E.6), it would not result in significant noise impacts because project implementation would not require extensive use

of heavy equipment, and equipment use is expected to be discontinuous and of very short duration during the daytime. Heavy equipment, such as haulers, may be used during trail construction. However, use of this equipment would also be of short duration during the daytime. Use of noise-generating heavy equipment would be temporary and limited in duration; therefore, noise impacts would be less than significant.

Removal of trees at Mount Davidson could increase the long-term noise levels for nearby residents. A total of 1,600 trees would be removed at Mount Davidson. Trees to be removed would be located in the middle of the forest and within an area close to Juanita Way. As described in the Urban Forestry Statements of the SNRAMP, trees to be removed would be individually selected. If trees to be removed are selected in groups, group selection implemented to create openings within dense forests would leave the rest of the forest intact. Trees to be removed in the middle of the forest are located in the center of Mount Davidson at approximately 400 feet from residences. Although trees to be removed near Juanita Way are located at approximately 50 feet from nearby residences, those trees are surrounded by a very dense forest that extends more than 300 feet. Tree removal at Mount Davidson would not affect the density or the depth of the forest. Further, tree removal at Mount Davidson would not expose the residents to a nearby noise source such as a highway or a busy road. Portola Drive, located at approximately 150 feet north of Mount Davidson, and the residences along Juanita Way experience noise levels above 70 decibels. Tree removal at Mount Davidson would be to the west and south of Juanita Way and would not increase the noise exposure of the residences along Juanita Way from Portola Drive. Therefore, removal of the trees at Mount Davidson would not expose the nearby residences to new, long-term noise sources. Long-term noise impacts on noise-sensitive receptors would be less than significant.

VI.F.3 Greenhouse Gas Emissions

This section covers the analysis of GHG emissions because this proposed project was analyzed in the Initial Study prior to the adoption of new CEQA thresholds of significance for greenhouse gas emissions on March 18, 2010 and the BAAQMD's 2011 *CEQA Air Quality Guidelines* (BAAQMD 2011a). BAAQMD's 2011 *CEQA Air Quality Guidelines* do not define a project-level GHG threshold for construction-related emissions. The operational GHG emissions threshold for non-stationary sources is compliance with a qualified GHG reduction strategy or a quantitative metric of 1,100 metric tons of carbon dioxide equivalents (CO_{2e})¹ per year, or 4.6 metric tons CO_{2e} per service

¹ Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

population.² The proposed project was reevaluated under these revised significance criteria, and as discussed below, potential GHG impacts would continue to be less than significant.

GHG emissions for the SNRAMP activities in San Francisco, within 31 of the 32 Natural Areas, were assessed qualitatively. The qualitative analysis included a determination of whether the SNRAMP activities in San Francisco comply with San Francisco's qualified GHG reduction strategy, *Strategies to Address Greenhouse Gas Emissions in San Francisco*. This determination was made through the completion of the *Greenhouse Gas Analysis: Compliance Checklist* for the 31 Natural Areas (CCSF 2011c). GHG emissions within the 31 Natural Areas in San Francisco were found not to be significant. The GHG checklist can be applied to all projects within San Francisco; therefore, it cannot be applied to activities at Sharp Park. For the Sharp Park Natural Area, GHG emissions resulting from the Sharp Park restoration activities were modeled and were found to be less than significant.

Operational GHG emissions of the proposed project would result from routine maintenance activities. However, because proposed operations are expected to be substantially similar to current operations, negligible changes are anticipated in the operation emissions of GHG. As a result, impacts resulting from GHG emissions during operations are expected to be less than significant.

An increase in traffic, as discussed above in Transportation and Circulation, could contribute to the cumulative impacts of global climate change. The GHG emissions of individual projects cannot be shown to have any material effect on global climate, and is therefore assessed in the cumulative context. The Intergovernmental Panel on Climate Change (IPCC 2007) has stated that "difficulties remain in attributing temperature on smaller than continental scales and over time scales of less than 50 years. Attribution at these scales, with limited exceptions, has not yet been established." As discussed under Transportation and Circulation above and in the Initial Study (Appendix A, Section E.5), the proposed project would result in a minimal increase in vehicle trips by workers, volunteers, visitors, and by users of the DPAs that would be closed or reduced within the Natural Areas. The proposed project contribution to GHG emissions would be negligible; therefore, the proposed project would not generate sufficient emissions of GHGs to contribute considerably to the cumulative effects of GHG emissions.

Comments related to greenhouse gas emissions received during the NOP scoping process included concerns about the following:

² Service population is defined as the total number of resident and employees.

- Native plants not being more effective in removing carbon dioxide;
- Global warming effects from tree removal;
- Traffic, air pollution, and global warming effects from people driving farther to legal off-leash areas if existing DPAs were closed;
- Uncited claims in the Initial Study that young trees have long-term carbon sequestration capacities, which results in a net greenhouse gas benefit;
- Effects of releasing carbon stored in 18,500 trees to be removed, compared to whatever benefit there may be in replacing some of the trees;
- The effects of prescribed burns on carbon release and air pollution;
- The effects on greenhouse gas emissions from converting acres of trees into grassland. The US Department of Agriculture reports that tree cover is less than 12 percent of San Francisco's area, yet trees remove about 19 percent more air pollution than shrubs in San Francisco.
- Quantification of the carbon sequestration effects of removing seedlings and saplings, in addition to the designated removal of 18,500 trees;
- Death of many native trees if sudden oak death continues to spread;
- Uncited claim that grassland above 50 degrees latitude reflects more sun than forest canopies;
- Application of the reflected light argument, which is based on the comparison between dark forests and the reflected light of snow in northern latitudes, to the local climate where there is no snow;
- Carbon sequestering abilities of the forest are not reduced by increased temperatures; and
- Lack of carbon sequestration benefit if nonnative plants and trees were removed from 25 percent of all park acreage in San Francisco and it proves impossible to successfully grow native plants in those locations.

In response to scoping comments received, additional discussion related to greenhouse gas emissions is provided below.

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The

accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide, methane, nitrous oxide, ozone, and water vapor.

While the primary GHGs occur naturally in the atmosphere, CO₂, methane, and nitrous oxide are largely emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of carbon dioxide are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in CO₂e units.

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity (California Climate Change Portal undated).

The ARB estimated that in 2008 California produced about 478 million gross metric tons of CO₂e (MMTCO₂e), or about 525 million US tons (ARB 2010b). The ARB found that transportation is the source of 37 percent of the California's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 24 percent, and industrial sources at 19 percent. Commercial and residential fuel use (primarily for heating) accounted for 9 percent of GHG emissions (ARB 2010b). In the Bay Area, fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) and the industrial and commercial sectors are the two largest sources of GHG emissions, each accounting for approximately 36 percent of the Bay Area's 95.8 MMTCO₂e emitted in 2007 (BAAQMD 2010b). Electricity generation accounts for approximately 16 percent of the Bay Area's GHG emissions followed by residential fuel usage at 7 percent, off-road equipment at 3 percent and agriculture at 1 percent (BAAQMD 2010b).

Regulatory Setting

In 2006, the California legislature passed Assembly Bill 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires ARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

Pursuant to AB 32, ARB adopted a Scoping Plan³ in December 2008, outlining measures to meet the 2020 GHG reduction limits. In order to meet these goals, California must reduce its GHG emissions by 30 percent below projected 2020 “business as usual” emissions levels, or about 15 percent from today’s levels (ARB 2010a). The Scoping Plan estimates a reduction of 174 MMTCO₂e (about 191 million US tons) from the transportation, energy, agriculture, forestry, and high global warming potential sectors, as shown in Table 18. ARB has identified an implementation timeline for the GHG reduction strategies in the Scoping Plan (ARB 2008). Some measures may require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional effort to evaluate and quantify. Additionally, some emissions reductions strategies may require their own environmental review under CEQA or the National Environmental Policy Act.

Table 18
GHG Reductions from the AB 32 Scoping Plan Sectors

GHG Reduction Measures By Sector	GHG Reductions (MMTCO₂e)
Transportation Sector	62.3
Electricity and Natural Gas	49.7
Industry	1.4
Landfill Methane Control Measure (Discrete Early Action)	1
Forestry	5
High Global Warming Potential GHGs	20.2
Additional Reductions Needed to Achieve the GHG Cap	34.4
Total	174
Other Recommended Measures	
Government Operations	1-2
Methane Capture at Large Dairies	1
Water Sector Measures	4.8
Green Buildings	26
High Recycling/Zero Waste	
• Commercial Recycling	
• Composting	
• Anaerobic Digestion	
• Extended Producer Responsibility	
• Environmentally Preferable Purchasing	9
Total	42.8-43.8

Source: ARB 2008

³ As of this writing, a California superior court ruling was pending that holds that ARB failed to comply with CEQA when it adopted the Scoping Plan. The ruling, if finalized, would prohibit implementation of the Scoping Plan until ARB fulfills its CEQA requirements, which could delay implementation of AB 32, scheduled for January 2012 (Horowitz 2011).

AB 32 also anticipates that local government actions will result in reduced GHG emissions. ARB has identified a GHG reduction target of 15 percent from current levels for local governments themselves and notes that successful implementation of the plan relies on local governments' land use planning and urban growth decisions because local governments have primary authority to plan, zone, approve, and permit land development to accommodate population growth and the changing needs of their jurisdictions.

The Scoping Plan relies on the requirements of SB 375 to implement the carbon emission reductions anticipated from land use decisions. SB 375 was enacted to align local land use and transportation planning to further achieve the state's GHG reduction goals. SB 375 requires regional transportation plans, developed by Metropolitan Planning Organizations, to incorporate a "sustainable communities strategy" in their regional transportation plans that would achieve GHG emission reduction targets set by ARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 would be implemented over the next several years and the Metropolitan Transportation Commission's 2013 Regional Transportation Plan would be its first plan subject to SB 375.

Senate Bill 97 (SB 97) required the Office of Planning and Research to amend the state CEQA guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, the Office of Planning and Research amended the CEQA guidelines to provide guidance for analyzing GHG emissions. Among other changes to the CEQA Guidelines, the amendments add a new section to the CEQA Checklist (CEQA Guidelines Appendix G) to address questions regarding the project's potential to emit GHGs.

BAAQMD is the primary agency responsible for air quality regulation in the nine county San Francisco Bay Area Air Basin. As part of its role in air quality regulation, BAAQMD has prepared CEQA air quality guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the San Francisco Bay Area Air Basin. The guidelines provide procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. In May 2011, the BAAQMD released updated *CEQA Air Quality Guidelines* that include thresholds of significance for GHG emissions. The Office of Planning and Research's amendments to the CEQA Guidelines as well as BAAQMD's *CEQA Air Quality Guidelines* and thresholds of significance have been incorporated into this analysis accordingly.

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operational phases. Direct operational emissions include

GHG emissions from new vehicle trips and area sources (natural gas combustion). Indirect emissions include emissions from electricity providers, energy required to pump, treat, and convey water, and emissions associated with landfill operations.

The proposed SNRAMP activities would include the use of heavy equipment for trail construction, slope stabilization, tree removal, and other activities that use fuels. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of increased operations associated with energy use.

As discussed above, the BAAQMD has adopted CEQA thresholds of significance for projects that emit GHGs, one of which is a determination of whether the proposed project is consistent with a Qualified Greenhouse Gas Reduction Strategy, as defined in the *CEQA Air Quality Guidelines*. On August 12, 2010, the San Francisco Planning Department submitted a draft of the City and County of San Francisco's *Strategies to Address Greenhouse Gas Emissions* to the BAAQMD; the document was finalized in November 2010 (CCSF 2010c). This document presents a comprehensive assessment of policies, programs and ordinances that collectively represent San Francisco's Qualified Greenhouse Gas Reduction Strategy in compliance with the BAAQMD's *CEQA Air Quality Guidelines* and thresholds of significance.

San Francisco's GHG reduction strategy identifies a number of mandatory requirements and incentives that have measurably reduced greenhouse gas emissions including, but not limited to, increasing the energy efficiency of new and existing buildings, installation of solar panels on building roofs, implementation of a green building strategy, adoption of a zero waste strategy, a construction and demolition debris recovery ordinance, a solar energy generation subsidy, incorporation of alternative fuel vehicles in the City's transportation fleet (including buses and taxis), and a mandatory composting ordinance. The strategy also identifies 42 specific regulations for new development that would reduce a project's GHG emissions.

San Francisco's climate change goals as identified in the 2008 Greenhouse Gas Reduction Ordinance are as follows:

- By 2008, determine the City's 1990 GHG emissions, the baseline level with reference to which target reductions are set;
- Reduce GHG emissions to 25 percent below 1990 levels by 2017;
- Reduce GHG emissions to 40 percent below 1990 levels by 2025; and
- Reduce GHG emissions to 80 percent below 1990 levels by 2050.

The City's 2017 and 2025 GHG reduction goals are more aggressive than the State's GHG reduction goals as outlined in AB 32 and are consistent with the state's long-term (2050) GHG reduction goals. San Francisco's *Strategies to Address Greenhouse Gas Emissions* identifies the City's actions to pursue cleaner energy, energy conservation, alternative transportation and solid waste policies, and concludes that San Francisco's policies have resulted in a reduction in GHG emissions below 1990 levels, meeting statewide AB 32 GHG reduction goals. As reported, San Francisco's 1990 GHG emissions were approximately 8.26 MMTCO_{2e} and 2005 GHG emissions are estimated at 7.82 MMTCO_{2e}, representing an approximately 5.3 percent reduction in GHG emissions below 1990 levels.

The BAAQMD reviewed San Francisco's *Strategies to Address Greenhouse Gas Emissions* and concluded that the strategy meets the criteria for a Qualified GHG Reduction Strategy as outlined in BAAQMD's CEQA Guidelines and stated that San Francisco's "aggressive GHG reduction targets and comprehensive strategies help the Bay Area move toward reaching the State's AB 32 goals, and also serve as a model from which other communities can learn (BAAQMD 2010c)."

Based on the BAAQMD's 2011 *CEQA Air Quality Guidelines*, projects that are consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions* would result in a less than significant impact with respect to GHG emissions. Furthermore, because San Francisco's strategy is consistent with AB 32 goals, projects that are consistent with San Francisco's strategy would also not conflict with the state's plan for reducing GHG emissions. Applicable requirements are shown in Table 19.

In addition to complying with the City's regulations, the 2008 Greenhouse Gas Reduction Ordinance requires that all City Departments prepare an annual department-specific climate action plan.

The SFRPD actions to reduce operational greenhouse gas emissions toward the City's goal of an 80 percent reduction by 2050 include the following:

- **Energy Efficiency and Conservation:** The SFRPD is working with the Energy Efficiency Services of the SFPUC to reduce energy use through the selection of operational equipment such as electrical fixtures and sprinkler heads, design standards enforcement, and use of the San Francisco Greening Checklist for exterior spaces.
- **Renewable Energy Generation:** The SFRPD is working with the SFPUC to assess its facilities' solar potential and identify potential co-generation sites.

Table 19
Regulations Applicable to the Proposed Project

Regulation	Project Requirement
Mandatory Recycling and Composting Ordinance (Environment Code, Chapter 19)	Minor quantities of solid waste and recyclable material would be generated during the management of the Natural Areas. Unless it can be used to create wildlife habitat, all large woody debris generated by the Natural Areas Program would be composted in Golden Gate Park; vegetation debris from Sharp Park would be disposed of at the Sharp Park organic dump. The wood chips may be used to suppress understory invasive vegetation or could be used as beneficial mulch on other revegetation projects in the Natural Areas. Also, large tree trunks may be left on site if they provide habitat value, or they may be used for recreational or maintenance purposes within the Natural Area.
San Francisco Green Building Requirements for construction and demolition debris recycling (SF Building Code, Chapter 13C)	Minor quantities of solid waste and recyclable material would be generated during the management of the Natural Areas.
San Francisco Clean Construction Ordinance (Ordinance 70-07)	Contractors on public works construction projects that take 20 days or more to complete must reduce vehicle emissions that contribute to GHG accumulation by (1) using a blend of at least 20 percent biodiesel in off-road vehicles and construction equipment and (2) using construction equipment with engines that meet Tier 2 standards or use best available control technology.

- **Information Technology:** Information technology energy conservation measures include power management tools for all personal computers and monitors. The SFRPD plan includes full compliance by the third quarter of fiscal year 2010 with the City's adopted policy of the Committee on Information Technology.
- **Green Building:** The SFRPD plan includes compliance with the City's Environmental Code to achieve Leadership in Energy and Environmental Design certification.
- **Fleets and Fuel:** The SFRPD has identified specific plans to retire older vehicles to achieve fuel savings, maintenance cost savings, and lower residual costs for older vehicles. Further, the SFRPD only purchases clean light-duty passenger cars and trucks.
- **Employee Commute:** The SFRPD plan includes measures to reduce vehicle trips traveled by promoting alternative transportation incentives to its employees.
- **Zero Waste:** The SFRPD is close to realizing its goal of 100 percent compliance with the City's recycling initiative.
- **Green Product Purchasing:** The SFRPD uses the City's Approved Catalog to purchase environmentally conscious products.

- Carbon Sequestration: The SFRPD promotes the City's urban forestry program through tree planting campaigns and supports other City departments in their participation in the urban forestry program.
- Community Wide Emissions: The SFRPD actions include providing community support to reduce greenhouse gas emissions through programs related to recycling, biodiversity, bicycling, and community education. To encourage recycling, the SFRPD is currently posting signs at all facilities to educate users on the importance of recycling and directing them on where to place their recyclables. For biodiversity, the NAP and SFRPD volunteer programs maintain and enhance natural biodiversity at many of our park sites. Related to bicycling, the SFRPD will promote bicycling to and within SFRPD facilities by installing bike parking racks and SF Bicycle Route maps at all facilities and by providing bicycle access and program information on the SFRPD website and other publications. The community education efforts include holding recycling education seminars at SFRPD recreation facilities.

Depending on a proposed project's size, use, and location, a variety of controls are in place to ensure that a proposed project would not impair the state's ability to meet statewide GHG reduction targets outlined in AB 32, nor impact the City's ability to meet San Francisco's local GHG reduction targets. Given that: (1) San Francisco has implemented regulations to reduce greenhouse gas emissions specific to municipal projects; (2) San Francisco's sustainable policies have resulted in the measured success of reduced greenhouse gas emissions levels; (3) San Francisco has met and exceeded AB 32 greenhouse gas reduction goals for the year 2020; (4) current and probable future state and local GHG reduction measures will continue to reduce a project's contribution to climate change; and (5) San Francisco's *Strategies to Address Greenhouse Gas Emissions* meets BAAQMD's requirements for a Qualified GHG Reduction Strategy, projects that are consistent with San Francisco's regulations would not contribute significantly to global climate change. The proposed project would be required to comply with these requirements, and was determined to be consistent with San Francisco's *Strategies to Address Greenhouse Gas Emissions*. As such, the proposed SNRAMP activities within San Francisco would result in a less than significant impact with respect to GHG emissions.

The proposed activities for the Sharp Park restoration include the use of heavy equipment for creating shallow pools within existing wetlands, dredging excess sediments, and grading to prevent flooding. GHG emissions resulting from the Sharp Park restoration were calculated using URBEMIS. The URBEMIS model is populated with assumptions regarding timing of restoration activities and the number, type, and operating hours of equipment are based on the number and

type of equipment as specified by the project sponsor. The model returns the CO₂ emission rates for all equipment, deliveries, and worker activity involving on-road and off-road gasoline and diesel fuel use. For other GHGs, such as methane and nitrous oxide rates are assumed to comprise 95 percent of CO₂e emissions based on the Environmental Protection Agency findings (EPA 2005). In addition, this analysis assumed that all heavy duty construction equipment is diesel or gasoline powered and no substantial electrically-powered pieces of construction equipment are envisioned as necessary, based on the project description. The results indicate that approximately 21,777 pounds per day of CO₂e would be emitted during the implementation of these activities. The proposed Sharp Park restoration would increase the activity on site with the activities spanning potentially 5.5 months. With the increased activity, the proposed project would contribute to annual long-term increases in GHG emissions. Increased GHG emissions occur as a result of increased heavy duty vehicle and equipment associated with construction activities. During the 5.5-month construction period, the Sharp Park wetland restoration project would emit 21,777 lbs per day of CO₂e, which is equivalent to a total of 1,630 metric tons of CO₂e. Because BAAQMD's 2011 *CEQA Air Quality Guidelines* do not define a project-level GHG threshold for construction-related emissions, there is no applicable significance threshold to which to compare this estimate. Thus, GHG emissions of the Sharp Park restoration would result in a less than significant impact. The Sharp Park restoration is considered the largest of the programmatic projects. Therefore, GHG emissions resulting from other individual programmatic projects in the Sharp Park Natural Area are expected to be less than those resulting from the restoration project.

Routine maintenance activities would be similar to current activities and would not result in a net increase of GHG emissions. As such, routine maintenance activities would result in less than significant GHG impacts.

Vegetation Sequestration of Carbon

Removal of urban trees could have a GHG impact. Urban trees can help mitigate climate change by sequestering atmospheric carbon in tissue and by reducing energy use in buildings, consequently reducing carbon dioxide emissions from fossil fuel-based power plants. However, net carbon sequestration⁴ can be negative if carbon emissions from decomposition are greater than the amount sequestered by healthy trees. An estimated 117,453 trees are within the project area. The project includes removal and replacement of approximately 18,448 trees, 97 percent of which are within the

⁴Carbon sequestration—the removal and storage of carbon from the atmosphere in carbon sinks (such as oceans, forests, and soils) through physical or biological processes, such as photosynthesis.

MA-1⁵ and MA-2⁶ urban forests. Trees would be removed to promote forest health, and removal would focus on dead or dying trees, trees with disease or insect infestations, storm-damaged or hazardous trees, and trees whose growth is suppressed by overcrowding. Large tree trunks may be left on site if they provide habitat value, or they may be used for recreation or maintenance within the Natural Areas. Unless it can be used to create wildlife habitat, for erosion control, or trail maintenance, all large woody debris generated by the Natural Areas Program would be composted in Golden Gate Park. Although old large trees are good at storing carbon, they are not as effective as young trees at taking up carbon (Oxarart and Monroe 2007). Replacing dead, dying, and diseased trees that have limited capability to sequester carbon with young saplings that have long-term carbon sequestration capabilities would result in a net GHG benefit.

Further, most of the trees within the Natural Areas are nonnative and most are also invasive. The invasive forests within the Natural Areas are predominantly eucalyptus, although cypress, pine, and acacia also occur (SFRPD 2006). The long-term goal in MA-1 and MA-2 is to slowly convert those areas to native scrub, grassland habitats, or oak woodlands. According to an urban forest assessment for San Francisco, the total number of trees in San Francisco is 669,000. San Francisco trees and shrubs remove an estimated 260 tons of air pollution (carbon monoxide, nitrogen dioxide, ozone, particulate matter, and sulfur dioxide) per year. San Francisco trees sequester 5,200 tons of carbon dioxide annually, which is equivalent to the annual amount of carbon emitted by 3,100 cars (USDA 2007). San Francisco trees are estimated to store 196,000 tons of carbon, or the annual amount of carbon emitted by 118,000 cars (USDA 2007).

As trees die and decay, they release much of the stored carbon to the atmosphere. Thus, carbon storage is an indication of the amount of carbon that can be lost if trees are allowed to die and decompose. Of all the species in San Francisco, eucalyptus trees store and sequester the most carbon (approximately 24.4 percent of the total carbon stored and 16.3 percent of all sequestered carbon). Trees removed in the Natural Areas in San Francisco would be replaced at a one-to-one ratio, although not necessarily in the same location. Eucalyptus trees would be replaced with native trees. Although the net effect on carbon sequestration capacity is unknown for the proposed replacement of mature eucalyptus with native saplings, replacing dying trees with healthy trees typically enhances the carbon sequestration process. In fact, one of the urban forest management strategies to help improve air quality is to increase the number of healthy trees. Further, among mitigation measures recommended by the Intergovernmental Panel on Climate Change is forest management,

⁵MA-1 represents the priority areas for conservation and management activities.

⁶Areas designated MA-2 are comparatively more resilient to human disturbance than MA-1 areas.

and particularly selection of tree species that sequester the most carbon (IPCC 2007). As such, tree replacement is expected to result in a net increase in the amount of carbon sequestered within the Natural Areas. The total number of trees would not change within the Natural Areas of San Francisco and the amount of carbon sequestered would increase in the long term from replacing dead, dying, or diseased trees. According to the California Registry, dead trees must be replaced within one year of removal. This timeframe allows for planting to occur at the appropriate time of the year. Therefore, the project would not conflict with San Francisco's Greenhouse Gas Ordinance. Further, the project would not conflict with California's goal of reducing GHG emissions set forth by the timetable established in AB32⁷. Therefore, the proposed project would result in less than significant individual and cumulative impacts from GHG emissions and the associated carbon sequestration impacts.

