BEACH CHALET ATHLETIC FIELDS RENOVATION

Draft Environmental Impact Report

Planning Department Case No. 2010.0016E
State Clearinghouse No. 2011022005

October 2011

City and County of San Francisco
San Francisco Planning Department

Important Dates:

DEIR Publication Date: October 26, 2011
DEIR Public Comment Period: October 26 to December 12, 2011
DEIR Public Hearing Date: December 1, 2011

Written comments should be sent to:

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TO: Distribution List for the Beach Chalet Athletic Fields Renovation Project Draft EIR

FROM: Bill Wycko, Environmental Review Officer

SUBJECT: Draft Environmental Impact Report for the Beach Chalet Athletic Fields Renovation Project (Planning Department File No. 2010.0016E)

This is the Draft Environmental Impact Report (EIR) for the Beach Chalet Athletic Fields Renovation Project. A public hearing will be held on the adequacy and accuracy of this document. After the public hearing, our office will prepare and publish a document titled "Comments and Responses," which will contain 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 notice of the date reserved for certification; others may receive a copy of the Comments and Responses and notice by request or by visiting our office. This Draft EIR together with the Comments and Responses document will be considered by the Planning Commission in an advertised public meeting and will be certified as a Final EIR if deemed adequate.

After certification, we 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. It will simply provide the information in one document, rather than two. 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 in Adobe Acrobat format on a compact disk (CD) to individuals only if they request them. Therefore, if you would like a copy of the Final EIR, please fill out and mail the postcard provided inside the back cover to the Major Environmental Analysis division of the Planning Department within two weeks after certification of the EIR. Only those requesting a Final EIR by that time will have a copy mailed to them.

Thank you for your interest in this project.

Draft

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Prepared for
City and County of San Francisco
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ACRONYMS, ABBREVATIONS, AND GLOSSARY

Acronyms and Abbreviations

ADA	Americans with Disabilities Act
APE	Area of Potential Effects
AWSC	all-way stop-controlled
Basin Plan	San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)
bgs	below ground surface
BHT	butylated hydroxytoluene
Bicycle Plan	San Francisco Bicycle Plan
BMPs	best management practices
C-APE	CEQA Area of Potential Effects
CalEPA	California Environmental Protection Agency
Cal-IPC	California Invasive Plant Council
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CCR	California Code of Regulations
CCSF	City and County of San Francisco
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHHSL	California Human Health Screening Level
Climate Action Plan	Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Emissions
CNDDB	California Natural Diversity Database

CNPS	California Native Plant Society
Commission	San Francisco Recreation and Parks Commission
CRHR	California Register of Historic Resources
CSO Control Policy	Combined Sewer Overflow Control Policy
CSO	combined sewer overflow
CWA	federal Clean Water Act
dBA	A-weighted decibel
DBH	diameter at breast height
DBI	San Francisco Department of Building Inspection
DEHP	Di(2-ethylhexyl) phthalate
DG	decomposed granite
DPR	California Department of Parks and Recreation
EIR	environmental impact report
EP	San Francisco Planning Department, Environmental Planning Division
ESL	environmental screening level
FTE	full-time equivalent
GGNRA	Golden Gate National Recreation Area
GHG	greenhouse gas
gsf	gross square footage
HEPA	High Efficiency Particulate Air Filter
HRE	Historic Resources Evaluation
HRER	Historic Resource Evaluation Response
HUD	U.S. Department of Housing and Urban Development
I-	Interstate
Landmarks Board	Landmarks Preservation Advisory Board
LEED	Leadership in Energy and Environmental Design
LOS	level of service
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/day	milligrams per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter

mgd	million gallons per day
MMRP	mitigation monitoring and reporting program
NC-1	Neighborhood Commercial Cluster (Zoning Designation)
NC-S	Neighborhood Commercial Shopping Center (Zoning Designation)
ng/m^3	nanograms per cubic meter of air
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOP	notice of preparation
NPDES	National Pollutant Discharge Elimination System
NPPA	California Native Plant Protection Act
NPS	National Park Service
NRHP	National Register of Historic Places
Ocean Beach	Golden Gate National Recreation Area Ocean Beach
Ocean Plan	Water Quality Control Plan, Ocean Waters of San Francisco
OEHHA	Office of Environmental Health Hazard Assessment
OHP	California Office of Historic Preservation
OWPCP	Oceanside Water Pollution Control Plant
P & O	Park and Ocean Railroad
PAH	polycyclic aromatic hydrocarbon
Park Code	San Francisco Park Code
Park Master Plan	Golden Gate Park Master Plan
PCB	polychlorinated biphenyl
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
ppm	parts per million
PPV	Peak Particle Velocity
PRC	Public Resources Code
proposed project or project	Beach Chalet Athletic Fields Renovation Project
RCRA	Resource Conservation and Recovery Act
RH-2	Residential House, Two-Family (Zoning Designation)
RH-3	Residential House, Three-Family (Zoning Designation)
RM-1	Residential Mixed, Low Density (Zoning Designation)

RWQCB	Regional Water Quality Control Board
SB	southbound
SBR	styrene butadiene rubber
SERA	California State Emergency Relief Administration
SFBBA	San Francisco Breeding Bird Atlas 2001–2003SFDPH City and County of San Francisco, Department of Public Health
SFDPW	San Francisco Department of Public Works
SFD	San Francisco City Datum
SFE	City and County of San Francisco, Department of the Environment
SFMTA	City and County of San Francisco Municipal Transportation Agency
SFPUC	San Francisco Public Utilities Commission
SFRPD	San Francisco Recreation and Parks Department
SHPO	State Historic Preservation Officer
SPEAK	Sunset-Parkside Education and Action Committee
SSSC	side-street stop-controlled
STLC	Soluble Limit Threshold Concentration
Sustainability Plan	Sustainability Plan for the City of San Francisco
SVOC	semivolatile organic compound
SVOC	semivolatile organic compound
SWOO	Southwest Ocean Outfall
SWRCB	California State Water Resources Control Board
Task Force	Synthetic Fields Task Force
TBD	to be determined
TCLP	Toxicity Characteristic Leaching Procedure
TPZ	Tree Protection Zone
TSCA	Toxic Substance Control Act
TTLC	Total Threshold Limit Concentration
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

WPA	Works Progress Administration
WPCP	Water Pollution Control Plant
WQV	water quality volume
WB	westbound
µg/l	micrograms per liter
µg/m^3	micrograms per cubic meter

Glossary of Terms

Anadromous. Anadromous fish hatch (rear) in freshwater, migrate to the ocean (saltwater) to grow and mature, and migrate back to freshwater to spawn and reproduce.

Aquifer. Any soil or rock formation that is saturated with water and can supply an acceptable quantity and quality of groundwater to wells or springs.

Beneficial use. Those uses of water as defined in the State of California Water Code (Chapter 10 of Part 2 of Division 2), including but not limited to agricultural, domestic, municipal, industrial, power generation, fish and wildlife habitat, recreation, and mining.

Bioregion. An area defined by a combination of ecological, geographic and social criteria, and consists of a system of related, interconnected ecosystems. The Bay-Delta Bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by northern edge of Sonoma and Napa Counties and the Delta, and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

CEQA (California Environmental Quality Act. State law (Public Resources Code Section 21000, et seq.) that requires state, local, and other agencies to evaluate the environmental implications of their actions.

Cultural resource. A nonrenewable remain of human activity that is valued by or significantly representative of a culture or that contains significant information about a culture. Cultural resources encompass archaeological, traditional, and built environment resources, including landscapes or districts, sites, buildings, structures, objects, or cultural practices that are usually greater than 50 years of age and possess architectural, historic, scientific, or other technical value.

Cumulatively considerable. A CEQA term used to indicate whether or not a cumulative impact is significant.

Discharge. The flow of surface water in 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, or to chemical emissions into the air through designated venting mechanisms.

Dry weather flows. Wastewater flows that typically occur during the May 1–October 15 time period.

EIR (environmental impact report). A report required by the California Environmental Quality Act to describe the environmental impact of a proposed project.

EIR certification. EIR adoption by a governing agency that involves acceptance of the document as being complete and adequate according to the California Environmental Quality Act.

Endangered species. Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that is in serious danger of becoming extinct throughout all or a significant portion of its range. Federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the Federal Register. Species may also be listed under the California Endangered Species Act by the Department of Fish and Game.

Endemism. Refers to the degree to which organisms or taxa are restricted to a geographical region or locality and thus are individually characterized as endemic to that area.

Fill. Soil placed back into the excavation.

Groundwater. Water that occurs and moves below the land surface. Some groundwater resides in aquifers.

Groundwater Recharge. The action of increasing groundwater storage by natural processes (e.g., rainfall, streamflow) or by human activity.

Environmental cases. Sites suspected of releasing hazardous substances or that have had cause for hazardous materials investigations and are identified on regulatory agency lists. These are sites where soil and/or groundwater contamination is known or suspected to have occurred.

Habitat. The specific area or environment in which a particular type of animal or plant lives.

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. Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications as well as in residential areas to a limited extent.

Hazardous waste. Any material that is relinquished, recycled, or inherently waste-like. 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 damage to 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 Resource Conservation and Recovery Act (RCRA) hazardous wastes, non-RCRA hazardous wastes, extremely hazardous wastes, and special wastes.

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.

Important farmlands.

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.

Infrastructure. Physical structures that form the foundation for development. Infrastructure includes: groundwater wells, water pipelines, electric power, communications, transit and transportation facilities, and oil and gas pipelines and associated facilities.

Level of service (LOS). A qualitative description a facility's performance based on average delay per vehicle, vehicle density, or volume-to-capacity ratios. Levels of service range from LOS A, which indicates free-flow or excellent conditions with short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays.

Mitigation. One or all of the following: (1) Avoiding an impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of an action and its implementation; (3) rectifying an impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating an impact over time by preservation and maintenance operations during the life of an action; and (5) compensating for an impact by replacing or providing substitute resources or environments.

Period of Significance. Period of significance denotes is the time when a resource was associated with important persons or events and/or attained the characteristics that qualify it for listing as a historical resource.

Permitted hazardous materials uses. Facilities that use hazardous materials or handle hazardous wastes but comply with current hazardous materials and hazardous waste regulations.

PPV (peak particle velocity). To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of peak particle velocity (PPV) in the vertical and horizontal directions (vector sum), typically in units of inches per second (in/sec).

Play Time. Number of hours per year a recreational facility is used for athletic activity such as games and practices.

Riparian. The land adjacent 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 sufficient to overhang the bank.

San Francisco City Datum (SFD). A system that establishes the City's zero point for surveying purposes at approximately 8.6 feet above the mean sea level established by 1929 U.S. Geological Survey datum. In San Francisco, elevation in the 1929 USGS datum is approximately 2.7 feet lower than the corresponding elevation current 1988 North American Vertical Datum.

Sensitive receptors. A land use that is sensitive or more vulnerable to (i.e., "receives") effects of noise, air quality, or a specified resource than the general population.

Serpentine. A naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramatic rock along earthquake faults. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, are common in serpentinite.

Sharrows. Shared roadway bicycle pavement markings within traffic lane.

Special-status species. Several species known to occur within the general region of the program area 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 and/or state endangered species legislation. Others have been designated as "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."

Spoils. Soil remaining from an excavation after backfilling is completed.

Synthetic Turf. Synthetic turf used in the Beach Chalet project would consist of four components: fiber, infill, backing, and underlayment. The fiber, which would consist of polyethylene, would be grass-like in appearance. The infill, which would be used to provide stability, would be comprised of about 70% styrene butadiene rubber (SBR) and 30% sand. The SBR infill, commonly called "tire crumb", is recovered from scrap tires and from the tire re-treading process. The fiber and infill would be supported by a backing made up of a combination of permeable woven and un-woven polypropylene fabrics that provide strength and vertical drainage. Underlayment would consist of drainage tile or an aggregate rock base. At the end of its lifespan, which is anticipated to be a minimum of ten years, the turf would be returned to a turf manufacturer for reuse/recycling and replaced by new synthetic turf.

Threatened species. Legal status afforded to plant or animal species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range, as determined by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Visual Character. A general description of the visual attributes of a particular land-use setting. The purpose of defining the visual character of an area is to provide the context within which the visual quality of a particular site or locale is most likely to be perceived by the viewing public. For natural and open space settings such as the project site, visual character is most commonly described in terms of areas with common landscape attributes (such as landform, vegetation, water features, etc).

Visual Quality. The overall visual impression or attractiveness of a site or locale as determined by its aesthetic qualities (such as color, variety, vividness, coherence, uniqueness, harmony and pattern). For purposes of this analysis, the visual quality of a site or locale is defined according to three levels, low, medium, and high, depending on its perceived appeal, the presence or absence of natural or cultural resources, and its relationship with and contribution to the visual character of the surrounding area.

Well facilities. Facility that consists of a groundwater well and a pump station.

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

Wet weather flows. Wastewater flows that typically occur during the October 16–April 30 time period.

EXECUTIVE SUMMARY

This environmental impact report (EIR) analyzes potential environmental effects associated with the Beach Chalet Athletic Fields Renovation Project (proposed project or project), which includes various physical and operational changes at the existing Beach Chalet Athletic Fields, an approximately 9.4-acre public sports field facility located at 1500 John F. Kennedy Drive, along the western edge of Golden Gate Park.

A. Project Synopsis

The proposed project includes replacement of turf grass fields with synthetic turf, installation of field lighting, renovation of the existing restroom building, installation of player benches and seating, and other site modifications intended to improve the overall conditions of the facility and increase the amount of play time available on the athletic fields. The area dedicated to athletic fields would also be enlarged by approximately 6 percent to accommodate modern field dimensions and safety zones.

The new synthetic turf would consist of four components: fiber, infill, backing, and underlayment. At the end of its lifespan, which is anticipated to be a minimum of ten years, the turf would be returned to a turf manufacturer for reuse/recycling and replaced by new synthetic turf. An underdrain system would be installed underneath the synthetic turf field and would be connected to the City and County of San Francisco's (CCSF) combined storm drain system. Rainwater that falls on the pervious turf field surface would infiltrate into the underdrain system and would be conveyed to the combined sewer system for treatment at the Oceanside Water Pollution Control Plant. The existing 8-foot-tall metal chain link fencing surrounding the athletic fields would be removed and replaced with a 3.5-foot-tall black vinyl chain link fencing. The areas behind the goals would have 16-foot-tall fencing to ensure that balls remain on the fields.

Proposed field lighting would consist of ten 60-foot-tall light standards made of galvanized steel. Two light standards each would be located at the north and south ends of the facility and another six light standards would be located between the centermost fields. Each light fixture, or assembly, would consist of ten 1,500-watt metal halide lamps. In addition to the field light standards, the project includes 47 approximately 15-foot-tall pedestrian pathway light standards and 13 approximately 18-foot-tall parking lot light standards.

The existing restroom building would be renovated and a new plaza area with seating would be constructed on the west side of the building. Additional amenities proposed for the plaza area

include a small playground to the south of the restroom as well as picnic tables and permanent barbeque pits. Two access paths would be constructed from the plaza area to the field.

The existing 25,320-square-foot parking lot would be renovated and expanded by 8,740 square feet to include a drop-off area and approximately 20 additional parking spaces (including four American's with Disability Act [ADA] compliant spaces), for a total of 70 spaces. The location of the existing vehicular ingress and egress from John F. Kennedy Drive would remain the same as under existing conditions.

Onsite circulation at the field level would be modified with a new concrete pathway that would encircle the four fields and provide access to each of the fields, as well as provide connection with existing pedestrian circulation routes within the park and to the pathway at the Great Highway.

The project would also install spectator seating for approximately 250 visitors at the north and south ends of the facility, as well as seating for approximately 606 visitors on the east-west walkway between the two center fields. Seating for approximately 190 spectators would also be provided in the plaza area. All facilities would comply with current ADA accessibility guidelines.

The project would require removal of 16 trees and approximately 44 shrubs to accommodate the proposed changes. Each tree removed would be replaced at a one-to-one or greater ratio. Tree replacement locations would include the southern edge of the project area and other appropriate areas.

Project construction would require approximately 10 months beginning in summer/fall 2013. Construction activities would include use of standard earth-moving equipment for grading, large trucks for hauling, and a small crane to lift the proposed light standards. The project would require excavation to a depth of approximately one foot below ground surface (bgs) for most project elements and approximately ten feet bgs for the installation of the light standards. Construction material staging and storage are anticipated to occur within the boundaries of the existing facility.

B. Impacts and Mitigation Measures

This EIR analyzes the potential effects of the Beach Chalet Athletic Fields Renovation project, as determined in the Notice of Preparation of an Environmental Impact Report (NOP), issued February 2, 2011 (Appendix A of this EIR). The Initial Study attached to the NOP (also in Appendix A) found that the proposed project would have potentially significant effects in the areas of aesthetics; cultural resources; transportation/circulation; air quality; biological resources; hydrology and water quality; and hazards/hazardous materials. It also found that the project effects on other environmental topics would not be significant or would be less-than-significant.

Table ES-1 summarizes all impacts identified for the proposed project addressed in the environmental review for this EIR, whether their level of significance was found to be no impact, less-than-significant impact, or significant. For any impacts found to be significant, corresponding mitigation measures are included and the level of significance after mitigation is indicated.

The proposed project would have the following significant unavoidable impacts:

- The proposed project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.

C. Project Alternatives

The project alternatives analyzed in this EIR include the following: 1) No Project Alternative, 2) Off-Site Alternative, 3) Grass Turf with Reduced Lights Alternative, and 4) Synthetic Turf without Lights Alternative.

No Project Alternative

Under the No Project Alternative, the existing fields would remain in use and no renovations to the field or other facilities would occur. The No Project Alternative includes those activities that would reasonably be expected to occur in the foreseeable future if the proposed project were not approved.

The No Project Alternative would eliminate the need for construction activities in the project area, thereby avoiding all construction impacts identified for the proposed project, including the significant and unavoidable impact on historic resources, and the significant impacts associated with biological resources, and hazards and hazardous materials. In addition, although not considered a significant impact, impacts on views of the project area and nighttime lighting would be avoided under the No Project Alternative. Other less than significant impacts associated with construction noise, traffic, and air quality would also be avoided under the No Project Alternative. Other proposed future projects in the site vicinity may still be implemented, including the San Francisco Westside Recycled Water project and the San Francisco Groundwater Supply Project, and so cumulative construction impacts could still occur, but there would be no contribution to these impacts from the proposed project.

The No Project Alternative would fail to meet most of the project objectives. While the No Project Alternative would remain consistent with the Golden Gate Master Plan, the No Project Alternative would not meet any other objectives which include increasing the amount of athletic play on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas; improving public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks; increasing ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco; reducing ongoing maintenance and resource needs; complying with current ADA requirements, and; improving safety and increasing nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area.

Off-Site Alternative

Under the Off-Site Alternative, the San Francisco Recreation and Parks Department (SFRPD) would construct similar renovations to the West Sunset Playground, located on Ortega Street in the Outer Sunset neighborhood.

The Off-Site Alternative would have construction-related impacts similar to or greater than the proposed project because the fields are more proximate to sensitive receptors such as schools and residences than the project site. It is assumed that this alternative would be compatible with existing zoning and land use designations because the site is already used for recreational purposes. Since the Off-Site Alternative would entail similar construction activities as the proposed project, biological resources, hydrology and water quality, and hazards and hazardous material impacts are anticipated to be comparable to those under the proposed project. However, under the Off-Site Alternative, visual resources impacts associated with nighttime lighting effects would likely be greater than that of the proposed project. Historic resources impacts would be less than significant.

Under this alternative, impacts to recreational resources are anticipated to be greater than those identified for the proposed project, as the Beach Chalet fields would continue to be used and would continue to degrade. It is also assumed that effects associated with increased traffic, transit, parking, and pedestrian access would be similar to or greater than the proposed project.

The Off-Site Alternative would fail to meet most of the project objectives, partially meet some of the objectives, and would meet one objective. This alternative would not increase the amount of athletic play time on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas, although it would partially meet this objective by providing increase play time for SFRPD overall, the alternative would fail to meet the objective of improving safety and increasing nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area. This alternative would also fail to meet the objectives of improving public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, and increasing ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco. This alternative would not be inconsistent with the Golden Gate Master Plan.

The Off-Site Alternative would partially achieve the objectives to: provide a safe, optimal recreational facility and amenities for athletes, spectators, and park users; reduce ongoing maintenance and resource needs; and result in facility compliance with current ADA requirements.

Grass Turf with Reduced Lights Alternative

Under the Grass Turf with Reduced Lights Alternative, the SFRPD would construct most of the improvements that are included under the proposed project with the exception that a new grass turf field would be installed instead of a synthetic turf field. This alternative also includes

modifications to some of the proposed improvements. It is assumed that the new grass turf field would be similar in size to the turf field under the proposed project. The intent of this alternative would be to reduce impacts to historic resources. All of the same mitigation measures as the proposed project would be required under this alternative.

The Grass Turf with Reduced Lights Alternative would have similar construction-related impacts as the proposed project. With the exception of construction activities associated with synthetic turf installation, it is assumed that all other construction activities would be the same as those for the proposed project. Like the proposed project, this alternative would be compatible with existing zoning and land use designations since the location of this alternative is the same as the proposed project. The installation of the reduced number of lights would result in less visual impacts on surrounding residences as the proposed project (though it is noted that aesthetic resources are less than significant under the proposed project). Since the Grass Turf with Reduced Lights Alternative would entail similar restroom renovations as the proposed project, hazards and hazardous material impacts are anticipated to be comparable to those determined under the proposed project.

Under this alternative, impacts to historic resources would be less in comparison to the proposed project. The replacement of grass turf; reduced number of field lights; small-scale, removable seating instead of spectator seating; and linear circulation paths composed of decomposed granite material and a 'soft' planted edge instead of concrete would collectively reduce impacts to historic resources. Installation of such components under this alternative would allow the site to remain a contributing resource to the Golden Gate Park National Historic District. In comparison to the proposed project, construction-related impacts to biological resources would be similar to the proposed project since vegetation and tree removal would be required under this alternative. Thus, construction-related impacts to special-status bats, vegetation, and tree removal would be similar under this alternative. Implementation of pre-construction surveys for special-status bats would be required under this alternative.