Trees removed in Sharp Park would be replaced with native grassland and scrub species. The California Registry is developing flexible mechanisms to address reversals if removed trees are not compensated by planting replacement trees. According to a study presented at the American Geophysical Union's meeting, grasslands above 50 degrees latitude reflect more sun than forest canopies, thereby keeping temperatures lower by an average of 0.8 degree Celsius (Jha 2006). However, in the tropics, forests cool the planet by an average of 0.7 degree Celsius (Jha 2006). Research studies have concluded that grassland and scrub habitat could act as a significant carbon sink (Hu et al. 2001; Conant et al. 2001). Therefore, replacing the trees to be removed in Sharp Park with grassland and scrub habitat would not result in a substantial increase in GHG emissions from the loss of CO₂ sequestration, and impacts from GHG emissions would be less than significant.

VI.F.4 Utilities and Service Systems

Comments related to utilities and service systems received during the NOP scoping process included concerns about the following:

- Addressing the requirements of Administrative Code Chapter 63, including reporting, planning, and receiving approval from the San Francisco Public Utilities Commission; and
- Analysis of additional water use, as any irrigation in Natural Areas would be new and incremental.

⁷ In 2006, the California legislature passed Assembly Bill No. 32 (California Health and Safety Code Division 25.5, Sections 38500, et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires ARB to design and implement emission limits, regulations, and other measures, such that feasible and cost-effective statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions).

In response to scoping comments, additional discussion of this resource is provided below.

While no data has been collected on water use specific to the Natural Areas, recently compiled data on water consumption by the parks in which Natural Areas are located provide a general indication of water consumption levels. For the 18 Natural Areas parks for which data were available, the average daily demand for the peak month was 4.815 million gallons per day; the annual average daily demand was 2.831 million gallons per day (SFRPD 2009b). Also, the capacity of the irrigation water systems and the water supplies serving the Natural Areas has not been quantified. However, no problems have been reported regarding overconsumption of available resources, and no restrictions have been placed on water use within the Natural Areas. Because the level of management activities is expected to vary throughout the 20-year implementation period for the SNRAMP, it is not possible to quantify the increase in water demand or the increase in the size of the areas requiring irrigation. Most management activities are expected to require only short-term irrigation; for example, reintroducing native plant species and replacing trees would involve irrigation only until the plants become established. This short-term irrigation would be accomplished using water trucks because most Natural Areas do not have irrigation systems. Native species are more adapted to local climate and tend to be more drought resistant and require less irrigation. The anticipated irrigation needs would be met by existing water supply capacity and would not require new or expanded water supply resources.

The proposed project would require additional irrigation water only to establish vegetation and would not require water for the ongoing maintenance of currently landscaped areas, and would not involve applying for an irrigation water meter; therefore, it is not required to comply with Chapter 63, *Limitation on Water Use for Landscaping in New Developments and Landscaping Renovations*⁸ of the San Francisco Administrative Code and the proposed project would have less than significant impacts on utilities and service systems.

⁸ The purpose of Chapter 63 of the San Francisco Administrative Code is to promote efficient water use in new and renovated landscaping by utilizing proper landscape design, management and efficient irrigation equipment and techniques. This ordinance also satisfies the requirements of the Government Code concerning Water Conservation.

VI.F.5 Geology and Soils

Comments related to geology and soils received during the NOP scoping process included concerns about the following:

- The effects at Pine Lake (and likely Buena Vista Park, Lake Merced, and McLaren Park), including off-leash dogs that cause erosion and destroy restoration sites and dog and feral cat waste that contaminates soil and water;
- The effects at Lake Merced that result from leaving cypress and pine trees along steep banks that cannot support them and resulting soil removal and erosion caused by them falling;
- The effects of tree removal at Mount Davidson on the quality of the human experience and the hill's viewpoint, including increased noise, altered wind and fog patterns, growth of poison oak, and increased erosion
- The erosion effects on neighboring homes from tree removal;
- The erosion effects of removing 54,000 trees in Sharp Park;
- The landslides and earth movement that would result from tree removal at Mount Sutro Forest;
- The need for a forester to evaluate the erosion impacts from cutting trees down;
- The erosion effects from removing trees and nonnative plants;
- The benefits of eucalyptus trees, including that they actually grow in the sandy soil and withstand the fierce winds blowing off the Pacific Ocean. Studies have shown that eucalyptus trees slow the wind down at least 30 percent in the Presidio;
- The erosion effects in Sharp Park, including that from the plan to remove 15,000 trees; and
- The effects on the surrounding neighborhoods from tree removal and sand hill destabilization.

In response to scoping comments, additional discussion of this resource is provided below.

Geology and soils existing conditions and impacts of the project were evaluated in the Initial Study, and the project was found to have either no impact or less than a significant impact for all of the significance criteria. The main activities of the project that might impact geology and soils include implementing erosion control measures; removing nonnative trees and other vegetation and replacing them with native and special status species; and regrading, recontouring, or repaving roads. The Natural Areas at greatest risk of soil erosion due to project activities include Bayview

Park, Glen Canyon Park and O'Shaughnessy Hollow, India Basin Shoreline Park, and Lake Merced. BMPs that would be implemented as part of the project are identified in the SNRAMP and discussed briefly in Chapter III (Project Description) of this EIR. These include the following:

- Straw mulch, wood mulch, and rolled erosion control products to protect exposed soil from water and wind erosion
- Silt fences, fiber rolls, and straw bales, which would be placed around the contours of slopes to intercept sediment-laden sheet flow to remove sediment from the runoff. Fiber rolls may also be placed around storm drain inlets to reduce the amount of sediment discharging to those inlets.

In addition to these BMPs, additional practices outlined in the SNRAMP specifically designed to minimize erosion include removing only small areas of vegetation at any one time (GR-1c), and, to the extent possible, performing work that involves exposure of large areas of soil during the dry season (GR-12b). None of the geology and soils effects were found to be significant.

VII. ALTERNATIVES

CEQA requires that an EIR include sufficient information about each alternative to allow meaningful analysis and comparison with the proposed project. It also requires discussion of the effects of the alternatives, but in less detail than for the proposed project. As such, both the description of the alternatives and the discussion of the impacts of those alternatives focus on their similarities and differences from those of the proposed project.

The alternatives for this EIR took into account the suggestions received during the EIR scoping process related to modifying the proposed project. They were developed in accordance with CEQA Guidelines, Section 15126.6, and provide a reasonable range of alternatives that feasibly attain most of the basic project objectives but would avoid or substantially lessen the significant impacts of the SNRAMP.

The purpose of the alternatives analysis under CEQA is to consider potentially feasible alternatives to the proposed project that are capable of avoiding or substantially lessening the significant effects of the project and that will foster informed decision making and public participation.

The alternatives presented and analyzed in this chapter were developed to meet most, but may not meet all, of the CEQA-defined project objectives identified in Section III.C and are generally potentially feasible. This EIR identifies four alternatives to the proposed project—the Maximum Restoration Alternative, the Maximum Recreation Alternative, the Maintenance Alternative, and the No Project Alternative (the last of which is required under CEQA Guidelines, Section 15126.6). In the sections that follow, these alternatives are described and analyzed for each of the CEQA environmental topics. In Section VII.F is a discussion of the alternatives considered but rejected.

Table 20 provides a general description of the project alternatives compared to the proposed SNRAMP. They are alternatives to the proposed project's programmatic actions, as well as alternatives to the Sharp Park project, covered at the project-level in this EIR. These differences would be articulated in modifications to the SNRAMP if an alternative was selected. Routine maintenance was found to result in less than significant impacts, or less than significant with mitigation, so the alternatives do not include different maintenance level activities. Additionally, dead, diseased, and hazardous trees removed under all alternatives would be consistent with tree maintenance health and safety goals of the Natural Areas Program. No new DPAs would be created under any of the project alternatives, consistent with the SFRPD's current moratorium on new DPAs.

Table 20
SNRAMP Alternatives Comparison

Management Actions	Proposed SNRAMP Project	No Project	Maximum Restoration	Maximum Recreation	Maintenance
SNRAMP Project Alternatives					
Habitat restoration	Habitat would be restored, as described for each of the Natural Areas in the SNRAMP.	Habitat would be restored, as described in the 1995 management plan. The No Project Alternative would promote indigenous plant species, would remove exotic species, and would enhance riparian areas on a smaller scale than under the proposed project, but it would be more general throughout the Natural Areas.	The Maximum Restoration Alternative includes more programmatic restoration and would extend focused restoration of native plant communities to not only MA-1 areas but also more aggressively in MA-2 and MA-3 areas. MA-3 areas under this alternative would include reintroduction of native plants and habitats where appropriate.	Under the Maximum Recreation Alternative, habitat would be restored as described for each Natural Area in the SNRAMP, except that funding would be prioritized for recreation and over time would result in implementing less of the restoration projects identified by the Natural Areas Program. Restoration for the Sharp Park wetland complex is discussed below.	The Maintenance Alternative includes less restoration work than under the proposed project. Restoration work under the Maintenance Alternative would be designed to preserve the existing distribution and abundance of vegetation assemblages.
Invasive tree and vegetation removal	The proposed project includes 5 percent invasive tree removal in San Francisco Natural Areas and 28 percent removal at Sharp Park. The SNRAMP also would remove other invasive vegetation. Additional vegetation and trees would be removed during implementation of programmatic projects.	The No Project Alternative does not include the programmatic projects identified for the proposed project, and management actions would be driven by the 1995 management plan. Therefore, the No Project Alternative would result in moderately less invasive tree removal, compared to the proposed project. Tree removal would be limited to invasive trees that could adversely affect indigenous plant growth.	The Maximum Restoration Alternative includes moderately more invasive and exotic tree and vegetation removal, compared to the proposed project.	The Maximum Recreation Alternative includes substantially less invasive tree and vegetation removal, compared to the proposed project. Tree removal would be limited to those necessary to meet the Natural Areas Program tree health and safety goals and those trees required to be removed to create new trails or other recreation facilities.	The Maintenance Alternative includes moderately less invasive tree and vegetation removal, compared to the proposed project. The goals of tree and vegetation removal would be to maintain the existing distribution and abundance of vegetation assemblages.

**Table 20
SNRAMP Alternatives Comparison**

Management Actions	Proposed SNRAMP Project	No Project	Maximum Restoration	Maximum Recreation	Maintenance
Public access and trail modifications	The proposed project includes closing 54,411 feet of trails and creating 5,897 feet of new trails.	The No Project Alternative includes substantially less trail closure and no new trail creation.	The Maximum Restoration Alternative includes closing additional trails in MA-1 and MA-2 areas. Access to most trails would remain within MA-3 areas. The Maximum Restoration Alternative does not include any new trail creation.	The Maximum Recreation Alternative includes closing some but not all informal and social trails, as described for the proposed project. This alternative would result in moderately more trail creation in MA-2 and MA-3 areas and would allow for greater multiuse of trails in Natural Areas, compared to the proposed project.	The Maintenance Alternative would maintain the current trail system, and no trails would be closed or created.
DPA reductions	The proposed project includes a 20 percent reduction in DPA acreage.	The No Project Alternative would not close or reduce the acreage of existing DPAs.	The Maximum Restoration Alternative includes moderately greater reduction in DPA acreage, focusing on reducing DPA acreage in MA-1 and MA-2 areas.	The Maximum Recreation Alternative would not close or reduce the acreage of existing DPAs. There would be no new DPAs, in accordance with the City's moratorium on new DPAs.	The Maintenance Alternative would not close or reduce the acreage of existing DPAs.
Project Level Alternatives					
Sharp Park Wetland Complex Restoration at Laguna Salada	Restoration would occur as described in the SNRAMP; loss of 5.5 acres of wetlands, dredging of Laguna Salada, modification of 19 acres of the Sharp Park Golf Course to provide upland habitat for the San Francisco garter snake.	The No Project Alternative does not include restoration of Laguna Salada. However, existing conditions would be maintained at Laguna Salada by removing any additional accumulated sediment and tules during the April 15 to October 15 dry season. Natural Areas Program staff would continue	The Maximum Restoration Alternative includes more aggressive restoration of the Laguna Salada wetland complex, compared to the proposed project. This alternative would extend restoration outside the Natural Area boundary and would restore an additional five acres of habitat for the California red-legged frog and San Francisco garter	The Maximum Recreation Alternative includes restoring Laguna Salada, but restoration would be confined to the geographic limits of the Natural Area and would not encroach into the Sharp Park Golf Course. Laguna Salada would be dredged under this alternative.	The Maintenance Alternative does not include restoration of Laguna Salada, but existing conditions would be maintained at Laguna Salada by removing any additional accumulated sediment and tules during the April 15 to October 15 dry season. Natural Areas Program staff would continue

**Table 20
SNRAMP Alternatives Comparison**

Management Actions	Proposed SNRAMP Project	No Project	Maximum Restoration	Maximum Recreation	Maintenance
		monitoring and relocating California red-legged frogs during the rainy season. The No Project Alternative would continue with restoration outside the Natural Area boundary at Horse Stable Pond, in accordance with the GGNRA Biological Opinion.	snake, for a total of approximately 24 acres of restored habitat. Compared to the proposed project, this alternative would result in additional upland habitat on the northeast edge of Laguna Salada and additional dredging of the Laguna Salada wetland complex water bodies.		monitoring and relocating California red-legged frogs during the rainy season. The Maintenance Alternative would continue with restoration outside the Natural Area boundary at Horse Stable Pond, in accordance with the GGNRA Biological Opinion.

1

VII.A NO PROJECT ALTERNATIVE

VII.A.1 Description

Under this alternative, the SFRPD would continue with management activities authorized under the 1995 management plan (Appendix E and incorporated by reference into this description of the No Project Alternative). This alternative includes activities similar to those outlined for the proposed project. However, the No Project Alternative differs from the proposed project in that programmatic projects would not occur under the 1995 management plan. Therefore, habitat restoration and invasive tree and vegetation removal under the No Project Alternative would likely be smaller in scale. The No Project Alternative would result in fewer trails closed and no new trails created. The No Project Alternative would not close or reduce the size of DPAs. Over time, this alternative likely would result in Natural Areas with characteristics largely similar to those under the proposed project; however, restoration and enhancement actions would be smaller in scale under the No Project Alternative. Activities at Laguna Salada in the Sharp Park Natural Area would be limited to removing accumulated sediment and tules by hand or other low-impact means during the April 15 to October 15 dry season. Laguna Salada would not be dredged, and during the rainy season Natural Areas Program staff would continue monitoring for the California red-legged frog, in compliance with the state and federal ESAs. The No Project Alternative would continue, with restoration work outside the Natural Area near Horse Stable Pond, as authorized by the GGNRA Biological Opinion. These activities include removing invasive plant species by hand. Restoration also includes revegetating the site with coastal grassland and scrub habitat that is optimal habitat for the San Francisco garter snake.

The No Project Alternative would not meet the project objectives because it would not implement a comprehensive program for managing the Natural Areas to maintain and enhance biodiversity and provide appropriate recreation opportunities. Moreover, the No Project Alternative would not restore Laguna Salada, as stated in the project objectives.

Below is a summary of the 1995 management plan's general policies and management actions (SFRPD 1995).

- **Vegetation**
 - Maintain or promote indigenous plant species
 - Control or remove invasive species

- Provide fire breaks where appropriate and maximize indigenous vegetation for fire control
- Use indigenous vegetation for erosion control
- Protect species listed as rare, threatened, or of special concern
- Remove exotic plants, which adversely affect indigenous plant growth
- Enhance riparian areas
- Reforest or replant areas to maintain diversity
- Preserve habitat that supports wildlife
- **Wildlife**
 - Monitor wildlife
 - Consult with other agencies on habitat enhancement
 - Cooperate with other agencies to address issues of such species as feral cats, domestic dogs, and feral geese
 - Develop educational programs with other agencies for wildlife protection
- **Water Resources**
 - Maintain or improve water quality
 - Protect riparian zones from erosion and sedimentation
 - Maintain drainage and erosion prevention devices along roads and service trails
 - Control drainage and runoff from roads
 - Establish and maintain tule encroachment zone around lakes
 - Use proper controls when applying aquatic herbicides
- **Geotechnical/Soils**
 - Minimize erosion along roads and trails
 - Seed or plant bare soils with indigenous vegetation
 - Stabilize embankments where not in conflict with habitat
 - Minimize access on unstable slopes
 - Cooperate with adjacent property owners to minimize erosion and runoff issues

- Clear landslide debris on park property
- Install retaining devices where necessary to stabilize slopes
- **Education**
 - Promote natural resource management among SFRPD staff
 - Develop nature programs to promote recreational and educational values
 - Develop education programs aimed at private property owners
 - Develop education programs with San Francisco Unified School District
- **Public Use**
 - Develop guidelines for pathways and interpretive signs for trails
 - Control dirt bike and off-road use
 - Encourage community participation in a public stewardship program

Compared to the proposed project, the No Project Alternative would involve moderately less invasive tree and vegetation removal and closure of fewer trails. The No Project Alternative would not result in new trails because routine maintenance would be limited to that described in Section III.F.2. Consistent with the SFRPD moratorium,¹ the No Project Alternative would not create any new DPAs.

VII.A.2 Impacts

Land Use and Land Use Planning

The No Project Alternative consists of a continuation of the recommendations in SFRPD's 1995 plan, which identified 28 Natural Areas and defined objectives, policies, and management actions. No site-specific management plans for the 32 Natural Areas would be implemented under the No Project Alternative. Activities would be similar in scale to the routine maintenance activities described for the proposed project and that currently occur under the Natural Areas Program. This alternative would not physically divide an established community, would not conflict with an applicable land use plan, policy, or regulation, and would not impact the character of the vicinity. This alternative would have no impact on land use and land use planning.

¹There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

Aesthetics

The No Project Alternative would improve the presence of native vegetation and would decrease the presence of invasive nonnative vegetation. Compared to the proposed project, the No Project Alternative would moderately reduce the total amount and scale of invasive tree and vegetation removal because the scope of those activities would be limited to levels similar to those described in Section III.F.2 for routine maintenance. Tree removal would be limited to dead, diseased, and hazardous trees and those necessary to meet the goals of the 1995 Management Plan (1995 Management Plan action: Remove exotic plants that adversely affect indigenous plant growth) and would continue to promote conversion to landscape elements found naturally in the Natural Areas. As with the proposed project, this alternative would not have a substantial adverse effect on a scenic vista or substantially degrade the visual character or quality of the site and its surroundings. Additionally, project activities would not substantially damage scenic resources of the natural or built environment, and aesthetic impacts of the No Project Alternative would be less than significant.

Cultural and Paleontological Resources

Under the No Project Alternative, management of the Natural Areas and the cultural and paleontological resources in them would continue under the current management plan, which does not include the mitigation measures afforded those resources under the proposed project. The No Project Alternative does not include programmatic projects and therefore would result in fewer soil-disturbing activities and less potential to affect cultural and paleontological resources. Without implementation of the mitigation measures identified for the proposed project, specifically mitigation measure M-CP-12, which was developed for routine maintenance activities, this alternative would result in greater impacts on cultural and paleontological resources, with respect to ground-disturbing activities. These potentially significant impacts could be reduced to less than significant by implementing mitigation measures similar to those developed for the proposed project.

The No Project Alternative includes vegetation management activities that are similar in size and scale to routine maintenance activities identified for the proposed project. As with the impacts of routine maintenance identified for the proposed project, vegetation removal and restoration under the No Project Alternative would have less than significant impacts on historic landscapes and the Golden Gate Park Historic District.

The No Project Alternative does not include the restoration of the Laguna Salada wetland complex, and actions at Laguna Salada would be limited to hand removal of accumulated sediments, tules,

and invasive plants; therefore, the No Project Alternative would not affect buried or submerged cultural and paleontological resources. Furthermore, the No Project Alternative would not encroach into the Sharp Park Golf Course or modify the golf course in any way and would therefore have no effect on the historical character of the Sharp Park Golf Course.

Wind and Shadow

Under this alternative, altering wind patterns in and near the Natural Areas is expected to be slightly less than that described under the proposed project because this alternative does not include large-scale (greater than half an acre) tree removal. Although this alternative seeks to remove invasive and exotic vegetation, it also calls for replanting native vegetation to maintain diversity; however, such restoration would likely occur on a smaller scale. As with the proposed project, this alternative would not result in significant ground-level wind hazards or wind throw impacts. Selected trees would be removed, which would not result in high ground-level wind speeds. Additionally, dead, diseased, and hazardous trees would be removed under the No Project Alternative, consistent with tree maintenance health and safety goals of the Natural Areas Program; therefore, this alternative would have less than significant wind impacts. Similar to the proposed project, the No Project Alternative does not include any aboveground structures that would create new shadows; therefore, the No Project Alternative would not result in any shadow impacts.

Recreation

Under this alternative, the management direction outlined in the 1995 plan would continue to be implemented. The public use management actions identified in the 1995 management plan have three guidelines for recreation facility management: develop guidelines for pathways and interpretive signs for trails, control dirt bike and off-road use, and encourage community participation in a public stewardship program. These recreation-specific management actions are general and are not site specific, compared to the management actions outlined in the SNRAMP. However, the No Project Alternative does not include programmatic projects and therefore would not result in new trail creation. In the long term, the No Project Alternative may result in a similar number of trail miles within the Natural Areas, as compared to the proposed project, because although the No Project Alternative would not result in new trails, it would close substantially fewer trails. As with the proposed project, the No Project Alternative would not increase the use of neighborhood or regional parks such that these resources would be substantially deteriorated. The No Project Alternative would continue maintaining trails, so trail-related activities would not result in the physical deterioration of recreational resources. As a result, the No Project Alternative would have less than significant impacts on recreation.

The No Project Alternative would not close or reduce any of the existing DPAs and would therefore not increase the use of other DPAs or result in the physical deterioration of recreation facilities. The DPAs identified for closure or reduction have been identified as those that experience the greatest impacts from dogs on sensitive plant and wildlife species and their habitats. (The impact of the No Project Alternative on biological resources is discussed below.) In addition, the GGNRA Dog Management Plan would restrict dogs on GGNRA lands, which may result in potentially significant and unavoidable cumulative impacts from the deterioration of the Natural Areas DPAs. However, the No Project Alternative would not reduce the size or number of DPAs in the Natural Areas and so would contribute considerably to potentially significant cumulative recreation impacts from deterioration of the Natural Areas as a result of dog restrictions.

Under the No Project Alternative, minor maintenance would be conducted in Laguna Salada in the Sharp Park Natural Area and at Horse Stable Pond. This would not encroach on the golf course or otherwise modify the golf course, which would retain its playability. Therefore, the No Project Alternative would have no impact on recreation resources at Laguna Salada from restoration. While the proposed project would have a significant impact on the golf course, it would be mitigated by M-RE-6 and so is not a significant unavoidable impact of the project. However, without the restoration proposed under the SNRAMP, the Sharp Park Golf Course would continue to be flooded during the rainy season and would continue to require seasonal closures.

Biological Resources

Under this alternative, the current management program would continue, allowing for some habitat improvements and routine maintenance as time, staffing, and money allow; however, this would be on a smaller scale than under the proposed SNRAMP because the No Project Alternative does not include the programmatic projects that were identified for the proposed project. Wildlife and vegetation could be disturbed in the short term through habitat improvement activities, such as promoting indigenous species and controlling invasive species. Long-term habitat improvements under the No Project Alternative would continue, but because these activities would be smaller in scale, the No Project Alternative would be less effective at maintaining native plant communities and controlling invasive vegetation. Under the No Project Alternative, no new trails would be created and the acreage of DPAs would not be reduced. Activities at Laguna Salada would include hand removal of tules and accumulated sediment during the dry season and monitoring and relocation of California red-legged frog egg masses during the rainy season. Invasive plant removal and revegetation near Horse Stable pond would continue according to the GGNRA Biological Opinion.

The following is a discussion of the potential biological resources impacts of the No Project Alternative on special status plant and wildlife species, nesting birds, sensitive natural communities and wetlands, and fish and wildlife movement.

Special Status Plant Species. Special status plant species occur throughout the Natural Areas, as discussed in Section V.G., Biological Resources. The No Project Alternative does not include large-scale programmatic projects, and restoration would be smaller in scale and similar to that described for routine maintenance under the proposed project. This alternative includes some vegetation removal and restoration activities that could affect both protected plant species and locally significant plant species through inadvertent removal. Given that the No Project Alternative does not include large-scale programmatic projects and would therefore not require the use of heavy equipment for restoration, impacts on special status plant species from habitat restoration and invasive plant removal would be substantially less under the No Project Alternative. However, it is possible that Natural Areas Program staff or their volunteers may inadvertently remove or destroy special status plant species during maintenance and restoration. These impacts would be mitigated to less than significant by incorporating M-BI-1a and M-BI-1b, which would require the SFRPD to conduct an annual biological training program identifying the types and location of special status plant species that occur throughout the Natural Areas and avoiding direct impacts on those species.

The No Project Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Observation indicates that off-leash dog play and exercise, such as running at high speed, is causing soil erosion and plant damage that affects special status plant species in the DPAs. Use of DPAs at Lake Merced and Bernal Hill could impact protected plant species. Continued use of these DPAs by off-leash dogs would continue to impact special status plant species, resulting in significant impacts on special status plants. Impacts on special status plant species could be reduced or avoided by actions identified in the SNRAMP to close DPAs or modify areas to on-leash dog use only. However, without those specific actions identified in the SNRAMP to close or reduce off-leash dog use, impacts on special status plant species from dogs would continue.

As discussed above, the No Project Alternative does not include large-scale programmatic habitat restoration or invasive species removal; therefore, habitat restoration under the No Project Alternative would be less effective. Encroachment of invasive species and conversion of native habitat to nonnative habitat would be more likely under the No Project Alternative and could threaten the continued existence of sensitive plant species, especially those of limited distribution in the Natural Areas. This potentially significant impact of the No Project Alternative could be

mitigated only by implementing the restoration activities identified in the SNRAMP; therefore, the long-term impacts on special status plant species would be potentially significant.

No special status plant species occur in the Laguna Salada wetland complex in the Sharp Park Natural Area; therefore, restoration at Laguna Salada under the No Project Alternative would have no effect on special status plant species.

Special Status Wildlife Species. Special status wildlife species in the Natural Areas include the mission blue butterfly at Twin Peaks and McLaren Park, the California red-legged frog and San Francisco garter snake at Laguna Salada in Sharp Park, the California red-legged frog, San Francisco garter snake, and San Francisco dusky-footed woodrat in the upper canyon of Sharp Park, the western pond turtle at Sharp Park and Lake Merced, and the western red bat in Golden Gate Park Oak Woodlands, Mount Davidson, Twin Peaks, Pine Lake, and McLaren Park. The Natural Areas also support nesting special status bird species, which include the double-crested cormorant at Lake Merced and the salt marsh common yellowthroat at Lake Merced and Sharp Park.

The No Project Alternative includes smaller scale restoration activities and vegetation removal. These activities, although smaller in scale and without heavy equipment, could still affect special status wildlife species. For example, removing trees in the upper canyon of the Sharp Park Natural Area could disturb or otherwise affect the San Francisco dusky-footed woodrat or its habitat. Impacts on special status species could be reduced to less than significant by implementing Mitigation Measure M-BI-5, which would require the SFRPD to conduct an annual biological training program, identifying the types and location of special status wildlife species that occur throughout the Natural Areas and avoiding impacts on those species. In addition, implementing management action GR-4b, identified for the proposed project, would be required to reduce impacts on special status bird species and to comply with the federal MBTA. Implementing management action GR-4b requires vegetation management to be conducted outside the nesting season to the extent possible. If this is not possible, GR-4b would require a bird survey to be conducted before vegetation removal and to avoid active nests. Implementing M-BI-1a and GR-4b would reduce impacts on special status bird species to less than significant.

The No Project Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Dog use in the DPAs may affect special status wildlife species, including special status birds at Lake Merced and McLaren Park. Continued use of these DPAs by off-leash dogs would continue to impact special status wildlife species, resulting in significant impacts. Impacts on wildlife species could be reduced or avoided by actions identified in the SNRAMP to close DPAs or to modify areas

to be for on-leash dogs only. However, without those specific actions identified in the SNRAMP to close or reduce off-leash dog use, impacts on special status wildlife species from dogs would otherwise be considered significant and unavoidable.

Activities at Sharp Park would continue as they do currently, and restoration would be limited to removing tules and accumulated sediment by hand. The No Project Alternative also calls for removing invasive vegetation and restoring the area near Horse Stable Pond, which is outside the boundaries of the Sharp Park Natural Area. Impacts on protected species at Laguna Salada from these activities could be avoided by implementing M-BI-6a, which would require the SFRPD to conduct an annual biological training program identifying the types and location of special status wildlife species that occur at Laguna Salada and avoiding impacts on those species. Avoidance would include removing tules and sediment during the dry season when the special status species at Sharp Park are less likely to be present.

If the SFRPD decides to take no action, as a result of ongoing natural processes, conditions at the Laguna Salada wetland complex would continue to degrade and be less hospitable to the western pond turtle, California red-legged frog, and San Francisco garter snake, due to increased sedimentation and eutrophication (a condition of dissolved nutrients in a water body promoting plant life, such as algae, which deplete the water's oxygen levels). Substantial deterioration of California red-legged frog, San Francisco garter snake, and western pond turtle habitat could affect the habitat elements required by the species to maintain a viable breeding population. Restoration of the Laguna Salada wetland complex on the scale of the proposed project (which is not included as part of the No Project Alternative), with implementation of mitigation measures developed for the proposed project, is intended to enhance the special status species habitat that may continue to degrade if no action is taken.

Direct impacts on California red-legged frog could occur from continued flooding of the golf course during the rainy season, which may result in red-legged frog egg masses being produced in the high water and stranded after rainstorms. If reauthorized by the USFWS and the CDFG, the SFRPD would continue to monitor and move egg masses deposited outside the Laguna Salada wetland complex to suitable habitat within the wetland complex during the rainy season if flooding results in a risk of stranding.

Migratory Birds. Tree and vegetation removal under the No Project Alternative would be smaller in scale and would not require the use of heavy equipment. The No Project Alternative would also not create new trails, so impacts on migratory birds would be less than those identified for the proposed

project. However, these activities could still disturb migratory birds and destroy active nests. As with the proposed project, the No Project Alternative would be required to comply with the federal MBTA, which prevents the take or destruction of birds and their nests. Compliance with the MBTA would reduce impacts on migratory birds to less than significant. Implementation of management action GR-4b requires vegetation to be removed outside the breeding season to the extent possible and, if that is not possible, requires a pre-construction nesting bird survey and avoidance measures. This would ensure compliance with the MBTA. By implementing these measures and compliance with the MTBA, impacts on migratory birds, including special status bird species, would be less than significant.

Sensitive Natural Communities and Wetlands. The No Project Alternative includes smaller scale restoration activities and vegetation removal. Although they would be smaller in scale and would not include the use of heavy equipment, these activities could still affect sensitive natural communities and wetlands through direct removal of vegetation that comprises the sensitive natural community. Impacts on sensitive natural communities and wetlands would be temporary and in the long term would result in beneficial impacts. That is because the goals of the Natural Areas Program are to protect and enhance native ecosystems, including sensitive natural communities. However, because restoration activities would be smaller in scale, they would be less effective at controlling invasive vegetation, and, in the long-term, impacts on sensitive natural communities and wetlands would be less beneficial than under the proposed project. Temporary impacts of restoration and vegetation removal in sensitive natural communities would be reduced by implementing the following management actions identified in the 1995 management plan:

- Maintain or improve water quality
- Protect riparian zones from erosion and siltation
- Seed or plant bare soils with indigenous vegetation
- Stabilize embankments where not in conflict with habitat
- Install retaining devices where necessary to stabilize slopes
- Enhance riparian areas

In addition, work in the riparian zone or wetlands would require permits from the RWQCB, USACE, or CDFG, which would include avoidance and minimization measures. Impacts on riparian and wetland habitats, sensitive natural communities, and wetlands would be reduced to less than significant by implementing Mitigation Measures M-BI-1a and M-BI-1b. These require that measures

be taken to avoid and minimize impacts on wetlands by limiting construction and vehicle traffic to the maximum extent. Temporary exclusion fencing would be used to protect wetland habitat, and projects would be conducted during the spring and summer to avoid saturated or ponded wetlands and streams.

The No Project Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Dogs observed in the DPAs are affecting sensitive natural communities, including riparian habitat at McLaren Park. Continued use of these DPAs by off-leash dogs would continue to impact sensitive natural communities, resulting in significant impacts. Impacts on sensitive natural communities could be reduced or avoided by actions identified in the SNRAMP to close DPAs or to modify areas to on-leash dog use only. However, without those specific actions identified in the SNRAMP to prohibit or reduce off-leash dog use, impacts on sensitive natural communities from dogs would otherwise be considered significant and unavoidable.

Fish and Wildlife Movement. The No Project Alternative includes restoration and vegetation removal similar in scale to that identified under the proposed project as routine maintenance. As with the proposed project, these activities would occur regularly in the Natural Areas and would not significantly alter nursery sites, habitat corridors, or wildlife movement. Actions identified in the No Project Alternative are intended to enhance riparian areas and indigenous plant species and would result in long-term beneficial impacts. Due to the limited size of restoration activities and ground disturbance under the No Project Alternative, potential impacts on migratory corridors, wildlife movement, and nursery sites would be less than significant.

Cumulative Impacts. Cumulative impacts on biological resources from the GGNRA Dog Management Plan are similar to those under the proposed project. Under the No Project Alternative, impacts on biological resources in DPAs identified for closure or reduction under the SNRAMP would continue. However, because the No Project Alternative would not close or reduce any of the DPAs, there would be no increase in use of other DPAs attributable to the project. Because of this, any additional impacts on biological resources from the project in Natural Area DPAs would not occur, so impacts on biological resources would be less than cumulatively considerable under the No Project Alternative.

Hydrology and Water Quality

Under this alternative, the current management program would continue, providing some erosion control and water quality protection for the Natural Areas. Programmatic actions, such as large-scale tree removal, slope stabilization, and trail creation, would not occur under the No Project

Alternative. Impacts on water quality, the quality of stormwater runoff, erosion, and siltation are similar to those described under routine maintenance for the proposed project. Under the No Project Alternative, the scale of restoration activities are similar to those for routine maintenance under the proposed project. Those activities would not result in significant impacts on hydrology or water quality by implementing those measures identified for the proposed project. Specifically, even minor restoration, using gasoline-powered equipment, such as chainsaws and weed whackers, could result in the accidental release of gasoline or other fluids. Accidental release of these fluids during restoration near water bodies could result in significant impacts on water quality or stormwater runoff. However, by implementing Mitigation Measure M-HZ-14 identified for the proposed project, which requires the SFRPD to develop and implement an emergency response plan for the accidental release of fuels and other hazardous fluids, these impacts would be mitigated to less than significant.

The No Project Alternative also includes measures to control erosion along roads and trails, to minimize access to unstable slopes, and to seed or plant bare soils with indigenous vegetation, resulting in less than significant erosion and sedimentation impacts.

As a result of ongoing natural processes, water quality conditions at the Laguna Salada wetland complex would continue to degrade due to increased sedimentation and eutrophication (a condition of dissolved nutrients in a water body promoting plant life, such as algae, which deplete the water's oxygen levels), resulting in potentially significant long-term impacts on the water quality of Laguna Salada. These long-term impacts could be reduced to less than significant by implementing the proposed restoration of Laguna Salada. Additionally, the No Project Alternative would not relieve the incidence of golf course flooding, resulting in seasonal flooding and closure of the golf course, as discussed in the analysis of the impacts of the No Project Alternative on recreation resources. The No Project Alternative does not include dredging Laguna Salada, so associated impacts on water quality would not occur.

Hazards and Hazardous Materials

Under this alternative, impacts from hazardous materials are similar to those described for routine maintenance under the proposed project. As with the proposed project, restoration activities that require the use of gasoline-powered equipment, including chainsaws and weed whackers, could result in the accidental release of gasoline. This could result in potentially significant impacts on vegetation and water courses. Impacts from the accidental release of hazardous materials could be reduced to less than significant by implementing an emergency response plan, as identified in mitigation measure M-HZ-14. Further, impacts from the use of pesticides and herbicides, lead

contamination, and wildfires are also similar to those described under routine maintenance activities for the proposed project. This is because the SFRPD would be implementing similar management practices while using pesticides that would reduce the potential to impact nearby human populations, wildlife, and groundwater to less than significant.

Reforestation under the No Project Alternative could increase the potential for wildfires. However, this alternative would provide fire breaks and vegetation with low flammability or low fuel volume in areas of high fire hazards. Therefore, the No Project Alternative would result in less than significant wildfire impacts.

At Laguna Salada, under the No Project Alternative, tule stands would be removed by hand. The actions at Laguna Salada would be limited in scale and are anticipated to be less effective at controlling tules, thereby continuing to provide habitat for tule mosquitoes. The San Francisco Department of the Environment and the San Mateo County Mosquito and Vector Control District would continue to implement their programs for controlling and preventing mosquitoes, ticks, and insect-borne diseases, which would reduce the potential for insect-borne diseases to less than significant.

Agriculture and Forest Resources

Similar to the proposed project, this alternative would have no impacts on agricultural resources. The No Project Alternative would remove dead, dying, and diseased trees or trees that pose a public safety hazard. In addition, this alternative would remove exotic trees that could adversely affect indigenous plants species. Overall, this alternative includes moderately less tree removal and seeks to maintain diversity through reforestation. As with the proposed project, this alternative would have less than significant agriculture and forest resources impacts.

Air Quality

The types of air quality impacts under the No Project Alternative would be similar to those described for the routine maintenance under the proposed project. This is because restoration activities would be similar in scale and do not include long-term programmatic projects that would require the use of heavy equipment. As described under the proposed project, routine maintenance activities are similar to current activities conducted in the Natural Areas and therefore would not result in a net increase of fugitive dust, criteria air pollutant emissions, or health risks. As such, air quality impacts under the No Project Alternative would be less than significant. Cumulative air quality impacts could occur from other ongoing or reasonably foreseeable projects near the Natural

Areas. However, as the No Project Alternative would not result in a net increase in air pollutants, this alternative would not result in a considerable contribution to cumulative air quality impacts.

Other Resource Areas

Population and Housing

As with the proposed project, the No Project Alternative does not involve activities that would induce substantial population growth or create the need for constructing replacement housing. There would be no population and housing effects from this alternative.

Transportation and Circulation

Transportation and circulation impacts from implementing this alternative are slightly less than those described under the proposed project. As the No Project Alternative would not reduce or close any DPAs, no additional vehicle trips are expected as a result of people traveling by car to other DPAs.

Noise

Noise impacts under this alternative are less than those described under the proposed project because the No Project Alternative does not include programmatic projects that would require the use of heavy equipment for large-scale projects. The continued use of gasoline-powered equipment, including chainsaws and weed whackers, would be similar in duration and intensity to current activities and to those described under routine maintenance for the proposed project. Therefore, noise impacts under this alternative would be less than significant.

Greenhouse Gas Emissions

Activities under the No Project Alternative are similar to those described for the routine maintenance under the proposed project and similar types and amounts of gasoline-powered equipment would be used. As described under the proposed project, routine maintenance activities would be similar to current activities conducted in the Natural Areas and therefore would not result in a net increase of GHG emissions. Therefore, the No Project Alternative would result in less than significant impacts from GHG emissions.

Utilities and Service Systems

As with the proposed project, reintroducing native species and replacing trees would require irrigation until they become established; however, irrigation needs would be met by existing water supply capacity and would not require new or expanded water supply resources. Water use for irrigation would be slightly lower under the No Project Alternative because restoration would be

smaller in scale. The No Project Alternative does not involve activities that would affect landfill capacity, solid waste regulations, and operation or relocation of local utilities. Impacts of the No Project Alternative on utilities and service systems be less than significant.

Public Services

As with the proposed project, the No Project Alternative does not involve activities that would require construction or modification of public service facilities, nor would activities under the No Project Alternative increase police or fire emergency response times. Therefore, there would be no public services impacts from the No Project Alternative.

Geology and Soils

The No Project Alternative includes restoration activities and vegetation removal that are similar in scale to routine maintenance activities under the proposed project. These activities would not increase seismic or landslide hazards, would not cause a geologic unit to become unstable, would not substantially change the topography of a Natural Area, and would not result in substantial soil erosion.

As with the proposed project, there is a potential for strong ground shaking at all Natural Areas from a nearby earthquake. The No Project Alternative does not include any activities that would increase the exposure of people or structures to adverse effects from seismic ground-shaking or seismic failure. Similar to the proposed project, this alternative would not have the potential to increase landslide hazards because restoration activities and vegetation removal would be limited in scale to activities similar to those described under routine maintenance for the proposed project. In addition, the No Project Alternative would result in beneficial impacts by reducing the risk from potential landslides through management actions identified for minimizing erosion and stabilizing slopes and other embankments.

The No Project Alternative includes measures to minimize erosion and revegetate bare soils. While restoration under this alternative would initially disturb soils, those activities would not cause a geologic unit or soil to become unstable, resulting in a less than significant impact. While this alternative includes activities that would disturb the ground, the magnitude and location of those activities would not be sufficient to substantially change the topography, to impact any unique geologic or physical features of the Natural Areas, or to result in substantial soil erosion. Therefore, impacts of the No Project Alternative on geology and soils would be less than significant.

Mineral and Energy Resources

As with the proposed project, use of motorized equipment and vehicles for management activities under this alternative would consume fuel (diesel and gasoline), but those consumption amounts are expected to be minor and similar to current consumption levels. None of the activities under this alternative would result in the loss of availability of a mineral resource or mineral resource recovery site. Similar to the proposed project, the mineral and energy resources effects of the No Project Alternative would be less than significant.

VII.B MAXIMUM RESTORATION ALTERNATIVE

VII.B.1 Description

Under this alternative, the SFRPD would restore native habitat and convert nonnative habitat to native habitat wherever possible throughout the Natural Areas, including all management areas. The Maximum Restoration Alternative prioritizes activities related to endangered species protection and recovery and maximum enhancement of biodiversity. Compared to the proposed project, this alternative emphasizes the restoration of native habitat over recreational uses and nonnative habitat. Over time, this alternative would likely result in Natural Areas with a greater amount of native habitat and habitat supporting native species and special status plants and wildlife, not only in MA-1 management areas but also in MA-2 and MA-3 areas. As the Maximum Restoration Alternative would prioritize habitat restoration over recreation, this alternative would close additional trails in MA-1 and MA-2 areas, with most trails in the MA-3 areas. No new trails would be created under this alternative.

Under the Maximum Restoration Alternative, programmatic projects would focus on restoring habitat and removing invasive species. The Natural Areas Program would extend focused restoration of native plant communities not only to MA-1 areas but would more aggressively restore native plant communities in MA-2 and MA-3 areas; the reintroduction of native plants and habitats would extend into MA-3 areas. The Maximum Restoration Alternative would increase the amount of invasive tree and vegetation removal, replacing these areas with native plants.

The Maximum Restoration Alternative would further reduce the amount of DPA acreage, as compared to the proposed project, focusing on closing or reducing the DPA acreage in MA-1 and

MA-2 areas. Consistent with the SFRPD moratorium² on new DPAs, this alternative would not add any new DPAs to the Natural Areas.

The Maximum Restoration Alternative includes more extensive habitat restoration at the Laguna Salada wetland complex than the proposed project. Similar to the proposed project, this alternative would extend restoration outside the Natural Area boundary but also would restore up to an additional five acres of habitat for the California red-legged frog and San Francisco garter snake. In total, the Maximum Restoration Alternative would restore approximately 24 acres of land for the benefit of these threatened and endangered species. The more extensive recovery efforts include creating additional upland habitat on the northeast edge of Laguna Salada and additional dredging of the water bodies at the Laguna Salada wetland complex.

In summary, the Maximum Restoration Alternative would accomplish the following:

- Reduce off-leash dog use
- Reduce public access
- Increase removal of nonnative trees and other nonnative vegetation
- Include a greater amount of coastal scrub, native grassland, wetland and riparian and oak/native woodland habitat restoration
- Increase the ability for the Natural Areas to support native plants and special status plants and wildlife
- Expand restoration of the Laguna Salada marsh complex

The Maximum Restoration Alternative meets some, but not all, of the project objectives presented in Section III.C. Specifically, the Maximum Restoration Alternative does not meet the objective related to recreation, as the Maximum Restoration Alternative would provide additional restrictions on public use and access of the Natural Areas.

²There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

VII.B.2 Impacts

Land Use and Land Use Planning

The Maximum Restoration Alternative would result in the greatest amount of restored, created, and enhanced native habitat in all three types of management areas (MA-1, MA-2 and MA-3) and a reduction in the amount of land devoted to recreation. Recreation would still occur in all Natural Areas, but informal trails and social trails in the most sensitive areas would be closed. Routine maintenance under this alternative would be similar in scale to that described for the proposed project and that currently occurs under the Natural Areas Program. As with the proposed project, this alternative would not physically divide an established community, conflict with applicable land use plans, policies, or regulations, or have a substantial impact on the character of the vicinity. This alternative would have less than significant land use and land use planning impacts.

Aesthetics

The Maximum Restoration Alternative would have aesthetic impacts similar to those under the proposed project but with moderately more invasive vegetation and tree removal projects. Therefore, although the types of aesthetic impacts are similar to those of the proposed project, the magnitude of those impacts on scenic resources in the Natural Areas and on the visual character or quality of the Natural Areas would be greater than under the proposed project because the Maximum Recreation Alternative would result in more changes to vegetation. However, invasive tree and vegetation removal would be followed by revegetation with native plants, so, overall, the Natural Areas would continue to be characterized as relatively undeveloped landscapes that allow for recreation. As evidenced in the visual simulations under the proposed project at Sharp Park and Mount Davidson, tree removal would not result in noticeable changes to the visual character or quality of the Natural Areas and would not have a substantial adverse effect on a scenic vista. Even with a moderately greater number of trees removed, as proposed under the Maximum Restoration Alternative, tree removal, which would be followed by revegetation with native trees and other native plants, would not significantly affect scenic views or vistas and would not result in a substantial demonstrable impact on the visual character or quality of the Natural Areas. Similar to the proposed project, under the Maximum Restoration Alternative, new trees would be placed in the Natural Areas to preserve important viewsheds and vistas. As such, the Maximum Restoration Alternative would have less than significant aesthetics impacts.

Cultural and Paleontological Resources

Under the Maximum Restoration Alternative, impacts on cultural and paleontological resources are similar to those under the proposed project and possibly greater as a result of more aggressive habitat restoration, which would remove more nonnative and invasive vegetation. However, those

impacts resulting from recreation aspects of the SNRAMP, such as trail construction, would be removed, so impacts on cultural and paleontological resources under the Maximum Restoration Alternative would be relatively similar to those of the proposed project. Programmatic large-scale projects and routine maintenance activities would continue to have the potential for significant impacts on cultural and paleontological resources; however, these impacts would be reduced to less than significant by implementing mitigation measures similar to those developed for the proposed project.

The Maximum Restoration Alternative includes would remove more invasive trees and vegetation than the proposed project and would revegetate these areas with native plants, resulting in greater alterations to the vegetation in the Natural Areas. However, the scale of vegetation changes in potentially eligible historic landscapes or forests would be relatively minor in a given Natural Area and would not result in a substantial adverse impact on the Golden Gate Park Historic District or contributing sites. Implementation of programmatic projects, such as the construction of erosion control structures, could result in a substantial adverse change to the significance of a historic resource. However, impacts on historic resources from programmatic projects would be mitigated to less than significant by implementing M-CP-1, which would require the SFRPD to avoid installing any such structures that would have an adverse effect on any potentially eligible historic resources.

Under the Maximum Restoration Alternative, the magnitude of impacts on the Sharp Park Golf Course's historical architectural resources would be greater than under the proposed project because the conversion of additional land to Natural Areas would increase the magnitude of the alterations to the historical character-defining features of the Sharp Park Golf Course. As for the proposed project, the available mitigation measures would not sufficiently reduce this impact below the level of significance, resulting in significant and unavoidable impacts. The significant impacts of the Sharp Park restoration under this alternative on eligible and identified historic resources are similar to those under the proposed project, although greater in magnitude, and could be reduced by implementing mitigation measures similar to those developed for the proposed project. However, Mitigation Measure M-RE-1 and Measure CP-7 would not reduce impacts to less than significant, and, similar to the proposed project, impacts of the Maximum Restoration Alternative on the character-defining features of the Sharp Park Golf Course would be significant and unavoidable.

Impacts on archaeological and paleontological resources at the Sharp Park Natural Area could be greater in magnitude, given that the restoration project area outside of the proposed Natural Area boundary has not been studied, and the presence or sensitivity of the additional area is unknown. The additional ground-disturbing activities associated with restoration under this alternative could

have significant impacts on subsurface resources, but they could be reduced to less than significant by implementing mitigation measures similar to those developed for the proposed project.

Wind and Shadow

Under this alternative, there would be a greater potential increase in the alteration of wind patterns within and near the Natural Areas, due to increased invasive tree removal. However, implementation of this alternative would also adhere to the tree removal guidelines in Section III.E, including one-for-one replacement of trees in San Francisco Natural Areas, and would follow the Urban Forestry Statements of the SNRAMF for tree removal techniques and system-wide practices. Therefore, although the potential for altering wind patterns would be higher than under the proposed project, the estimated impacts would still be less than significant. Similar to the proposed project, this alternative does not include any aboveground structures that would create new shadows; therefore, it would result in no shadow impacts.

Recreation

This alternative has impacts similar to those discussed for the proposed project. However, implementing management actions that restore native habitat throughout all Natural Areas would take precedent over implementing management actions for recreation facilities. Compared to the proposed project, this alternative involves no new trails in the Natural Areas, thereby providing reduced recreation opportunities. The Natural Areas Program would continue to promote passive recreation.

This alternative would further reduce the size of existing DPAs, so it could increase the use of the remaining DPAs, potentially resulting in greater physical deterioration of recreation facilities, compared to the proposed project. As with the proposed project, these impacts are expected to be less than significant. Within the cumulative timeframe, the GGNRA Dog Management Plan also would restrict dog use on GGNRA lands that may result in potentially significant and unavoidable cumulative impacts associated with the physical deterioration of the Natural Areas DPAs. As with the proposed project, this alternative could make a considerable contribution to the cumulative recreation impact of increased dog use on recreation resources, resulting in a significant and unavoidable impact.