Installation of new grass turf fields would eliminate the potential for less than significant water quality impacts related to the installation of synthetic turf (i.e., potential for contaminants in runoff from the synthetic fields and groundwater quality degradation). Therefore, impacts to traffic, recreation, and hydrology and water quality would be less than those identified for the proposed project (which are less than significant).

The Grass Turf With Reduced Lights Alternative would achieve most of the project objectives, partially meet some of the objectives, and would fail to meet one of the project objectives. This alternative would remain consistent with the Golden Gate Master Plan as these improvements would occur within the area of the existing Beach Chalet Athletic Fields. This alternative would also meet the objectives of improving public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, and increasing ground-sports opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco.

The alternative would fail to meet the objective of reducing ongoing maintenance and resource needs; instead, it would require a greater level of maintenance work to preserve field conditions. A greater level of maintenance would be needed because the new grass fields would be larger than the existing fields under this alternative and would be used at a greater level with the inclusion of nighttime play hours. Decomposed granite may not be considered acceptable under applicable disability access requirements and therefore might not be a feasible alternative material. While there would be some increase in play time at the facility, it would be substantially less than the proposed project due to 1) a 50% reduction in the number of lit fields; 2) maintenance and rest and re-growth closures; and 3) rain closures.

The Grass Turf with Reduced Lights Alternative would only partially achieve the objective to provide for a safe, optimal recreation facility and amenities for athletes, spectators and park users by renovating the existing Beach Chalet Athletic Fields and the existing restroom building, adding bleachers, and installing a new plaza area with visitor amenities. While installation of new lighting would accommodate additional evening playtime, some of the deficiencies at the existing facility would likely persist, reoccur or worsen unless public access was restricted during existing permitted play times.

Synthetic Turf without Lights Alternative

Under the Synthetic Turf without Lights Alternative, the SFRPD would construct most of the improvements that are included under the proposed project except for the installation of field lighting. This alternative also includes modifications to some of the proposed improvements. The intent of this alternative would be to reduce impacts to historic resources.

The Synthetic Turf without Lights Alternative would have similar but slightly reduced construction-related impacts in comparison to the proposed project. Similar to the proposed project, this alternative would be compatible with existing zoning and land use designations since the location of this alternative is the same as the proposed project. With the exception of construction activities associated with field lighting installation, this alternative would involve similar construction activities as the proposed project, including renovation of the restroom facilities and installation of new synthetic turf fields. Therefore, hazards and hazardous material impacts and hydrology and water quality impacts are anticipated to be the same as those determined under the proposed project.

Under this alternative, impacts to aesthetic resources would be less than those of the proposed project as this alternative would not introduce any new lighting and would not result in any changes to nighttime views, or adversely affect views from outside the boundaries of the project site (though it is noted that aesthetic resources are less than significant under the proposed project). Impacts to historic resources would also be less in comparison to the proposed project due to the elimination of field lighting, the installation of small-scale, removable seating (i.e., benches or low-profile bleachers), a pathway system comprised of decomposed granite, and a 'soft' planted edge that would allow the site to remain a contributing resource to the Golden Gate Park National Historic District. In terms of traffic generated by this alternative, it is anticipated

that traffic levels would be less than that of the proposed project since use of the Athletic Fields would be restricted to daytime hours and use levels would be lower than the proposed project.

Under this alternative, the installation of synthetic turf would still result in vegetation and tree removal. Thus, construction-related impacts on trees, and special-status bats would be the same as the proposed project and mitigation would be available to lessen this impact. However, unlike the proposed project, less than significant adverse nighttime lighting effects on migratory birds would be eliminated.

The Synthetic Turf without Lights Alternative would achieve most of the project objectives, although it would only partially meet one of the objectives, and would fail to meet two of the project objectives. Given that the location of this alternative is the same as the existing Beach Chalet Athletic Fields, this alternative would remain consistent with the Golden Gate Master Plan. As most of the components under this alternative are the same as the proposed project, this alternative would meet the objectives related to improved public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, increased ground-sports opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco, reduction of ongoing maintenance and resource needs, and increasing the amount of athletic play time at the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas.

The alternative would fail to meet the objective pertaining to improved safety and increased nighttime use of the west end of Golden Gate Park. The Synthetic Turf without Lights Alternative would only partially achieve the objective to provide a safe, optimal recreation facility and amenities for athletes, spectators, and park users. The absence of field lighting would restrict use of the fields to daytime hours only and therefore the increase in play hours would be less than with the proposed project. This alternative would not meet current accessibility requirements because it can not be stated with certainty that decomposed granite would meet all applicable accessible requirements, and therefore, may not be feasible for use in the project.

Environmentally Superior Alternative

The No Project Alternative would be the environmentally superior alternative. However, the No Project Alternative does not meet most of the project objectives. Of the remaining alternatives, the Off-Site Alternative would also qualify as the environmentally superior alternative because it is not located within the Golden Gate Park National Register Historic District. Selection of the Off-Site Alternative would avoid significant unavoidable historic resources impacts to the character defining features of the Beach Chalet Athletic Fields cultural landscape due to the addition of synthetic turf, lights, spectator seating, and new pathways. The Off-site Alternative could require tree removal or disturbance, and could require renovation to existing facilities. Therefore, biological resources impacts (bats and tree resources) and hazardous building material exposure impacts would likely be similar to the proposed project.

D. Areas of Controversy and Issues to be Resolved

On the basis of public comments on the Notice of Preparation (NOP) and at the public scoping meeting, potential areas of controversy and unresolved issues for the proposed project include the following: potential conflicts with existing plans and policies, particularly the *Golden Gate Park Master Plan*; and potential loss of historic resources or substantial changes to the character of historic resources.

TABLE ES-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Aesthetics			
Impact AE-1: The construction and operation of the proposed project would not have a substantial adverse effect on a scenic vista or substantially damage scenic resources.	Less than Significant	None required	
Impact AE-2: The project would not substantially degrade the existing visual character or quality of the site and its surroundings.	Less than Significant	None required	
Impact AE-3: Development of the proposed project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area or that would substantially affect other people or properties.	Less than Significant	None required	
Impact C-AE: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to aesthetics.	Less than Significant	None required	
Cultural Resources			
Impact CP-1: The proposed project would cause a substantial adverse change in the significance of a historic resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.	Significant	**Mitigation Measure M-CP-1.** The circulation paths shall be redesigned to include a more naturalistic and compatible surface material such as decomposed granite, NaturePave (a decomposed granite product with a resin binding agent), or compacted earth in place of the proposed concrete surface materials. The paths shall also be redesigned to consider a more informal path edge treatment such as a 'soft' planted edge.	Significant and Unavoidable
Impact C-CP: The proposed project would not result in cumulatively considerable impacts related to historic resources.	Less than Significant	None required	
Transportation and Circulation			
Impact TR-1: The proposed project would not have a substantial significant operational impact on levels of service at local intersections.	Less than Significant	**Improvement Measure I-TR-1: Transportation Demand Management** Formalize a Transportation Demand Management Plan that addresses travel to recreational sites, including athletic fields, providing transit and rideshare information to its users on reservations, permits or websites, and including	Less than Significant

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Transportation and Circulation (cont.)			
Impact TR-1 (cont.)		the ongoing collection of travel mode data of its users, and developing methods to encourage carshare, transit, pedestrian and bicycle travel particularly as related to recreational field activities.	
Impact TR-2: The proposed project would not exceed the capacity utilization standard for Muni lines or regional transit providers, and would not cause a substantial increase in delays or operating costs.	Less than Significant	None required	
Impact TR-3: The proposed project would not result in overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas, nor would it create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.	Less than Significant	None required	
Impact TR-4: The proposed project would not result in a substantial change to freight/service or passenger loading demand or facilities.	Less than Significant	None required	
Impact TR-5: The proposed project would not result in inadequate emergency access.	Less than Significant	None required	
Impact C-TR: The proposed project, in conjunction with past, present, and reasonably foreseeable future projects, would not have a cumulatively considerable contribution to traffic and circulation impacts.	Less than Significant	None required	
Recreation and Public Space			
Impact RE-1: The project would not increase the use of existing neighborhood parks and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated and would not result in physical degradation of recreational resources.	Less than Significant	None required	
Impact C-RE: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to recreation and public space.	Less than Significant	None required	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Biological Resources			
Impact BI-1: The proposed project could potentially adversely impact species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.	Significant	**Mitigation Measure M-BI-1: Pre-Construction Bat Surveys.** Conditions of approval for building and grading permits issued for demolition and construction within the project area shall include a requirement for pre-construction special-status bat surveys when large trees are to be removed. If active day or night roosts are found, the bat biologist shall take actions to make such roosts unsuitable habitat prior to tree removal or building demolition. A no-disturbance buffer of 100 feet shall be created around active bat roosts being used for maternity or hibernation purposes. Bat roosts initiated during construction are presumed to be unaffected, and no buffer would be necessary**.**	Less than Significant
Impact BI-2: Implementation of the proposed project would not interfere substantially with the movement of native resident wildlife species and with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.	Less than Significant	**Improvement Measure I-BI-2:** In compliance with the voluntary San Francisco Lights Out Program and the Standards for Bird-Safe Buildings, the following bird-safe facility construction and operations measures could be implemented to prevent and minimize the nighttime lighting effects on birds, bats, and other wildlife: • Fully shield all lights to prevent upward and outward light spill beyond the needed illumination area. • Focus lights specifically on areas needing illumination. • Use lights of an intensity no higher than necessary. • Use flat glass and ultra-low profile light fittings. • Tightly seal lamp housings and locate them away from structures that may trap insects.	Less than Significant
Impact BI-3: The proposed project could potentially conflict with applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	Significant	**Mitigation Measure M-BI-3: Plant Replacement Trees.** The SFRPD shall replace the trees removed within SFRPD-managed lands with trees of equivalent ecological value (i.e., similar species) to the trees removed. If trees of equivalent ecological value are not feasible or available, removed trees shall be replaced at a ratio of 1 inch for 1 inch of the diameter at breast height of the removed tree. SFRPD shall monitor tree replacement plantings annually for a minimum of three years after completion of	Less than Significant

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Biological Resources (cont.)			
Impact BI-3 (cont.)		construction to ensure establishment of the plantings and, if necessary, shall replant to ensure the success of the replacement plantings. **Improvement Measure I-BI-3:** Although no significant impacts were identified, the following improvement measures could be implemented by to provide protection for trees and shrubs to be retained onsite during construction activities for the Beach Chalet Athletic Fields Renovation Project. • Establish a Tree Protection Zone (TPZ) around any tree or group of trees to be retained. The formula typically used is defined as 1.5 times the radius of the dripline or 5 feet from the edge of any grading, whichever is greater. The TPZ may be adjusted on a case-by-case basis after consultation with a Certified Arborist. • Mark the TPZ of any protected trees/shrubs with permanent fencing (e.g., post and wire or equivalent), which would remain in place for the duration of construction activities in the area. Post "keep out" signs on all sides of fencing. • Prohibit construction-related activities, including grading, trenching, construction, demolition, or other work within the TPZ. No heavy equipment or machinery should be operated within the TPZ. No construction materials, equipment, machinery, or other supplies should be stored within a TPZ. No wires or signs should be attached to any tree. Any modifications should be approved and monitored by a Certified Arborist. • Prune selected trees to provide necessary clearance during construction and to remove any defective limbs or other parts that may pose a failure risk. All pruning should be completed by a Certified Arborist or Tree Worker and adhere to the Tree Pruning Guidelines of the International Society of Arboriculture.	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Biological Resources (cont.)			
Impact BI-3 (cont.)		• Monitor the TPZs of protected trees on a weekly basis. • A Certified Arborist should monitor the health and condition of the protected trees and, if necessary, recommend additional mitigations and appropriate actions. This could include the monitoring of trees adjacent to project facilities in order to determine if construction activities (including the removal of nearby trees) would affect protected trees in the future. • Provide supplemental irrigation and other care, such as mulch and fertilizer, as deemed necessary by a Certified Arborist. Treatment of any injuries should be performed by a Certified Arborist.	
Impact C-BI: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable impact on biological resources.	Less than Significant	None required	
Hydrology and Water Quality			
Impact HY-1: The proposed project would not violate water quality standards, create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, provide an additional source of polluted runoff that would adversely affect water quality, or otherwise substantially degrade water quality.	Less than Significant	None required	
Impact HY-2: The proposed project would not violate water quality standards, or provide an additional source of polluted runoff that would adversely affect groundwater quality, or otherwise substantially degrade groundwater quality.	Less than Significant	None required	
Impact HY-3: The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems.	Less than Significant	None required	
Impact C-HY: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not adversely affect hydrology and water quality.	Less than Significant	None required	

TABLE ES-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

Environmental Impact	Level of Significance prior to Mitigation	Improvement/Mitigation Measures	Level of Significance after Mitigation
Hazards and Hazardous Materials and Air Quality			
Impact HZ-1: The proposed project would not create a significant hazard to the public or the environment through routine use, disposal, handling, or emissions of hazardous materials.	Less than Significant	None required	
Impact HZ-2: The proposed project could create a significant hazard to the public or the environment as a result of a release of hazardous building materials in structures that would be demolished.	Significant	**Mitigation Measure M-HZ-2:** Hazardous Building Materials. The project sponsor shall ensure that, before renovation, the restroom facilities are surveyed for hazardous building materials, including PCB-containing electrical equipment, fluorescent light ballasts containing PCBs or DEHP, and fluorescent light tubes containing mercury vapors. These materials shall be removed and properly disposed of before commencement of demolition or renovation. Old light ballasts that will be removed during renovation shall be evaluated for the presence of PCBs, and in the case where the presence of PCBs in the light ballast could not be verified, they will be assumed to contain PCBs, and handled and disposed of as such, according to applicable laws and regulations.	Less than Significant
Impact C-HZ: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to hazards and hazardous materials.	Less than Significant	None required	

CHAPTER I
Introduction

This environmental impact report (EIR) analyzes potential environmental effects associated with the Beach Chalet Athletic Fields Renovation Project (proposed project or project), which includes various physical and operational changes at the existing Beach Chalet Athletic Fields, an approximately 9.4-acre public sports field facility located at 1500 John F. Kennedy Drive, along the western edge of Golden Gate Park. The proposed changes include replacement of the existing grass turf fields with synthetic turf fields, installation of field lighting, renovation of the existing restroom building, installation of player benches and seating, and other site modifications intended to improve the overall conditions of the facility and increase the amount of play time available on the athletic fields. Further details regarding the proposed project components that form the basis for the EIR analysis are discussed in depth in Chapter II, Project Description.

A. Environmental Review

The San Francisco Planning Department, serving as lead agency responsible for administering the environmental review on behalf of the City and County of San Francisco (CCSF), determined that the preparation of an EIR was needed.

The California Environmental Quality Act (CEQA) requires that, before a decision can be made to approve a project that could pose potential adverse physical effects, an EIR must be prepared that fully describes the environmental effects of the project. An EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental impacts of a project, to identify mitigation measures to lessen or eliminate significant adverse impacts, and to examine feasible alternatives to the project. The information contained in an EIR is reviewed and considered by the decision-makers before arriving at a decision to approve, disapprove, or modify a project.

CEQA requires that the lead agency neither approve nor implement a project unless the project's significant environmental effects have been reduced to a less-than-significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impact, except when certain findings are made. If the lead agency approves a project that will result in the occurrence of significant adverse impacts that cannot be mitigated to less-than-significant levels, the agency must state the reasons for its action in writing, demonstrate that its action is based on the EIR or other information in the record, and adopt a Statement of Overriding Considerations.

On February 2, 2011, CCSF sent a notice of preparation (NOP) to governmental agencies and organizations and persons who may have interest in the project. The NOP requested that agencies and interested parties comment on environmental issues that should be addressed in the EIR. The NOP is included as Appendix A in this EIR.

An Initial Study (IS) was also distributed for review, describing the proposed project and identifying potential environmental effects of the project (see Appendix A). The IS identified impact topics that were determined not to apply to the proposed project and impact topics where the project would have no impact or a less-than-significant impact. These topics, summarized below, are not addressed in this EIR (see Section I.C, Organization of the Draft EIR, for a summary of environmental topics addressed in this EIR):

- **Land Use and Land Use Planning**—physical division of an established community; conflicts with land use plans, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect; or impacts on the existing character of the vicinity.

- **Population and Housing**—induce substantial population growth; displace a substantial amount of existing housing or create demand for additional housing; or displace substantial numbers of people, necessitating replacement housing elsewhere.

- **Cultural and Paleontological Resources**—adverse change to the significance of archaeological resources; destruction of paleontological resources; or disturbance of remains.

- **Transportation and Circulation**—change air traffic patterns, resulting in safety risk; or construction-related transportation and circulation impacts.

- **Noise**—generation of noise levels in excess of standards; vibration impacts; increases in ambient noise; exposure of people to excessive noise levels in airport or airstrip areas; or other effects caused by substantial noise levels.

- **Air Quality**—conflict with or obstruct implementation of the applicable air quality plan, violation of any air quality standards; cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment; exposure of sensitive receptors to substantial pollutant concentrations; or creation of objectionable odors.

- **Greenhouse Gas Emissions**—generation of greenhouse gas emissions, resulting in significant impact on the environment; or conflict with plans or policies adopted for the purpose of reducing emissions of greenhouse gases.

- **Wind and Shadow**—alteration of wind or creation of shadows that substantially affect public areas.

- **Utilities and Service Systems**—exceedance of wastewater treatment requirements or capacity; construction of new water, wastewater, or stormwater facilities; availability of water supply, exceedance of landfill capacity; or compliance with solid waste regulations.

- **Public Services**—impacts associated with the need for new or altered public services.

- **Biological Resources**—effects on protected wetlands.

- **Geology and Soils**—exposure of people or structures to geologic hazards; soil erosion or loss of topsoil; presence of unstable soils or geologic units; presence of expansive soils or soils incapable of adequately supporting wastewater disposal systems; or substantial change of topography.

- **Hydrology and Water Quality**—Depletion of groundwater supplies; alteration of drainage patterns, resulting in erosion; placement of housing and/or structures within a 100-year flood zone; exposure of people and structures to hazards associated with flooding, failure of a levee or dam, seiche, tsunami, or mudflow; or construction-related water quality impacts.

- **Hazards and Hazardous Materials**—Upset and accident conditions involving release of hazardous materials; emission of hazardous materials within 0.25 mile of a school; inclusion of a site included on a list of hazardous materials sites; location on airport or air strip land use areas; impair implementation of emergency response or evacuation plan; exposure of people or structures to fire risk; or construction-related hazards and hazardous materials impacts.

- **Mineral and Energy Resources**—loss of known valuable mineral resources of the state or locally important resources; encourage activities that result in wasteful use of energy resources.

- **Agriculture and Forest Resources**—conversion of resources identified by the Farmland Mapping and Monitoring Program to nonagricultural use; conflict with existing zoning for agricultural use or Williamson Act contract; or involve changes that could result in Farmland of Statewide Importance to nonagricultural use.

The San Francisco Planning Department and the San Francisco Recreation and Parks Department held a public scoping meeting at the Golden Gate Park Senior Center, located at 6101 Fulton Street in San Francisco on February 23, 2011. The purpose of the public scoping meeting was to solicit input from the public on potential impacts of the proposed project, the significance of impacts, the appropriate scope of the EIR, mitigation measures, and potential alternatives to the project.

The public comment period was from February 2 to March 4, 2011. During this time, public comments were also received in writing at the public meeting, via U.S. mail, email, or fax. The environmental issues raised in the public comments are addressed in this EIR, and are summarized as follows:

- Potential impacts resulting from installation and eventual disposal of the synthetic turf field, such as:

    - Increased exposure to hazardous materials (Section IV.I, Hazards and Hazardous Materials),
    - Increased risk of sports injury to recreationists (not applicable under CEQA),
    - Decreased local water quality (Section IV.H, Hydrology and Water Quality),
    - Decreased air quality (IV.E, Air Quality),

  - Increased effects on climate change (Chapter I, Introduction), and
  - Decreased capacity of local solid waste facilities (Chapter I, Introduction);

- Potential impacts to visual quality and character resulting from vegetation removal and use of nighttime lighting (Section IV.B, Aesthetics);

- Potential conflicts with existing plans and policies, including the *Golden Gate Park Master Plan*; National Parks Service Policies; *San Francisco General Plan* and Local Coastal Plan; (Chapter III, Plans and Policies);

- Potential impacts to wildlife, especially raptors and gophers, resulting from noise, nighttime lighting, and vegetation removal (Section IV.F, Biological Resources);

- Concerns regarding potential loss of habitat (Section IV.F, Biological Resources);

- Potential loss of historic resources or substantial changes to the character of historic resources (Section IV.C, Cultural Resources);

- Potentially negative impacts on circulation for vehicles and pedestrians, as well as lack of accessibility for persons with disabilities (Section IV.D, Transportation and Circulation);

- Potential impacts resulting from wind break (tree) removal (Chapter I, Introduction);

- Cumulatively considerable impacts on resources resulting from implementation of the Westside Recycled Water Project (cumulative impact sections within Chapter IV, Environmental Setting and Impacts); and

- Recommendations to evaluate alternative locations for the project, alternative materials for the field, and ways to design the field while maintaining the existing aesthetic (Chapter VI, Alternatives).

During the approximately 45-day period that this Draft EIR is available for public review, written comments on the adequacy of the environmental analysis presented therein may be submitted to the Planning Department or in person during the public hearing on the Draft EIR (the hearing date is on the cover). Responses to all substantive comments received on the adequacy of the Draft EIR analysis and submitted within the specified review period will be included and responded to in the Comments and Responses document. The Comments and Responses document will also contain any changes to the text of the Draft EIR. Following EIR adoption, the Draft EIR and the Comments and Responses document will be combined into one document, the Final EIR. Prior to approval of the project, the Planning Commission must certify the Final EIR.