As with the proposed project, while the amount of trail coverage would be reduced, trail access would be maintained in all Natural Areas, resulting in less than significant impacts on those recreation facilities. The impacts on the Sharp Park Golf Course identified under the proposed project would be greater under this alternative because of the increased amount of golf course

property converted to Natural Area for wetland restoration; this potentially significant impact could be reduced to less than significant by implementing mitigation measures similar to those developed for the proposed project.

Biological Resources

This alternative would have the greatest long-term beneficial impacts on biological resources compared to the other alternatives. The greatest extent of land would be restored from nonnative to native habitat, thus improving habitat and biodiversity for common plants and wildlife, special status species, and migratory species. This alternative involves removing moderately more invasive trees and creating no new trails. In the short term, this alternative would substantially disturb habitats by increased human presence, noise, trampling, and machinery from invasive vegetation removal and other programmatic restoration projects. Additional tree removal would increase the potential to impact nesting birds. However, as under the proposed project, the overall percentage of trees removed would still be small relative to the total number of trees left in place, so long-term impacts on birds would be less than significant. Compared to the proposed project, the Laguna Salada wetland complex restoration project would be expanded to include more habitat beyond the Natural Areas boundary (up to five acres). These restoration activities would result in short-term impacts on special status species and sensitive wetland and riparian habitat during construction but would result in long-term beneficial impacts on California red-legged frog and San Francisco garter snake species by increasing their habitat through additional wetland conversion and habitat restoration. The same mitigation measures discussed under the proposed project would be implemented under the Maximum Restoration Alternative, reducing impacts on biological resources to less than significant with mitigation. Cumulative impacts on biological resources as a result of the GGNRA Dog Management Plan are similar to the proposed project and could be significant; however, unlike the proposed project, this alternative is not anticipated to result in a considerable contribution to cumulative biological resources impacts because it would protect biological resources to the greatest extent.

Compared to the proposed project, this alternative includes additional restoration and management actions that would improve habitat for protected species and native species. Vegetation and wildlife could experience greater short-term disturbance and greater long-term habitat improvements from the greater amount of invasive vegetation removed and native vegetation planted.

The following discusses the potential biological resources impacts of the Maximum Restoration Alternative on special status plant and wildlife species, nesting birds, sensitive natural communities and wetlands, and fish and wildlife movement.

Special Status Plant Species occur throughout the Natural Areas, as discussed in Section V.G, Biological Resources. As with the proposed project, protected plant species could be inadvertently removed or destroyed during the programmatic and routine removal of invasive vegetation, resulting in a significant impact. These impacts would be mitigated to less than significant by incorporating M-BI-1a , M-BI-1b, and M-BI-5, which require the Natural Areas Program staff to conduct an annual biological training program identifying the types and location of special status plant species that occur throughout the Natural Areas and avoiding direct impacts on those species. For programmatic projects M-BI-1a and M-BI-1b require SFRPD to first avoid impacts on special status plants. If avoidance measures are infeasible, these mitigation measures require the SFRPD to minimize impacts on special status plants, to restore impacted areas, and to compensate for losses of protected plant species.

This alternative would further reduce DPA acreage in MA-1 and MA-2 areas, which are most sensitive. Although closing DPAs in MA-1 and MA-2 areas may increase DPA use in MA-3 areas, MA-3 areas are the least sensitive and are not likely to be near special status plant species. Overall, closing DPAs in MA-1 and MA-2 areas would protect special status plant species more than the proposed project, resulting in greater long-term beneficial impacts.

The Sharp Park restoration would not affect special status plant species because none are known to occur in the Laguna Salada wetland complex.

Special Status Wildlife Species in the Natural Areas are the Mission Blue butterfly at Sharp Park and McLaren Park; the California red-legged frog and San Francisco garter snake at Laguna Salada in Sharp Park; the California red-legged frog and San Francisco dusky-footed woodrat in the upper canyon of Sharp Park; the western pond turtle at Sharp Park and Lake Merced; and the western red bat in Golden Gate Park, Mount Davidson, Twin Peaks, Pine Lake, and McLaren Park. The Natural Areas also support special status bird species, addressed in the Migratory Birds section below.

Programmatic projects and routine maintenance under this alternative may have greater impacts on these species through short-term disturbance associated with the increased vegetation removal and revegetation. However, these impacts would be temporary and in the long term are anticipated to result in beneficial impacts on these species. Similar to the proposed project, these impacts could be reduced to less than significant by implementing Mitigation Measures M-BI-1a, which require Natural Areas Program staff to conduct an annual biological training program identifying the types and location of special status wildlife species that occur throughout the Natural Areas and avoiding direct impacts on them.

Reducing DPA acreage may increase impacts on special status wildlife species in or next to the remaining DPAs by increasing the use of those DPAs. Potential impacts on special status wildlife species could be reduced by actions identified in the SNRAMP to close DPAs or modify use of DPAs in those areas, in accordance with the SFRPD Dog Policy. On the other hand, closing DPAs in the most sensitive habitat areas, MA-1 and MA-2 areas, may also protect specific wildlife species that are likely to occur within or in proximity to DPAs in those areas.

Sharp Park restoration under this alternative may have greater short-term impacts on special status wildlife species due to the greater project area that would be disturbed during restoration. Similar to the proposed project, these impacts could be reduced to less than significant by implementing Mitigation Measure M-BI-6. Over the long term, this alternative would result in greater amount of habitat restored for protected species, in particular the San Francisco garter snake.

Migratory Birds. As under the proposed project, programmatic vegetation removal and other ground-disturbing activities may affect migratory and nesting bird species. With the increase in vegetation removal, this alternative would have a greater potential to affect migratory birds. This alternative would also include measure GR-4b in the SNRAMP, which would ensure that vegetation is managed outside the breeding season (February 1 through August 31), unless these activities had already begun before the breeding season and had already disturbed the area, or a breeding bird survey had been completed first. By implementing M-BI-1 and GR-4b, impacts on special status bird species would be reduced to less than significant. As with the proposed project, vegetation removal as part of routine maintenance also may affect migratory bird species; this impact would be reduced to less than significant by implementing measure GR-4b in the SNRAMP. Sharp Park restoration would also implement measure GR-4b of the SNRAMP before any vegetation is removed, reducing potential migratory bird impacts to less than significant.

Sensitive Natural Communities and Wetlands. The greater amount of programmatic vegetation removal and replacement under this alternative would increase short-term disturbance of sensitive natural communities and wetlands, compared to the proposed project. While these impacts would be temporary, implementing Mitigation Measure M-BI-1 would reduce temporary impacts on riparian and wetlands by requiring avoidance and minimization measures. In addition, those projects involving work in the riparian zones or wetlands would require permits from the San Francisco Bay RWQCB, the USACE, or CDFG, which may include additional avoidance and minimization measures. Over the long term, this alternative would result in the greatest amount of protection and restoration of sensitive natural communities, particularly coastal scrub, coastal dune, and oak

woodland habitats, and may result in greater amount of wetland and riparian habitat throughout the Natural Areas.

This alternative would further reduce DPA acreage, focusing on MA-1 and MA-2 areas, which are the most sensitive. Although closing DPAs in MA-1 and MA-2 areas may increase DPA use in MA-3 areas, MA-3 areas are the least sensitive and are not likely to be near sensitive natural communities. Overall, closing DPAs in MA-1 and MA-2 areas would protect sensitive natural communities more than under the proposed project. Additionally, any observed impacts of dog use on sensitive natural communities could be reduced by actions identified in the SNRAMP to close DPAs or modify use of those areas, in accordance with the SFRPD Dog Policy.

Native grassland and coastal scrub habitat at Sharp Park would increase as a result of the efforts to create additional upland areas for the San Francisco garter snake. The Sharp Park wetland impacts under this alternative are similar to those of the proposed project and would be mitigated to less than significant by implementing Mitigation Measure M-BI-12a and M-BI-12b.

Fish and Wildlife Movement. Greater invasive vegetation removal under this alternative may have greater temporary impacts on migratory bird habitat, compared to the proposed project. This potentially significant impact would be mitigated by implementing measure GR-4b of the SNRAMP. Over the long term, the native vegetation replacement activities would likely result in beneficial impacts on migratory birds and their habitat.

As with the proposed project, short-term disturbance of the Laguna Salada wetland complex as part of Sharp Park restoration would have significant impacts on wildlife movement and migratory corridors. Implementing Mitigation Measure M-BI-6a and M-BI-6b would reduce this impact to less than significant.

Cumulative Impacts. The combined reductions in Natural Area DPAs and off-leash areas under the GGNRA Dog Management Plan would increase use of the remaining off-leash areas, resulting in cumulatively significant impacts on biological resources in or near those areas. While this alternative seeks to protect biological resources to the greatest extent, like the proposed project, this alternative would also close DPAs, which combined with the actions proposed by the GGNRA could result in concentrated dog use within the remaining off-leash areas. Increased use may result in impacts to biological resources within the Natural Areas DPAs, including disturbance of breeding birds. The cumulative combination of proposed dog management for the Natural Areas and the GGNRA project could result in indirect significant impacts on biological resources in the Natural Areas.

Similar to the proposed project, the comparative contributions of each project to this potentially significant cumulative impact cannot be determined based on the speculative nature of the behavioral and physical factors contributing to that determination, and this alternative's contribution is conservatively determined to be *significant and unavoidable*.

Hydrology and Water Quality

This alternative involves more programmatic invasive vegetation removal and native vegetation replacement than under the proposed project. The reduction in trail coverage under this alternative would concentrate use of existing trails, possibly requiring more maintenance of those trails, but would reduce the potential for erosion from construction and use of new trails. More tree removal would expose more of the ground surface to short-term direct impacts of erosion caused by rainwater and runoff until replacement vegetation was established. This greater amount of tree removal also would increase the potential for short-term soil disturbance and resulting runoff. However, as under the proposed project, the overall percentage of trees removed would still be small relative to the total number of trees left in place. Invasive trees removed from San Francisco Natural Areas would be replaced with native trees. Also, as under the proposed project, trees would be removed gradually, using methods designed to minimize soil disturbance, root-balls would left in place, and new vegetation cover would be planted to fill exposed areas. Potential spills of gasoline or other petroleum products from motorized equipment used for the programmatic projects also may affect water quality. By implementing Mitigation Measures M-HY-1 and M-HZ-13, as discussed under the proposed project, the water quality impacts under this alternative would be reduced to less than significant.

Routine maintenance also may result in accidental releases of gasoline or other petroleum products from motorized equipment used for those activities. Implementing Mitigation Measure M-HZ-14, as discussed under the proposed project, would reduce to less than significant potential water quality impacts from the accidental release of petroleum products.

Compared to the proposed project, the Laguna Salada wetland complex would be expanded to include up to five acres of additional habitat restoration beyond the Natural Area boundary, which could result in additional short-term impacts on water quality from erosion and sedimentation; however, in the long term, reduced sediment loading is expected as adjacent areas stabilize. By implementing Mitigation Measures M-HY-1 and M-HZ-13, as discussed under the proposed project, the water quality impacts of Sharp Park restoration under this alternative would be reduced to less than significant.

Hazards and Hazardous Materials

Under this alternative, impacts related to the use of hazardous materials are similar to those described for the proposed project. Because of the similarity of programmatic activities, the impacts from mosquitoes and ticks, herbicides, and lead contamination would also be less than significant. The SFRPD would implement similar management practices for use of pesticides that would reduce the potential to impact nearby human populations, wildlife, and groundwater. Also, the San Francisco Department of the Environment and the San Mateo County Mosquito and Vector Control District would continue to implement their current programs for pesticide use and for controlling or preventing mosquitoes, ticks, and insect-borne diseases. Due to the increased vegetation removal and replacement, the impacts of wind throw and wildfires would be greater than under the proposed project but are still considered less than significant. Similar to the proposed project, this alternative's programmatic projects could increase the potential for hazardous materials release. Implementing Mitigation Measure M-HZ-13, which requires developing and implementing emergency response plans, would reduce those impacts to less than significant.

Routine maintenance also may result in accidental releases of gasoline or other petroleum products from motorized equipment. As for the proposed project, implementing Mitigation Measure M-HZ-14 would reduce this impact to less than significant.

Potential hazardous material impacts resulting from the Sharp Park restoration project under this alternative are similar to those under the proposed project and would be reduced to less than significant by implementing Mitigation Measure M-HZ-13.

Agriculture and Forest Resources

Similar to the proposed project, this alternative would have no impacts on agricultural resources. This alternative seeks the maximum amount of restoration, so more invasive trees and vegetation may be removed and replaced with native trees, grassland habitat, and scrub habitat, compared to the proposed project. This alternative would remove a greater amount of invasive trees, but it would enhance native habitat. As with the proposed project, this alternative would result in less than significant impacts from tree removal and native vegetation replacement and would have no impact from conflicting with zoning for forest land and timberland.

Air Quality

The Maximum Restoration Alternative likely would emphasize the improvement of native habitat over recreation and includes increased urban forest removal and increased restoration of areas supporting native plants and animals. This alternative could result in programmatic air quality

impacts similar to those described under the proposed project. As for the proposed project, impacts from fugitive dust emissions and health risk impacts would be less than significant; however, programmatic projects could result in significant unavoidable impacts by exceeding the BAAQMD thresholds for NO_x emissions. Similar to the proposed project, the contribution from this project to regional air quality would be cumulatively considerable, resulting in a significant and unavoidable cumulative impact.

As with the proposed project, routine maintenance under this alternative is expected to occur at a level similar to what it is now and would result in less than significant air quality impacts.

The increased Sharp Park restoration would result in significant unavoidable impacts by exceeding the BAAQMD thresholds for NO_x emissions, similar to the proposed project. These impacts would be reduced by implementing Mitigation Measure M-AQ-4, but not to a level of insignificance; therefore, criteria air pollutant impacts under this alternative are similar to those of the proposed project and would be significant and unavoidable. The restoration project is expected to have less than significant impacts on fugitive dust emissions and health risk impacts.

Other Resource Areas

Population and Housing

As with the proposed project, the Maximum Restoration Alternative does not involve activities that would induce substantial population growth or create the need for replacement housing. There would be no population and housing effects from this alternative.

Transportation and Circulation

Transportation and circulation impacts from implementing this alternative are similar to those described under the proposed project. However, as this alternative would seek a maximum restoration of the Natural Areas, it could result in greater closures and reductions in size of DPAs in the Natural Areas. Therefore, users of closed or reduced DPAs may be required to use other DPAs, potentially increasing the number of vehicle trips to and from them. Although the exact number of vehicle trips that would result under this alternative cannot be quantitatively estimated, a small percentage of the DPA users are expected to access other DPAs on a daily basis using personal vehicles. Therefore, the increase in vehicle trips under this alternative would be less than significant.

Noise

Noise impacts under this alternative are similar to those described under the proposed project. Similar types and amounts of equipment would be used, so noise impacts would be less than significant.

Greenhouse Gas Emissions

The Maximum Restoration Alternative would result in Natural Areas with less urban forest, compared to the proposed project. With more tree removal and less forest acreage, less carbon may be sequestered than under the proposed project; however, as discussed for the proposed project, shrubs and grasses are also significant sources of carbon sequestration. While impacts related to GHG emissions under the Maximum Restoration Alternative could be greater than those described under the proposed project, the SFRPD would comply with the *Greenhouse Gas Analysis: Compliance Checklist* for activities in the City and County of San Francisco and applicable regulations to reduce impacts from GHGs; therefore, the Maximum Restoration Alternative impacts related to GHG emissions would be less than significant.

Utilities and Service Systems

Compared to the proposed project, reintroducing native species and replacing trees would have greater short-term irrigation water needs for establishing vegetation under this alternative; however, irrigation needs would be met by existing water supply capacity and would not require new or expanded water supply resources. The Maximum Restoration Alternative does not involve any activities that would affect landfill capacity, solid waste regulations, and operation or relocation of local utilities. Therefore, impacts on utilities and service systems would be less than significant.

Public Services

As with the proposed project, the Maximum Restoration Alternative does not involve any activities that would require constructing or modifying public service facilities, so there would be no public service impacts from this alternative.

Geology and Soils

Compared to the proposed project, this alternative would result in greater ground disturbance from increased restoration. The resulting increased potential for soil erosion would be addressed by the erosion control measures called for in the SNRAMP. There is a potential for strong ground shaking at all Natural Areas from a nearby earthquake. Under this alternative, the increased likelihood that people or structures would experience adverse effects from strong ground shaking would be less than significant because the potential increased user population would not be exposed to an

increased potential for ground failure in the Natural Areas. This alternative would have less than significant landslide effects because it includes measures that would minimize erosion and reduce the risk from potential landslides. While activities under this alternative would disturb soils, those activities would not cause a geologic unit or soil to become unstable, resulting in a less than significant impacts. This alternative includes activities that would result in ground disturbance, but the magnitude and location of those activities would not be sufficient to substantially change the topography or any unique geologic or physical features of the Natural Areas. As a result, the geology and soils effects of this alternative would be less than significant.

Mineral and Energy Resources

Compared to the proposed project, use of motorized equipment and vehicles for management activities under this alternative would consume similar amounts of fuel as the proposed project, and those consumption amounts are expected to be minor. None of the activities under this alternative would result in the loss of availability of a mineral resource or mineral resource recovery site. The mineral and energy resources effects of this alternative would be less than significant.

VII.C MAXIMUM RECREATION ALTERNATIVE

VII.C.1 Description

The Maximum Recreation Alternative would restore and improve access to the Natural Areas for recreation wherever it does not interfere with the continued existence of native vegetation and federally or state-listed sensitive species. Compared to the proposed project, this alternative focuses restoration in MA-1 areas and prioritizes recreation opportunities in MA-2 and MA-3 areas. Over time, less habitat identified by the SNRAMP would be restored, while all or most of the recreation-related projects, such as trail network improvement, would be implemented. As such, the Maximum Recreation Alternative includes substantially less invasive tree and vegetation removal, thereby resulting in a long-term increase in the presence of nonnative species and a reduction in native habitat. Tree and vegetation removal would be limited to that necessary to meet the Natural Areas Program tree maintenance health and safety goals and those trees required to be removed for trail creation or other projects providing additional recreation facilities (picnic areas and playgrounds).

The Maximum Recreation Alternative would close informal and social trails in MA-1 areas but not all informal and social trails in MA-2 and MA-3 areas. This alternative includes moderately more trail creation in MA-2 and MA-3 areas than the proposed project and would also allow mountain biking and horseback riding where those uses would not conflict with special status species and their habitats (both protected species and locally significant species). Over time, the Maximum

Recreation Alternative would result in Natural Areas with a greater amount of trail coverage, less native plant and animal habitat, and a greater amount of nonnative urban forest coverage. The Maximum Recreation Alternative would not close or reduce DPAs, but no new DPAs would be created in the Natural Areas, consistent with the SFRPD moratorium³ on new DPAs. Large-scale programmatic projects would occur under this alternative, but most of those projects would be to provide new trails or other recreation facilities in the Natural Areas.

The Maximum Recreation Alternative includes restoration of the wetland complex at Laguna Salada. However, restoration would differ from the proposed project in that it would be limited to the geographic limits of the Natural Area; restoration would not encroach on the golf course operations, except as required for temporary construction. The primary focus of restoration at the Laguna Salada wetland complex under this alternative is to remove tules, cattails, and excess sediment and organic matter, requiring dredging of Laguna Salada. Sediment traps or a sediment basin, or both, would be installed at Laguna Salada. Compared to the proposed project, this alternative would result in less edge and upland habitat for the San Francisco garter snake.

In summary, the Maximum Recreation Alternative would:

- Not close or reduce existing DPAs
- Add trails to inaccessible areas, such as the west slope of Glen Canyon
- Preserve some of the social trails identified in the SNRAMP for decommissioning
- Create or modify trails to increase multiuse activities, such as mountain biking and horses
- Establish new recreation facilities, such as playgrounds and picnic areas
- Restore less habitat, resulting in a greater presence of nonnative vegetation
- Restore only the areas in the geographic limits of the Natural Area surrounding the Laguna Salada marsh complex

The Maximum Recreation Alternative meets some, but not all, of the project objectives presented in Section III.C. In particular, the Maximum Recreation Alternative does not meet the objective related to enhancement of the native ecosystem and biodiversity because this alternative would result in an

³There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

overall decrease in habitat restoration and management of the Natural Area's resources as compared to the proposed project. The Maximum Recreation Alternative would only include restoration/enhancement of Laguna Salada within the geographic limits of that Natural Area, providing more limited benefits to special status species, as compared to the proposed project.

VII.C.2 Impacts

Land Use and Land Use Planning

The Maximum Recreation Alternative provides maximum recreational use in Natural Areas and would result in less habitat restoration. This alternative would not physically divide an established community. Similar to the Maximum Restoration Alternative, this alternative would impact only the internal use of the Natural Areas by prioritizing recreation.

By prioritizing recreation and providing greater opportunities for a wider variety of recreation, the Maximum Recreation Alternative would restore less habitat, potentially conflicting with San Francisco Recreation and Open Space Element Policy 2.13, which states that "native plant habitats should be preserved and efforts undertaken to remove exotic plant species from these areas." If recreation goals are prioritized, resulting in less habitat restored, preservation of habitats supporting native plants and animals may be reduced. Additionally, Policy 2.13 of the Recreation and Open Space Element references the 1995 plan as containing "policies governing access and recreational use and enjoyment of protected natural areas to ensure that the natural resource values are not diminished or impacted by public use." However, Policy 1 of the Environmental Protection Element calls for achieving "a proper balance among the conservation, utilization, and development of San Francisco's natural resources." While the Recreation and Open Space Element protects native habitats in the Natural Areas, the General Plan also contains policies to ensure a balance between the protection of natural resources and access to those resources. The Maximum Recreation Alternative would increase in recreation opportunities, which could result in less habitat protection and restoration to the extent that management goals do not interfere with the continued existence of special status species, including federally or state-listed species. Although portions of some of the Natural Areas may eventually accommodate more recreational uses, this alternative, as proposed, would not result in a significant impact from conflicting with General Plan policies or other policies or regulations governing the protection of natural resources.

The Maximum Recreation Alternative would increase recreation opportunities in Natural Areas. Given that recreation is a current use in the Natural Areas, providing additional recreation opportunities would not result in substantial changes to the land use, and there would be no

substantial impact on the character of the Natural Areas or their vicinity. This alternative would have less than significant land use and land use planning impacts.

The proposed restoration at Laguna Salada in the Sharp Park Natural Area would not physically divide an established community, conflict with an applicable land use plan, policy, or regulation, or impact the character of the vicinity. The Laguna Salada restoration, as proposed under this alternative, would have no impact on land use and land use planning.

Aesthetics

The Maximum Recreation Alternative would improve recreational access to the Natural Areas wherever this does not interfere with the continued existence of special status species and their habitats. Compared to the proposed project, this alternative would result in additional recreation facilities (e.g., additional trails and picnic areas) and in some Natural Areas would allow for additional recreation opportunities, including mountain biking and horseback riding, resulting in greater use of the Natural Areas over time. This alternative would also result in less invasive tree and vegetation removal and less large-scale habitat restoration projects, including invasive species removal. Under the Maximum Recreation Alternative, the visual character of the Natural Areas would consist of a greater presence of recreation and nonnative vegetation. Although this outcome may be undesirable from the perspective of preserving the native vegetation in the Natural Areas, it would not substantially degrade the visual character of the Natural Areas because the Natural Areas would continue to be characterized as relatively undeveloped landscapes that provide recreation opportunities. The Natural Areas Program would continue routine maintenance, which would ensure that recreation would not substantially degrade the visual quality of the Natural Areas. As with the proposed project, construction of recreation facilities would require subsequent environmental review; however, new trails and other similar facilities, such as picnic areas, would not substantially damage scenic resources of the natural or built environment. Similar to the proposed project, the Maximum Recreation Alternative would not result in a substantial adverse effect on a scenic vista, and impacts on aesthetic resources under this alternative would be less than significant.

Cultural and Paleontological Resources

Under the Maximum Recreation Alternative, impacts on cultural and paleontological resources are similar to those described under the proposed project. However, impacts from restoration would be lessened or removed. This quantitatively lower level of impact would be offset by an increase in impacts from additional recreation facilities, such as the establishment of new trails. These

potentially significant impacts could be reduced to less than significant by implementing mitigation measures similar to those developed for the proposed project.

The Maximum Recreation Alternative includes large-scale programmatic projects, most of which would consist of construction of new trails and other recreation facilities. These projects would require subsequent environmental review once specific alignments and location of those facilities are developed. However, similar to the proposed project, construction of those facilities would not result in a substantial adverse impact on historic landscapes or forests and would not result in a substantial adverse impact on the Golden Gate Park Historic District or contributing sites. Implementation of other types of programmatic projects, such as the construction of erosion control structures, could result in a substantially adverse change to the significance of a historic resource. However, impacts on historic resources, as a result of programmatic projects, would be mitigated to less than significant by implementing M-CP-1, which would require the SFRPD to avoid installing any structures that would have an adverse effect on potentially eligible historic resources. Therefore, by implementing mitigation measures identified for the proposed project, impacts on historic resources would be less than significant.