B. Purpose of this EIR

This EIR is intended as an informational document, that in and of itself does not determine whether a project will be approved, but aids the planning and decision-making process by disclosing the potential for significant and adverse impacts. In conformance with CEQA, California Public Resources Code, Section 21000 et. seq., this EIR provides objective information

addressing the environmental consequences of the project and identifies possible means of reducing or avoiding its potentially significant impacts.

The CEQA Guidelines help define the role and expectations of this EIR, as follows:

> **Information Document.** An EIR is an informational document that will inform public agency decision-makers and the public generally of the significant environmental effect(s) of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. The public agency shall consider the information in the EIR along with other information which may be presented to the agency (Section 15121(a)).
>
> **Standards for Adequacy of an EIR.** An EIR should be prepared with a sufficient degree of analysis to provide decision-makers with information that enables them to make a decision that intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure (Section 15151).

The CEQA Guidelines, Section 15382, define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project…." Therefore, in identifying the significant impacts of the project, this EIR concentrates on its substantial physical effects and on mitigation measures to avoid, reduce, or otherwise alleviate those effects.

C. Organization of the Draft EIR

This Draft EIR has been organized as follows:

- **Summary.** This chapter summarizes the EIR by providing a concise overview of the project, including the project description and approvals, the environmental impacts that would result from the project, mitigation measures identified to reduce or eliminate these impacts, and alternatives to the proposed project.

- **Chapter I, Introduction.** This chapter (above and the contents herein) includes a discussion of the environmental review process, a summary of the comments received on the scope of the EIR, the purpose of this EIR, and the organization of the EIR.

- **Chapter II, Project Description.** This chapter discusses the project background and objectives, provides background data on the project location, describes the operational and physical characteristics of the proposed Beach Chalet Athletic Fields Renovation Project, and identifies project approvals.

- **Chapter III, Plans and Policies.** This chapter provides a summary of the plans, policies, and regulations of CCSF, regional, and State agencies that may be applicable to the project.

- **Chapter IV, Environmental Setting and Impacts.** This chapter describes the project's existing setting, environmental impacts, and cumulative impacts. Each environmental topic is discussed in a separate section within the chapter. Environmental topics included in this EIR chapter are:

  - Land Use (land uses within the project area are presented solely for informational purposes);
  - Aesthetics;
  - Cultural Resources (historic resources only);
  - Transportation and Circulation (with the exception of changes in air traffic patterns, resulting in safety risks, and construction-related transportation and circulation impacts);
  - Recreation;
  - Biological Resources (with the exception of effects on protected wetlands);
  - Hydrology and Water Quality effects associated with synthetic turf fields, and new impervious surfaces; and
  - Hazards and Hazardous Materials effects associated with synthetic turf fields, including Air Emission of vapors above synthetic turf, and renovation of the existing restroom facility.

- **Chapter V, Other CEQA Considerations.** This chapter presents any growth-inducing impacts that could result from the proposed project, recapitulates the significant environmental effects that cannot be mitigated to a less-than-significant level, and presents any areas of controversy left to be resolved.

- **Chapter VI, Alternatives.** This chapter presents alternatives to the proposed project, including the No Project Alternative, Off-Site Alternative, Grass Turf with Lights Alternative, Synthetic Turf without Lights Alternative, and other alternatives considered but rejected as infeasible.

- **Appendices.**

D. Public Participation

The CEQA Guidelines and Chapter 31 of the San Francisco Administrative Code encourage public participation in the planning and environmental review processes. CCSF will provide opportunities for the public to present comments and concerns regarding the CEQA processes. These opportunities will occur during a public review and comment period and a public hearing before the San Francisco Planning Commission. Written public comments may be submitted to the Planning Department to the attention of Bill Wycko, Environmental Review Officer, at 1650 Mission Street, Suite 400, San Francisco, CA 94103, during the specified public review and comment period (indicated on the cover of this EIR), and written and oral comments may be presented at public hearings concerning the project (also indicated on the cover of this EIR).

CHAPTER II
Project Description

A. Overview and Project Objectives

Project Overview

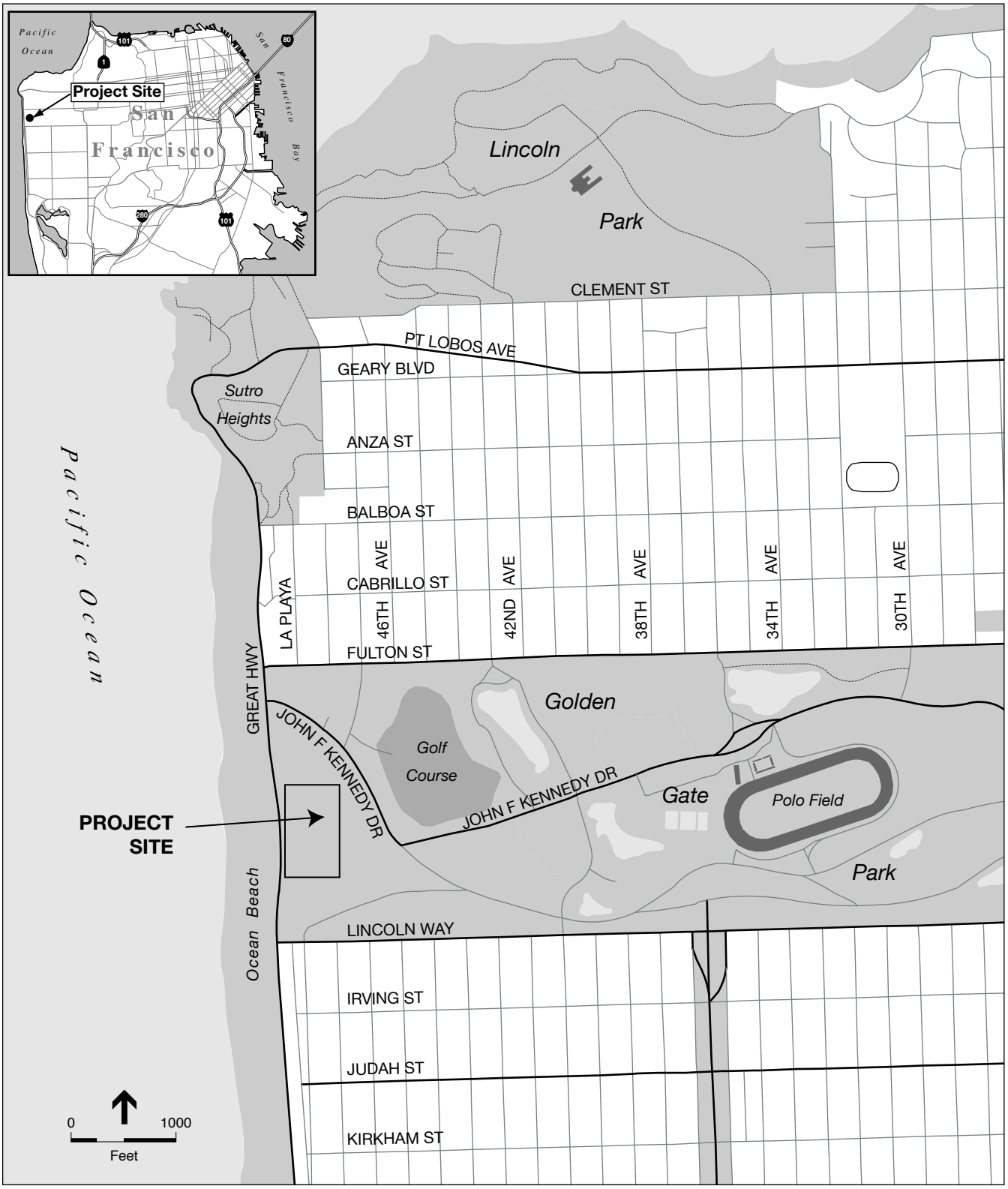
The project sponsor, the San Francisco Recreation and Parks Department (SFRPD), is proposing to renovate the Beach Chalet Athletic Fields facility, an approximately 9.4-acre public sports field facility located at 1500 John F. Kennedy Drive, along the western edge of Golden Gate Park (see **Figures II-1** and **II-2**). The Athletic Fields currently include four grass turf athletic fields surrounded by an 8-foot-tall metal chain link fence, an approximately 25,320-square-foot, 50-space asphalt parking lot (including one disabled-accessible space), a restroom building, and a cargo container being used as a maintenance shed. The project would include replacing the existing grass turf fields with synthetic turf, installing field lighting, renovating the existing restroom building, installing player benches and seating, and various other modifications intended to improve the overall conditions of the facility and increase the amount of play time[1] available on the athletic fields.

The proposed project would also address other deficiencies at the facility, such as limitations on field use resulting from facility closure for grass re-growth; presence of gopher holes on the play fields; and lack of clean public restrooms, changing stations, play/picnic areas, and spectator seating. With project implementation, the project site would remain in its current use as an athletic field complex within an urban park.

The Beach Chalet Athletic Fields are one of three primary ground sports athletic facilities citywide, the others being Crocker Amazon Playground and the Polo Fields. Other neighborhood parks also provide play fields, but on a lesser scale.

The Beach Chalet Athletic Fields were built more than 75 years ago, have been used as a ground sports facility since then, and were last renovated in 1998 to include an 8-foot-high chain-link fence around the play fields and improve the lawn and irrigation system. One of the four existing fields is always out of use for rest and re-growth, leaving three fields available for athletic activities. In addition, the fields are closed to the public every Monday throughout the year, plus an additional 3–4 months out of the year, to allow for grass re-growth and general field maintenance. According to SFRPD, the fields are subject to heavy use and are characterized by

[1] Calculated as play hours per year.



SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-1
Project Location-
Street Map Base

SOURCE: Google; ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-2
Project Location-
Aerial Base

abundant gopher holes and year-round wet conditions, are considered to be in poor condition, and require a considerable amount of maintenance.

Currently, to preserve field condition for safe play, only three of the four fields are used at any one time and, in combination, are able to accommodate approximately 4,738 hours of annual play. Installation of synthetic turf would allow for use in wet weather conditions and eliminate the need for the fields to rest and re-grow, and installation of lighting would allow for longer evening use of the fields. With implementation of the proposed project, it is anticipated that approximately 9,582 additional hours of play per year of play time could be accommodated, for a total of 14,320 hours of annual play (an increase of more than 200 percent over existing conditions[2]).

The proposed project design process incorporated modifications in an effort to integrate the project into the recreational features of Golden Gate Park, including:

- Revision of bleacher materials from traditional style (aluminum) to low profile bleachers made of concrete and wood.
- Angling and recessing the bleachers into the sloped topography on the south and north ends of the project area.
- Relocation of the storage maintenance shed from the north side of the restroom to the south end of the parking lot in an effort to maintain the vegetation screen that exists when entering the parking lot. This also maintains the green vegetated perimeter around the fields.
- Elimination of a curved wooden trellis that would have wrapped around the face of the entry plaza.
- Lowering of the field lights from up to 100 feet to 60 feet in an effort to screen them from views from outside the park.
- Moving the field lights from the perimeter of the field onto the field in an effort to screen them from views from outside the park.
- Providing a two switch lighting system so that the light foot candle output on the fields is controlled by allowing for 30 foot candles of illumination during standard play and 50 foot candles of illumination only during tournament events.
- Reducing the height of most of the chain link fencing from 8 feet to 4 feet.
- Reducing the size of the plaza area by removing seating and tables, and adding landscaping to screen the face of the plaza.
- Modifying the pathway from the parking lot and plaza to the field level so that it is more meandering in form.

[2] The additional hours consist of: approximately 1,855 additional hours due to avoidance of field closure for rest and regrowth, approximately 578 hours due to avoidance of closure during wet weather conditions, approximately 3,570 additional hours due to evening play, and approximately 3,580 additional hours due to use of the fourth field.

- Modifying the playground equipment material, and the form and location of the playground.
- Modify the restroom design (doors, windows, and roofline) to maintain the existing form and character of the structure.

Project Sponsor's Objectives

The objectives of the proposed project include the following:

- Increase the amount of athletic play time on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas.
- Improve public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks.
- Increase ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco.
- Provide a safe, optimal recreation facility and amenities for athletes, spectators, and park users by renovating the existing Beach Chalet Athletic Fields and the existing restroom building, adding bleachers, and installing a new plaza area with visitor amenities.
- Reduce ongoing maintenance and resource needs.
- Comply with current Americans with Disabilities Act (ADA) requirements.
- Improve safety and increase nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area.
- Remain consistent with the *Golden Gate Park Master Plan.*

B. Project Site Characteristics and Setting

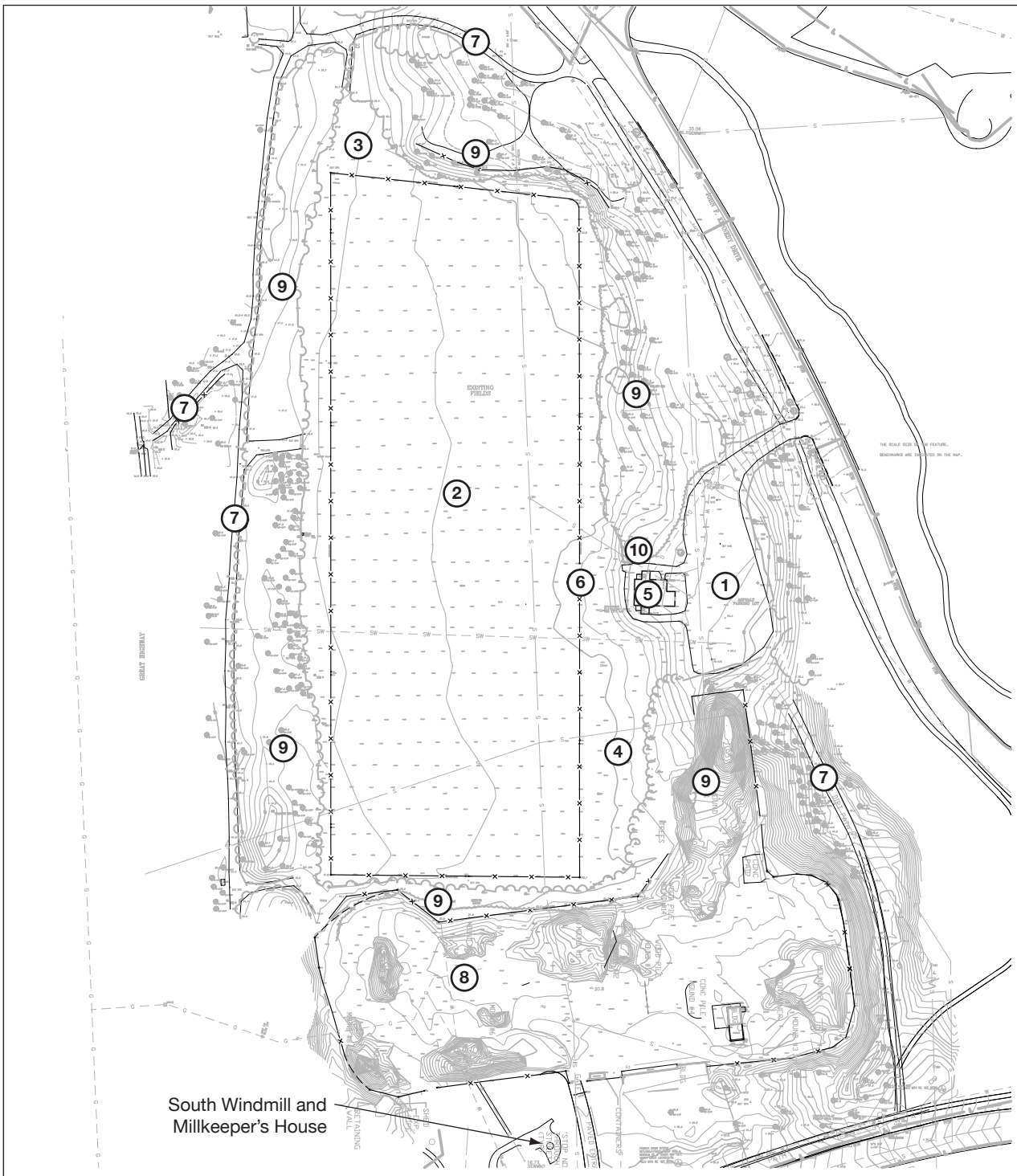
Project Location

The Beach Chalet Athletic Fields site is located at the western end of the 1,017-acre Golden Gate Park. An aerial view of the project site is provided in **Figure II-3**, existing site conditions are illustrated in **Figure II-4**, and selected photos of the project site are provided in **Figure II-5**. The site is bounded by the Beach Chalet Restaurant, Great Highway, and Ocean Beach to the west; the former Richmond-Sunset Water Pollution Control Plant site, currently used for citywide park debris disposal, and Murphy Windmill and Millwright's Cottage to the south; and John F. Kennedy Drive, Dutch Windmill and Queen Wilhelmina Tulip Garden, and Golden Gate Municipal Golf Course to the north and northeast. The facility is accessible by vehicle from connectors to John F. Kennedy Drive. Access by foot or bicycle is available through existing trails surrounding the site. San Francisco Municipal Railway (Muni) bus lines 5 and 18, and the Golden Gate Park Shuttle, operate in the vicinity of the project area.

SOURCE: Google; ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-3
Aerial View of the Project Site



Legend

1. PARKING LOT (25,320 SF)
2. SOCCER FIELD AREA (4 FIELDS; 294,700 SF)
3. WARM UP AREA (NORTH OF FIELDS, 8500 SF)
4. WARM UP AREA (EAST OF FIELDS, 29,840 SF)
5. RESTROOM BUILDING
6. 8' CHAIN LINK FENCE
7. **TRAIL**
8. **FORMER RICHMOND-SUNSET POLLUTION CONTROL PLANT**
9. LANDSCAPE AREAS
10. MAINTENANCE CARGO CONTAINER

NORTH

0' 60' 120' 240' 360'

SOURCE: Verde Design

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-4
Existing Conditions Site Plan

Landscaped Area West of the Athletic Fields

Existing Athletic Fields from Parking Lot

Existing Restroom Building

Existing Parking Lot and Trail Facing South

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-5
Photos of the Project Site

Overview of Western Golden Gate Park

Golden Gate Park is the fifth most visited park in the country[3] and is listed on the National Register of Historic Places and the California Register of Historical Resources as a historic district containing 133 contributing historic resources. Both the athletic fields and the restroom building at the Beach Chalet Athletic Fields site are listed as contributing features of the historic district. Golden Gate Park also contains several Planning Code Article 10 Landmark buildings and structures, including Landmark No. 179, The Beach Chalet (also listed on the National Register of Historic Places as an individual resource), and Landmark No. 210, Murphy Windmill and Millwright's Cottage, which are located within approximately 300 feet of the project site. See Section IV.C, Cultural Resources, for further discussion of Golden Gate Park historic resources.

The project site is located at the western end of the park, which is less intensely developed than the eastern end of the park yet contains several active recreational areas, including the Polo Fields, the Beach Chalet Athletic Fields, the golf course, the archery field, the Bercut Equitation Field, and the 45th Avenue playground. The recreational features in the western end of the park are generally located in the lowland meadows, while the hills are typically woodland areas. The western end of the park contains eight lakes, with open grassy areas at the golf course, Speedway Meadow, Elk Glen Meadow, Lindley Meadow, Polo Fields, Bison Paddock, Disc Golf Course, and the archery field. See Section IV.E, Recreation, for further discussion of Golden Gate Park recreational resources.

Western Golden Gate Park is bounded by predominantly residential neighborhoods to the north and south, including the Outer Richmond District to the north of the park (north of Fulton Street), and the Outer Sunset District to the south of the park (south of Lincoln Way).

Beach Chalet Athletic Fields Facilities and Existing Use

The Beach Chalet Athletic Fields facility is approximately 409,500 square feet in size, comprising approximately 9.4 acres of the 1,017-acre Golden Gate Park. The Athletic Fields currently include four grass turf athletic fields surrounded by an 8-foot-tall metal chain link fence, an approximately 25,320-square-foot, 50-space asphalt parking lot (including one accessible space), a restroom building, and a maintenance shed. The play fields and parking lot are surrounded by trees and scattered shrubs, with existing trail routes. The site slopes gradually from east downward to the west at an average grade of 5 percent.

To allow the grass to rest and re-grow, only three of the facility's four athletic fields are open at any one time and all the fields are closed to the public for 3–4 months each fall and/or winter. While field closure has historically occurred during the fall and/or winter, in the past two years the fields were closed during the summer for rest and re-growth due to scheduling conflicts at other fields. The fields are also closed on Mondays for maintenance activities. The fields are open until dark Tuesday through Friday, and on weekends, and are closed during and following rain

[3] Trust for Public Land, Center for City Park Excellence, *2010 City Park Facts;* p. 25, available online at: http://cloud.tpl.org/pubs/ccpe_CityParkFacts_2010.pdf.

events. When the fields are open and available to the public, the fields are used primarily through reservation by school teams, youth soccer leagues, and adult leagues, via either an advanced reservation system or a first-come, first-served occasional reservation system. Advanced reservations are made on a quarterly basis via online application, with September 1 through November 30 and March 1 to May 31 being the more heavily requested (and used) quarters. Advanced reservation requests include repeating weekly reservations that typically extend for all 12 weeks of each quarter, and are mostly made by schools, leagues, youth practices, programs, and camps. Tournament reservations are restricted to holiday weekends, the slower winter and summer quarters, and the last weekend in September, which is the time of the historical youth tournament at Beach Chalet. Tournaments represent less than 1 percent of advanced reservations or roughly two a year. Weekday assignments are prioritized by schools (games and practices), then non-profit youth leagues and programs that serve San Francisco residents, and finally other youth programs. Saturdays are an extremely high-demand time and priority is given to youth leagues. A limited number of longstanding adult leagues receive Saturday reservations. Sundays are also a high-demand day, with a higher percentage of fields allocated to adults than youth groups. However, due to growth of youth programs, Sunday use by youth programs has increased. Existing programs in good standing are prioritized; however, new programs are accommodated on weekends, including additional youth and adult soccer leagues, and flag football and ultimate Frisbee leagues.