At the Sharp Park Natural Area, restoration of the Laguna Salada wetland complex would be limited to the geographic boundary of the Natural Area and would not modify the layout of the Sharp Park Golf Course. Impacts on buried or submerged cultural or paleontological resources under the Maximum Recreation Alternative are similar to the proposed project and could be reduced to less than significant by implementing Mitigation Measure M-CP-7. Given that restoration would be confined to the Natural Area boundary, the Maximum Recreation Alternative would not modify the Sharp Park Golf Course and would have no effect on the historical character of the golf course.

Wind and Shadow

Compared to the proposed project, the Maximum Recreation Alternative would result in substantially less invasive tree removal. Tree removal would be limited to dead, diseased, and hazardous trees, consistent with SFRPD tree maintenance health and safety goals. Additionally, some trees may be removed for the construction of new trails and other recreation facilities. Under the Maximum Recreation Alternative, tree removal techniques would follow the Urban Forestry Statements of the SNRAMP. As with the proposed project, this alternative would not result in significant ground-level wind speeds or wind throw impacts, so it would have less than significant wind impacts.

The Maximum Recreation Alternative may include construction of aboveground recreation facilities, including picnic areas and playgrounds. These facilities would not create new shadows that would substantially affect outdoor recreation activities, and shadow impacts under the Maximum Recreation Alternative would be less than significant.

Recreation

The Maximum Recreation Alternative would prioritize recreation facility construction over habitat restoration. In addition, this alternative would allow for multiuse of trails for mountain biking and horseback riding where those uses would not conflict with protection of special status species and their habitats (both protected species and locally significant species). Compared to the proposed project, the Maximum Recreation Alternative would not close or reduce DPAs. As such, the Maximum Recreation Alternative would increase use of the Natural Areas. However, under this alternative, Natural Areas Program staff would continue routine maintenance, which would ensure that the physical deterioration of recreation facilities (trails, DPAs, and other facilities) would not be substantially degraded.

As discussed above, the Maximum Recreation Alternative would not close or reduce DPAs in the Natural Areas and would therefore not contribute to more intense use of other DPAs, as a result of displaced dog owners. However, the GGNRA Dog Management Plan would restrict dog use on GGNRA lands, potentially increasing dog use in the Natural Areas, which may result in the deterioration of the Natural Areas DPAs. Because this alternative would not close or reduce DPAs, unlike the proposed project, the Maximum Recreation Alternative would not contribute to potentially significant cumulative impacts from increased dog use, resulting in the deterioration of DPAs in the Natural Areas. Therefore, the Maximum Recreation Alternative's contribution to potentially cumulatively significant impacts on recreational resources would be less than cumulatively considerable.

At the Sharp Park Natural Area, restoration of the Laguna Salada wetland complex would be limited to the geographic boundary of the Natural Area and would not encroach on the Sharp Park Golf Course or modify the golf course in any way. Therefore, the Maximum Recreation Alternative would have no impact on recreational resources at Sharp Park as a result of restoration. Restoration at Laguna Salada would include removing tules, cattails, and excess sediment and organic matter and would require dredging of Laguna Salada. Sediment traps or a sediment basin, or both, would also be installed in Laguna Salada. These improvements would increase the capacity of Laguna Salada to accommodate runoff during the rainy season, reducing the potential for, and extent of, seasonal flooding of the golf course.

Biological Resources

The Maximum Recreation Alternative would be least effective at improving habitats in the Natural Areas. Special status species, riparian areas, sensitive habitats, wetlands, migratory species and corridors, and nursery sites would be protected as required by federal, state, and local laws. Compared to the proposed project, this alternative emphasizes creating multiuse trails over protecting and restoring native habitat (excluding special status species and their habitats). However, under the Maximum Recreation Alternative, funding would be prioritized for recreation (trail creation, for example) over habitat restoration. Over time, fewer of the habitat restoration projects identified by the Natural Areas Program would be implemented; as such, the Maximum Recreation Alternative includes substantially less invasive tree and vegetation removal, thereby resulting in a long-term increase in nonnatives and a reduction in native habitat. Tree and vegetation removal would be limited to that necessary to meet the Natural Areas Program tree maintenance health and safety goals and those trees required to be removed for trail creation or other projects providing additional recreation facilities (picnic areas and playgrounds). Over time, the Maximum Recreation Alternative would result in Natural Areas with a greater number of trails, less native plant and animal habitat, and a greater amount of nonnative urban forest and invasive species.

Below is a discussion of the potential biological resources impacts of the Maximum Recreation Alternative on special status plant and wildlife species, nesting birds, sensitive natural communities and wetlands, and fish and wildlife movement.

Special Status Plant Species occur throughout the natural areas, as discussed in Section V.G, Biological Resources. The Maximum Recreation Alternative includes large-scale programmatic projects, most of which would construct new trails and other recreation facilities, although some large-scale projects to improve native habitat would still occur. Large-scale programmatic projects would require subsequent environmental review once specific alignments and locations of those facilities and restoration projects are developed. However, similar to the proposed project, large-scale programmatic projects could result in significant impacts on special status plant species (both protected species and locally significant species). In addition, the Maximum Recreation Alternative includes routine maintenance, as described under the SNRAMP. It is possible that Natural Areas Program staff, volunteers, or contractors for large-scale programmatic projects may inadvertently remove or destroy special status plant species during maintenance and restoration and other programmatic projects. These impacts would be mitigated to less than significant by incorporating mitigation measures M-BI-1a and M-BI-1b, as identified for the proposed project. M-BI-1a, required

for all programmatic projects would require that, before implementing programmatic projects, the SFRPD conduct special status plant surveys identifying the location of all sensitive plants in the project footprint. M-BI-1a also requires the SFRPD to avoid impacts on those plant species to the extent feasible, through such actions as realigning trails and minimizing trail development in high quality special status plant habitat. If avoidance mechanisms are not possible, M-BI-1 requires the installation of flagging and temporary fencing that restricts SFRPD contractor access to sensitive areas during programmatic projects. Where avoidance and minimization measures are not adequate to reduce impacts on special status plant species, M-BI-1a further requires habitat restoration or compensation for impacts on special status plant species. Furthermore, M-BI-5 would reduce impacts on special status plant species that may occur as a result of routine maintenance by requiring the SFRPD to conduct annual biological training, identifying the types and location of special status plant species that occur throughout the Natural Areas and avoiding direct impacts on those species.

The Maximum Recreation Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Observation indicates that dogs in the DPAs are affecting special status plant species, including those at Lake Merced and Bernal Hill. Continued use of these DPAs by off-leash dogs would continue to impact special status plant species, resulting in significant impacts on special status plants. Impacts on special status plant species could be reduced or avoided by actions identified in the SNRAMP to close DPAs or to modify areas to on-leash dog use only. However, without those specific actions identified in the SNRAMP to close or reduce off-leash dog use, impacts on special status plant species from dog use would otherwise be considered significant and unavoidable.

The Maximum Recreation Alternative would result in a more trails created and diversity in trail users. Over the long term, increased use of the Natural Areas could result in a greater impact on special status plant species than the proposed project by increasing human disturbance, presence, trampling, and the spread of weeds in Natural Areas. These potentially significant impacts could be reduced to less than significant by implementing management actions identified in the SNRAMP, such as GR-2c (protect sensitive species and vegetation from human disturbance) and mitigation measures identified for the proposed project, including M-BI-1a, which requires the SFRPD staff to limit public access in areas where special status plant species are being affected by posting signs or installing exclusionary fencing. By implementing these measures, impacts of the Maximum Recreation Alternative on special status plant species would be less than significant.

As discussed above, the Maximum Recreation Alternative would be less effective at improving special status species and native habitats in the Natural Areas than under the proposed project. Over time, the Maximum Recreation Alternative would result in Natural Areas with less native plant and animal habitat and a greater level of nonnative urban forest and invasive species coverage. This alternative, however, would not prohibit large-scale habitat restoration and invasive tree removal and therefore would be more beneficial by preserving and enhancing special status plant species habitat than either the No Project or Maintenance Alternatives. Additionally, as with all alternatives considered in this EIR, the Maximum Recreation Alternative would protect special status plant species as required by federal, state, and local laws during implementation of programmatic projects and routine maintenance. However, the lack of focus on restoring native habitats and removing invasive species under the Maximum Restoration Alternative could threaten the continued existence of sensitive plant species in the Natural Areas, especially those of limited distribution in the Natural Areas. The potentially significant impact of the Maximum Recreation Alternative could only be mitigated by implementing the restoration activities identified in the SNRAMP; therefore, the long-term impacts on special status plant species could be significant.

No special status plant species occur in the Laguna Salada wetland complex in the Sharp Park Natural Area. Therefore, restoration at Laguna Salada under the Maximum Recreation Alternative would have no effect on special status plant species.

Special Status Wildlife Species in the Natural Areas are listed above under the biological resources analysis for the No Project Alternative and in Section V.G, Biological Resources.

The impacts of programmatic projects under the Maximum Recreation Alternative are similar to those described for the proposed project. The Maximum Recreation Alternative would prioritize recreation projects over habitat restoration or invasive tree removal projects and, over the long term, would be the less beneficial than the proposed project. This alternative, however, would not prohibit large-scale habitat restoration and invasive tree removal and therefore could be more beneficial by preserving and enhancing special status wildlife species habitat than either the No Project or Maintenance Alternatives. Large-scale programmatic projects would require subsequent environmental review once specific alignments and location of those facilities and restoration projects are developed. However, similar to the proposed project, large-scale programmatic projects could result in significant impacts on special status wildlife species. In addition, the Maximum Recreation Alternative includes routine maintenance, as described under the proposed SNRAMP. It is possible that Natural Areas Program staff, volunteers, or contractors for large-scale programmatic projects may inadvertently affect special status wildlife species during maintenance and restoration

and other programmatic projects. Potential impacts on special status wildlife would be mitigated to less than significant by incorporating Mitigation Measures M-BI-1a and M-BI-1b, as identified for the proposed project. M-BI-1a would be required for all programmatic projects and would require that, before implementing programmatic projects, the SFRPD survey the project site, according to applicable special status species survey protocols, to identify whether any such species occur in the project footprint or could otherwise be affected by the project. M-BI-1a also requires the SFRPD to avoid impacts on those species to the extent feasible, through such actions as realigning trails (to avoid, for example, woodrat nests) and minimizing trail development in high quality special status wildlife habitat. If avoidance mechanisms are not possible, M-BI-1a requires the installation of flagging and temporary fencing that restricts SFRPD contractor access to sensitive areas during implementation of programmatic projects. Where avoidance and minimization measures are not adequate to reduce impacts on special status wildlife species and their habitats, M-BI-1a further requires habitat restoration or compensation of impacts on these species. Furthermore, M-BI-5 would reduce impacts on special status wildlife that may occur as a result of routine maintenance by requiring the SFRPD to conduct annual biological training to identify the types and location of those species that occur throughout the Natural Areas and avoiding impacts on special status wildlife species.

In addition, implementing management action GR-4b identified for the proposed project would be required to reduce impacts on special status bird species and to comply with the federal MBTA. Implementing management action GR-4b requires vegetation management to be conducted outside of the breeding season to the extent possible. If this is not possible, GR-4b would require a bird survey to be conducted before vegetation is removed and to avoid active nests. Implementing M-BI-1a and GR-4b would reduce impacts on special status bird species to less than significant.

The Maximum Recreation Alternative would not close or reduce DPAs in the Natural Areas. Dog use in the DPAs may affect special status wildlife species and nesting birds, including those at Lake Merced and McLaren Park. Continued use of these DPAs by off-leash dogs would continue to impact special status wildlife species and nesting birds, resulting in significant impacts on special status wildlife. Impacts on special status wildlife species and nesting birds could be reduced or avoided by actions identified in the SNRAMP to close DPAs or modify areas to on-leash dog use only. However, without those specific actions identified in the SNRAMP to close or reduce off-leash dog use, impacts on special status wildlife species and nesting birds from dog use would otherwise be considered significant and unavoidable.

The Maximum Recreation Alternative would result in a greater amount of trail creation and diversity in trail users. Over the long term, increased use of the Natural Areas could result in a greater impact on special status wildlife than under the proposed project by increasing human disturbance and presence. Increased human use could also result in more litter and intentional disturbance to wildlife. These potentially significant impacts could be reduced to less than significant by implementing management actions identified in the SNRAMP: GR-11c (routinely monitor Natural Areas for new social trails and close or reroute any trails that impact sensitive species or sensitive habitat or that contribute to erosion) and mitigation measures identified for the proposed project, including M-BI-1a (require Natural Areas Program staff to limit public access in areas where special status plant species are being affected by posting signs or installing exclusionary fencing). By implementing these measures, impacts of the Maximum Recreation Alternative on special status wildlife species would be less than significant.

Overall, the Maximum Recreation Alternative would be less effective at improving special status species and native habitats in the Natural Areas than the proposed project and would likely result in Natural Areas with less native plant and animal habitat and a greater amount of nonnative urban forest and invasive species coverage. This alternative, however, would not prohibit large-scale habitat restoration and invasive tree removal. As with all alternatives considered in this EIR, the Maximum Recreation Alternative would protect special status wildlife species, as required by federal, state, and local laws, during programmatic projects and routine maintenance. However, the lack of focus on restoring native habitats and removing invasive species under the Maximum Restoration Alternative could threaten the continued existence of special status wildlife species in the Natural Areas, especially those with limited distribution. This potentially significant impact of the Maximum Recreation Alternative could only be mitigated by implementing the restoration activities identified in the SNRAMP; therefore, in the long term, impacts on special status wildlife species could be significant.

The Laguna Salada wetland complex would be restored under the Maximum Recreation Alternative. However, restoration would differ from the proposed project in that activities would be limited to the geographic boundaries of the Sharp Park Natural Area and therefore would not be as extensive. Restoration at Laguna Salada would include removing tules, cattails, and excess sediment and organic matter and would require dredging of Laguna Salada. Sediment traps and a sediment basin, or both, would also be installed in Laguna Salada. Additional upland habitat for the San Francisco garter snake would be created where this additional habitat is contained in the Natural Area boundary. Restoration could result in short-term construction impacts on special status wildlife species. However, these impacts could be reduced to less than significant by implementing

mitigation measures identified for the proposed project, specifically implementation of M-BI-1a. In the long term, restoration of Laguna Salada under this alternative would result in less edge and upland habitat being restored and would be less beneficial for the California red-legged frog and San Francisco garter snake. However, the Maximum Recreation Alternative would improve the current conditions for these species, but to sufficiently achieve recovery of the San Francisco garter snake and California red-legged frog under the Maximum Recreation Alternative, restoration at a scale similar to that under the proposed project would be required. Overall, restoration would increase the capacity of the Laguna Salada wetland complex to accommodate runoff during the rainy season, reducing the potential for, and extent of, seasonal flooding of the golf course. If reauthorized by the USFWS and the CDFG, the SFRPD would continue to monitor and move egg masses deposited outside the Laguna Salada wetland complex to suitable habitat within the wetland complex during the rainy season if flooding results in a risk of stranding.

Migratory Birds. Tree and vegetation removal under the Maximum Recreation Alternative would be smaller in scale than the proposed project because it would be limited to those necessary to maintain forest health and safety and limited to those required to be removed for creating new trails or other recreation facilities. However, tree and vegetation removal under the Maximum Recreation Alternative could still disturb migratory birds and destroy active nests. As with the proposed project, the Maximum Recreation Alternative would be required to comply with the federal MBTA, which prevents the take or destruction of birds and their nests. Compliance with the MBTA would reduce impacts on migratory birds to less than significant. Implementing management action GR-4b, which requires vegetation to be removed outside the breeding season to the extent possible, and if not possible, requires a pre-construction nesting bird survey and avoidance measures, would ensure compliance with the MBTA. By implementing these measures and complying with the MBTA, impacts on migratory birds, including special status bird species, would be less than significant. Impacts on nesting birds as a result of DPAs are addressed above under special status wildlife species.

Sensitive Natural Communities and Wetlands. Under the Maximum Recreation Alternative, the SFRPD would favor recreation facilities over habitat restoration and invasive species removal. In the long term, the Maximum Recreation Alternative would restore native habitat, including sensitive natural communities (such as native grasslands) and would be less effective at controlling invasive vegetation.

Construction-related impacts on sensitive natural communities and wetlands from programmatic projects under the Maximum Recreation Alternative are similar to those under the proposed project.

They would require implementing the erosion control BMPs identified for the proposed project to reduce erosion and impacts of erosion on water quality. Trail creation and other programmatic projects would include the use of heavy equipment and could affect sensitive natural communities and wetlands through direct removal of vegetation that comprises the sensitive natural community. Impacts on sensitive natural communities and wetlands would be temporary and could be reduced to less than significant by implementing mitigation measure M-BI-1a.

The Maximum Recreation Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Observation indicates that dogs are affecting sensitive natural communities in the DPAs, including riparian habitat at McLaren Park. Continued use of these DPAs by off-leash dogs would continue to impact sensitive natural communities, resulting in significant impacts. Impacts on sensitive natural communities could be reduced or avoided by actions identified in the SNRAMP to close DPAs or to modify areas to on-leash dog use only. However, without those specific actions identified in the SNRAMP to close or reduce off-leash dog use, impacts on sensitive natural communities from dogs would otherwise be considered significant and unavoidable.

Fish and Wildlife Movement. The Maximum Recreation Alternative favors implementing recreation facilities over habitat restoration. Over time, the Maximum Recreation Alternative would result in Natural Areas with a greater amount of trail coverage, less native plant and animal habitat, and a greater amount of nonnative urban forest coverage. In effect, the Maximum Recreation Alternative would result in greater fragmentation of habitat and a higher incidence of human disturbance to wildlife species. However, the Natural Areas would remain relatively undeveloped and would continue to serve as corridors for wildlife movement. There would not be significant impacts on migratory corridors, wildlife movement, or nursery sites.

Cumulative Impacts on biological resources as a result of the GGNRA Dog Management Plan would be similar to those of the proposed project. These impacts are potentially significant, but the Maximum Recreation Alternative would not close or reduce any of the DPAs and would therefore not have the potential to increase the use of other DPAs or result in additional impacts on biological resources as a result of consolidating the use of dogs in Natural Areas DPAs. Dog use in the Natural Areas would continue to have project-level significant impacts on biological resources; however, because the Maximum Recreation Alternative would not close or reduce any DPAs, it would not have a considerable contribution to this cumulatively significant biological resources impact.

Hydrology and Water Quality

Under this alternative, impacts on hydrology and water quality would be similar to but slightly greater than the impacts described for the proposed project. This is because this alternative would favor creating recreation facilities over habitat restoration, including large-scale erosion control projects. In addition, the Maximum Recreation Alternative would add new trails to inaccessible areas, such as slopes along Glen Canyon, and would allow for multiuse activities, including mountain biking and horseback riding. Natural Areas Program staff would continue with routine maintenance, as described in the SNRAMP.

Large-scale programmatic trail creation projects, especially trails on slopes, could increase erosion and may affect water quality or stormwater quality. Impacts on water and stormwater quality, erosion, and siltation are similar to those described for programmatic projects under the proposed SNRAMP. Impacts on hydrology and water quality could be reduced to less than significant by implementing the erosion control BMPs identified for the SNRAMP, as applicable for each programmatic project. Additionally, programmatic projects, including trail creation using heavy or other gasoline-powered equipment could result in the accidental release of gasoline or other fluids. If this were to happen during implementation of programmatic projects or routine maintenance, it could have significant impacts on water or stormwater quality. However, mitigation measures M-HZ-13 and M-HZ-14 require the SFRPD to develop and implement an emergency response plan for the accidental release of fuels and other hazardous fluids for programmatic projects and routine maintenance; therefore, these impacts would be mitigated to less than significant.

In the long term, the Maximum Recreation Alternative would result in more intense use of the Natural Areas as a result of additional trails and from allowing more intensive uses, such as mountain biking and horseback riding, potentially increasing erosion, which may affect nearby water and stormwater quality. Potential long-term impacts could be mitigated by implementing measures identified in the SNRAMP, as follows:

- Management action GR-11c (routinely monitor Natural Areas for new social trails and close or reroute any trails that impact sensitive species or sensitive habitat or that contribute to erosion);
- Management action GR-12a (revegetate steep slopes that have very thin vegetation to promote general soil stability); and
- The erosion control BMPs identified in the SNRAMP, as applicable, when areas are found to be experiencing erosion as a result of more intense use of the Natural Areas.

By implementing the actions identified in the proposed project, potential impacts on water quality from increased erosion would be reduced to less than significant.

At the Laguna Salada wetland complex in the Sharp Park Natural Area, restoration would include removing tules, cattails, and excess sediment and organic matter. It would require dredging and installing sediment traps or a sediment basin, or both, in Laguna Salada. Construction-related impacts on hydrology and water quality are similar to the proposed project and could be reduced to less than significant by implementing mitigation measure HY-1. In the long term, restoration at Laguna Salada under the Maximum Recreation Alternative would be beneficial as these activities would reduce sedimentation or eutrophication of the wetland complex. Restoration proposed for Laguna Salada under the Maximum Recreation Alternative would increase the capacity of Laguna Salada to accommodate runoff during the rainy season, reducing the potential for, and extent of, seasonal flooding of the golf course.

Hazards and Hazardous Materials

Hazards and hazardous materials impacts under the Maximum Recreation Alternative are similar to those of the proposed project. Programmatic projects, including trail creation, as well as routine maintenance that requires diesel- or gasoline-powered equipment, including heavy-duty construction vehicles, chainsaws and weed whackers, could result in the accidental release of gasoline. This could have significant impacts on vegetation and water courses. Impacts from the accidental release of hazardous materials could be reduced to less than significant by implementing an emergency response plan, as identified in Mitigation Measures M-HZ-13 and M-HZ-14. Further, impacts from pesticides and herbicides, lead contamination, and wildfires would be similar to those described for the proposed project, as the SFRPD would implement similar management practices while using pesticides that would reduce the potential to impact the nearby human populations, wildlife, and groundwater to less than significant.

Although the Maximum Recreation Alternative would result in a greater use of the Natural Areas, this would not significantly increase the potential for wildfires. Therefore, the Maximum Restoration Alternative would result in less than significant wildfire impacts.

Restoration at Laguna Salada includes dredging the wetland complex and removing cattails and tules and would therefore remove habitat for tule mosquitoes. Similar to the proposed project, the San Francisco Department of the Environment and the San Mateo County Mosquito and Vector Control District would continue to implement current programs for controlling and preventing

mosquitoes and ticks that would reduce the potential for insect-borne diseases to less than significant.

Agriculture and Forest Resources

Similar to the proposed project, this alternative would have no impacts on agricultural resources. The Maximum Recreation Alternative would remove dead, dying, and diseased trees or trees that pose a public safety hazard. In addition, creating new trails and other recreation facilities may remove additional trees throughout the Natural Areas. Overall, this alternative includes substantially less invasive tree removal. As with the proposed project, this alternative would have less than significant agricultural and forest resources impacts.

Air Quality

The air quality impacts under the Maximum Recreation Alternative are similar to those described for the proposed project. Programmatic projects, including creating additional trails and other recreation facilities, would require the use of heavy equipment. The magnitude and scale of activities under this alternative are similar to those described under the proposed project. As with the proposed project, the impacts from fugitive dust emissions and health risk impacts would be less than significant, as described in Section V.K; however, programmatic projects could result in significant unavoidable impacts by exceeding the BAAQMD thresholds for NO_x criteria pollutant emissions. Therefore, the Maximum Restoration Alternative would result in significant unavoidable air quality impacts with regard to criteria pollutants and less than significant impacts with regard to fugitive dust and health risks. Similar to the proposed project, the contribution from this project to regional air quality would be cumulatively considerable, resulting in a significant and unavoidable cumulative criteria air pollutant impacts.

Other Resource Areas

Population and Housing

As with the proposed project, the Maximum Recreation Alternative does not involve activities that would induce substantial population growth or create the need for replacement housing. There would be no population and housing effects from this alternative.

Transportation and Circulation

Transportation and circulation impacts from this alternative are similar to those described under the proposed project. However, as this alternative would seek to improve access to recreation in the Natural Areas, this would result in a higher number of visitors. Therefore, the number of vehicle

trips is expected to be higher under this alternative. However, most of the visitors would either walk, bike, or drive short distances from locations close to the Natural Areas. Even with the improvement of the recreational areas, the increase in visitors to the Natural Areas and associated increase in vehicle trips would not result in a significant increase in traffic that could affect the traffic load and capacity of the street system or exceed the level of service for designated roads or highways. Therefore, the transportation and circulation impacts under this alternative are expected to be less than significant.

Noise

Similar to the proposed project, construction of programmatic projects, including new trails and other recreation facilities under this alternative could result in temporary increases in noise levels. Construction-related noise impacts would be discontinuous, would be of very short duration, and would occur during daytime hours, consistent with applicable construction noise ordinances. Therefore, construction noise impacts would be less than significant. Over the long term, the Maximum Recreation Alternative would increase use of the Natural areas, potentially increasing noise levels. However, noise impacts are not expected to exceed current standards or expose persons living near the Natural Areas to substantial noise impacts. Therefore, the Maximum Recreation Alternative would have less than significant noise impacts.

Greenhouse Gas Emissions

Greenhouse gas emissions under the Maximum Recreation Alternative are similar to those of the proposed project, except that this alternative may result in additional emissions from increased visitor use. The Maximum Recreation Alternative would improve access to recreation in the Natural Areas and would result in a higher number of visitors. Therefore, this alternative is anticipated to increase vehicles trips and associated greenhouse gas emissions. However, most of the visitors would either walk, bike, or drive short distances from locations close to the Natural Areas, so the Maximum Recreation Alternative would not result in a significant amount of greenhouse gas emissions from vehicle trips.

On the other hand, this alternative would result in substantially less invasive tree removal. Tree removal would be limited to those that are dying, diseased, and hazardous and only those to be removed to accommodate recreation facilities. Dead, dying, and diseased trees are not able to store accumulated carbon as efficiently as healthy trees, and after a time no longer serve as sufficient carbon sinks. Overall, the SFRPD would be required to comply with the *Greenhouse Gas Analysis: Compliance Checklist* for activities in the City and County of San Francisco and applicable regulations

to reduce impacts from greenhouse gases. Therefore, greenhouse gas emission impacts under this alternative would be similar to the proposed project and are considered less than significant.

Utilities and Service Systems

The Maximum Recreation Alternative favors constructing recreation facilities over restoring habitat, so, compared to the proposed project, this alternative would require less irrigation water. Irrigation needs would be met by existing water supply capacity and would not require new or expanded water supply resources. The Maximum Recreation Alternative does not involve activities that would affect landfill capacity, solid waste regulations, and operation or relocation of local utilities. Impacts of the Maximum Recreation Alternative on utilities and service systems would be less than significant.

Public Services

As with the proposed project, the Maximum Restoration Alternative does not involve activities that would require constructing or modifying public service facilities, nor would activities under this alternative increase police or fire emergency response times; therefore, there would be no public services impacts from this alternative.

Geology and Soils

The Maximum Recreation Alternative includes activities and that are similar in scale to programmatic project activities identified under the proposed project. These activities would not increase seismic or landslide hazards, cause a geologic unit to become unstable, substantially change the topography of a Natural Area, or result in substantial soil erosion.

As with the proposed project, there is a potential for strong ground shaking at all Natural Areas due to a nearby earthquake. The Maximum Recreation Alternative does not include any activities that would increase the exposure of people or structures to adverse effects from seismic ground-shaking or seismic failure. Similar to the proposed project, this alternative would not increase landslide hazards.

In the long term, the Maximum Recreation Alternative would result in more intense use of the Natural Areas from creating additional trails and from allowing more intensive uses, such as mountain biking and horseback riding, potentially increasing erosion. The potential long-term impacts could be reduced by implementing measures identified in the SNRAMP, as follows:

- Management actions GR-11c (routinely monitor Natural Areas for new social trails and close or reroute any trails that impact sensitive species or sensitive habitat or that contribute to erosion);
- GR-12a (revegetate steep slopes that have very thin vegetation to promote general soil stability); and
- The erosion control BMPs identified in the SNRAMP, as applicable, when areas are found to be experiencing erosion.

By implementing the erosion-control management actions identified in the proposed project, potential erosion impacts would be reduced to less than significant.

Programmatic project activities, such as creating new trails, would initially disturb soils; however, implementing erosion control measures identified as part of the proposed project would reduce the potential for construction to substantially erode soil. Also, it would prevent a geologic unit or soil from becoming unstable and so would result in a less than significant impact.

While this alternative includes activities that would result in ground disturbance, the magnitude and location of those activities would not be sufficient to substantially change the topography or to impact any unique geologic or physical features of the Natural Areas. By implementing the erosion control management actions identified for the proposed SNRAMP, erosion impacts from the Maximum Recreation Alternative would be less than significant.

Mineral and Energy Resources

Compared to the proposed project, the Maximum Recreation Alternative would increase visitor use, resulting in a minor increase in vehicle use and associated fuel. However, improved Natural Areas may also encourage more local nonmotorized forms of recreation, potentially resulting in minor reductions in vehicle miles traveled, thus reducing fuel consumption. None of the activities under this alternative would result in the loss of availability of a mineral resource or mineral resource recovery site. Similar to the proposed project, the mineral and energy resources effects of the Maximum Recreation Alternative would be less than significant.

VII.D MAINTENANCE ALTERNATIVE

VII.D.1 Description

Under the Maintenance Alternative the general components of the SNRAMP, the SFRPD would implement BMPs, adaptive management, IPM, and the monitoring plan, which are detailed in

Chapter III. Under this alternative, the SFRPD would maintain the current distribution of native and nonnative habitat and species throughout the Natural Areas. There would be no conversion of nonnative habitat to native habitat, and other features of the Natural Areas also would be retained. There would be less habitat restoration and less invasive tree and vegetation removal compared to the proposed project. Over time, this alternative likely would result in Natural Areas with habitat and recreation characteristics similar to those currently present; habitat in MA-2 and MA-3 areas would naturally convert to eucalyptus, ivy, blackberry, and invasive shrub species.

As the Maintenance Alternative would preserve the current trail system, it would not close trails or create new trails. The Maintenance Alternative would not close or reduce DPAs; however, no new DPAs would be created in the Natural Areas, consistent with the SFRPD moratorium⁴ on new DPAs. Large-scale programmatic projects would occur under this alternative, but most of those projects would be directed at erosion control, with some invasive vegetation removal and no trail modifications.

Activities at Laguna Salada in the Sharp Park Natural Area would be limited to removing accumulated sediment and tules by hand or other low-impact means during the dry season (April 15 to October 15). Laguna Salada would not be dredged, and during the rainy season Natural Areas Program staff would continue monitoring for the California red-legged frog, in compliance with the state and federal ESAs.

In summary, the Maintenance Alternative would:

- Primarily employ passive management in MA-1, MA-2 and MA-3 areas to preserve the distribution and abundance of native and nonnative vegetation assemblages
- Not close or create trails
- Not close or reduce existing DPAs
- Not restore the Laguna Salada marsh complex

The Maintenance Alternative meets some, but not all of the project objectives presented in Section III.C. Specifically, the Maintenance Alternative does not meet the objectives related to enhancement

⁴There is direction from the Recreation and Park Commission not to establish new DPAs until systemwide DPA planning is completed. For the purposes of this EIR, this is considered a moratorium in that no new DPAs are reasonably foreseeable. This direction was announced at the October 10, 2006, meeting of the San Francisco Dog Advisory Committee.

of the native ecosystem and biodiversity and restoration of the Laguna Salada wetland complex. The Maintenance Alternative would not result in restoration projects that address the issues that may adversely affect the ecosystem functions and biological diversity in the Natural Areas. Furthermore, the Maintenance Alternative would not provide additional recreation opportunities compatible with San Francisco's natural resources. This alternative would be generally feasible.

VII.D.2 Impacts

Land Use and Land Use Planning

The Maintenance Alternative would implement fewer management actions, compared to the proposed project. Current recreation and habitat areas would remain unchanged. This alternative would not physically divide an established community because no action would be undertaken that would represent a significant physical change to the Natural Areas.

This alternative may conflict with San Francisco and City of Pacifica policies, which call for trail improvements, habitat enhancement, and native or appropriate vegetation and forestation. Policy 2.13 states that "native plant habitats should be preserved and efforts undertaken to remove exotic plant species from these areas." By limiting trail development, conservation, and restoration in the Natural Areas, certain policy goals may not be fulfilled. While the Maintenance Alternative does not fully meet the objectives of the governing land use policies, it would not result in a significant land use impact and would not alter the permitted land use.

As stated before, the Maintenance Alternative would not result in new trails or undertake significant restoration. With minimal change to the use of the Natural Areas anticipated as part of the Maintenance Alternative, there would be no substantial impact on the character of the vicinity.

In summary, the Maintenance Alternative would not physically divide an established community, conflict with land use policies, or have a substantial impact on the character of the Natural Areas and their vicinity and would have less than significant land use and planning impacts.

Aesthetics

The Maintenance Alternative would not improve the presence of native vegetation and would not increase natural landscape elements in local Natural Areas because the SFRPD would only prevent the spread of invasive nonnative vegetation and would not increase native vegetation. The Maintenance Alternative may remove exotic species and trees and would maintain the distribution and abundance of native vegetation; the types of impacts associated with those activities are similar to those of the proposed project. The impacts on scenic resources in the Natural Areas and on the

visual character or quality of the Natural Areas would be less than those of the proposed project because there would be only limited vegetation alteration. There would be less active vegetation management under the Maintenance Alternative, compared to both the No Project Alternative and the proposed project, resulting in the least alteration of the visual landscape. Because of this, the Maintenance Alternative would not result in a substantial adverse effect on a scenic vista, would not substantially degrade the visual character or quality of the site and its surroundings, and would not substantially damage scenic resources of the natural or built environment. As with the proposed project, this alternative would have less than significant impacts on aesthetics.

Cultural and Paleontological Resources

Compared to the proposed project and other alternatives, impacts on cultural and paleontological resources would be at their lowest under the Maintenance Alternative. The current condition of the Natural Areas would be maintained with considerably limited ground-disturbing activities. While reduced, this alternative would result in some ground disturbance, and the archaeological and paleontological resources impacts of those management activities could be significant. By implementing the mitigation measures identified for the proposed project, including Mitigation Measure M-CP-10, which was developed for routine maintenance at archeologically sensitive Natural Areas (Tank Hill and Lake Merced), ground-disturbing activities proposed under this alternative would also result in less than significant impacts on archaeological and paleontological resources.

This alternative includes vegetation management that is similar in scale to the routine maintenance identified for the proposed project, which would result in less than significant impacts on historic landscapes and the Golden Gate Park Historic District.

The Maintenance Alternative does not include restoring the Laguna Salada wetland complex, and actions at Laguna Salada would be limited to hand removal of accumulated sediments, tules, and the invasive plant species at Horse Stable Pond. This alternative would not encroach on the Sharp Park Golf Course or modify the golf course in any way; therefore; it would have no effect on the historical character and historical character-defining features of the Sharp Park Golf Course.

Wind and Shadow

Compared to the proposed project, fewer trees would be removed under this alternative. Further, implementation of this alternative would also adhere to the tree removal guidelines in Section III.E.5, including one-for-one replacement of trees in San Francisco Natural Areas. It would follow the Urban Forestry Statements of the SNRAMP for tree removal techniques and system-wide

practices. Similar to the proposed project, under the Maintenance Alternative, the potential for tree removal to alter wind patterns is less than significant. As with the proposed project, the Maintenance Alternative does not include any aboveground structures that would create new shadows, so it would not result in shadow impacts.

Recreation

Compared to the proposed project, the Maintenance Alternative may increase recreation opportunities in the Natural Areas because there would be no closure or conversion of recreation facilities. However, no new trails would be established either.

The Maintenance Alternative calls for minor maintenance at Laguna Salada in the Sharp Park Natural Area and at Horse Stable Pond. This would not encroach into, or otherwise modify, the golf course, and its playability would be retained. Therefore, the Maintenance Alternative would have no impact on recreation resources at Sharp Park. While the proposed project would have a significant impact on the golf course, it would be mitigated by M-RE-6 and therefore is not a significant unavoidable impact of the project. However, without the proposed restoration, the Sharp Park Golf Course would continue to be flooded during the rainy season and would continue to require seasonal closures.

This alternative would not close or reduce any of the DPAs and would therefore not increase the use of other DPAs that may result in the physical deterioration of recreation facilities. The GGNRA Dog Management Plan would restrict dog use on GGNRA lands that could result in significant and unavoidable cumulative impacts from the deterioration of the Natural Areas DPAs. However, the Maintenance Alternative would not reduce the size or number of DPAs in the Natural Areas and would therefore not contribute to any potentially significant cumulative recreation impacts from the deterioration of the Natural Areas as a result of dog use restrictions.

Different from the proposed project, the Maintenance Alternative would not require mitigation measures to achieve less than significant recreation impacts.

Biological Resources

The Maintenance Alternative likely would be the most restrictive to habitat improvements in the Natural Areas. The current distribution of native and nonnative habitat and species would be maintained, resulting in limited beneficial effects on biological resources. Maintenance to control encroaching nonnative species could impact species in the short term through increased human presence, noise, trampling, and machinery. Implementing the BMPs, the IPM program, and the

general recommendations of the SNRAMP would lessen the impacts caused by ground-disturbing activities. This alternative would not close or create new trails or reduce the acreage of DPAs, so, relative to the proposed project, it may increase recreation facilities. Activities at Laguna Salada would include hand removal of tules and accumulated sediment during the dry season and monitoring and relocating California red-legged frog egg masses during the rainy season. Invasive plant removal and revegetation at Horse Stable Pond would continue.

The following discusses the potential biological resources impacts of the Maintenance Alternative on special status plant and wildlife species, nesting birds, sensitive natural communities and wetlands, and fish and wildlife movement.

Special Status Plant Species occur throughout the Natural Areas, as discussed in Section V.G, Biological Resources. The number of large-scale programmatic projects under this alternative would be greatly reduced, compared to the proposed project, because they would be directed primarily toward erosion control, with moderately less invasive vegetation removal and no trail modifications. While the programmatic projects under this alternative could affect both protected plant species and locally significant plant species through inadvertent removal, the reduced scope of these projects would substantially reduce impacts, compared to the proposed project. Habitat maintenance would be smaller in scale and similar to that described for routine maintenance under the proposed project. However, it is possible that Natural Areas Program staff or their volunteers may inadvertently remove or destroy special status plant species during maintenance and restoration. These potentially significant impacts would be mitigated to less than significant by implementing the mitigation measures identified for the proposed project (M-BI-1a, M-BI-1b, and M-BI-5), which require the SFRPD to conduct annual biological training, identifying the types and location of special status plant species that occur throughout the Natural Areas and to avoid impacts on special status plant species. M-BI-1a and M-BI-1b would require that programmatic projects be designed to first avoid, then minimize, restore, or compensate for (if necessary) impacts on those species.

The Maintenance Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Observation indicates that off-leash dog play and exercise, such as running at high speed, is eroding soil and damaging plants, which affects special status plant species in the existing DPAs, including those at Bernal Hill and Lake Merced. Continued use of these DPAs by off-leash dogs would continue to impact special status plant species, resulting in significant impacts on special status plants. These impacts could be mitigated by actions identified in the SNRAMP that call for monitoring and closing DPAs or modifying areas to on-leash dog use only where those impacts are

occurring. Without implementation of these measures in the SNRAMP, this impact would continue and may result in potentially significant impacts on special status plant species.

No special status plant species occur in the Laguna Salada wetland complex in the Sharp Park Natural Area; therefore, restoration at Laguna Salada under the Maintenance Alternative would have no effect on special status plant species.

Special Status Wildlife Species in the Natural Areas include the Mission Blue butterfly at Sharp Park and McLaren Park; the California red-legged frog and San Francisco garter snake at Laguna Salada wetland complex in Sharp Park; California red-legged frog, San Francisco garter snake, and San Francisco dusky-footed woodrat in the upper canyon of Sharp Park; western pond turtle at Sharp Park and Lake Merced; and the western red bat in Golden Gate Park, Mount Davidson, Twin Peaks, Pine Lake, and McLaren Park. The Natural Areas also support special status bird species, addressed in the migratory birds section below.

Under the Maintenance Alternative, the number and degree of programmatic projects would be much less than under the proposed project and would therefore have less of a potential to affect special status wildlife species. Maintenance under this alternative would be relatively similar to that under the proposed project. Should programmatic projects or routine maintenance be conducted in Natural Areas with special status wildlife species, there is potential for those species to be affected, potentially resulting in significant adverse impacts. However, similar to the proposed project, these impacts could be reduced to less than significant by implementing Mitigation Measures M-BI-1a and M-BI-5, which require the SFRPD to conduct annual biological training, identifying the types and location of special status wildlife species that occur throughout the Natural Areas and avoiding direct impacts on those species. Where programmatic projects are being implemented and avoidance measures are determined to be infeasible, Mitigation Measure M-BI-1a requires the SFRPD to minimize impacts on special status species, followed by restoration and compensatory mitigation, as necessary.

The Maintenance Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Dog use in the DPAs may affect special status wildlife species, and continued use of these DPAs by off-leash dogs would continue to impact special status wildlife species, resulting in significant impacts. These impacts could be mitigated by actions identified in the SNRAMP that call for monitoring and closing DPAs or modifying areas to on-leash dog use only where those impacts are occurring. Without implementing these measures in the SNRAMP, this impact would continue and could result in significant impacts on special status wildlife species.

Activities at Sharp Park would continue as they do currently and restoration would be limited to hand removal of tules and accumulated sediment. Impacts on protected species at Laguna Salada could be mitigated by implementing the applicable measures described in M-BI-6a and M-BI-6b, which would require the SFRPD to educate workers, to undertake pre-activity surveys, and to initiate additional measures to avoid or minimize impacts on these species. Avoidance would include removing tule and sediment during the dry season, when these special status species are less likely to be present. By implementing mitigation measures M-BI-6a and M-BI-6b, impacts on special status wildlife species could be reduced to less than significant.

As a result of ongoing natural processes, conditions at the Laguna Salada wetland complex would continue to degrade and be less hospitable to the western pond turtle, California red-legged frog, and San Francisco garter snake, due to increased sedimentation and eutrophication (a condition of dissolved nutrients in a water body promoting plant life, such as algae, which deplete the water's oxygen levels). Substantial deterioration of California red-legged frog, San Francisco garter snake, and western pond turtle habitat could affect the habitat elements required by the species to maintain a viable breeding population. Restoration of the Laguna Salada wetland complex on the scale of the proposed project, with implementation of mitigation measures developed for the proposed project, is intended to enhance the special status species habitat that may continue to degrade if no action is taken.

Without implementing the Sharp Park restoration project, direct impacts on California red-legged frog could occur from continued flooding of the golf course during the rainy season, which may result in frog egg masses being produced in the high water and being stranded after rainstorms. If reauthorized by the USFWS and the CDFG, the SFRPD would continue to monitor and move egg masses deposited outside the Laguna Salada wetland complex to suitable habitat within the wetland complex during the rainy season if flooding results in a risk of stranding.

Migratory Birds. Under the Maintenance Alternative, there would be moderately fewer invasive trees and other vegetation would be removed. With no trail creation, there would also be no vegetation removal associated with that activity. Any vegetation removal under this alternative would be to maintain the distribution and abundance of vegetation. Compared to the proposed project, the Maintenance Alternative would result in fewer temporary impacts on migratory birds and their habitat. As with the proposed project, this alternative would be required to comply with the federal MBTA, which prevents the take or destruction of migratory birds and their nests. Compliance with the MBTA would reduce impacts on migratory birds to less than significant. GR-4b requires vegetation to be removed outside of the breeding season to the extent possible, and if not possible,

requires a pre-construction nesting bird survey and avoidance measures. This would ensure compliance with the MBTA. Implementing Mitigation Measure M-BI-1a would ensure that measures are taken to avoid direct and indirect impacts on migratory bird species when implementing programmatic projects; where those impacts cannot be avoided, the SFRPD would then minimize, restore, or compensate for (if necessary) those impacts. By implementing these measures and complying with the MBTA, programmatic project impacts on migratory birds would be less than significant.

As with the proposed project, vegetation removal as part of routine maintenance also may significantly impact migratory bird species; this impact would be reduced to less than significant by implementing measure GR-4b in the SNRAMP, as described above.

Sensitive Natural Communities and Wetlands. The primary programmatic projects under the Maintenance Alternative are those for erosion control; however, some invasive vegetation may be removed. Therefore, this alternative would have the least potential to result in temporary impacts on sensitive natural communities, and those impacts would be less than significant. On the other hand, as this alternative seeks to maintain the current distribution and abundance of vegetation assemblages, it would not result in long-term beneficial impacts on sensitive natural communities.

As with the proposed project, programmatic projects could affect protected riparian and wetland habitats. By implementing Mitigation Measure M-BI-1a, the impacts would be reduced to less than significant. Mitigation Measure M-BI-1a would require the SFRPD to avoid and minimize impacts on riparian and wetland habitat. This mitigation measure also requires the SFRPD to restore or compensate for impacts on riparian and wetland habitat where impacts cannot be avoided. Therefore, by implementing Mitigation Measure M-BI-1a, impacts on sensitive natural communities (including riparian habitat) and wetlands would be less than significant.

The Maintenance Alternative would not close or reduce the acreage of DPAs in the Natural Areas. Observation indicates that dogs in the DPAs are affecting sensitive natural communities and wetlands. Continued use of these DPAs by off-leash dogs would continue to impact these areas, resulting in potentially significant impacts. Potential impacts on sensitive natural communities and wetlands could be mitigated by actions identified in the SNRAMP that call for monitoring and closing DPAs or modifying areas to on-leash dog use only, where those impacts are occurring. Without these measures in the SNRAMP, this impact would continue and could result in potentially significant impacts on these habitats.

Routine maintenance under this alternative would be similar to the current level of maintenance, and this alternative would not increase the degree of routine maintenance impacts. Therefore, as with the proposed project, impacts from routine maintenance would be less than significant.

Fish and Wildlife Movement. The Maintenance Alternative would involve limited programmatic projects. As such, the impacts associated with this alternative would be reduced, compared to the proposed project. Routine maintenance under this alternative would be similar to those under the proposed project. Due to the limited nature of these programmatic projects and routine maintenance, potential impacts on migratory corridors, wildlife movement, and nursery sites would be less than significant.

Cumulative Impacts on biological resources as a result of the GGNRA Dog Management Plan would be similar to those of the proposed project. Under the No Project Alternative, impacts on biological resources in DPAs identified for closure or reduction under the SNRAMP would continue. However, because this alternative would not close or reduce any DPAs, the Maintenance Alternative would not contribute to any cumulative biological resources impacts resulting from the GGNRA dog management plan.

Hydrology and Water Quality

The primary programmatic projects under the Maintenance Alternative are those for erosion control, with moderately less invasive vegetation removal than under the proposed project. Due to the reduction in programmatic activity relative to the proposed project, this alternative also would have reduced potential to impact hydrology and water quality. However, programmatic project activities would result in soil disturbance, and runoff could carry eroded soils to surface water, resulting in potentially significant impacts on water quality. Potential spills of gasoline or other petroleum products from motorized equipment used for the programmatic projects also may affect water quality. By implementing Mitigation Measures M-HY-1 and M-HZ-13, as discussed under the proposed project, the water quality impacts under this alternative would be reduced to less than significant.

Routine maintenance also may result in accidental releases of gasoline or other petroleum products from motorized equipment. By implementing Mitigation Measure M-HZ-14, as discussed under the proposed project, the water quality impacts under this alternative would be reduced to less than significant.

As a result of ongoing natural processes, water quality conditions at the Laguna Salada wetland complex would continue to degrade due to increased sedimentation and eutrophication (a condition of dissolved nutrients in a water body promoting plant life, such as algae, which deplete the water's oxygen levels), resulting in potentially significant long-term impacts on the water quality of Laguna Salada. These long-term impacts could be reduced to less than significant by implementing restoration sufficient to maintain or improve the current water quality levels. Without implementation of the proposed Sharp Park restoration project, this alternative could result in potentially significant impacts on the water quality of the Laguna Salada wetland complex. Additionally, this alternative would not alleviate current flooding impacts at Sharp Park, resulting in continued seasonal flooding and closure of the golf course, as discussed in the analysis of the impacts of the No Project Alternative on recreation resources.

Hazards and Hazardous Materials

The primary programmatic projects under the Maintenance Alternative are those for erosion control, with moderately less invasive vegetation removal. As such, impacts from the use of hazardous materials would be reduced, as compared to the proposed project. However, the potential for fire hazards under this alternative would be higher, as fewer trees would be removed; therefore, BMPs described in the Urban Forestry Statements of the SNRAMP (such as tree thinning) would be implemented at a lower rate in the forested areas, including in fire hazards areas classified as high or moderate. However, the SFRPD would continue to implement routine management that includes pruning dead branches and removing dead trees. Therefore, the risks of fire hazards would be less than significant. Under this alternative, as with all alternatives, equipment use could result in accidental spills of gasoline and other petroleum products used by motorized equipment. As with the proposed project, these impacts could be mitigated to less than significant by implementing Mitigation Measures M-HZ-13 and M-HZ-14, which require the SFRPD to prepare emergency response plans for accidental releases of hazardous materials. Impacts from the use of pesticides and herbicides and lead contamination are similar to those described under routine maintenance for the proposed project, as the SFRPD would be implementing similar management practices, while using pesticides that would reduce the potential to impact the nearby human populations, wildlife, and groundwater. Therefore, this alternative would have less than significant hazards and hazardous materials impacts.

At Laguna Salada, the Maintenance Alternative calls for manually removing tule stands. The actions at Laguna Salada would be limited in scale and are anticipated to be less effective at controlling tules, potentially providing habitat for tule mosquitoes. The San Francisco Department of the

Environment and the San Mateo County Mosquito and Vector Control District would continue to implement current programs for controlling and preventing mosquitoes and ticks reducing the potential for insect-borne diseases to less than significant.

Agriculture and Forest Resources

Similar to the proposed project, the Maintenance Alternative would have no impacts on agricultural resources. Unlike the proposed project, this alternative involves tree removal and replacement only to the extent necessary to maintain the current distribution and abundance of vegetation. With fewer trees removed to allow healthier trees to grow, this alternative may result in adverse effects on forest health. However, because it involves no loss or conversion of forest land or timberland, this alternative would have less than significant agriculture and forest resources impacts, as under the proposed project.