Table II-1 summarizes existing field use during spring, which is the highest-use period.

First-come, first-served occasional reservations are available to San Francisco residents starting 2 weeks before the date of use. To allow access to as many residents as possible, reservations are limited to 4 hours per month or 2 hours per week. This use can range from an organized pick-up game to adult teams seeking practice time. Less than 5 percent of field reservations are first-come, first-served reservations.

When not reserved, the fields are not available for use. Grass areas outside the fenced field area are available for open play and other recreational activities allowed throughout Golden Gate Park.

Currently, SFRPD has staffing capacity for one 1/3 full-time equivalent (FTE) employee for maintenance of the fields on a continual basis.

C. Project Components

Individual project components are illustrated in **Figure II-6**, summarized in **Table II-2**, below, and are described in detail on the following pages.

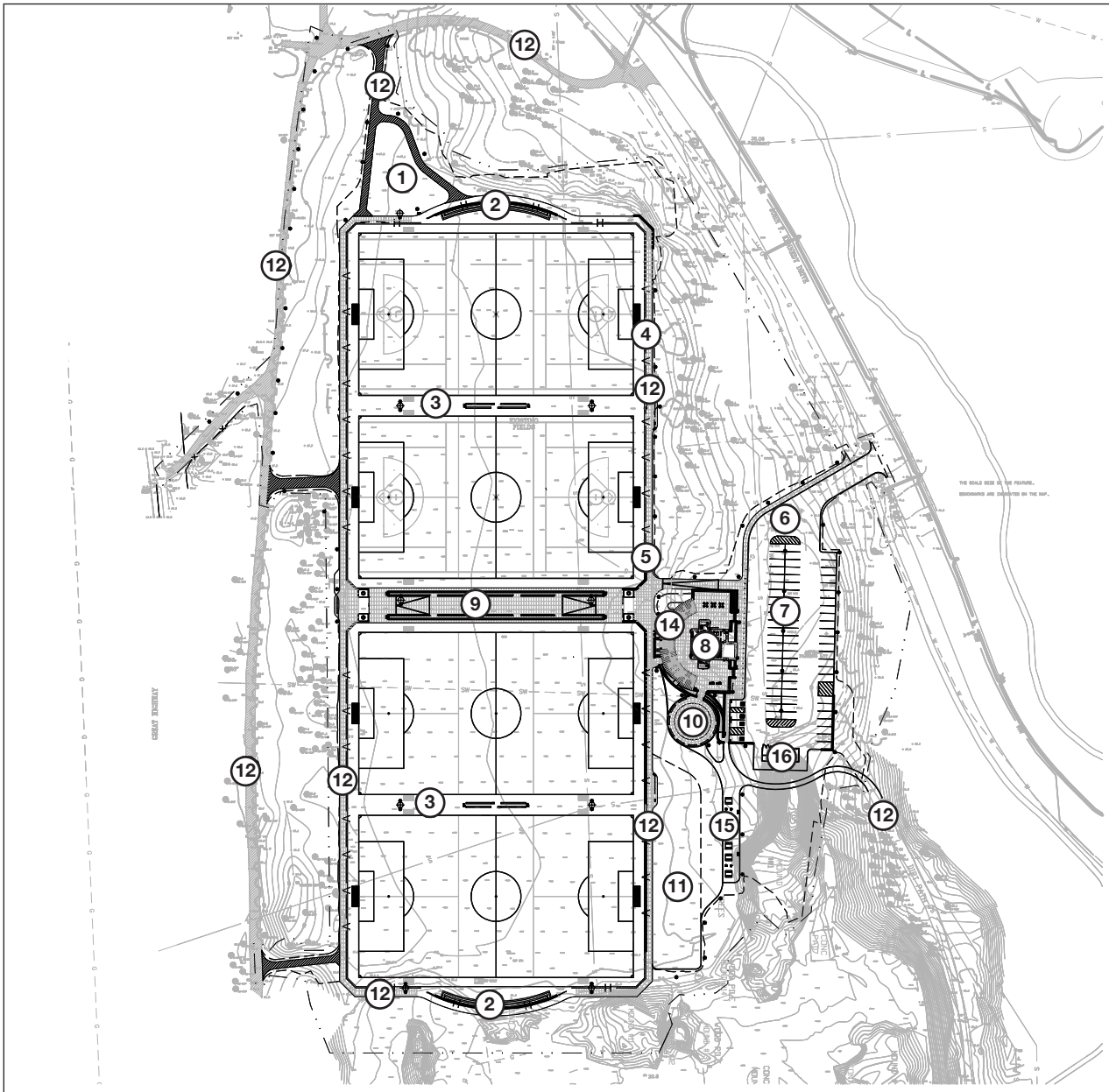
Field Area

The proposed project would enlarge the existing area dedicated to the athletic fields by approximately 6 percent to accommodate modern field dimensions and safety zones, as summarized in Table II-2.

TABLE II-1
EXISTING WEEKLY SCHEDULE DURING HIGH-USE PERIODS (SPRING)

Day	Time	Field Use	Players and Referees/Field	Spectators/Field	Total # of People
Monday	Closed	Closed	0	0	0
Tuesday	9:00 a.m. – 3:00 p.m.	0[a]	0	0	0
	3:30 p.m. – 5:00 p.m.	3	32 – 40 (three fields reserved)	5	Up to 135
	5:00 p.m. – 6:30 p.m.	3	40 – 54 (three fields reserved)	5	Up to 177
	6:30 p.m. – dark	3	32 – 36 (three fields reserved)	5	Up to 123
Wednesday	9:00 a.m. – 3:00 p.m.	0[a]	0	0	0
	3:30 p.m. – 5:00 p.m.	3	32 – 40 (three fields reserved)	5	Up to 135
	5:00 p.m. – 6:30 p.m.	3	40 – 54 (three fields reserved)	5	Up to 177
	6:30 p.m. – dark	3	32 – 36 (three fields reserved)	5	Up to 123
Thursday	9:00 a.m. – 3:00 p.m.	0[a]	0	0	0
	3:30 p.m. – 5:00 p.m.	3	32 – 40 (three fields reserved)	5	Up to 135
	5:00 p.m. – 6:30 p.m.	3	40 – 54 (three fields reserved)	5	Up to 177
	6:30 p.m. – dark	2	32 – 36 (two fields reserved)	5	Up to 82
Friday	9:00 a.m. – 3:00 p.m.	0[a]	0	0	0
	3:30 p.m. – 5:00 p.m.	3	32 – 40 (three fields reserved)	5	Up to 135
	5:00 p.m. – 6:30 p.m.	3	40 – 54 (three fields reserved)	5	Up to 177
	6:30 p.m. – dark	1-2	0	0	0
Saturday	8:00 a.m. – 6:30 p.m.	3	32 – 36 (three fields reserved, 2 hour reservation period)	32 – 36	Up to 216 per reservation period up to 1,080 daily
Sunday	9:00 a.m. – 5:00 p.m.	3	32 – 36 (three fields reserved, 2 hour reservation period	32 – 36	Up to 216 per reservation period up to 864 daily

a SFRPD indicates that fields can be reserved on weekdays before 3:00 p.m., but requests for that time period have not occurred.



Legend

1. WARM UP AREA (NORTH OF FIELDS, 4000 SF)
2. SPECTATOR SEATING (250 SEATS)
3. SYNTHETIC TURF (4 FIELDS; 314,000 SF)
4. 16' BLACK VINYL FENCE (BEHIND GOALS)
5. 42" BLACK VINYL FENCE (ALL OTHER AREAS)
6. PARKING LOT (21,610 SF)
7. PARKING STALLS (12,450 SF PERMEABLE PAVEMENT WITH LIGHTING, 18' HEIGHT)
8. RESTROOM BUILDING
9. SPECTATOR SEATING (606 SEATS, 8 ACCESSIBLE)
10. PLAY STRUCTURES
11. WARM UP AREA (EAST OF FIELDS; 13,850 SF)
12. PEDESTRIAN PATHWAYS
13. LANDSCAPE AREAS
14. SEATING PLAZA
15. PICNIC TABLES/BBQ
16. MAINTENANCE SHED WITH GARBAGE AREA
17. PEDESTRIAN PATHWAY LIGHTING (15' HEIGHT)

0' 60' 120' 240' 360'

NORTH

SOURCE: Verde Design

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-6
Proposed Site Plan

TABLE II-2
PROJECT CHARACTERISTICS

	Existing Facility	Proposed Project
Physical Components		
Athletic Fields Area	Approximately 294,700 square feet 6.8 acres 60,000 square feet per field	Approximately 314,000 square feet 7.2 acres 64,350 square feet per field
Lawn Type	Grass turf	Synthetic turf
Parking Lot	25,320 square feet 50 spaces	34,060 square feet 70 spaces
Lighting	None	Ten 60-foot-tall field lights; 47 approximately 15-foot-tall pedestrian pathway lights; and 13 approximately 18-foot-tall parking lot lights
Spectator Seating	None	Up to 1,046
Fencing	8-foot-tall metal chain link fence	3.5-foot-tall black vinyl fencing (fencing behind goals would be 16 feet)
Other Proposed Changes	Current restrooms contain 5 women's restroom toilet stalls with 2 sinks, as well as 3 men's restroom toilet stalls and 2 urinals, with three sinks	Renovated restrooms to include 11 women's restroom toilet stalls with 6 sinks as well as 5 men's restroom toilet stalls and 4 urinals, also with 6 sinks and diaper changing stations New play structures and BBQ areas with picnic tables Community Room Storage and mechanical room Note: amplified sound would not be included
Total Project Site	409,500 square feet 9.4 acres	485,000 square feet 11.2 acres
Operations		
General Hours of Operation	Closed Mondays Closed at sun down Athletic fields closed when not reserved Closed during and following rain events Open for reserved use otherwise	Open year round for reserved use and open play Lights would operate from sunset to 10:00 p.m.
Hours Available for Field Reservations	Winter: 9 a.m. – 5 p.m. Fall/Spring: 8 a.m. – 7 p.m. Summer: 9 a.m. – 8 p.m. (Reservations are not typically requested on weekdays before 3:00 p.m.)	Year-round: 8:00 a.m. or 9 a.m. to 10 p.m. (Reservations are not typically requested on weekdays before 3:00 p.m.)
Maximum Annual Play	4,738 hours per year	14,320 hours per year

SOURCE: Verde Design, 2010

The proposed project would replace the existing grass turf fields with synthetic turf fields. The proposed synthetic turf would meet or exceed all parameters established by the *San Francisco Recreation and Park Department Synthetic Playfields Task Force Findings and Department Recommendations* and the turf specification developed in coordination with the Department of the Environment (see Section IV.H, Hazards and Hazardous Materials and Air Quality, for a description of the Task Force findings and standards).[4] The synthetic turf would consist of four components: fiber, infill, backing, and underlayment. The fiber, which would consist of polyethylene, would be grass-like in appearance. The infill, which would be used to provide stability, would be comprised of about 70% styrene butadiene rubber (SBR) and 30% sand. The SBR infill is recovered from scrap tires and from the tire re-treading process. The fiber and infill would be supported by a backing made up of a combination of permeable woven and un-woven polypropylene fabrics that provide strength and vertical drainage. Underlayment would consist of drainage tile or an aggregate rock base. At the end of its lifespan, which is anticipated to be a minimum of ten years, the turf would be returned to a turf manufacturer for reuse/recycling and replaced by new synthetic turf.

The project also includes renovation of two existing grass turf warm-up areas. One warm-up area is to the east of the athletic fields and is approximately 13,850 square feet in size while the other warm-up area is to the north of the soccer fields and is approximately 4,000 square feet in size (see Figure II-6 for the locations of these areas). The proposed warm-up area improvements include new drainage, irrigation and sod. These areas would be slightly reduced from their existing size to accommodate the slight expansion of the athletic fields area and the addition of the picnic area.

Stormwater Runoff

SFRPD is currently coordinating with San Francisco Public Utilities Commission (SFPUC) staff to ensure that the proposed site drainage system complies with appropriate City and County of San Francisco (CCSF), State, and federal regulations. An underdrain system would be installed beneath the synthetic turf fields and would be connected to CCSF's combined storm drain system with likely connection points at John F. Kennedy Drive. Rainwater that falls on the pervious turf field surface would infiltrate into the underdrain system, and then would be conveyed to the combined sewer system for treatment at the Oceanside Water Pollution Control Plant. Consistent with the testing program underway at existing synthetic turf fields, SFRPD would conduct water sampling from the underdrain system during the project operations, in conjunction with SFPUC, and evaluate the quality of water drained from the synthetic turf. SFPUC would provide guidance on the number of sampling events required and the sampling parameters. If water quality is found to be acceptable by SFPUC, they could allow drainage from synthetic field to infiltrate into the groundwater basin. During high-flow periods, such as during or following a storm event, runoff and drainage from the synthetic turf fields could be detained onsite to prevent exceedance of the capacity of the combined storm drain system.

[4] The Synthetic Task Force met for five months in 2008, from June through October. The Task Force was comprised of community members and 16 representatives from various CCSF agencies, and included other experts, such as a representative from California Environmental Protection Agency and a doctor from University of California, San Francisco.

See Sections IV.G, Hydrology and Water Quality, and IV.H, Hazards and Hazardous Materials and Air Quality, for a discussion of the San Francisco Stormwater Management Ordinance and testing results for similar systems present at South Sunset Playground and Garfield Square Park.

Based on SFPUC guidance, stormwater runoff from the impervious portions of the parking lot would be conveyed to the combined sewer system, or would be drained into the ground, and eventually to the groundwater basin below. Infiltration swales or other measures would be implemented to reduce the peak runoff rate and runoff volume.

Lighting and Fencing

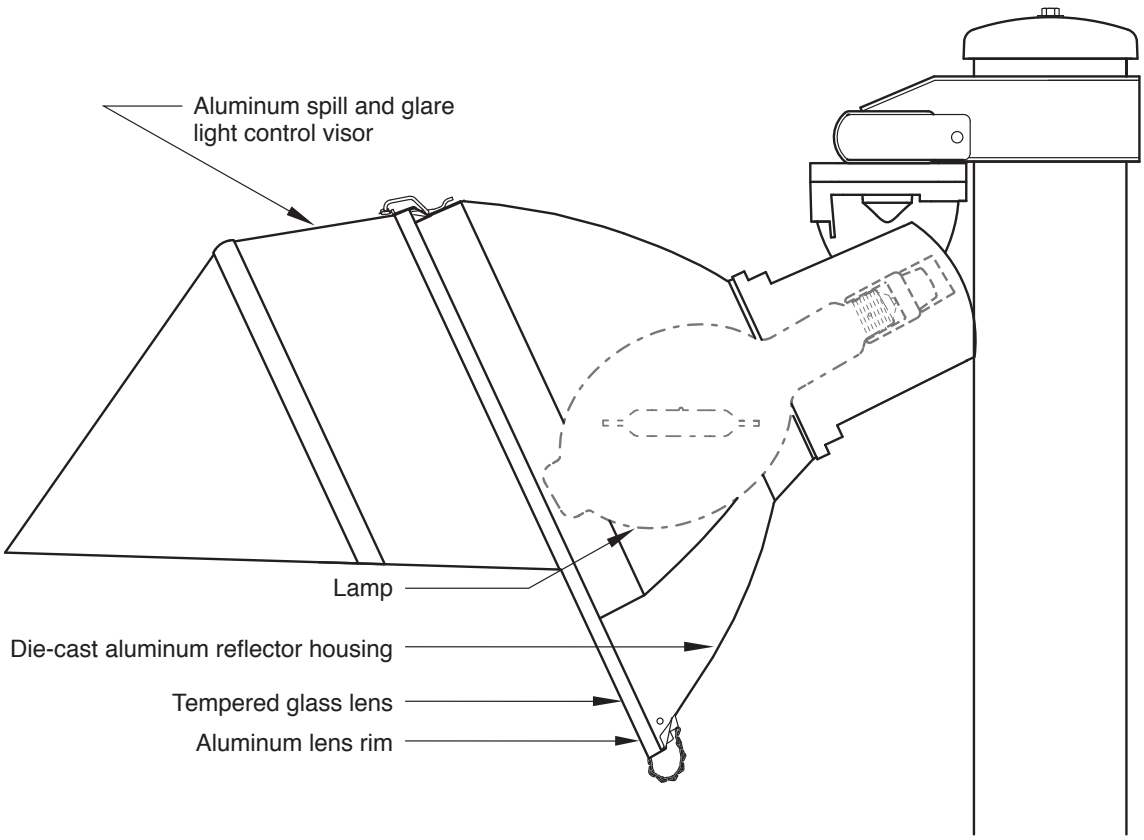
The proposed project also includes installation of new lighting at the facility. Field lighting would consist of ten 60-foot-tall light standards made of galvanized steel. There would be two light standards each at the north and south ends of the facility that would be oriented toward the two end fields. The other six light standards would be located between the centermost fields and would have back-to-back light fixtures oriented to illuminate the interior fields (with each back-to-back fixture directed at two adjacent fields). Each light fixture, or assembly, would consist of ten 1,500-watt metal halide lamps. During regulation play and practices (the majority of the time), seven of the ten lamps would be turned on. Tournaments require additional lighting, therefore, all 10 lamps would be turned on during tournaments. The assemblies would contain metal shields and would be directed to minimize spillover lighting beyond the project's boundaries (see **Figure II-7**). All lighting would be controlled by an online automated control system, which would turn lights on at sunset and turn all the lights off upon field closure at 10:00 p.m. daily.

In addition to the field light standards, the project includes 47 approximately 15-foot-tall pedestrian pathway light standards and 13 approximately 18-foot-tall parking lot light standards. These also would be controlled by an online automated control system.

The existing 8-foot-tall metal chain link fencing surrounding the athletic fields would be removed and replaced with 3.5-foot-tall black vinyl chain link fencing. The areas behind the goals would have 16-foot-tall fencing to ensure that balls remain on the fields.

Parking Lot

The existing 25,320-square-foot parking lot would be renovated and expanded by 8,740 square feet to include a drop-off area that would be adjacent to the location of the existing restroom and approximately 20 additional parking spaces (including four ADA-accessible spaces), for a total of 70 spaces. The parking lot would be approximately 34,060 square feet, of which 12,450 square feet would be permeable pavement parking spaces, with the surrounding circulation areas consisting of nonpermeable asphalt. The location of the existing vehicular ingress and egress from John F. Kennedy Drive would remain the same as under existing conditions. The existing cargo container currently being used as a maintenance shed, between the parking area and the fields, would be removed and replaced with a new 13-foot-tall maintenance shed at the south end of the parking lot, which would include a trash and recycling collection area. The parking lot area and project



Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

SOURCE: Musco Lighting

Figure II-7
Proposed Field Light with Shielding

site would also include bicycle racks (able to accommodate up to 81 bicycles), drinking fountains, and trash/recycling receptacles adjacent to the multiple entrance points to the field area.

Plaza Area and Restroom Building

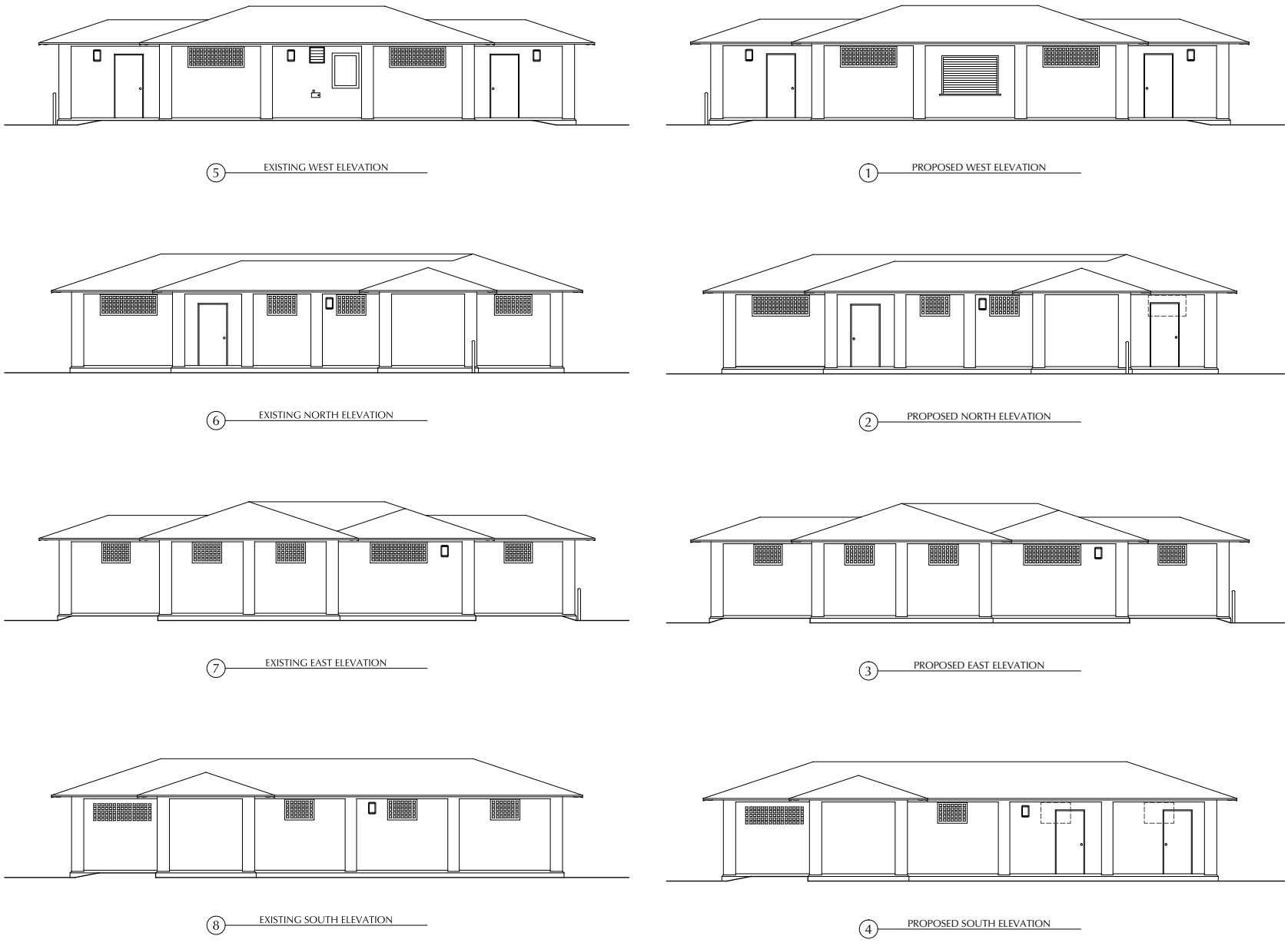
The existing restroom building, between the parking area and the fields, would be renovated and a new plaza area with tables and seating would be constructed on the west side of the building. The proposed restroom renovations would include a new community room (a small room where referees and teams would be able to store athletic equipment on field use days, coordinate play schedules, etc.), expanded fixture counts that meet the San Francisco Plumbing Code regarding effective flush volume (11 women's restroom stalls, and five men's restroom stalls plus four urinals), and new partitions, sinks, accessibility upgrades, and baby-changing stations (see **Figures II-8** through **II-10**). Some minor changes to the exterior façade would occur to accommodate the revised restroom floor plan. These include the installation of three new pedestrian doors where three windows currently exist (two on the south elevation and one on the north elevation), and a new window would be inserted into the west elevation. No changes to the existing roof of the building would occur. The building improvements would bring the restrooms into compliance with ADA accessibility guidelines.