Air Quality

With the primary programmatic projects under the Maintenance Alternative limited to those for erosion control and vegetation removal, emissions of air pollutants and associated effects on air quality would be reduced, relative to the proposed project. Impacts from fugitive dust emissions and health risk impacts would be less than significant, as described for the proposed project in Section V.K; however, programmatic projects could result in significant unavoidable impacts by exceeding the BAAQMD thresholds for NO_x criteria pollutant emissions. Therefore, programmatic activities under the Maintenance Alternative would result in significant unavoidable air quality impacts from criteria pollutants and less than significant impacts from fugitive dust and fewer health risks. As described under the proposed project, routine maintenance would be similar to current activities conducted in the Natural Areas and therefore would not result in a net increase of fugitive dust, criteria air pollutant emissions, or health risks. Similar to the proposed project, the contribution from this project to regional air quality would be cumulatively considerable, resulting in a significant and unavoidable cumulative air quality impact.

Other Resource Areas

Population and Housing

As with the proposed project, the Maintenance Alternative does not involve activities that would induce substantial population growth or create the need for replacement housing. There would be no population and housing effects from this alternative.

Transportation and Circulation

As the Maintenance Alternative would maintain the current distribution of the natural habitats, implementing this alternative would not change the current conditions of the transportation and circulation system. As this alternative would not reduce or close any DPAs, no additional vehicle trips are expected as a result of people traveling by car to other DPAs.

Noise

Noise impacts under this alternative are less than those described under the proposed project. Although the types of equipment could be the same, the level of use would be less than the proposed project because programmatic activities would be limited to those for controlling erosion and removing vegetation. The continued use of powered equipment, including chainsaws and weed whackers, would be similar in duration and intensity to current activities and those described under routine maintenance for the proposed project. Therefore, noise impacts under this alternative would be less than significant.

Greenhouse Gas Emissions

Activities under the Maintenance Alternative would be smaller in scale and magnitude than those described under the proposed project. This alternative would not modify habitats or land uses. Therefore, GHG emissions would be less than those described under the proposed project because there would be reduced use of motorized heavy equipment. Further, with less habitat modification and tree removal, existing carbon sequestration would not be substantially affected. Similar to the proposed project, the SFRPD would comply with the *Greenhouse Gas Analysis: Compliance Checklist* for activities in the City and County of San Francisco and applicable regulations to reduce GHG emissions. Therefore, impacts from GHG emissions under the Maintenance Alternative would be less than significant.

Utilities and Service Systems

Compared to the proposed project, this alternative would require less irrigation water, particularly for establishing new vegetation, due to the reduced level of invasive vegetation removal and replacement. Irrigation needs would be met by existing water supply capacity and would not require new or expanded water supply resources. The Maintenance Alternative does not involve activities that would affect landfill capacity, solid waste regulations, and operation or relocation of local utilities. Therefore, impacts on utilities and service systems would be less than significant.

Public Services

As with the proposed project, the Maintenance Alternative does not involve activities that would require construction or modification of public service facilities, nor would the Maintenance Alternative increase police or fire emergency response times. Therefore, there would be no public services impacts from the Maintenance Alternative.

Geology and Soils

Compared to the proposed project, this alternative would result in less ground disturbance due to reduced programmatic project activities. These activities would not increase seismic or landslide hazards, would not cause a geologic unit to become unstable, would not substantially change the topography of a Natural Area, and would not result in substantial soil erosion. Potential soil erosion would be addressed by the erosion control BMPs included in the SNRAMP. As under the proposed project, there is a potential for strong ground shaking at all Natural Areas from a nearby earthquake. Under this alternative, the increased likelihood that people or structures would experience adverse effects from strong ground shaking would be less than significant because the user population would not be exposed to an increased potential for ground failure in the Natural Areas. Landslides and erosion-related impacts are expected to be less than significant because this alternative involves less ground disturbance relative to the proposed project and includes erosion control measures. While activities under this alternative would disturb soils, those activities would not cause a geologic unit or soil to become unstable, resulting in less than significant geology impacts. While this alternative includes activities that would result in ground disturbance, the magnitude and location of those activities would not be sufficient to substantially change the topography or any unique geologic or physical features of the Natural Areas. In light of the above, the geology and soils impacts of this alternative would be less than significant.

Mineral and Energy Resources

Compared to the proposed project, motorized equipment and vehicles for management activities under this alternative would consume less fuel due to the decreased number of programmatic project activities. None of the activities under this alternative would result in the loss of availability of a mineral resource or mineral resource recovery site. Therefore, the mineral and energy resources effects of the Maintenance Alternative would be less than significant.

VII.E ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 21 summarizes the effects of the proposed project and alternatives. In determining the environmentally superior alternative for the proposed project, this EIR considers the environmental

**Table 21
Summary of Environmental Effects**

	Proposed Project	Maximum Restoration Alternative	Maximum Recreation Alternative	Maintenance Alternative	No Project Alternative
Land Use and Land Use Planning	LTS	LTS	LTS	LTS	NI
Aesthetics	LTS	LTS	LTS	LTS	LTS
Cultural and Paleontological Resources	SU/M	SU/M	LTS/M	LTS/M	LTS/M
Cultural and Paleontological Resources (Cumulative)	SU	SU	LTS	LTS	LTS
Wind and Shadow	LTS	LTS	LTS	LTS	LTS
Recreation	LTS/M	LTS/M	LTS	LTS	LTS
Recreation (Cumulative)	SU	SU	LTS	LTS	LTS
Biological Resources	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Biological Resources (Cumulative)	SU	SU	LTS	LTS	LTS
Hydrology and Water Quality	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Hazards and Hazardous Materials	LTS/M	LTS/M	LTS/M	LTS/M	LTS/M
Agriculture and Forest Resources	LTS	LTS	LTS	LTS	LTS
Air Quality	SU/M	SU/M	SU/M	SU/M	LTS
Air Quality (Cumulative)	SU/M	SU/M	SU/M	SU/M	LTS

LEGEND:

- SU = Significant and unavoidable impact
- SU/M = Significant and unavoidable impact with mitigation
- LTS/M = Less than significant impact with mitigation
- LTS = Less than significant impact
- NI = No impact

effects of the project and project alternatives. The Maximum Recreation and Maintenance Alternatives are the environmentally superior alternatives because they have fewer unmitigated significant impacts than either the proposed project or the Maximum Restoration Alternative. Between the Maximum Recreation Alternative and the Maintenance Alternative, the Maintenance Alternative would be the environmentally superior alternative for two reasons. While the two alternatives have the same number of significant and unavoidable impacts under CEQA, the

Maintenance Alternative has fewer potential environmental effects than the Maximum Recreation Alternative. First, the Maintenance Alternative would not create new trails, the construction of which could result in impacts to sensitive habitats and other biological resources. Second, over time the Maximum Recreation Alternative would result in Natural Areas with less native plant and animal habitat and a greater amount of nonnative urban forest coverage. The Maintenance Alternative, on the other hand, would preserve the existing distribution and extent of biological resources, including sensitive habitats. For these reasons, the Maintenance Alternative is the environmentally superior alternative.

It should be noted that one of the reasons that both the Maintenance Alternative and Maximum Recreation Alternative would result in less environmental impacts than the proposed project is because these alternatives would not provide a habitat corridor between Laguna Salada and Horse Stable Pond or provide the same degree of upland habitat as the proposed project and Maximum Restoration Alternative. The construction of the habitat corridor and upland refuge would require augmenting the Sharp Park Golf Course, resulting in significant and unavoidable impacts to the golf course as a historic resource. While the habitat corridor and upland refuge result in additional cultural and historic impacts, they are features of the proposed project that were developed based on early coordination efforts with the USFWS, CDFG and consulting biological experts and determined appropriate to achieve recovery of the San Francisco garter snake population.

VII.F ALTERNATIVES CONSIDERED BUT REJECTED

During the scoping process, a public comment was received proposing a Sharp Park restoration alternative that included a model of natural flood control, outdoor recreation, environmental education, and endangered species recovery. This alternative would involve full restoration of the entire Sharp Park property, including the elimination of the golf course. This proposal was rejected as an individual alternative because it is not compatible with the 18-hole layout of the historic golf course. This alternative would, through the elimination of the Sharp Park Golf Course, result in greater significant and unavoidable impacts to cultural and recreational resources and therefore is not required to be analyzed under CEQA. In accordance with CEQA Guidelines Section 15126.6, "...alternatives to the proposed project shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects." In addition, an alternative that would convert the entire Sharp Park Natural Area would only address one of the many Natural Areas addressed by the SNRAMP and could not practicably be extrapolated to the other Natural Areas. While rejected as an individual alternative, components and approaches embodied by this proposal have been incorporated into the Maximum Restoration Alternative.

As part of the Sharp Park Conceptual Restoration Alternatives Report, the SFRPD proposed restoration alternatives that would be compatible with either a nine-hole layout at the Sharp Park Golf Course or with removal of the golf course entirely. These alternatives have been rejected because they are not compatible with the existing and planned 18-hole layout of the historic golf course.

Suggested alternatives or modifications to the project received during the scoping process have been considered and incorporated into the proposed project and the three project alternatives.

VIII. REFERENCES

- ABAG (Association of Bay Area Governments). 2008. Geographic Information Systems Hazard Map, Tsunami Evacuation Planning Map for San Francisco and San Mateo Counties, 2008. Internet Web site: <http://gis.abag.ca.gov/website/Tsunami-Maps/viewer.htm>.
- ARB (California Air Resources Board). 1998. Fact Sheet, The Toxic Air Contaminant identification Process: Toxic Air Contaminant Emissions from Diesel-Fueled Engines, October 1998, Internet Web site: <http://www.arb.ca.gov/toxics/dieseltac/factsht1.pdf>. Accessed January 26, 2011.
- _____. 2005. *Air Quality and Land Use Handbook: A Community Health Perspective*, April 2005. Internet Web site: <http://www.arb.ca.gov/ch/handbook.pdf>. Accessed January 26, 2011.
- _____. 2008. Climate Change Scoping Plan: a framework for change, Pursuant to AB 32, The California Global Warming Solutions Act of 2006. December 2008.
- _____. 2009. California Almanac of Emissions and Air Quality – 2009 Edition. Internet Web site: <http://www.arb.ca.gov/aqd/almanac/almana09/pdf/chap509.pdf>. Accessed January 25, 2011.
- _____. 2010a. California’s Climate Plan Fact Sheet. Updated January 27, 2010.
- _____. 2010b. California Greenhouse Gas Inventory for 2000-2008 – by Category as Defined in the Scoping Plan. May 12, 2010.
- _____. 2011. “Recent Research Findings: Health Effects of Particulate Matter and Ozone Air Pollution.”, Internet Web site: http://www.arb.ca.gov/research/health/fs/pm_ozone-fs.pdf. Accessed January 25, 2011.
- Arup. 2009. Sharp Park Sea Wall Evaluation. Prepared for the San Francisco Department of Public Works. December 2009.
- BAAQMD (Bay Area Air Quality Management District). 2006. Source Inventory of Bay Area Greenhouse Gas Emissions. November 2006.
- _____. 2008. Toxic Air Contaminant Control Program Annual Report, Volume II. December 2008. Internet Web site: <http://www.baaqmd.gov/Divisions/Engineering/Air-Toxics/Toxic-Air-Contaminant-Control-Program-Annual-Report.aspx>. Accessed February 24, 2011.
- _____. 2010a. Bay Area 2010 Clean Air Plan. Adopted September 15, 2010.
- _____. 2010b. Source Inventory of Bay Area Greenhouse Gas Emissions, Base Year 2007. February 2010.
- _____. 2010c. Letter from Jean Roggenkamp, Deputy Air Pollution Control Officer, to Bill Wycko, San Francisco Planning Department. October 28, 2010.
- _____. 2011a. *California Environmental Quality Act Air Quality Guidelines*. May 2011.
- _____. 2011b. Air Quality Standards and Attainment Status. Internet Web site: http://hank.baaqmd.gov/pln/air_quality/ambient_air_quality.htm. Accessed February 24, 2011.
- BioSystems Analysis, Inc. 1989. Technical Report of Cultural Resources Studies for the Proposed WTG-WEST, Inc. Los Angeles to San Francisco and Sacramento, California, Fiber Optic Cable Project. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 11396.

- Bradley, D., and M. Corbett. 2004. Final Draft Cultural Landscape Report with National Register and California Register Evaluation for the Stern Grove and Pine Lake Park Historic District. Prepared by EDAW, Inc. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 32280.
- Brandi, R., and W. LaBounty. 2008. San Francisco's Parkside District: 1905 – 1957, A historical context statement. Western Neighborhoods Project. Produced for the Mayor's Office of Economic and Workforce Development. March 2008. Internet Web site: <http://www.outsidelands.org/parkside-statement.pdf>.
- California Board of Forestry and Fire Protection. 2008. The 2008 Strategic Plan and Report to the California Air Resources Board on Meeting AB 32 Forestry Sector Targets. October 17, 2008.
- California Climate Action Registry. 2008. Urban Forest Project Reporting Protocol. Version 1.0. For Board Approval. August 12, 2008.
- California Climate Change Portal. Undated. Frequently Asked Questions About Global Climate Change. Internet Web site: <http://www.climatechange.ca.gov/publications/faqs.html>. Accessed November 8, 2010.
- California Department of Conservation. 2004. Important Farmland in California, 2004. Division of Land Resource Protection, Farmland Mapping and Monitoring Program.
- California Department of Forestry and Fire Protection. 2009. Fire Hazard Severity Zones Maps. Internet Web site: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones.php.
- California Department of Transportation. 2003. Stormwater Quality Handbooks, Construction Site Best Management Practices Manual, March 2003.
- _____. 2008. Officially Designated Scenic Highways. Internet Web site: <http://www.dot.ca.gov/hq/LandArch/scenic/schwy.htm>.
- California Natural Resources Agency. 2009. 2009 California Climate Adaptation Strategy Discussion Draft. August 2009.
- Cartier, R. 1984. Cultural Resource Evaluation of the Sharp Park Road Expansion Project in the City of Pacifica, County of San Mateo. Prepared by Archaeological Resource Management. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 6717.
- CASQA (California Stormwater Quality Association). 2003. The California Stormwater Best Management Practice Handbook for Construction, January 2003.
- CCSF (City and County of San Francisco). 1987. Subdivision and Rezoning of Vacant Lot on 2200 Block of Funston Avenue, Draft Environmental Impact Report. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 9585.
- _____. 1996a. San Francisco General Plan, Western Shoreline Area Plan. Internet Web site: http://www.sfgov.org/site/planning_index.asp?id=41411.
- _____. 1996b. Sustainability Plan for San Francisco. San Francisco Department of the Environment. October 1996.

- CCSF. 1997. San Francisco General Plan, Community Safety Element. Adopted by the San Francisco Planning Commission on April 24, 1997 and by the San Francisco Board of Supervisors on August 15, 1997.
- _____. 2003a. Interior Designations Pursuant to Article 10 of the Planning Code. San Francisco Preservation Bulletin No. 12. City and County of San Francisco.
- _____. 2003b. Structures of Merit. San Francisco Preservation Bulletin No. 13. City and County of San Francisco.
- _____. 2004. San Francisco General Plan, Environmental Protection Element, amended December 2004.
- _____. 2005a. San Francisco General Plan, Urban Design Element, amended May 2005.
- _____. 2005b. San Francisco General Plan, Transportation Element. Internet Web site: http://www.sfgov.org/site/planning_page.asp?id=41415.
- _____. 2006. Director's Bulletin No. 2006-01, What You Should Know About Tree Protection Legislation, July 2006.
- _____. 2007a. San Francisco General Plan, Recreation and Open Space Element, amended October 2007.
- _____. 2007b. National Flood Insurance Program and Flood Insurance Rate Map. October 22, 2007. Internet Web site: www.sfgov.org/site/uploadedfiles/risk_management/NFIP_102207.pdf.
- _____. 2008a. San Francisco Bicycle Plan Update EIR Case No. 2007.0347E, Initial Study, March 2008.
- _____. 2008b. San Francisco Environment Code, May 2008.
- _____. 2008c. Natural Areas Program. San Francisco Recreation and Parks. Internet Web site: <http://sfnap.org/>.
- _____. 2008d. Final 2008 City and County San Francisco Hazard Mitigation Plan. December 2008.
- _____. 2008e. San Francisco's Interim Floodplain Maps, July, 2008. Internet Web site: <http://sfgsa.org/index.aspx?page=828>.
- _____. 2009. Draft Recreation & Open Space, An Element of the General Plan of the City and County of San Francisco. May 2009.
- _____. 2010a. Ordinance amending the floodplain management program established by Chapter 2A, Article XX, Sections 2A.280 - 2A.285 to the San Francisco Administrative Code; providing requirements for designating floodplains and for construction and development in floodplains. Ordinance No. 56-10. Internet Web site: <http://sfgsa.org/Modules/ShowDocument.aspx?documentid=7801>.
- _____. 2010b. San Francisco Floodplain Management Program Fact Sheet. Prepared by Office of the City Administrator. Revised March 3, 2010. Internet Web site: <http://sfgsa.org/index.aspx?page=828>.
- _____. 2010c. *Strategies to Address Greenhouse Gas Emissions in San Francisco*. Planning Department. November 2010.

- CCSF. 2011a. Historic Resource Evaluation Response, Significant Natural Resource Areas Management Plan: Mount Davidson. Prepared by the San Francisco Planning Department. Date of Review: January 12, 2011. Signed on February 10, 2011.
- _____. 2011b. Historic Resource Evaluation Response, Significant Natural Resource Areas Management Plan: Sharp Park Golf Course, Pacifica. Prepared by the San Francisco Planning Department. Date of Review: February 8, 2011. Signed on February 15, 2011.
- _____. 2011c. Compliance Checklist Greenhouse Gas Analysis, Project Name: Significant Natural Resource Areas Management Plan. August 17, 2011.
- CDFG (California Department of Fish and Game). 2008. California Natural Diversity Database. (Commercial version 3.1.0, revised March 30, 2008). Wildlife and Habitat Data Analysis Branch, Sacramento, California.
- _____. 2009. California Natural Diversity Database. (Commercial version 3.1.0, revised October 3, 2009). Wildlife and Habitat Data Analysis Branch, Sacramento, California.
- CDMG (California Department of Mines and Geology, recently renamed California Department of Geological Survey). Undated. California Surface Mining and Reclamation Policies and Procedures. Guidelines for Classification and Designation of Mineral Lands.
- Chavez, D. 1988. Subsurface Archaeological Investigations at Ingalls Street and Fitzgerald Avenue – Yosemite and Fitch Outfalls Consolidation Project, San Francisco. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 10168.
- Chavez, D., and E. Ramsey. 1979. Preliminary Cultural Resources Evaluations of the Richmond Transport Sewer Alternatives, San Francisco Wastewater Management Program, San Francisco, California. Prepared by David Chavez and Associates, Mill Valley, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 18364.
- City of Pacifica. 1980a. City of Pacifica General Plan.
- _____. 1980b. City of Pacifica Local Coastal Land Use Plan. March 24, 1980.
- Clark, M. R. 2006. Historic Properties Inventory Research for the National Historic Preservation Act Section 106 Compliance for the North Coast County Water District, Pacifica Recycled Water Project. Prepared by Holman and Associates, San Francisco, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 31602.
- _____. 2007. Historic Properties Inventory Research for National Historic Preservation Act Section 106 Compliance for the North Coast County Water District, Pacifica Recycled Water Project. Prepared by Holman and Associates, San Francisco, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 34499.
- CNPS (California Native Plant Society). 1996. Policy on invasive exotic plants. Internet Web site: www.cnps.org/archives/exotics.pdf.

- CNPS. 2008. Online Inventory of Rare and Endangered Plants. Internet Web site: <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>.
- _____. 2009. Online Inventory of Rare and Endangered Plants. Internet Web site: <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>.
- Conant, L., Paustian K., and Elliot E. 2001. Grassland Management and Conversion into Grassland: Effects on Soil Carbon. Natural Resource Ecology Laboratory. Colorado State University. Fort Collins, Colorado, USA. Sponsor: US Environmental Protection Agency, Ruminant Livestock Efficiency Program. 2001.
- Cowan, James P. 2005. This Quiet House. NPC Special Report: Noise Control for the Home. Reducing the Intrusion of Outdoor Sources. Summer 2005.
- Dale, Virginia H., Lynda A. Joyce, Steve McNulty, Ronald P. Neilson, Mathew P. Ayres, Michael D. Flanningan, Paul J. Hanson, Lloyd C. Irland, Ariel E. Lugo, Chris J. Peterson, Daniel Simberloff, Frederick J. Sawson, Brian J. Stocks, and B. Michael Wotton. 2001. BioScience Article: Climate Change and Forest Disturbance. September 2001/Volume 51 No. 9.
- David Chavez and Associates. 1993. Cultural Resources Investigation for the Bayside Phase III Discharge Alternatives EIR, San Francisco, California. Prepared by David Chavez and Associates, Mill Valley, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 19127.
- Dean, Randall. 2009. Archaeologist, San Francisco Planning Department, Major Environmental Analysis. Personal communication with Erin King, Tetra Tech. November 20, 2009.
- Dow. 2009. Garlon Ultra Fact Sheet. Internet Web site: <http://www.dowagro.com/ca/prod/garlon.htm>.
- DTSC (Department of Toxic Substance Control). 2008. ENVIROSTOR Hazardous Waste and Substances Site List. Internet Web site: www.envirostor.dtsc.ca.gov.
- _____. 2009. Notice of Exemption. Project Title: Removal Action Workplan for Consolidation of Lead Contaminated Soils at the Former Sharp Park Rifle Range. August 5, 2009.
- EDAW, Inc., and Ward and Associates. 2006. Archaeological Survey Report, Pine Lake Trail. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 32271.
- EIP Associates. 2000. Survey Results for California Red-Legged Frogs, Lake Merced, San Francisco County, California. November 2, 2000.
- EPA (US Environmental Protection Agency). 2005. *Emission Facts: Greenhouse Gas Emissions from a Typical Passenger Vehicle*. Office of Transportation and Air Quality. EPA420-F-05-004. February 2005.
- _____. 2007. 2006 CWA Section 303(D) List of Water Quality Limited Segments Requiring TMDLs Completion, Proposed TMDL. USEPA Approval Date: June 28, 2007.
- _____. 2009a. Surf Your Watershed. Internet Web site: http://cfpub.epa.gov/surf/huc.cfm?huc_code=18050004.

- EPA. 2009b. TMDLs. Internet Web site: http://iaspub.epa.gov/tmdl_waters10/huc_rept.control?p_huc=18050004&p_huc_desc=SAN%20FRANCISCO%20BAY.
- _____. 2011a. Pesticides. Internet Web site: <http://www.epa.gov/agriculture/tpes.html>. Accessed on August 26, 2011.
- _____. 2011b. Carbon Sequestration in Agriculture and Forestry, Frequent Questions. Internet Web Site: <http://www.epa.gov/sequestration/faq.html>. Accessed on August 26, 2011.
- Espey, Huston, and Associates and Dames and Moore. 1983. *California, Oregon, and Washington: Archaeological Resources Study*. On file at the Northwest Information Center. Survey No. 15529.
- FEMA (Federal Emergency Management Agency). 1987. Flood Insurance Rate Map, City of Pacifica, California San Mateo County, Community Panel Number 060323 0002 D. February 19, 1987.
- _____. 2007. Preliminary FIRM Flood Insurance Rate Map, City and County of San Francisco, California. Panel 235 of 260. Map Number 06075C0235A. September 21, 2007.
- Fugro West, Inc. 2007. Draft Removal Action Workplan Former Sharp Park Rifle Range Pacifica, California. Prepared for San Francisco Recreation and Parks, Department of Public Works. June 2007.
- Gilliam, H. 1966. *Weather of the San Francisco Bay Region*. Berkeley and Los Angeles: University of California Press.
- GLO (US General Land Office). 1863. General Land Office Plat for T2S/R6W, MDB&M. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1864a. General Land Office Plat for T2S/R5W, MDB&M. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1864b. General Land Office Plat for T2S/R6W, MDB&M. On file at the Northwest Information Center, Rohnert Park, California.
- Gualtieri, K., and L. Wall. 1987. Correspondence Concerning Proposed Homeporting of a Battlegroup and a Cruiser Destroyer Group in the San Francisco Bay Area (letter report). On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 15602.
- Heid, J. 1964. San Francisco Waste Water Management Archaeological Report. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 3242.
- Holroyd, Patricia. 2008. University of California Museum of Paleontology. Personal communication with Julia Mates, Tetra Tech. July 9, 2008.
- Horowitz, C. 2011. Calif(sic) court tentatively rules AB 32 implementation unlawful. Internet Web site: <http://legalplanet.wordpress.com/2011/02/02/calif-court-tentatively-rules-ab-32-implementation-unlawful/>. February 2, 2011.
- Hu, S., F. S. Chapin, III, M. K. Firestone, C. B. Field, and N. R. Chiariello. 2001. *Nitrogen limitation of microbial decomposition in a grassland under elevated CO₂*. *Nature*. 409: 188-191.

- Humphreys, C. 1853. Map of the Northern Portion of San Francisco County. Compiled from Surveys, June 4, 1852, by Clement Humphreys, County Surveyor. January 1853. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California.
- Humphreys, S. 1969. Site Record for CA-SMA-114 (P-41-116). On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California.
- Hunter, Chris, Bill Drake, and Pacifica Historical Society. 2002. Pacifica (Images of America). Arcadia Publishing, San Francisco. [not seen]
- Hupman, J., and D. Chavez. 1995. Archaeological Resources Investigations for the Waterfront Plan EIR, San Francisco, California: Southern Waterfront. Prepared by David Chavez and Associates, Mill Valley, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 16882.
- _____. 2001. Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California. Prepared by David Chavez and Associates, Mill Valley, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 25045.
- _____. 2004. Archaeological Resources Investigations for the Bayview-Hunters Point Redevelopment Plan, San Francisco, California, Oakinba and South Basin Addition Activity Nodes. Prepared by David Chavez and Associates, Mill Valley, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 28766.
- IPCC (Intergovernmental Panel on Climate Change). 2006. 2006 IPCC Guidelines for Natural Greenhouse Gases Inventories, Volume 4. Internet Web site: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html>.
- _____. 2007. Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, R. K. Pachauri and A. Reisinger, editors. IPCC, Geneva, Switzerland. Internet Web site: <http://www.ipcc.ch/ipccreports/ar4-syr.htm>.
- Jha, Alok. 2006. The Guardian. Planting Trees to Save Planet is Pointless, Say Ecologists. Friday, December 15, 2006.
- KHE (Kamman Hydrology & Engineering, Inc.). 2009. Report for the Hydrologic Assessment and Ecological Enhancement Feasibility Study: Laguna Salada Wetland System, Pacifica, California. March 30, 2009.
- King, Erin. 2010. *Archaeological Sensitivity Assessment for the Significant Natural Resource Areas, San Francisco and San Mateo Counties, California*. Prepared by Tetra Tech, Inc. Submitted to City and County of San Francisco Planning Department, Major Environmental Analysis. December 2010.
- Knowles, Noah. 2010. Potential Inundation Due to Rising Sea Levels in the San Francisco Bay Region. San Francisco Estuary and Watershed Science, 8:1. Internet Web site: http://escholarship.org/uc/search?entity=jmie_sfews;volume=8;issue=1. Data from Web site: <http://cascade.wr.usgs.gov>.

- Lawson, T.V. and A.D. Penwarden. 1975. The Effects of Wind on People in the Vicinity of Buildings, Proceedings of the Fourth International Conference on Wind Effects on Buildings and Structures, London, 1975. Cambridge University Press, Cambridge, U.K., 605-622 1976.
- Mates, Julia. 2011. *Historical Resources Evaluation Report for the Sharp Park Golf Course, Part of the Natural Areas, City and County of San Francisco, Pacifica, San Mateo County*. Prepared by Tetra Tech, Inc.. Prepared for City and County of San Francisco Planning Department, Major Environmental Analysis. January 2011.
- Mayer, M. T. 1995. Archaeological Clearance Survey Form, Parkwide Traffic Counter Installation, Golden Gate National Recreation Area, Marin and San Francisco Counties, California. Submitted to the National Park Service. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 18341.
- Mayfield, D. W. 1978. Ecology of the Pre-Spanish San Francisco Bay Area. Unpublished Master's thesis, San Francisco State University. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 9583.
- Melandry, M. 1977. Cultural Resources Survey, 04-SMa-1, Shoulder Improvements for Bicycle Use, Bikepath and Pedestrian Walkway on Route 1 in Pacifica, San Mateo County, P.M. 39.5/43.5, 0410-399271, 399281; P.M. 40.9/41.2, 04210-401821. Prepared for Caltrans District 4. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 3039.
- Metcalf & Eddy, Inc. 2008. Lake Merced Water Level Restoration Alternatives Analysis Report. Prepared for SF Public Utilities Commission. January 10, 2008. Internet Web site: http://sfwater.org/Files/Reports/Lake%20Merced_level_restorAAR4.pdf.
- Milliken, Randall. 1983. The Spatial Organization of Human Population on Central California's San Francisco Peninsula at the Spanish Arrival. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 9580.
- Monsanto. 2005. Background, History of Monsanto's Glyphosate Herbicides. June 2005.
- Moratto, M. J. 1974. Archaeological Reconnaissance of Proposed Route 380, Between Highway 280 on the East and Highway 1 on the West (letter report). Prepared by San Francisco State University. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 4877.
- NRIS (National Register Information System). 2008. National Register Database: "Golden Gate" Search Term. Internet Web Site: http://www.nr.nps.gov/iwisapi/explorer.dll/x2_3anr4_3aNRIS1/script/report.iws.
- NatureServe. 2008. NatureServe Explorer: An online encyclopedia of life [Web application]. Version 7.0. NatureServe, Arlington, Virginia. Internet Web site: <http://www.natureserve.org/explorer>.
- Nelson, D. 2004. National Register of Historic Places Nomination Form for the Golden Gate Park. Prepared by Douglas Nelson, Landscape Architect, Royston Hanamoto Alley and Abey, Mill Valley, California. July 2003, Revised June 2004.

- Nelson, W. J., T. Norton, L. Chiea, and R. Pribish. 2002. Archaeological Inventory for the Caltrain Electrification Program Alternative in San Francisco, San Mateo, and Santa Clara Counties, California. Prepared by Far Western Anthropological Research Group, Inc., Davis, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 29657.
- Olmsted, R., and N. Olmsted. 1979. Ocean Beach Study: A Survey of Historic Maps and Photographs. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 5382.
- Orlins, R. I., and R. Schwaderer. 1994. The Archaeological Survey and Extended Survey for the City of Pacifica Wastewater Treatment Project, San Mateo, California. Prepared by California Archaeological Consultants, Inc. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 15828.
- Oxarart, Annie, and Martha C. Monroe. 2007. Wood to Energy Fact Sheet: Climate Change and Carbon. University of Florida, Gainesville, Florida. Internet Web site: http://www.interfacesouth.org/woodybiomass/fact_sheets/FS_Climate_Carbon.pdf. September 2007.
- Pastron, Allen G. 2008. Phase I Cultural Resource Evaluation of the Former Sharp Park Rifle Range, located near the City of Pacifica, San Mateo County, California. Letter Report to Mr. Glenn Young, Fugro West, Inc., Oakland, California, June 20, 2008. Archeo-Tec, Inc., Oakland, California.
- Philip Williams & Associates, Ltd., Wetlands Research Associates, Inc., Todd Steiner, and John Hafernik. 1992. Draft Laguna Salada Resource Enhancement Plan. Prepared for the City of San Francisco and the State of California Coastal Conservancy. January 1992.
- Pollution Engineering. 2006. *New Diesel Fuel Rules Start*. Internet Web site: <http://www.pollutioneng.com/CDA/>. Accessed October 30, 2006 and January 27, 2011.
- Praetzellis, A., G. White, R. B. G. Naidu, and N. Olmsted. 1994. San Francisco Energy Company, Application for Certification, Cultural and Paleontological Resources. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 16555.
- Ramirez-Herrera, M. T. Sowers, J. M., and Richard, C. M. 2006. Creek and Watershed Map of San Francisco. Oakland Museum of California. 1:25,800. Internet Web site: <http://museumca.org/creeks/>.
- Rudo, Mark Ogden. 1983. *The Preshistory of San Francisco*. On file at Northwest Information Center. Survey No. 6160.
- San Francisco Bay Conservation and Development Commission. 2008. San Francisco Bay Plan.
- San Francisco Department of the Environment. 2005. San Francisco Integrated Pest Management Program Combined Annual Report. 2004 & 2005.
- San Francisco Department of the Environment and San Francisco Public Utilities Commission. 2004. Climate Action Plan for San Francisco. September 2004.
- San Francisco Dog Owners Group. 2009. SW Region of San Francisco. Internet Web site: http://www.sfdog.org/do/city_sw.htm

- San Francisco Recreation and Park Commission. 2006. Recreation and Park Commission Minutes, Special Meeting of July 26, 2006, and Continued to August 21, 2006.
- San Mateo County Chamber of Commerce. 1931. Historic Sites Map of San Mateo County. Issued by San Mateo County Chamber of Commerce, Redwood City, California.
- Sawyer, I., L. Pfeiffer, K. Rasmussen, and J. Berryman. 2000. Archaeological Survey along Onshore Portions of the Global West Fiber Optic Cable Project. Prepared by Science Applications International Corporation, Santa Barbara, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 22657.
- Sawyer, J., T. Keeler-Wolf, and J. Evens. 2009. A Manual of California Vegetation. Second Edition.
- SFBRWQCB (San Francisco Bay Regional Water Quality Control Board). 1995. Water Quality Control Plan, San Francisco Bay Basin (Region 2), California Regional Water Quality Control Board San Francisco Bay Region, June 21, 1995.
- _____. 2007. San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan). January 18, 2007.
- _____. 2009a. Staff Report, Evaluation Of Water Quality Conditions For The San Francisco Bay Region, Proposed Revisions To Section 303(D) List. February 2009.
- _____. 2009b. Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). Internet Web site: http://www.swrcb.ca.gov/sanfranciscobay/basin_planning.shtml.
- SFPUC (San Francisco Public Utilities Commission). 2005. North Westside Groundwater Basin Management Plan, Final Draft. April 2005.
- _____. 2007a. Bayside Basins Charette Materials: Islais Basin. Internet Web site: http://sfwater.org/Files/Reports/Islais_Basin_Context_pgs1-5.pdf.
- _____. 2007b. Bayside Basins: Charette Summary Report - The Natural Landscape. Prepared by SFPUC. Internet Web site: http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/361/MTO_ID/550/C_ID/5178/Keyword/charrette.
- _____. 2009a. LID Basin Analysis Report. Final Draft. Sunnydale Basin. Wastewater Enterprise, Urban Watershed Management Program. April 2009. Internet Web site: http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/361/MTO_ID/550/C_ID/5178/Keyword/charrette.
- _____. 2009b. LID Basin Analysis Technical Memorandum, Islais Creek Drainage Basin. Wastewater Enterprise, Urban Watershed Management Program. April 2009. Internet Web site: http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/361/MTO_ID/550/C_ID/5178/Keyword/charrette.
- _____. 2009c. LID Basin Analysis Report, Draft Final, Yosemite Creek Drainage Basin. Wastewater Enterprise, Urban Watershed Management Program. April 2009. Internet Web site: http://sfwater.org/detail.cfm/MC_ID/14/MSC_ID/361/MTO_ID/550/C_ID/5178/Keyword/charrette.
- _____. 2011. *Lake Merced Watershed Report*. January 2011.
- SFRPD (San Francisco Recreation and Park Department). 1998. Golden Gate Park Master Plan. Adopted by the Recreation and Park Commission October 1998.

- SFRPD. 2000. Native Habitat Restoration: A Guide for Citizen Involvement in San Francisco Natural Areas.
- _____. 2002. Final Dog Policy. May 8, 2002.
- _____. 2004. Recreation Assessment Report. August 2004.
- _____. 2006. Final Draft Significant Natural Resource Areas Management Plan. February 2006.
- _____. 2008a. Jurisdictional Waters of the US and Wetland Determination Report for the Laguna Salada Wetland Restoration and Habitat Recovery Project. November 2008.
- _____. 2008b. *Sharp Park Wildlife Surveys and Special Status Reptile and Amphibian Restoration Recommendations*. Prepared for Tetra Tech. Prepared by Swaim Biological Incorporated. December 4, 2008.
- _____. 2009a. *Sharp Park Conceptual Restoration Alternatives Report*. Prepared by Tetra Tech, Inc., Swaim Biological, Inc., and Nickels Golf Group. November 2009.
- _____. 2009b. Potential Recycled Water Users Identified in San Francisco, Table 2-1, Provided by Daniel LaForte, San Francisco Recreation and Park Department, on July 31, 2009.
- _____. 2009c. *Final Draft Endangered Species Compliance Plan for Sharp Park Golf Course*. Last Updated December 23, 2009.
- _____. 2009d. *Recovery Action Plan for the Mission Blue Butterfly (*Icaricia icarioides missionensis*) at Twin Peaks Natural Area*. March 2, 2009.
- Shoup, L. H., and S. Baker. 1981. Cultural Resources Overview: Lake Merced Transport, San Francisco Clean Water Management Program, San Francisco, California. Archaeological Consultants, San Francisco, California. Submitted to State Water Resources Control Board, Contract No. C-06-1102-0:13. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 3247.
- SMCMVCD (San Mateo County Mosquito and Vector Control District). 2009. Programs. Internet Web site: <http://www.smcmad.org/>.
- South Coast Air Quality Management District. 2010. Table II – Off-road Engine Emission Rates and Comparison of Uncontrolled to Tiered Rates and Tiered to Tiered Rates. From CEQA Handbook. Internet Web site: <http://www.aqmd.gov/ceqa/handbook/mitigation/offroad/TableII.xls>. May 26, 2010.
- State of California. 1982. Earthquake Fault Zones Map San Francisco South. January 1, 1982.
- _____. 2000. Seismic Hazard Zones Map City and County of San Francisco. November 17, 2000.
- Tetra Tech, Inc. 2010. *Summary of History of Trees on Mount Davidson* and DPR 523 Forms for Mount Davidson WPA-era Walls and Stairs. Prepared for San Francisco Planning Department’s Major Environmental Analysis.
- USACE (US Army Corps of Engineers). 1942a. San Francisco Quadrangle, Grid Zone “G,” 1:62,500.
- _____. 1942b. Tactical Map, San Mateo Quadrangle, Grid Zone “G,” 1:62,500.
- _____. 2008. Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in *Rapanos vs. United States and Carabell v. United States*. December 2, 2008.

- USDA (US Department of Agriculture). 2007. Assessing Urban Forest Effects and Values. San Francisco's Urban Forest. Northern Research Station. Internet Web site: <http://nrs.fs.fed.us/pubs/9660>. February 2007.
- USFWS (US Fish and Wildlife Service). 2008. Species account: San Francisco garter snake (*Thamnophis sirtalis tetrataenia*). Internet Web site: http://www.fws.gov/sacramento/es/animal_spp_acct/sf_garter_snake.pdf.
- _____. 2009. Federal endangered and threatened species that occur in or may be affected by projects in the San Francisco North, San Francisco South, and Montara Mountain USGS 7 ½-minute quadrangles.
- USGS (US Geological Survey). 1896. San Mateo Quadrangle, 1:62,500.
- _____. 1899. San Francisco Quadrangle, 1:62,500.
- _____. 1915a. San Francisco Quadrangle, 1:62,500.
- _____. 1915b. San Mateo Quadrangle, 1:62,500. Reprinted 1939.
- US Surveyor General. 1856. Plat of the San Miguel Rancho, finally confirmed to Jose de Jesus Noe. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1857. Plat of the Rancho Rincon de las Salinas y Potrero Viejo, finally confirmed to Jose Cornelio Bernal. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1859. Plat of the Rancho San Pedro, finally confirmed to Francisco Sanchez. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1864. Plat of Part of the Rancho Cañada de Guadalupe y Rodeo Viejo, finally confirmed to William Pierce. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1868. Plat of the Pueblo of San Francisco, finally confirmed to the City of San Francisco. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1871. Plat of the Rancho Laguna de la Merced, finally confirmed to Josefa de Haro et. al. On file at the Northwest Information Center, Rohnert Park, California.
- _____. 1886. Plat of Addition to the Pueblo Lands of San Francisco, finally confirmed to the City and County of San Francisco. On file at the Northwest Information Center, Rohnert Park, California.
- Wayne, L. 2008. Director, Natural Areas Program, San Francisco Recreation and Park Department. Input on Administrative Draft Initial Study for the Natural Areas Management Plan. September 18, 2008.
- Wildesen, Leslie E. 1982. The Study of Impacts on Archaeological Sites. In *Advances in Archaeological Method and Theory*, Vol. 5, edited by M. B. Schiffer, pp. 51-96. Academic Press, San Diego.
- Willer, C. A., and A. D. Albee. 1957. Archaeological Survey of Proposed Southwest Outfall and Southwest Water Pollution Control Plant, Project C-06-1289. Prepared by Archaeological Resource Consultants, California. On file at the Northwest Information Center of the California Historic Resources Information System, Rohnert Park, California. Survey No. 3240.

IX. EIR PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

IX.A EIR PREPARERS

San Francisco Planning Department

Environmental Planning

1650 Mission Street, Suite 400

San Francisco, California 94103

Environmental Review Officer: Bill Wycko
EIR Coordinator: Jessica Range
EIR Reviewer: Sarah Jones
Preservation Coordinator: Shelley Caltagirone
Archaeologist: Randall Dean

Tetra Tech, Inc. (Prime Consultant)

555 Market Street, 15th Floor

San Francisco, California 94105

Project Manager: John Bock
Authors: Emmy Andrews
Derek Holmgren
Erin King
Shannon Lindquist
Matt Loscalzo
Julia Mates
Tom Whitehead

3D Visions (Subconsultant)

5 Third Street, Suite 717

San Francisco, California 94103

Authors: Kate Gillespie
Marisol Wauters

IX.B PERSONS AND ORGANIZATIONS CONSULTED

Randall Dean, Archaeologist, San Francisco Planning Department, Major Environmental Analysis

Patricia Holroyd, Museum Scientist, University of California Museum of Paleontology

GENERAL RECOMMENDATIONS

- GR-1a Reduce invasive plant populations
- GR-1b Where native plant seed banks do not exist or have diminished, appropriate native species may be used for revegetation. Plant native species to appropriate the diversity, cover, and density of adjacent habitats or of reference sites in similar habitats.
- GR-1c Conduct restoration during the appropriate time of the year and at an appropriate scale to avoid impacts on wildlife and to minimize erosion
- GR-1d In areas where it may not be feasible to reduce large infestations of invasive vegetation immediately, conduct containment actions along the interface between native and nonnative habitats
- GR-1e Annually monitor MAs, restoration areas, and other sensitive habitats for undesired plant species
- GR-2a Prioritize invasive weed reduction and management in areas supporting sensitive species or other vegetation series
- GR-2b Give sensitive species priority in revegetation and reintroduction activities throughout Natural Areas
- GR-2c Protect areas of sensitive species and vegetation series of limited distribution from human disturbance
- GR-2d Closely monitor plant populations and vegetation series of limited distribution
- GR-2e Continue to work with the scientific community to better understand key biological factors affecting the survival and reproduction of sensitive species and to better inform adaptive management decision making
- GR-3a Monitor annually if feasible, native grasslands and control invasive species
- GR-3b Explore alternative methods of grassland management for large grassland expanses, such as prescribed burning, livestock grazing, and use of motorized equipment
- GR-4a Conduct annual breeding bird surveys, if resources are available, using the standard point count or transect method, to develop a list of species nesting in Natural Areas

GENERAL RECOMMENDATIONS

- GR-4b Conduct vegetation management activities outside the breeding season (February 1 to August 31) if breeding birds could be affected, unless the following specific conditions are met: projects begun prior to the breeding season have already disturbed the area, or a breeding bird survey is conducted first. If active nests (or large abandoned stick nests) of a sensitive species are discovered, a 150-foot radius avoidance buffer would be centered on the nest site(s) to prevent the nesting birds from being disturbed by power tools. Weeds may be pulled by hand no closer than 50 feet from the nest.
- GR-4c If surveys indicate that parasitism by brown-headed cowbirds is a significant problem, consult with the CDFG and the USFWS determine proper protocols to minimize the negative effects of this species on breeding birds
- GR-4d Use material from brush and tree trimming to increase nesting or escape habitat for ground-dwelling birds and to mitigate any loss of habitat from other vegetation clearing
- GR-4e Create corridors of shrubs between landscaped areas and Natural Areas to provide cover and transitional habitat for birds and other wildlife
- GR-5a Prevent invasive shrubs and trees from colonizing grasslands
- GR-6a Leave snags and dead branches on live trees, unless they are a hazard to public safety or contain significant harmful insect or disease infestations
- GR-6b Provide nest boxes for native species where natural cavities are absent or in limited supply
- GR-6c Provide nest boxes for wood ducks at Impound Lake (a sub-lake of Lake Merced), Sharp Park, and Pine Lake
- GR-7a Implement the feral cat control policy from the Quail Recovery Plan approved by the San Francisco Commission on the Environment
- GR-7b Develop outreach materials to educate neighbors and users of Natural Areas about feral cats
- GR-7c Undertake control of non-cat predators only where they are concentrated in such a manner that they are having a substantial effect on native wildlife populations
- GR-8a Retain the boundaries and locations of seven DPAs in Natural Areas (Corona Heights, Pine Lake Park, Golden Gate Park Southeast, McLaren Park Crocker Amazon, McLaren Park Geneva, Golden Gate Park Northeast, and Buena Vista Park) and modify two DPAs (Shelley Drive Loop at McLaren Park and Bernal Hill) to protect sensitive habitat areas
- GR-8b Match on-leash and off-leash dog use with the sensitivity of the habitat when considering new DPAs within or next to Natural Areas

GENERAL RECOMMENDATIONS

- | | |
|--------|--|
| GR-8c | Restrict dogs from three sensitive habitat areas (a portion of Gray Fox Creek at McLaren Park, habitat used by the San Francisco garter snake or California red-legged frog at Sharp Park, and the water at Pine Lake) |
| GR-9a | Preserve during vegetation management activities any brush, logs, rocks, and other natural elements that function as habitat for small mammals and place them at appropriate locations within the Natural Areas |
| GR-10a | As invasive plants are removed, install native plants or seeds that are beneficial to local insects |
| GR-10b | In MA-3 grasslands, maintain some invasive plant species that are host plants for local butterflies and other native insects |
| GR-11a | Maintain and improve primary designated trails |
| GR-11b | Encourage users to stay on the trails in all Natural Areas |
| GR-11c | Routinely monitor Natural Areas for new social trails and close or re-route any trails that impact sensitive species or sensitive habitat or that contribute to erosion |
| GR-11d | Maintain viewsheds to maintain and enhance public recreation |
| GR-11e | Consider adding amenities, such as overlooks and seating areas, when evaluating overall trail use |
| GR-12a | Revegetate steep slopes that have very thin vegetation to promote general soil stability |
| GR-12b | Reduce erosion risk during the transition between removing invasive species and growth of native species that replace them, including gradual implementation of restoration efforts |
| GR-13a | Discourage establishment of vegetation with high fire hazard ratings, such as French broom and eucalyptus stands, next to homes and other structures |
| GR-13b | Maintain clear passageways by removing encroaching vegetation and maintaining sight lines to increase safety on trails |
| GR-14a | Continue to network with local schools and research institutions to provide environmental education resources and opportunities for school children in San Francisco and Pacifica |
| GR-14b | Develop appropriate signage that explains the importance of natural resources, ecosystem functions, management activities and goals, and public involvement contacts |
| GR-14c | Develop education materials that discuss the impacts of feeding wildlife and wild animals and the problems with releasing unwanted pets into Natural Areas |

GENERAL RECOMMENDATIONS

- GR-14d Conduct special outreach to adjacent property owners about the impacts mentioned in GR-14c
- GR-15a Maintain urban forests within the MA-3 areas with a basal area per acre of between 200 and 600 square feet (this would provide a shaded forest environment)
- GR-15b Maintain a stocking rate that will perpetuate the urban forest and promote forest health
- GR-15c To promote forest health, focus tree removal on dead or dying trees, trees with disease or insect infestations, storm-damaged or hazardous trees, and trees that are suppressed because of overcrowding; retain snags and dead branches on live trees, unless they are a hazard to public safety or contain significant harmful insect or disease infestations
- GR-15d Do not plant sensitive species in MA-3 urban forests
- GR-15e Remove invasive Cape (*Delairia odorata*), English (*Hedera helix*) and Algerian ivy (*Hedera algeriensis*) and Himalayan blackberry (*Rubus discolor*) as required in MA-3 stands to promote and maintain urban forest health
- GR-15f Consult the SFRPD arborist when tree removals or planting are proposed in MA-3 urban forests
- GR-15g Plant trees and shrubs in the urban forests that promote species diversity and improve wildlife habitat
- GR-15h Use San Francisco-approved insecticides to treat cut stumps

PLACE
POSTAGE
HERE

Jessica Range
San Francisco Planning Department
Major Environmental Analysis Division
1650 Mission Street, Suite 400
San Francisco, CA 94103

PLEASE CUT ALONG DOTTED LINES

PLEASE RETURN THIS POSTCARD TO REQUEST A COPY OF
THE FINAL ENVIRONMENTAL IMPACT REPORT

(NOTE THAT THE DRAFT EIR PLUS THE COMMENTS AND RESPONSES
DOCUMENT CONSTITUTE THE FINAL EIR)

REQUEST FOR FINAL ENVIRONMENTAL IMPACT REPORT

Planning Department Case No. 2005.1912E, Natural Areas Management Plan

Check one box: Please send me a copy of the Final EIR on CD-ROM.
 Please send me a paper copy of the Final EIR.

Signed: _____

Name: _____

Street: _____

City: _____ State: _____ Zip: _____