Additional amenities proposed for the plaza area include a small playground to the south of the restroom, as well as picnic tables and permanent barbeque pits. The playground area would have a footprint of approximately 775 feet square feet and would be surrounded by landscaping.

Two access paths would be constructed from the plaza area to the field. One path would lead from the parking lot down a sloped walk to the plaza and playground areas before continuing to the field area, approximately 5 feet below the parking lot/plaza elevation. In addition, a stairway would also serve the plaza area as a means of egress to the fields. As noted above, other pedestrian pathways would be constructed around the facility from other access points (to the west, north, and south).

Field Circulation and Viewing

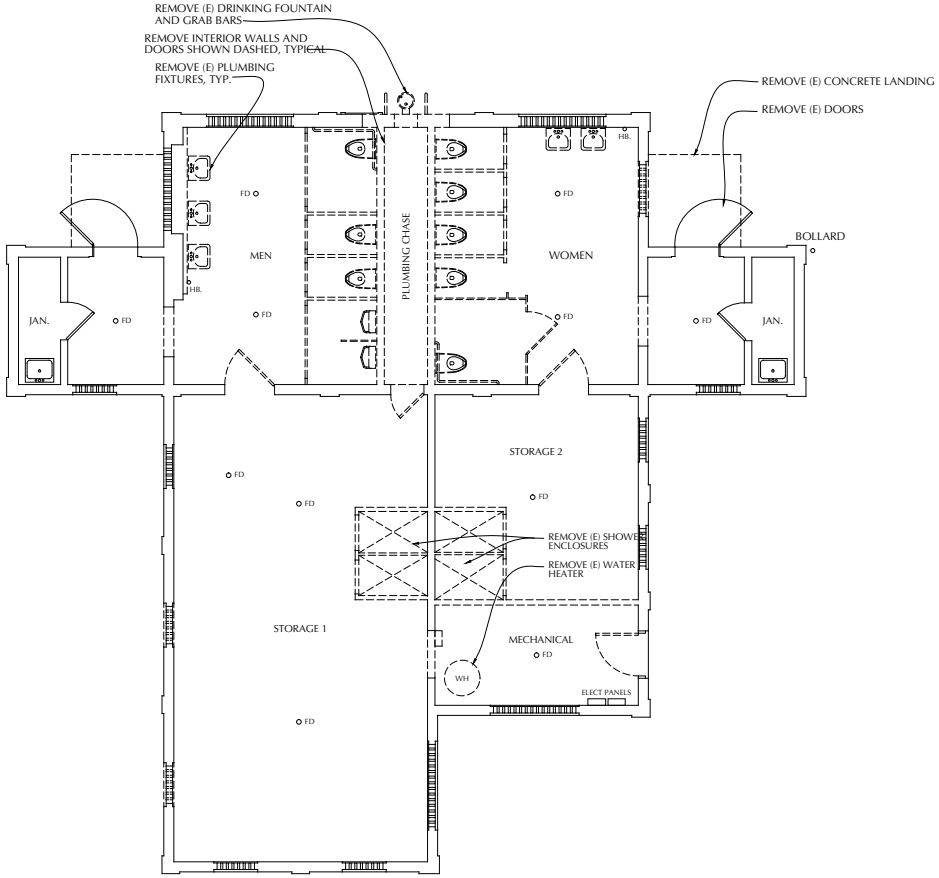
The proposed project would alter onsite circulation at the field level by including a new concrete pathway that would encircle the four fields and provide players, spectators, and maintenance staff access to each of the fields, as well as provide connection with existing pedestrian circulation routes within the park and to the pathway at the Great Highway. The project would also install spectator seating for approximately 250 visitors at the north and south ends of the facility, as well as seating for approximately 606 visitors on the east-west walkway bisecting the field area, between the two center fields. The spectator seating at the north and south ends of the facility would be constructed approximately 4 feet above the fields, while center seating and walkways would be approximately 30 inches above field level. Seating for approximately 190 spectators would also be provided in the plaza area adjacent to the field, in the form of benches and outdoor chairs connected to the plaza tables. All facilities would meet ADA accessibility guidelines.



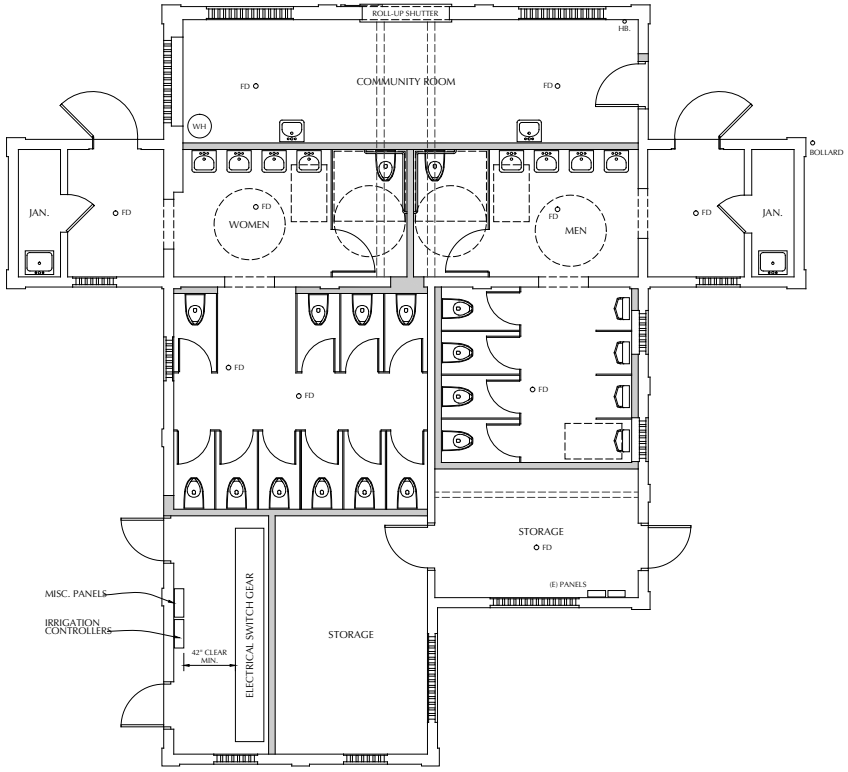
SOURCE: Verde Design, 2010

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-8
Restroom Building Elevations



1 DEMOLITION FLOOR PLAN

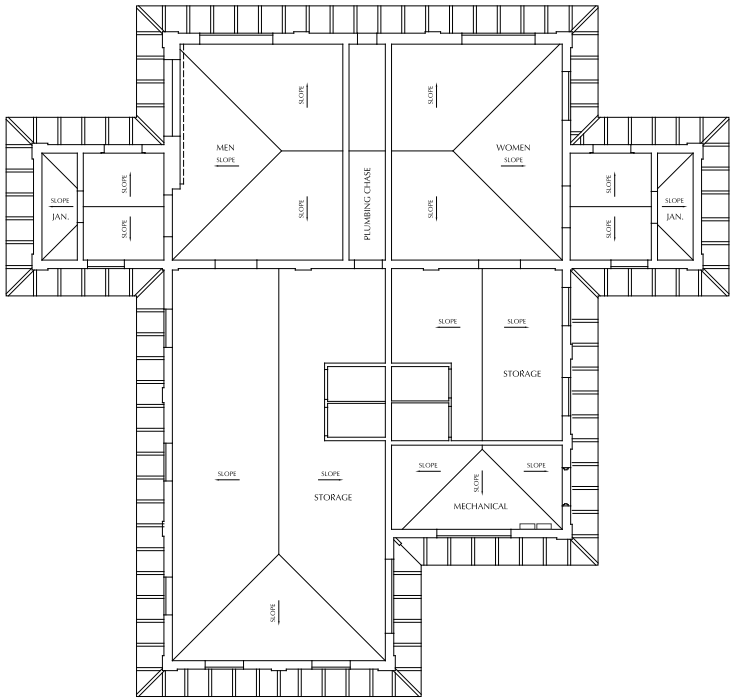


1 PROPOSED FLOOR PLAN

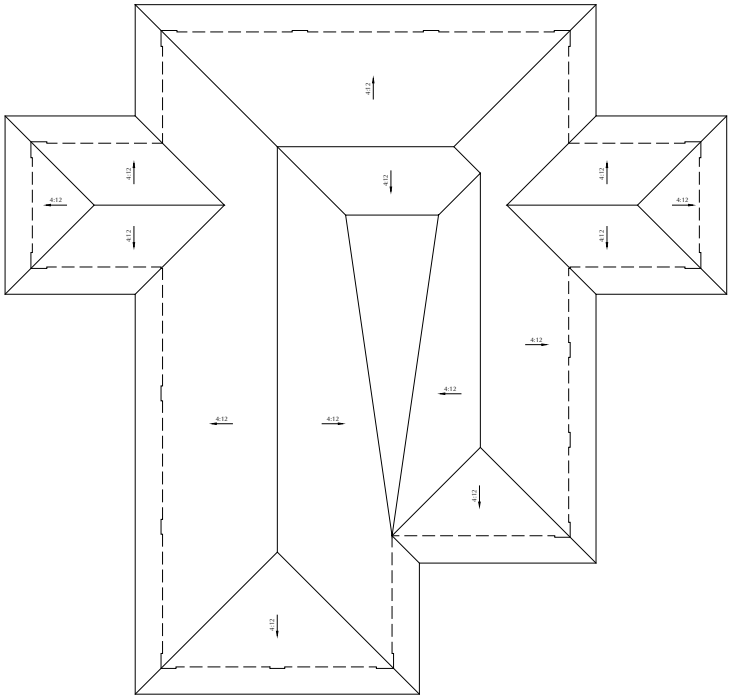
Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

SOURCE: Verde Design, 2010

Figure II-9
Restroom Building Floor Plan



1 EXISTING REFLECTED CEILING PLAN



2 PROPOSED ROOF PLAN

SOURCE: Verde Design, 2010

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure II-10
Restroom Building Roof Plan

Vegetation

The proposed project would require removal of 16 trees and approximately 44 shrubs to accommodate the proposed changes. The majority of the trees that would be removed are along the northeast side of the field, just outside the existing fence, while most of the shrubs proposed for removal are along the southern and southeastern edge of the fencing. The proposed project includes replacement of each tree removed at a one-to-one or greater ratio. Tree replacement locations would include the southern edge of the project area and other appropriate areas, as determined by the SFRPD Urban Forestry supervisor and Natural Areas manager.

The proposed project also includes ornamental vegetation plantings throughout the plaza area and on the slope between the plaza and the athletic fields.

Construction Scheduling and Staging

Project construction would require approximately 10 months, as summarized in **Table II-3**, beginning in summer/fall 2013. Construction activities would include use of standard earth-moving equipment for grading, large trucks for hauling, and a small crane to lift the proposed light standards. The project would require excavation to a depth of approximately 1 foot below ground surface (bgs) for most project elements and approximately 10 feet bgs for the installation of ten 60-foot-tall light standards. Construction material staging and storage are anticipated to occur within the boundaries of the existing facility.

The fields would be closed to the public during project construction. It is expected that other fields within the park and the overall SFRPD system would largely accommodate field use currently occurring at the Beach Chalet Athletic Fields. However, it is expected that the number of practices, games, and tournaments currently occurring at the Beach Chalet Athletic Fields may not be fully accommodated at other SFRPD athletic fields, along with the existing reservations of those fields; there would likely be a temporary overall reduction in citywide permits allocated during the construction period.

Proposed Operations and Maintenance

Following completion of project construction, the athletic fields would be used year-round for weekday and weekend activities, from 8:00 a.m. until 10:00 p.m. As described above, all lighting would be controlled by an online automated control system, which would turn lights on at sunset and to turn all the field lights off upon field closure at 10:00 p.m. daily. Staff would be able to override the system to turn off the field lights earlier than 10:00 p.m., if necessary. Fields would be open for play during and after rain events (as described in Section II.B, Project Site Characteristics and Setting, above, currently the fields are closed during and after rain events).

The types of groups that now use the existing athletic fields by reservation (i.e., school teams, youth leagues and adult leagues) would continue to use the renovated facilities. Field reservations would continue to operate as under existing conditions (see Section II.B, Project Site Characteristics and

TABLE II-3
ANTICIPATED CONSTRUCTION ACTIVITIES SCHEDULE[a]

Construction Activity	Required Equipment	Schedule
Site mobilization Delivery of construction trailer Initiate demolition	Trucks	Month 1
Tree trimming and removal Demolition Clean and grub grass turf Utility trenching	Basket truck and wood chipper Backhoe Scraper	Month 2
Drainage installation Site grading Install foundation for maintenance shed and plaza/ playground area Install concrete for seating	Backhoe Delivery/haul trucks graders/scrapers	Months 3 and 4
Install concrete curbs, walkways, fence/light pole footings Fine site grading Install maintenance shed Begin restroom upgrade	Concrete trucks Fork lift Earth moving equipment	Months 5 and 6
Install fencing Install play field rock base	Fork lift and basket truck Delivery/haul trucks Earth moving equipment	Month 7
Install light poles Install path lights and other fixtures Realign and resurface parking lot Install play equipment, picnic area, and fixtures	Delivery/haul trucks Crane	Month 8
Install playfield turf base Deliver infill and synthetic turf	Delivery/haul trucks Fork lift	Month 9
Install synthetic turf Site cleanup	Fork lift	Month 10

[a] Actual construction operations and sequencing of work would be controlled by the contractor. This schedule is a representative model.

Setting, above). In addition to the two existing annual tournaments, up to four additional tournaments could be accommodated at the athletic fields, for a total of six annual tournaments. Up to eight fall and eight winter evening matches for high schools and other large groups could occur. Based on the nature of these matches, spectators would not be expected to exceed 264 during each game time slot on weeknights and 304 during each game time slot on weekends. These games would typically be played at 7:00 p.m. on a Wednesday or Friday night. **Table II-4** summarizes the typical potential use schedule for the fields during spring, following project implementation, which would likely continue to be the highest-use period for the facility. Amplified sound is not included as part of the proposed project.

TABLE II-4
ESTIMATED FUTURE WEEKLY SCHEDULE DURING HIGH-USE PERIOD (SPRING)

Day	Time	Field Use	Players and Referees/Field	Spectators/Field	Total # of People/Game Time Slot
Monday	9:00 a.m. – 3:00 p.m.	1-2	10-28 (some open play)	0	Up to 56
	3:30 p.m. – 5:00 p.m.	4	32 – 40 (three fields reserved)	5	Up to 180
	5:00 p.m. – 6:30 p.m.	4	40 – 54 (three fields reserved)	5	Up to 236
	6:30 p.m. – 10:00 p.m.	4	32 – 36 (four fields reserved)	5	Up to 164
Tuesday	9:00 a.m. – 3:00 p.m.	1-2	10-28 (some open play)	0	Up to 56
	3:30 p.m. – 5:00 p.m.	4	32 – 40 (three fields reserved)	5	Up to 180
	5:00 p.m. – 6:30 p.m.	4	40 – 54 (three fields reserved)	5	Up to 236
	6:30 p.m. – 10:00 p.m.	4	32 – 36 (four fields reserved)	5	Up to 164
Wednesday	9:00 a.m. – 3:00 p.m.	1-2	10-28 (some open play)	0	Up to 56
	3:30 p.m. – 5:00 p.m.	4	32 – 40 (three fields reserved)	5	Up to 180
	5:00 p.m. – 6:30 p.m.	4	40 – 54 (three fields reserved)	5	Up to 236
	6:30 p.m. – 10:00 p.m.	4	32 – 36 (four fields reserved)	5	Up to 164
Thursday	9:00 a.m. – 3:00 p.m.	1-2	10-28 (some open play)	0	Up to 56
	3:30 p.m. – 5:00 p.m.	4	32 – 40 (three fields reserved)	5	Up to 180
	5:00 p.m. – 6:30 p.m.	4	40 – 54 (three fields reserved)	5	Up to 236
	6:30 p.m. – 10:00 p.m.	4	32 – 36 (four fields reserved)	5	Up to 164
Friday	9:00 a.m. – 3:00 p.m.	1-2	10-28 (some open play)	0	Up to 56
	3:30 p.m. – 5:00 p.m.	4	32 – 40 (three fields reserved)	5	Up to 180
	5:00 p.m. – 6:30 p.m.	4	40 – 54 (three fields reserved)	5	Up to 236
	6:30 p.m. – 10:00 p.m.	1-2	22-28 (some open play)	0	Up to 56
Saturday	8:00 a.m. – 10:00 p.m.	4	32 – 36 (three fields reserved, 2 hour reservation period)	32 – 36	Up to 288 per reservation period up to 1,440 daily
Sunday	9:00 a.m. – 10:00 p.m.	4	32 – 36 (three fields reserved, 2 hour reservation period)	32 – 36	Up to 288 per reservation period up to 1,152 daily

The synthetic turf fields would be available for open play during set, publicly communicated hours and whenever the fields are not in use by groups with field reservations. Standard SFRPD signage would be posted, indicating the field use schedule and clarifying that permit holders have priority on the fields. These signs would clearly state the "open play" hours on the fields for non-permitted, non-reservable, informal "walk-up" play. Separate signage would also clarify that the following uses would not be allowed on synthetic turf fields: smoking, barbeques, alcohol, food, bikes, dogs, and metal cleats. Because air temperature in the immediate area of synthetic turf can be higher than adjacent areas on hot or sunny days, creating what is known as a "heat island," signage would encourage field users to hydrate.

Areas beyond the fenced athletic fields would continue to be open to general public use, as permitted within Golden Gate Park, as currently occurs.

It is expected that staffing at the project site would not increase and that 1/3 FTE maintenance staff would continue to maintain the facility. Maintenance would consist of garbage pick-up and periodic sweeping and, as needed, spot washing of the synthetic turf (using only dish soap and water, no disinfectants or special detergents would be used). Although small amounts of solvents and adhesives could be required to make minor repairs, they would not be used in large quantities but only in spot applications at the specific repair location. SFRPD would establish a site-specific maintenance schedule, with activities and timing similar to that of other synthetic turf fields. For example, the South Sunset Playground maintenance schedule includes sweeping every 2 weeks, or as needed, and turf grooming every 5 to 8 weeks. Repair of turf, removal of graffiti, and spot washing with soap and water is conducted as needed. Irrigation and wash water use would be in compliance with the San Francisco Water Efficient Irrigation Ordinance.

As described above, at the end of the lifespan of the synthetic turf, which is anticipated to be a minimum of 10 years, the turf would be returned to a turf manufacturer for reuse/recycling and replaced by new synthetic turf.

D. Project Approvals

The project, as proposed, would require the following approvals:

Planning Commission

- EIR certification
- Determination of consistency with the *San Francisco General Plan*
- Issuance of Coastal Development Permit

Recreation and Park Commission

- Approval of the Beach Chalet Athletic Fields Renovation Project

Board of Supervisors

- Consideration of any appeals of the Planning Commission's certification of the Final EIR

Department of Building Inspection

- Demolition and building permits

San Francisco Public Utilities Commission

- Certification of compliance with the San Francisco Stormwater Design Guidelines and the San Francisco Stormwater Management Ordinance
- Confirmation of compliance with the San Francisco Water Efficient Irrigation Ordinance requirements.

CHAPTER III
Plans and Policies

A. Overview

Pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15125(d), this chapter provides a general description of land use plans and policies and how they apply to the Beach Chalet Athletic Fields Renovation Project ("proposed project" or "project"). The chapter also discusses potential inconsistencies between this project and the applicable plans. While there is no requirement for a detailed analysis of consistency between the proposed project and the applicable land use plans, the CEQA Guidelines direct that a discussion of inconsistencies between applicable general plans and regional plans be included. However, no actual conclusions need to be drawn.

Land use plans typically contain numerous policies emphasizing differing legislative goals, and an interpretation of consistency requires a balancing of all relevant policies. The board or commission that enacted the plan or policy determines the meaning of such policies and how individual projects satisfy those policies at the time it considers the approval of the project. Whether a project is consistent with particular plans will be determined at the time of project approval by the agency charged with making that consistency determination. In the case of this project, the San Francisco Planning Commission will evaluate the proposed project in accordance with provisions of the *San Francisco General Plan*, including Priority Policies and the Western Shoreline Plan, an area plan within the *General Plan* that encompasses the City and County of San Francisco's (CCSF) Local Coastal Plan. The Planning Commission would also consider the project's application for a Local Coastal Permit. The San Francisco Recreation and Park Commission would determine consistency with the *Golden Gate Park Master Plan*, as well as approve the project.

In each case, the approving agency will consider any potential conflicts between the project and adopted plans or policies in the context of all applicable objectives and policies and will determine consistency based on a balancing of relevant policies as part of the decision-making process. This section of the CEQA document discusses land use plans and policies. To the extent these or other plans contain objectives and policies designed to avoid or mitigate environmental effects, the consistency of the project with such policies and plan provisions is discussed in the section of this document that discusses the relevant environmental effects that the plans or policies address.

Plans and policies addressed in this chapter include:

- **City and County of San Francisco (CCSF).** *San Francisco General Plan*, including the Western Shoreline Plan, Accountable Planning Initiative, the Climate Action Plan, and the *San Francisco Bicycle Plan.*
- **San Francisco Recreation and Parks Department (SFRPD).** *Golden Gate Park Master Plan* and the SFRPD *Strategic Plan*.
- **Other Plans and Policies.** Golden Gate National Recreation Area policies and the Ocean Beach long-range planning process.

Permit requirements are described in Chapter II, "Project Description" (Section II.D). In some cases, these requirements include permits to be obtained from local jurisdictions for specific activities or to comply with specific ordinances. Sections IV.A through IV.H of this Environmental Impact Report (EIR) describe pertinent resource-specific plans and policies.

B. Plans and Policies Relevant to the Project

City and County of San Francisco Plans and Policies

The proposed project is subject to the *San Francisco General Plan*, which provides policies and objectives to guide land use decisions. In addition, the SFRPD is guided by the San Francisco City Charter, along with other San Francisco plans and policies. These plans include the *San Francisco General Plan*, as amended, which sets forth CCSF's comprehensive, long-term planning land use policy; the Accountable Planning Initiative, which established Priority Policies to guide decision-makers in balancing the objectives of the *San Francisco General Plan*; the Climate Action Plan, which articulates the CCSF actions toward reducing its greenhouse gas emissions; and the *San Francisco Bicycle Plan,* which documents the CCSF's existing bicycle transportation plan and includes plans for specific bicycle improvements.

In addition, the project is located within Golden Gate Park, which is managed in accordance with the SFRPD's *Golden Gate Park Master Plan,* the Park Code, and SFRPD's *Strategic Plan*, as described below.

San Francisco General Plan[1]

The *San Francisco General Plan* sets forth CCSF's comprehensive, long-term land use policy and, as such, is primarily applicable to projects within CCSF's jurisdictional boundaries. The *General Plan* contains 10 elements (Commerce and Industry, Recreation and Open Space, Residence, Community Facilities, Urban Design, Environmental Protection, Transportation, Air Quality,

[1] City and County of San Francisco, *General Plan,* 1988, as amended through 2009, available online at: http://www.sf-planning.org/ftp/General_Plan/index.htm. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

Community Safety, and Arts) that provide goals, policies, and objectives for the physical development of San Francisco.

A conflict between a proposed project and a *General Plan* policy does not, in itself, indicate a significant effect on the environment within the context of CEQA. Any physical environmental impacts that could result from such conflicts are analyzed in the relevant impact sections of this EIR. As stated above, potential conflicts with the *General Plan* are considered by the decisions-makers independently of the environmental review process. Thus, in addition to considering inconsistencies that affect environmental issues, the decision-makers will consider other potential inconsistencies with the *General Plan*, independently of the environmental review process, as part of the decision to approve or disapprove a proposed project. Any potential conflict not identified in this environmental document would be considered in that context and would not alter the proposed project's physical environmental effects analyzed in this EIR.

Land use policies relevant to the proposed project are included in the Recreation and Open Space and Urban Design elements, as well as the Western Shoreline Area Plan of the *General Plan*, as described below. Land use policies related to Golden Gate Park are also addressed below, under "San Francisco Recreation and Park Department Plans and Policies."

The Recreation and Open Space element policies include development, preservation, and maintenance of open spaces; preservation of sunlight in public open spaces; elimination of nonrecreational uses in parks and reduction of automobile traffic in and around public open spaces; maintenance and expansion of the urban forest; and improvement of the western end of Golden Gate Park for public recreation.

As discussed in the Initial Study under Question 9, "Wind and Shadow," the proposed project would not create new shadows in a manner that substantially affects outdoor recreation facilities within Golden Gate Park (see Appendix A, Notice of Preparation). As discussed in Section IV.D of this EIR, Transportation and Circulation, the proposed project would not result in a substantial long-term increase in automobile traffic in and around public open spaces. As discussed in Section IV.F, Biological Resources, the proposed project would result in tree removal at the project site; however, many of the trees that would be removed are in poor condition and some are considered public hazards. Further, trees removed as part of the project would be replaced in the vicinity of the removed trees. Thus, the proposed project would be consistent with the policy regarding maintenance and expansion of the urban forest and reforestation of the western end of the park. Finally, the proposed improvements at the Beach Chalet Athletic Facility would maintain and expand the existing recreational uses in the western end of Golden Gate Park.

The Urban Design Element policies include protection of major views of San Francisco; conservation of resources that provide a sense of nature, continuity with the past, and freedom from overcrowding; preservation of areas that have not been developed by man; limitation of improvements in open spaces having an established sense of nature to only those that are necessary; promotion of high-quality design for buildings to be constructed at prominent locations; promotion of building forms that respect and improve the integrity of open spaces and other public areas; and installation and maintenance of landscaping in public and private areas.

The project site is not within the viewshed of or physically connected to Ocean Beach, although the lighting proposed as part of the project could be visible from portions of Ocean Beach, particularly at night. These impacts are discussed in Section IV.B, Aesthetics and would be less than significant.

Western Shoreline Area Plan

The Western Shoreline Area Plan, which is an area plan within the *General Plan*, is the CCSF plan for the Local Coastal Zone established by the California Coastal Act of 1976. This area plan includes objectives and policies pertaining to open space in the area covered by the plan, and includes the western portion of Golden Gate Park. The plan's goals and objectives that would pertain to the proposed project include strengthening the visual connection and physical access between the park and the beach; improving the western end of the park for public recreation; extending the reforestation program, which has been established to replace dead and dying trees at the windbreak along the ocean, throughout the park to ensure vigorous forest tree growth and maintain high visual quality; emphasizing the naturalistic landscape qualities existing at the western portion of the park; and encouraging increased visitor use in the area.

The proposed project would be generally consistent with the policy that encourages visual and physical connection between the park and the beach as it would improve the public access between Beach Chalet Athletic Fields and the beach, as well as improve security, encouraging visitors. It would also improve the site's function as a recreational resource by increasing the amount of potential play hours at the site, introducing spectator seating, renovating the restroom building to serve more park users, provide a higher quality facility and meet ADA standards, meet the latest water efficiency standards, and providing a small playground that would allow greater use of the facility by the public. Although some trees would be removed to accommodate the project, they would be replaced at a ratio of at least 1 to 1; thus, the project would not be in conflict with this policy. However, the project would not emphasize the naturalistic landscape qualities at the western portion of the park, as the project site is located within areas designated for active recreation.

Overall, the proposed project would not obviously or substantially conflict with any policies, nor be inconsistent with the spirit and intent of, the *General Plan*. Any conflict between the project and *General Plan* policies that relate to physical environmental issues are discussed in Sections IV.A through IV.H of this EIR. As stated above, the compatibility of the project with *General Plan* policies that do not relate to physical environmental issues will be considered by decision-makers as part of the decision whether to approve or disapprove the proposed project.

Accountable Planning Initiative

In November 1986, San Francisco voters approved Proposition M, the Accountable Planning Initiative, which added Section 101.1 to the Planning Code to establish eight Priority Policies, and to incorporate the Priority Policies into the preamble to the *General Plan*. These policies are (1) preservation and enhancement of retail uses serving neighborhoods; (2) protection of neighborhood character (discussed in question 1c of the Initial Study included in Appendix A,

Notice of Preparation); (3) preservation and enhancement of affordable housing (discussed in question 3b of the Initial Study with regard to housing supply and displacement issue); (4) discouragement of commuter automobiles (discussed in questions 5a, b, f, and g of the Initial Study, and Section IV.D of the EIR); (5) protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership; (6) maximization of earthquake preparedness (discussed in questions 13a–d of the Initial Study); (7) landmark and historic building preservation (discussed in question 4a of the Initial Study and Section IV.C of the EIR); and (8) protection of parks and open space and their access to sunlight and vistas (discussed in questions 9a and b of the Initial Study and Section IV.F of the EIR). The Priority Policies, which provide general policies and objectives to guide certain land use decisions, contain some policies that relate to physical environmental issues.

Before issuing a permit for any project that requires CEQA review, and before issuing a permit for any demolition, conversion, or change of use, and before taking any action that requires a finding of consistency with its General Plan, the Planning Department is required to find that the proposed project or legislation is consistent with the Priority Policies. In evaluating the project's consistency with the General Plan and reviewing the building permit application for the proposed project, the Planning Commission and/or Planning Department would make the necessary findings of consistency with the Priority Policies.

Potential physical impacts that could result from conflicts between the proposed project and one or more Priority Policies, such as in regard to cultural resources and parks and open space, are discussed in the relevant topical sections of this EIR. The project case reports and approval motions will contain the Planning Department's comprehensive project analysis and findings regarding consistency of the proposed projects with the Priority Policies.

The Climate Action Plan

In February 2002, the San Francisco Board of Supervisors passed the Greenhouse Gas Emissions Reduction Resolution (Number 158-02) committing CCSF to a greenhouse gas (GHG) emissions reductions goal of 20 percent below 1990 levels by the year 2012. The resolution also directs the San Francisco Department of the Environment, the San Francisco Public Utilities Commission, and other appropriate CCSF agencies to complete and coordinate the analysis and planning of a local action plan targeting GHG emission reduction activities. In September 2004, the Department of the Environment and the Public Utilities Commission published the *Climate Action Plan for San Francisco: Local Actions to Reduce Greenhouse Emissions (*Climate Action Plan).[2] The Climate Action Plan examines the causes of global climate change and human activities that contribute to global warming and provides projections of climate change impacts on California and San Francisco from recent scientific reports; presents estimates of San Francisco's baseline GHG emissions inventory and reduction targets; describes recommended emissions reduction actions in the key target sectors—transportation, energy efficiency, renewable energy, and solid waste management—to meet stated goals by 2012; and presents next steps required over the near term

[2] City and County of San Francisco (CCSF), *Sustainability Plan for the City of San Francisco*. 1997, available online at http://www.sfenvironment.org/downloads/library/sustainabilityplan.pdf.

to implement the Climate Action Plan. Although the Board of Supervisors has not formally committed CCSF to perform the actions addressed in the plan, and many of the actions require further development and commitment of resources, the plan serves as a blueprint for GHG-emission reductions, and several actions are now in progress.

The Climate Action Plan cites an array of potential environmental impacts on San Francisco from climate change. These include rising sea levels, which could threaten coastal wetlands, infrastructure, and property; increased storm activity, which could increase beach erosion and cliff undercutting; warmer temperatures, which could result in more frequent El Niño storms, causing more rain than snow in the Sierra and reducing snow pack, an important source of the region's water supply; decreased summer runoff and warming ocean temperatures, which could affect salinity, water circulation, and nutrients in San Francisco Bay, potentially altering the bay's ecosystems, as well as having other possible effects on food supply and the viability of the state's agricultural system; possible public health effects related to degraded air quality and changes in disease vectors; and additional social and economic impacts.

The Climate Action Plan presents estimates of San Francisco's baseline GHG-emissions inventory and reduction targets. The plan states that burning fossil fuels in vehicles and for energy use in buildings and facilities is the major contributor to San Francisco's GHG emissions. The plan seeks to reduce annual carbon dioxide emissions no later than 2012, by 20 percent from 1990 emissions levels. Reduction strategies include targeting emission reductions from burning fossil fuels in cars, power plants, and commercial buildings; developing such renewable energy technologies as solar, wind, fuel cells, and tidal power; and expanding residential and commercial recycling programs. According to the plan, achieving these goals will require the cooperation of a number of different CCSF agencies. An analysis of the proposed project's effects on global warming and GHGs was presented in the Initial Study (see Appendix A, Notice of Preparation).

San Francisco Bicycle Plan

In August 2009, the Board of Supervisors approved the *San Francisco Bicycle Plan* (Bicycle Plan). The Bicycle Plan includes a citywide bicycle transportation plan (comprised of a "Policy Framework" and a "Network Improvement" document) and implementation of specific bicycle improvements identified within the plan. The Bicycle Plan includes objectives and identifies policy changes that would enhance bicycle access and safety in San Francisco's bike-ability. It also describes the existing bicycle route network (a series of interconnected streets in which bicycling is encouraged), and identifies gaps within the citywide bicycle route network that require improvement. The Bicycle Plan updates the 1997 Bicycle Plan. The final EIR analyzing the Bicycle Plan assessed a total of 56 short-term and long-term bicycle improvement projects. In the vicinity of the project site, the adopted Bicycle Plan would implement minor improvements on the Great Highway, John F. Kennedy Drive, Martin Luther King Jr. Drive, and 47th Avenue.

San Francisco Recreation and Parks Department Plans and Policies

This section describes the land use plans and policies of SFRPD that are relevant to the proposed project.

Golden Gate Park Master Plan

The *Golden Gate Park Master Plan* (Park Master Plan) was adopted by the Recreation and Park Commission in October of 1998.[3] The Park Master Plan is a comprehensive planning document that includes general objectives and policies for the park, management strategies, and specific objectives and policies relating to park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, park maintenance and operations, and special area plans. The Park Master Plan is intended to provide a framework and guidelines to ensure responsible stewardship of the park. The overarching goal of the plan is to manage the current and future park and recreation demands while preserving the historic significance of the park.[4] The plan includes the following elements: Objectives and Policies, Park Landscape, Circulation, Recreation, Visitor Facilities, Buildings and Monuments, Utilities and Infrastructure, Maintenance and Operations Areas, Park Management, Park Funding, and Special Area Plans.

As discussed in the Park Master Plan, the western portion of Golden Gate Park contains most of the park's larger meadows, lakes, and relatively natural areas, as well as facilities for activities and sports. The project site is designated as a "Major Recreational Area," according to the plan's Land Use Map (Figure 3-1 of the Park Master Plan).[5] As such, it was established to meet specific recreational needs, and is programmed specifically to help meet recreational and sports needs (Objective 1, Policy C, Major Recreation Area). The plan requires that land uses and activities in Golden Gate Park contribute to the mission and purposes of the park, and that activities within a designated land use zone should be appropriate to the land use purpose (Objective 1, Land Use and Activities). The project site would be maintained for recreational uses, as proposed by the project, and thus would be consistent with Objective 1 and its designation as a Major Recreational Area.

Regarding athletic fields, the Recreation element of the Park Master Plan states:

> *There are problems with overuse of some fields at the Polo Field and the Beach Chalet soccer fields. The lack of drainage systems under some fields makes maintenance difficult after rains. The turf is often damaged when fields are wet. The demand for these fields is very high and fields are receiving heavy use. Regular maintenance is not always scheduled into field permit schedules.*[6]

The proposed project would address maintenance issues identified in the Park Master Plan.

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[3] San Francisco Recreation and Parks Department (SFRPD), *Golden Gate Park Master Plan*, 1998. available online at, http://sfrecpark.org/GGPMasterPlan.aspx. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

[4] SFRPD, *Golden Gate Park Master Plan;* p. 1-6.

[5] SFRPD, *Golden Gate Park Master Plan;* p. 3-7.

[6] SFRPD, *Golden Gate Park Master Plan;* p. 6-1.

Other Park Master Plan policies that would apply to the proposed project include Objective II, Policy A, Item 1, which requires that all activities, features, and facilities in Golden Gate Park respect the unique design and character of the park, and Objective II, Policy A, Item 2, which states that the "major design feature of Golden Gate Park and the framework within which all park activities occur is its pastoral and sylvan landscape."[7] The proposed project would be generally consistent with these policies because the project would be implemented entirely within the boundaries of the existing complex, the proposed turf would be consistent with the character of the use as an athletic field complex, any trees or shrubs removed would be replaced at a ratio of at least 1–to-1, and the project would not diminish or encroach upon the surrounding open space. The project would also be consistent with Policy F, Sustainable Landscape Principles, which requires efficient use of water resources; minimization of chemical fertilizers, pesticides, and herbicides; and selection of low-maintenance and ecologically appropriate construction materials. This would result from the fact that proposed synthetic turf would require less water to maintain than the existing grass turf, and would not require chemical fertilizers, pesticides, or herbicides to maintain. Furthermore, as stated in Chapter II, Project Description, of this EIR, the synthetic turf would be returned to a turf manufacturer for reuse/recycling at the end of its lifespan.

The project would also be consistent with Objective III, Policy A, Accessibility, which requires that access be provided to persons with disabilities, because the project site would undertake accessibility improvements to meet Americans with Disabilities Act standards, and Objective III, Policy B, Item 4, which requires that pedestrian-scaled night lighting be considered along selected primary paths and where evening activities occur, because the project would install pedestrian lighting along selected pathways throughout the facility. The addition of the proposed plaza would also meet these objectives as the plaza would be handicap accessible. The proposed project would also provide bicycle racks for up to 81 bicycles, thereby meeting the requirements expressed in Objective III, Policy C, Item 2, which encourages bicycle use through provision of secure bicycle parking facilities at activity centers, at large events, and at employee areas. By undertaking a transportation study as part of this EIR, the project would be consistent with Objective III, Policy M, which requires that a transportation analysis be prepared for improvement plans. The project would also be consistent with Objective IV, Policy C, which states that park buildings be modified to meet the requirements of all applicable accessibility codes and regulations, consistent with the design of the building, and that modifications, to the extent feasible, not increase the building's footprint, height, or bulk. Proposed building modifications at the site would incorporate the latest water-efficiency standards and the overall footprint, height, and bulk of the buildings would not change as compared with existing conditions.

In addition, as discussed in the Initial Study (see Appendix A, Notice of Preparation), the Park Master Plan includes a proposal for an additional soccer field on the site of the former Richmond Sunset Water Treatment Plan, which is immediately south of the proposed project. Because the use of synthetic turf was not contemplated at the time of the Park Master Plan's development,

7 SFRPD, *Golden Gate Park Master Plan;* p. 3-9.

there are no recommendations or policies that specifically address synthetic turf. In addition, lighting of the existing grass soccer fields to extend use hours was also not considered because, at that time, the fields were already at or beyond their use limits for proper maintenance. The plan addresses lighting in the park by designating nighttime use areas in the park, and lighting in other areas would generally be limited to a minimal amount of street lighting for safety.

Ultimately, consistency of the proposed project with the Park Master Plan will be determined by SFRPD Commission when the project is considered for approval.

Strategic Plan

The SFRPD *Strategic Plan* was published in 2002,[8] with the goal of restoring and rebuilding San Francisco's parks and recreation facilities, which had been worn down by heavy use, deferred maintenance, and lack of capital investment. The plan proposes strategic objectives with strategies and tactics for enhancing San Francisco's parks, facilities, and recreation programs. The plan also proposes a framework for organizational change to support the suggested improvements. The strategic objectives of the plan are as follows:

- **Excellent Parks and Facilities.** Create a model park and recreation system that provides first quality parks, recreation facilities, and programs that are used widely by residents and visitors alike.

- **Organizational Excellence.** Create a park and recreation organization that is a national model for excellence and efficiency.

- **Comprehensive Recreational Programming.** Create a flexible system that provides cutting-edge recreation and promotes fitness and well-being through responsive programming.

- **Maximize Resources**. Maximize all available resources to support the delivery of beautiful, safe parks and recreation facilities with a rich array of services that creatively utilize partnerships.

- **Environmental Sustainability.** Create a park system that demonstrates a national model for sustainable management as it applies to the protection and management of open space, natural areas, and parks. Key elements include appropriate landscape materials and techniques, as well as effective use of water, electricity, composting, integrated pest management, and the development of green buildings

- **Community Participation.** Create a parks and recreation system that invites all residents to participate in planning, designing, and advocating for parks and recreation.

- **Community and Customer Service.** Provide the highest level of user-friendly community and customer service that consistently supplies precise, complete, and up-to-date information and assistance.

[8] San Francisco Recreation and Parks Department, *Strategic Plan, 2002.* available online at, http://sfrecpark.org/docs/StrategicPlan-2002.pdf.

While the *Strategic Plan* does not explicitly guide proposed physical improvements at Golden Gate Park facilities, the proposed project would be generally consistent with the overarching objective of the plan because, at the site, it would increase the amount of potential play hours available to the public and improve the safety and functionality of an existing recreational facility.

Other Plans and Policies

Golden Gate National Recreation Area Management Policies 2006

The National Park Service (NPS) is a bureau of the U.S. Department of the Interior that was created following the signing of the "Organic Act" by President Woodrow Wilson in 1916. The NPS manages the 394 areas called "units" of the National Park System. The NPS also helps administer dozens of affiliated sites, the National Register of Historic Places, National Heritage Areas, National Wild and Scenic Rivers, National Historic Landmarks, and National Trails. The "Organic Act" states that the fundamental purpose of the NPS "is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

The National Park System, which includes the GGNRA (Ocean Beach area) but not the project site, is guided by Management Policies 2006,[9] a document that contains policies applicable to management of the national park system. According to Management Policies 2006, NPS's requires that policies comply with current laws, regulations and executive orders, prevent impairment of park resources and values ensure that conservation will be predominant when there is a conflict between the protection of resources and their use, maintain NPS responsibility for making decisions and for exercising key authorities, emphasize consultation and cooperation with local/state/tribal/federal entities, support pursuit of the best contemporary business practices and sustainability as well as other requirements.

Although the project site is not within the GGNRA, it is located within a quarter mile of the Ocean Beach shoreline. With regard to potential loss of dark conditions in the general project area resulting from the proposed project, the Management Policies 2006 document states that the NPS would "seek the cooperation of park visitors, neighbors, and local government agencies to prevent or minimize the intrusion of artificial light into the night scene of the ecosystems of parks."[10] Lighting impacts of the proposed project are discussed in Section IV.B, with the determination that, although the project would noticeably illuminate the project site as compared to existing conditions, light spillover into the adjacent areas, including Ocean Beach, would not be substantial.

[9] National Park Service, *Management Policies 2006*, available online at http://www.nps.gov/policy/mp2006.pdf.
[10] *Management Policies 2006*, p. 57

Ocean Beach Long-Range Planning Process

Ocean Beach, a three-and-a-half-mile stretch of sand and dunes along the San Francisco's Pacific coast and, as noted above, part of the Golden Gate National Recreation Area, is a subject of a comprehensive, interagency, long-range planning process. The process is being led by San Francisco Planning and Urban Research Association (SPUR), a member-supported nonprofit organization, with assistance from the the Ocean Beach Task Force and Ocean Beach Vision Council, and funding from the California State Coastal Conservancy, the San Francisco Public Utilities Commission (SFPUC) and National Park Service (NPS).

According to the April 2011 issue of *Urbanist*,[11] a monthly publication of SPUR, "the *Ocean Beach Master Plan* would "develop a sustainable long-term vision for Ocean Beach, addressing public access, environmental protection and infrastructure needs in the context of erosion and climate-related sea-level rise." Although the project site is not within the planning area, because it is proximate to Ocean Beach, it could be indirectly affected by the changes that could occur in the general project vicinity as a result of *Master Plan* implementation. Any such physical changes would be subject to appropriate permits and environmental review. The *Draft Master Plan* is expected to be published by the end of 2011, with the *Final* version scheduled for release in early 2012.

Summary

The renovation of the Beach Chalet Athletic Fields facility with synthetic turf and lighting for extended use does not appear to conflict with any adopted plans and goals for the purposes of CEQA. As mentioned above, the proposed project would require a General Plan Referral, which would analyze the project's consistency with the San Francisco *General Plan*.

[11] San Francisco Planning and Urban Research Association, *Urbamist*, April 2011, available online at http://www.spur.org/publications/library/article/future-ocean-beach.

CHAPTER IV
Environmental Setting and Impacts

Overview

This chapter provides a project-level impact analysis of the physical environmental effects of implementing the Beach Chalet Athletic Fields Renovation Project as described in Chapter II, "Project Description." This chapter describes the environmental setting, assesses impacts, and identifies mitigation measures for potentially significant and significant impacts.

Scope of Analysis

This chapter is organized by environmental resource topic, as follows:

Chapter IV Sections	
A. Land Use	E. Recreation and Public Space
B. Aesthetics	F. Biological Resources
C. Cultural Resources	G. Hydrology and Water Quality
D. Transportation and Circulation	H. Hazards and Hazardous Materials and Air Quality

Each section of Chapter IV contains the following elements, based on the requirements of CEQA:

- **Setting.** This subsection presents a description of the existing physical environmental conditions in the project area with respect to each resource topic at an appropriate level of detail to allow the reader to understand the impact analysis.

- **Regulatory Framework.** This subsection describes the relevant laws and regulations that apply to protecting the environmental resources within the project area and the governmental agencies responsible for enforcing those laws and regulations.

- **Impacts.** This subsection evaluates the potential for the proposed project to result in adverse effects on the physical environment described in the setting. Significance criteria for evaluating the environmental impacts are defined at the beginning of each impact analysis section, and the "Approach to Analysis" explains how the significance criteria are applied in evaluating the impacts of the project. The conclusion of each impact analysis is expressed in terms of the impact significance, which is discussed further under "Significance Determinations," below.

- **Mitigation Measures.** In each resource section, mitigation measures are identified for all of the impacts considered significant or potentially significant, consistent with CEQA Guidelines Section 15126.4, which states that an EIR "shall describe feasible measures which could minimize significant adverse impacts…." The San Francisco Recreation and Parks Department (SFRPD), as the project sponsor, has indicated that, if the project is approved, it would incorporate all mitigation measures identified in this EIR as part of the project.

- **Cumulative Impacts.** In each resource section, where applicable, cumulative impacts are discussed immediately following the description of the direct project-specific impacts and identified mitigation measures. Cumulative impacts, described in detail below, consider the effects of the proposed project together with those of other past, present, or reasonably foreseeable future projects proposed by SFRPD or other jurisdictions. The analysis of cumulative impacts under each resource topic is based on the same setting, regulatory framework, and significance criteria as the direct impacts. Additional mitigation measures are identified if the analysis determines that the project's contribution to a cumulative, adverse impact would be significant.

Significance Determinations

The significance criteria used in this EIR are based on the San Francisco Planning Department's Environmental Planning Division (EP) guidance regarding the thresholds of significance used to assess the severity of environmental impacts of the project. EP guidance is based on Appendix G of the CEQA Guidelines, with some modifications. The significance criteria used to analyze each environmental resource topic are presented in each resource section of Chapter IV before the discussion of impacts. The categories used to designate impact significance are described as follows:

- **Not Applicable.** An impact is considered not applicable (no impact) if there is no potential for impacts or the environmental resource does not occur within the project area or the area of potential effects. For example, there would be no impacts related to grading if there is no grading proposed at a particular project site.

- **Less-Than-Significant Impact.** This determination applies if there is potential for some limited impact, but not a substantial, adverse effect that qualifies under the significance criteria as a significant impact. No mitigation is required for impacts determined to be less-than-significant.

- **Significant Impact That Can Be Mitigated To Less-Than-Significant.** This determination applies if there is certainty that the project would result in an adverse effect that meets the significance criteria, but feasible mitigation is available that would reduce the impact to a less-than-significant level.

- **Significant Unavoidable Impact.** This determination applies if there is certainty that the project would result in an adverse effect that meets the significance criteria, and there appears to be no feasible mitigation available to reduce the impact to a less-than-significant level. There might be some mitigation available to lessen the impact, but the residual effect after implementation of the measure(s) would remain significant, and therefore the impact would be unavoidable.

Cumulative Impacts

Cumulative impacts, as defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when taken together, are "considerable" or that compound or increase other environmental impacts. A cumulative impact from several projects is the change in the environment that would result from the incremental impact of the project when added to those of other closely related past, present, or reasonably foreseeable future projects. Pertinent guidance for cumulative impact analysis is provided in Section 15130 of the CEQA Guidelines:

- An EIR shall discuss cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (e.g., the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).

- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.

- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.

- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.

- The focus of analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

The cumulative impact analysis for each individual resource topic is described in each resource section of this chapter, immediately following the description of the direct project impacts and identified mitigation measures. A summary of all cumulative impacts is provided in Chapter VI, Section A.

Approach to Cumulative Impact Analysis

Two approaches to a cumulative impact analysis are provided in CEQA Guidelines Section 15130(b)(1): (a) the analysis can be based on a list of past, present, and probable future projects producing related or cumulative impacts, or (b) a summary of projections contained in a general plan or related planning document can be used to determine cumulative impacts. For the purpose of this EIR, the analysis employs the list-based approach. The following factors were used to determine an appropriate list of projects to be considered in this cumulative analysis:

- **Similar Environmental Impacts.** A relevant project contributes to effects on resources that are also affected by the proposed project. A relevant future project is defined as one that is "reasonably foreseeable," such as a proposed project for which an application has been filed with the approving agency or has approved funding.

- **Geographic Scope and Location.** A relevant project is located within the defined geographic scope for the cumulative effect.

- **Timing and Duration of Implementation.** Effects associated with activities for a relevant project (e.g., short-term construction or demolition, or long-term operations) would likely coincide in timing with the effects of the proposed project.

The list of projects included in **Table IV-1** includes other past, present, and probable future projects within and near the project area. Table IV-1 identifies and describes the projects considered in the cumulative impact analysis. The table also lists the resource areas where the project could contribute to cumulative impacts.

TABLE IV-1
CUMULATIVE PROJECTS AND IMPACTS IN OR NEAR THE BEACH CHALET ATHLETIC FIELDS RENOVATION PROJECT (from north to south, west to east)

Lead Agency	Project Name	Project Description	Potential Cumulative Impact Topics	Approximate Distance to Project Site	Potentially Affected Project Components/ Areas of Overlap[a]	Estimated CEQA/ Construction Schedule
San Francisco Planning Department	San Francisco Westside Recycled Water Project	The primary purpose of the project is to reduce San Francisco's reliance on potable water for nonpotable uses, such as irrigation, through the production and distribution of highly treated recycled water.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; aesthetics; recreation; geology; and public services. Long-term impacts on Hydrology and Water Quality.	Project located in the proposed project vicinity.	Athletic Fields, Golden Gate Park	**Status of environmental review:** NOP published in September 2010. **Construction schedule:** 2016 through 2018
San Francisco Planning Department	Murphy Windmill/ Millwright's Cottage Restoration	Renovation of the Murphy Windmill will be completed in two phases. The first phase, already in progress, consists of the windmill cap removal and refurbishment by Lucas Verbij in the Netherlands, with the remaining structure documented, partially dismantled, and stored for reuse. The second phase consists of the stabilization and restoration of the tower structure, interior structures, and internal mechanisms so the windmill can function as it was originally designed. Interpretive panels to educate the public about the windmill and how it works will be installed at the site. Renovation of Millwright's Cottage would include the structural retrofit of the building, restroom remodel, ADA compliance work, and minor interior repair work. SFRPD envisions a full-service restaurant to operate within the Millwright's Cottage.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; aesthetics; recreation; and public services. Long-term impacts to recreation and aesthetics.	Project located in the proposed project vicinity.	Athletic Fields, Golden Gate Park	**Status of environmental review:** Completed August 2009 **Construction schedule:** November 2010–June 2011
San Francisco Planning Department	San Francisco Groundwater Supply Project	The project would provide an average of 4 mgd of groundwater to San Francisco's municipal water supply. Groundwater would be blended with San Francisco's existing municipal water supply for distribution within San Francisco. The groundwater would be pumped from the North Westside Groundwater Basin, which is located within the larger Westside Groundwater Basin, which underlies parts of San Francisco and San Mateo Counties. The	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; hydrology and water quality; aesthetics; recreation; and public services.	Project located in the proposed project vicinity.	Athletic Fields, Golden Gate Park	**Status of environmental review:** NOP published February 2011 **Construction schedule:** Fall 2013—Spring 2015

TABLE IV-1 (Continued)
CUMULATIVE PROJECTS AND IMPACTS IN OR NEAR THE BEACH CHALET ATHLETIC FIELDS RENOVATION PROJECT (from north to south, west to east)

Lead Agency	Project Name	Project Description	Potential Cumulative Impact Topics	Approximate Distance to Project Site	Potentially Affected Project Components/ Areas of Overlap[a]	Estimated CEQA/ Construction Schedule
	San Francisco Groundwater Supply Project (cont.)	Groundwater Supply Project includes following components: • Construction of six groundwater well facilities, including the conversion of two existing irrigation well facilities in Golden Gate Park to potable groundwater well facilities and the construction of four new groundwater well facilities. Each facility would include a groundwater production well and a pump station. Disinfection equipment would be included at the Lake Merced and West Sunset well facilities. • Construction of a distribution system (including pipelines and connection points) to connect five of the groundwater well facilities to Sunset Reservoir. The sixth groundwater well would connect to the Lake Merced Pump Station, and would require a short length of distribution piping to make this connection. The project would be implemented in two phases: (1) construction and operation of the four new groundwater well facilities to supply an annual average of approximately 2.5 to 3.0 mgd of groundwater, and (2) construction of well facilities required to convert the two existing irrigation well facilities to potable groundwater well facilities and operation of the converted irrigation wells to provide an additional annual average of approximately 1.0 to 1.5 mgd of groundwater.	Long-term impacts to hydrology and water quality.			
San Francisco Planning Department	San Francisco Botanical Garden	Replacement of two greenhouses with a one-story, 13,000-square-foot Center for Sustainable Gardening. Project is located at the San Francisco Botanical Gardens on Martin Luther King Jr. Drive in Golden Gate Park. The new facility would consist of a greenhouse, shadehouse, and headhouse; meeting spaces and restrooms. The new facility would replace 10 parking spaces and remove a number of trees for enlarged building footprint.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; aesthetics; recreation; geology; and public services.	Project located east the proposed project.	Golden Gate Park	**Status of environmental review:** PMND published August 2011 **Construction schedule:** begin construction in the winter of 2012

TABLE IV-1 (Continued)
CUMULATIVE PROJECTS AND IMPACTS IN OR NEAR THE BEACH CHALET ATHLETIC FIELDS RENOVATION PROJECT (from north to south, west to east)

Lead Agency	Project Name	Project Description	Potential Cumulative Impact Topics	Approximate Distance to Project Site	Potentially Affected Project Components/ Areas of Overlap[a]	Estimated CEQA/ Construction Schedule
San Francisco Planning Department	Golden Gate Park Tennis Courts	Renovation of the existing tennis courts complex located on Middle Drive East in Golden Gate Park. 16 new courts and clubhouse would be relocated and replaced with a larger facility.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; aesthetics; recreation; and public services.	Project located east of the San Francisco Groundwater Supply Project.	Golden Gate Park	**Status of environmental review:** Completed May 2007 **Construction schedule:** Spring 2011
San Francisco Planning Department	San Francisco Bicycle Plan	The 2009 Bicycle Plan includes minor and long-term improvements for the bicycle route network within San Francisco. The project would include the following improvements in the project area: • Martin Luther King Jr. Drive • John F. Kennedy Drive • Great Highway • 34th Avenue • Lake Merced Boulevard • Kirkham Street	Minimal construction-related traffic impacts on access roads and associated air quality and noise impacts; aesthetics; recreation; and public services.	Project located in the proposed project vicinity.	Golden Gate Park	**Status of environmental review:** Published June 2009 **Construction schedule:** 5 years after approval**;** no schedule for long term improvements
San Francisco Urban Planning + Urban Research Association (with assistance from the Ocean Beach Task Force and Ocean Beach Vision Council, and funding from the California State Coastal Conservancy, SFPUC and National Park Service.	Ocean Beach Master Plan	The recent erosion events south of Sloat Boulevard and ongoing community efforts have created unprecedented momentum for a sustainable long-range plan. Drawing on the work of the Ocean Beach Vision Council and others, the plan will address the impact of rising seas, the physical and ecological processes shaping the beach, and improved integration with its natural, recreational, and urban contexts.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; aesthetics; recreation; geology; and public services.	Project located in the proposed project vicinity.	Athletic Fields	**Status of environmental review:** Draft anticipated by the end of 2011, final scheduled for early 2012 **Construction schedule:** TBD

TABLE IV-1 (Continued)
CUMULATIVE PROJECTS AND IMPACTS IN OR NEAR THE BEACH CHALET ATHLETIC FIELDS RENOVATION PROJECT (from north to south, west to east)

Lead Agency	Project Name	Project Description	Potential Cumulative Impact Topics	Approximate Distance to Project Site	Potentially Affected Project Components/ Areas of Overlap[a]	Estimated CEQA/ Construction Schedule
National Park Service	GGNRA General Management Plan	The GGNRA Management Plan creates the vision and framework that will guide the management of the park for the next 20 years, including land use policies, etc.	Construction-related traffic impacts on access roads and associated air quality and noise impacts; sensitive habitats and species; water quality; aesthetics; recreation; geology; and public services.	Project located north and west of the proposed project.	Athletic Fields	**Status of environmental review:** Plan approved **Construction schedule:** Implementation of approved plan winter 2011

[a] Construction schedules for cumulative projects were estimated based on information obtained in project-related documents, such as initial studies and EIRs; city, county, and regional agency websites; and communication with representatives from local jurisdictions in spring 2011. All other cumulative planned or approved projects have been confirmed. However, as with all proposed development projects, estimated construction schedules are subject to revisions and delays, and therefore could vary from the time periods indicated.

ADA = Americans with Disabilities Act
CCSF = City and County of San Francisco
GGNRA = Golden Gate National Recreation Area

mgd = million gallons per day
NOP = notice of preparation
PMND = Preliminary Mitigated Negative Declaration
SFPUC = San Francisco Public Utilities Commission
TBD = to be determined

IV.A Land Use

The Initial Study prepared as part of the Notice of Preparation (see Appendix A) determined that effects related to land use would be less than significant. This section, therefore, presents a discussion of existing land uses at the project site and in the vicinity for informational purposes, to orient the reader.

Setting

Existing Land Use

The project area is within the City and County of San Francisco's (CCSF) northwest quadrant, at the western end of the 1,017-acre Golden Gate Park, and is approximately 11.2 acres in size. It is bounded by the Great Highway and Ocean Beach to the west; the former Richmond-Sunset Water Pollution Control Plant site, currently used for park maintenance, and Murphy Windmill and Millwright's Cottage to the south; and John F. Kennedy Drive and Golden Gate Park Golf Course to the north and northeast. The Dutch Windmill and Queen Wilhelmina Tulip Garden are located about 500 feet to the north of the site. To the northwest of the site are the Beach Chalet Brewery and Restaurant and associated parking lot, which front onto the Great Highway (discussed further below).

The Beach Chalet Athletic Fields currently include four grass turf soccer fields surrounded by an 8-foot-tall metal chain-link fence, and include a roughly 25,320-square-foot, 50-space asphalt parking lot (including one accessible space), a restroom building, and a maintenance shed to the east of the four fields. The play fields and parking lot are surrounded by landscaped and cultivated trees and scattered shrubs, consisting of Monterey cypress, mirror tree, and turf grasses, as well as existing trail routes. To the north and east of the fields are grassy areas used for warm-ups. The primary character of the project site is that of public open space and recreational facility.

As discussed in Chapter III, Plans and Policies, the site is within the boundaries of what is identified as the Western Shoreline by *the San Francisco General Plan*, which generally comprises of public open space in the form of landscaped forests, open grassy areas, lakes and ponds, and other natural features along San Francisco's western edge, and is under the guidance of the Western Shoreline Area Plan. Additionally, because it is within Golden Gate Park, the project site is also under the guidance of the Recreation and Park Department's *Golden Gate Plan Master Plan*.

Golden Gate Park

Golden Gate Park is located on the western side of San Francisco and is bounded by the Great Highway to the west, Stanyan Street to the east, Fulton Street to the north, and Lincoln Way to the south. The land use designation for Golden Gate Park is Public (P), with most of it characterized by open space as well as recreational, cultural, and visitor facilities. The park is the

fifth most visited park in the country[1] and is listed on the National Register of Historic Places and the California Register of Historical Resources as a historic district, containing 133 contributing historic resources (the soccer fields and the restroom building at the Beach Chalet Athletic Fields site are listed as contributing features of the historic district). See Section IV.C, Cultural Resources, for further discussion of Golden Gate Park historic resources.

Golden Gate Park is an artificial landscape, in that nearly everything in the park is a non-natural creation. As explained in the *Golden Gate Park Master Plan*:

> Golden Gate Park is a remarkable achievement, given that the vision of this pastoral landscape was created out of sand dunes and the harsh coastal environment. Although it appears very natural, the park landscape is almost completely manmade, and requires much more management and maintenance than a truly natural landscape. All trees were planted except for oak trees and a few other native trees in the northeast portion of the park. All of the lakes are manmade. The meadows were created in low valleys and sheltered by trees to create warmer microclimates. The general terrain was not altered drastically, but the impression of hill and dale was exaggerated by planting tall trees on the ridges and hills and leaving the low areas as meadows. This technique was very successful in creating the park's rolling terrain with a minimum of grading.[2]

The project area is at the west end of the Golden Gate Park, which is characteristically more wooded and less refined parkland than at the east end. The original design of the park envisioned the western park to be "simply treated as a woodland or forest, with all the hills and ridges more or less heavily timbered, and the valleys covered with lower-growing shrubs or field grasses."[3] Although the west end of the park contains several recreational facilities intended for active recreation, including the Beach Chalet Athletic Fields facility, this area experiences less visitor traffic than the east end of the park and contains more natural features (i.e., woodland areas, meadows, rolling hills). See Section IV.E, Recreation, for further discussion of Golden Gate Park recreation resources. The former Richmond-Sunset Water Pollution Control Plant site is also located in the west end of the park, just south of the project site. It is currently used for citywide park debris disposal.

Western Shoreline

The project site is less than 1,000 feet from the Pacific Ocean and Ocean Beach. The beach, which extends along the Pacific Ocean shoreline, is characterized by long stretches of sandy beaches and berms (some vegetated), and is bordered by a seawall and a paved pedestrian promenade. North of Lincoln Boulevard, surface parking lots border the promenade along the coastline. The beach does not provide any visitor amenities or concessions and, because the ocean water is typically too cold for heavy public use, the beach areas serve primarily as vista points looking over the ocean, and for walking, jogging, biking, dog-walking, and surfing (rather than for swimming).

1 Trust for Public Land, Center for City Park Excellence, *2010 City Park Facts;* p. 25. available online at: http://cloud.tpl.org/pubs/ccpe_CityParkFacts_2010.pdf.

2 San Francisco Recreation and Parks Department (SFRPD), *Golden Gate Park Master Plan*, 1998; p. 4-1. available online at: http://sfrecpark.org/GGPMasterPlan.aspx.

3 *Golden Gate Park Master Plan,* 1998, p 4-5. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

The Great Highway, a four-lane road that runs the length of the San Francisco's western shoreline, is located about one thousand feet west of the project site. It contains several crossings to Ocean Beach and, south of Lincoln Boulevard, is bordered to the east by a berm containing a paved multi-use trail that is used for walking, jogging, biking, and dog-walking.

North of the project site, along the western shoreline, is the Cliff House/Sutro Baths area, which includes the Sutro Heights Park. The Cliff House area contains tourist-related uses, including several restaurants, souvenir shops, and vista points. The concrete foundations of Sutro Baths, north of the Cliff House area, are all that remains of the massive bathhouse from the early 20th century; the foundations have deteriorated extensively over time and presently serve as a tourist destination. Sutro Heights Park, east of the Cliff House area, contains extensive vegetation, several public trails, and parking areas.

Adjacent Residential Neighborhoods

The Outer Richmond and Outer Sunset Districts are located to the north and south of the Golden Gate Park, respectively, and are less than 0.25 mile from the project site in each direction. Both neighborhoods extend from the San Francisco's western coastline approximately one and a half miles to the east, flanking Golden Gate Park to the north and south. The predominant land uses in the Outer Richmond and Outer Sunset Districts are single-family and, to a lesser degree, multiple-family residential uses. The single-family residences are mostly one to three stories in height, while the multi-family residences exist as condominium complexes (along La Playa Street in the Outer Richmond District) and apartment buildings (scattered throughout the Outer Richmond and Outer Sunset Districts farther east), and are generally in the two- to four-story range. Building styles are often more varied than in single-family areas, but certain streets and tracts are quite uniform. These neighborhoods generally maintain a pattern of 25-foot building widths, with occasional exceptions in the case of merged lots, and with structures rarely exceeding 40 feet in height.

The Outer Richmond and Outer Sunset Districts also contain neighborhood commercial, recreational, educational, religious, and public uses, primarily along streets such as Geary and Balboa Streets in the Outer Richmond and Judah and Noriega Streets in the Outer Sunset. Commercial uses closest to the project site include a motel and other small-scale commercial uses on La Playa just south of the park, and a Safeway supermarket at La Playa and Cabrillo to the north of the park.

The nearest public schools to the Beach Chalet Athletic Fields site are Lafayette Elementary School, approximately 0.9 mile northeast of the project site; George Washington High School, just over 1 mile northeast of the project site; Francis Scott Key Elementary School, about 0.6 mile southeast of the project site; and Lawton Alternative Elementary School, approximately 1.2 miles southeast of the project site. In addition, private schools in the project vicinity include the St. Thomas Apostle School, at 3801 Balboa Street (Outer Richmond District), approximately 0.6 mile northeast of the project site, and the Holy Name School, at 1560 40th Avenue (Outer Sunset District), approximately 0.8 mile southeast of the project site.

SOURCE: San Francisco Recreation & Parks

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.A-1
Surrounding Uses in the Project Site Vicinity

Impacts and Mitigation Measures

As concluded in the Initial Study (see Appendix A, Notice of Preparation), the proposed project would not physically divide an existing community; would be generally consistent with all applicable land use plans, policies, and regulations; and would not result in a substantial change in the character of the vicinity. Therefore, impacts related to land use were determined to be less than significant.

IV.B Aesthetics

This section addresses the potential impacts on aesthetic quality associated with implementation of the proposed project. Aesthetic resources, also referred to as visual resources, are defined as the visible natural and built landscape features that surround a project site. This analysis describes the existing visual setting of the project site, evaluates the proposed project's effects on visual resources, and specifically addresses the impacts of proposed actions on daytime and nighttime views from designated scenic roads and public view corridors and public vantage points.

Setting

Visual Character of the Site

The project site comprises approximately 11.2 acres, and is located in the western portion of Golden Gate Park. As described in Chapter II, Project Description, the athletic fields currently contain the following areas: four natural turf soccer fields made up of irrigated, regularly mowed and maintained turf grasses; an 8-foot-tall metal chain link fence surrounding the fields; grassy warm-up areas; an approximately 25,320-square-foot, 50-space asphalt parking lot; a one-story restroom building; and a cargo container used as a staff maintenance shed. The site is bordered by additional vegetation, including grasses, shrubs, and trees that consist mostly of cypress and pine species that function as the park's western windbreak and define its western frontage. The tree canopy surrounding the project site extends between approximately 30 and 40 feet in height. Public trail routes also exist around the site. The site slopes gradually from east downward to the west, at an average grade of 5 percent.

The project area is located less than 1,000 feet from the Pacific Ocean and Ocean Beach, and is contiguous with adjacent trees and vegetation of the park. As noted in Section IV.F, Biological Resources, in the mid-19th century, before construction and landscaping of the existing park, the area was composed primarily of sparsely vegetated sand dunes. Since then, the park has been extensively vegetated and currently contains large groves of mature landscape trees and/or shrubs, grassy areas, ponds, and lakes containing wetland vegetation, and recreational turf grass fields similar to the existing Beach Chalet Athletic Fields.

The visual character[1] of the project site is that of a structured recreational facility within a larger context of naturalistic parkland. Because the site is made up of both naturalistic (i.e., the

[1] *Visual Character* is a general description of the visual attributes of a particular land-use setting. The purpose of defining the visual character of an area is to provide the context within which the visual quality of a particular site or locale is most likely to be perceived by the viewing public. For natural and open space settings such as the project site, visual character is most commonly described in terms of areas with common landscape attributes (such as landform, vegetation, water features, etc). *Visual Quality* is defined as the overall visual impression or attractiveness of a site or locale as determined by its aesthetic qualities (such as color, variety, vividness, coherence, uniqueness, harmony and pattern). For purposes of this analysis, the visual quality of a site or locale is defined according to three levels, low, medium, and high, depending on its perceived appeal, the presence or absence of natural or cultural resources, and its relationship with and contribution to the visual character of the surrounding area.

surrounding vegetated areas) and urbanized (i.e., restroom building, playfields surrounded by chain link fencing, parking lot) features, it relates to the surrounding parklands while at the same time conveying its recreation-related functions similar to other recreational facilities throughout the park.

The site is bounded by the Beach Chalet Restaurant, Great Highway, and Ocean Beach to the west; the former Richmond-Sunset Water Pollution Control Plant site, currently used for citywide park debris disposal, and Murphy Windmill and Millwright's Cottage to the south; and John F. Kennedy Drive, Dutch Windmill and Queen Wilhelmina Tulip Garden, and Golden Gate Park Golf Course to the north and northeast. Similar to the project site, most of these adjacent facilities contain a mix of naturalistic and urban visual features. However, most adjacent areas are not visible from the project site due to the screening provided by the trees surrounding project site.

Visual Character of the Surrounding Neighborhood

The visual setting of the project area reflects the visual characteristics of its topography, location within Golden Gate Park's western edge, and its surrounding uses, which are primarily residential with some commercial, institutional, and retail uses scattered throughout. The project area is located within Golden Gate Park and less than 1,000 feet from the Pacific Ocean shoreline. To the west are the shoreline areas and open waters of the Pacific Ocean. North and northwest of the park is the Sutro Heights neighborhood, which contains the Sutro Heights Park and the Cliff House/Sutro Baths area. The project area is considered to be a scenic resource area because it provides views of natural features within and surrounding the park's west end and is used by pedestrians, bicyclists, and motorists.

To the south of the project site, the nearest residential areas are located on the south side of Lincoln Way, in the Outer Sunset neighborhood; to the north, the nearest residential area is located on the north side of Fulton Street, in the Outer Richmond neighborhood. Both residential areas are located approximately 1,000 feet from the project site, and both neighborhoods also contain a limited amount of commercial, educational, religious and public uses. Both the Outer Richmond and Outer Sunset neighborhoods are characterized by fairly uniform residential building sizes, the majority of which are in the two- to three-story range.

One of the distinctive characteristics of the northwestern portion of San Francisco is the steep rise in topography in the Sutro Heights area, approximately 0.6 mile north of the project site. As a result, there is a substantial difference in elevation between the project site, which sits at approximately 25 feet San Francisco City Datum (SFD),[2] and the Sutro Heights area, which rises above 200 feet SFD along northern and northeastern edges of the Sutro Heights Park. This change in topography defines northerly views from the lower-lying areas in the west end of Golden Gate Park and San Francisco's western shoreline, and also provides long-range, panoramic views of San Francisco's western edge from the Sutro Heights area.

[2] San Francisco City Datum (SFD) establishes the City's zero point for surveying purposes at approximately 8.6 feet above the mean sea level established by 1929 U.S. Geological Survey datum. In San Francisco, elevation in the 1929 USGS datum is approximately 2.7 feet lower than the corresponding elevation current 1988 North American Vertical Datum.

Views of the Site from Key Public Viewpoints

To establish a framework for evaluating the potential visual changes associated with the construction and operation of the proposed project, potentially sensitive viewing areas within the project viewshed that are generally accessible to the public have been identified. For the purposes of this analysis, the primary potentially affected sensitive viewing areas include areas immediately surrounding the project site, public trails within Golden Gate Park, public areas along the Great Highway and Ocean Beach, and the publicly accessible roadways, sidewalks, and trails in the Sutro Heights neighborhood from which the project site is visible. While the project site is visible from other more distant viewpoints in San Francisco, such as Golden Gate Heights, the site is most visible from the aforementioned locations and changes in the site's appearance would be most pronounced.

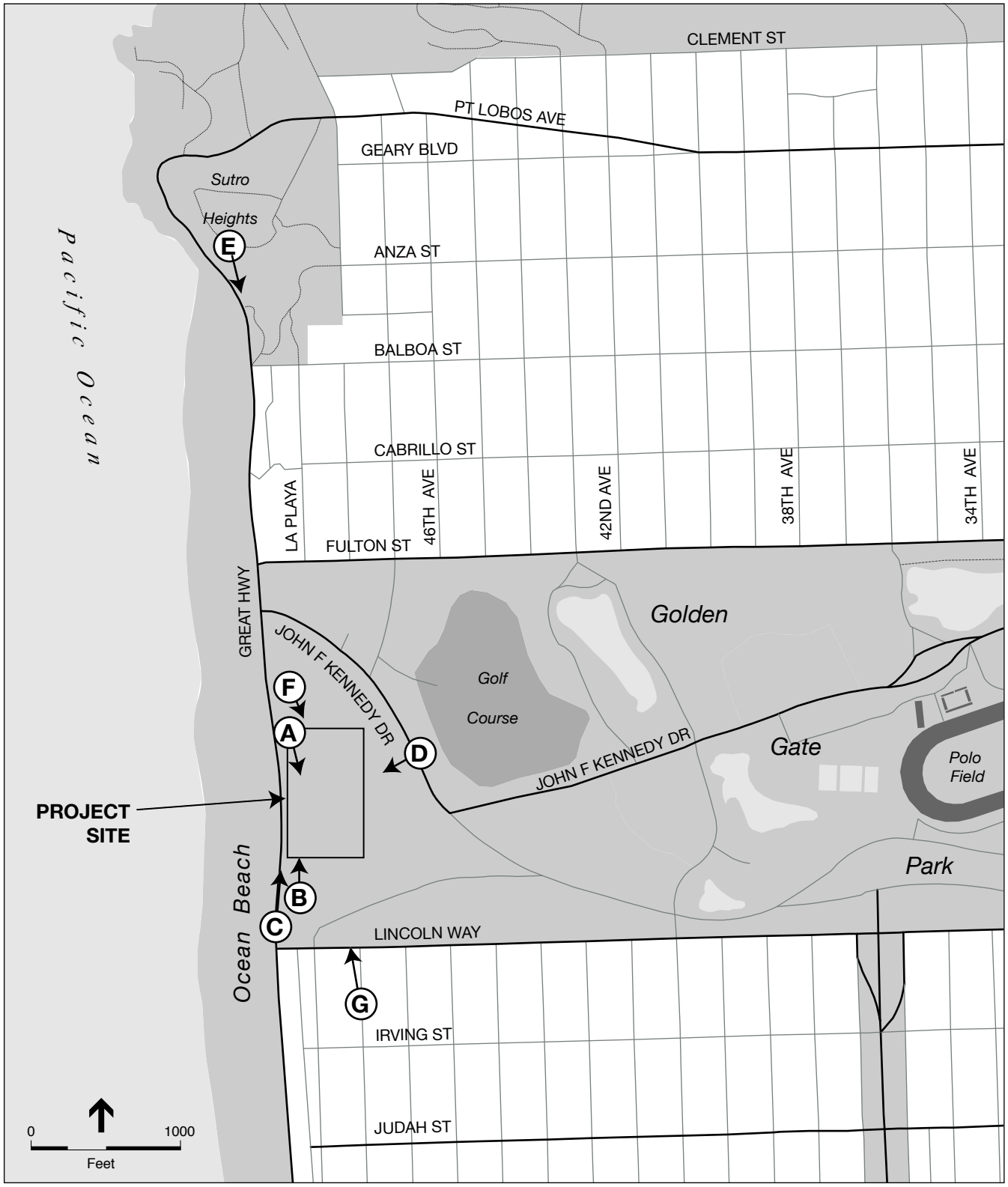
Photos are included in this section to demonstrate the publicly accessible short-range, medium-range, and long-range views of the project site, and are indicated on **Figure IV.B-1**. For purposes of analysis in this EIR, short-range views are from public vantage points no more than 0.25 mile away; medium-range views are from public vantage points between 0.25 mile and 0.50 mile away; and long-range views are from public vantage points greater than 0.50 mile away. The photographs depicting existing conditions are presented in **Figures IV.B-2a** through **IV.B-2e**.

Table IV.B-1 summarizes the visibility and visual sensitivity of the project site from various viewpoints in the project vicinity, including views from within the boundaries of the project site, views from nearby sidewalks and public recreational trails, and views from the Ocean Beach shoreline. Although the project site is not visible under existing conditions from some of the viewpoints described below, they are included as part of the analysis because the project would introduce new features that could be newly visible from these viewpoints.

Daytime Views

Views from the Project Site

Project Site. Dense vegetation borders the Beach Chalet Athletic Fields Facility on all sides, limiting the areas from which the project site is visible (its viewshed). Accordingly, views from the project site out to the surrounding areas within Golden Gate Park are also largely obscured. For this reason, the best unobstructed short-range views of the project site are available primarily from within the site's boundaries. One of the views from within the boundary of the site is depicted in the upper image of Figure IV.B-2a. The view depicted is from the northern boundary of the site, at the midfield line of the athletic fields. As illustrated in this figure, these views present the site as a large expanse of grassy turf, containing variations in grass color, plant health, density, and coverage. Although not visible in this image, the fields also contain gopher holes and patches of exposed dirt. Other features visible in this view include the existing 8-foot-tall metal chain link fence, the evenly spaced soccer goals along the field's periphery, the grassy warm-up areas just beyond the fields, surrounding vegetation (composed of trees and shrubs), and the restroom building (visible in the center-left field of vision).



SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-1
Viewpoint Location Map

Existing View from Viewpoint A at Beach Chalet Athletic Fields facing southeast

Existing View from Viewpoint B facing north on the public trail west of the Murphy Windmill

SOURCE: ESA

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Figure IV.B-2a
Existing Views of the Project Area

Existing View from Viewpoint C facing north on the sidewalk along the Great Highway

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-2b

Existing Views of the Project Area

Existing View from Viewpoint D from the public trail along John F. Kennedy Drive facing southwest

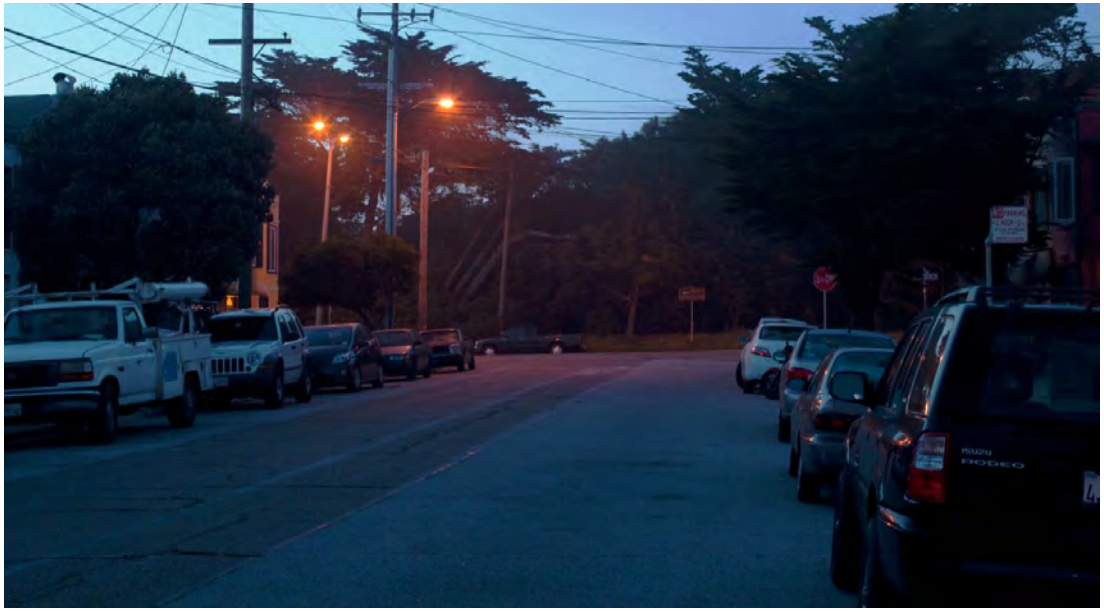
Existing View from Viewpoint E facing south from Sutro Heights Park

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-2c
Existing Views of the Project Area

Existing View from Viewpoint F facing southeast at the Beach Chalet Restaurant Patio



Existing View from Viewpoint G facing north from 48th Ave and Lincoln Way

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-2d
Existing Views of the Project Area

Existing View from Viewpoint H at night facing south from Sutro Heights Park

SOURCE: ESA

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Figure IV.B-2e

Existing Views of the Project Area

TABLE IV.B-1
VISIBILITY AND VISUAL SENSITIVITY OF THE PROJECT SITE

Scenic Resources and Other Public Viewpoints in Project Vicinity	Representative Viewpoint Location Used in Visual Simulation	Figure Number	Overall Visual Sensitivity[a]	Visibility of Project Site from Selected Viewpoint
Daytime Views				
Areas within the boundaries of the project site.	Northern boundary at the midfield line of the athletic fields.	IV.B-2	Medium	Direct and unobstructed views of the project site are available.
Public trails and walkways immediately to the south and southwest of the project site.	Public trail near Murphy Windmill.	IV.B-3	Medium	The project site is not visible from this vantage point.
Public areas along the western shoreline, particularly the paved walkway along Ocean Beach.	Beachside walkway along the Great Highway, approximately 800 feet southwest of the project site.	IV.B-4	High	The project site is not visible from this vantage point.
Public sidewalk along John F. Kennedy Drive, east of the project site.	Sidewalk along John K. Kennedy Drive.	IV.B-5	Medium	Limited views of the site are available through breaks in vegetation.
Public trails within Sutro Heights Park.	Public trail within Sutro Heights Park.	IV.B-6	High	Scenic long-range views of the coastline and the park are available, with project site a small feature in the distance.
Areas immediately to the west of the project site, east of the Great Highway.	Beach Chalet Restaurant outside patio area.	IV.B-7	Medium	The project site is not visible from this vantage point.
Nighttime Views				
Public trails within Sutro Heights Park.	Public trail within Sutro Heights Park.	IV.B-8	High	Scenic long-range views include the coastline and the Great Highway. The park appears as a dark void in the distance, and the project site is not visible from this vantage point.
Residential areas to the south of the project site	Lincoln Way and 48th Avenue.	IV.B-9	Low	The project site is not visible from this vantage point.

[a] *Visual Sensitivity* is the overall measure of a site's susceptibility to adverse visual changes. Visual sensitivity is rated as high, moderate, or low and is determined based on the combined factors of visual quality, viewer types and volumes, and visual exposure to the proposed project.

The dominant features in these views are the large expanses of grass and bordering tree line, which are naturalistic in character, and the surrounding fence which is urban in character. As noted above, the site appears as a combination of naturalistic and urban features that reflect its function as a structured athletic facility. Additional photos of the project site are provided in Figure II-5 of Chapter II, Project Description.

Views from the South and Southwest

The project site is not visible from views along the Great Highway because it is screened by mature vegetation along the park's western edge, and it is not easily visible from park areas west of the site. Two views from the south and southwest of the site are presented above: one presents a view from the paved public sidewalk along the Ocean Beach shoreline (west of the Great Highway, and approximately 700 feet from the project site), while the other presents a view toward the project site from a public recreational trail just west of the Murphy Windmill (approximately 300 feet from the project site).

Public Trail near Murphy Windmill. Views from the public trail just west of the Murphy Windmill are shown in the lower image of Figure IV.B-2a and include the mature grasses, shrubs and trees along both sides of an approximately 10-foot-wide gravel pedestrian trail. The tree canopy appears to extend about 30 feet above ground level along each side of the trail, and the project site is not visible. This view is considered scenic for the purpose of this EIR because it is made up of naturalistic features associated with Golden Gate Park and is used by the public for recreational purposes.

Ocean Beach Public Sidewalk. Views toward the site from the sidewalk along the Great Highway are shown in the upper image of Figure IV.B-2b and include views of Ocean Beach, Pacific Ocean shoreline, the seawall, patches of vegetated buffers along the pedestrian walkway, and the asphalt and concrete expanse of the Great Highway. In the distance, the Cliff House, Sutro Heights Park, and development in the Outer Richmond District are visible. The regular pattern of street lights along the Great Highway somewhat interrupts the scenic views experienced in this area. Nevertheless, the visual sensitivity of areas along Ocean Beach and the Great Highway is considered high because views from these public areas are defined by natural features, serve as popular recreational and vista sites, and engender a high expectation of quality views. The project site is not visible from this vantage point.

Views from the East

Public Trail along John F. Kennedy Drive. Views toward the project site from the east are largely screened by the mature vegetation that surrounds the site. However, the upper image of Figure IV.B-2c depicts very limited views into the project site, as seen through gaps in vegetation from the public trail along John F. Kennedy Drive, just to the east of the project site. From this vantage point, the athletic fields are not visible in their entirety and instead appear as small patches of grass beyond the trees along John F. Kennedy Drive. Limited segments of the existing fence line and some of the soccer goals can also be seen through gaps in vegetation, although these views are also very limited and do not provide a clear sense of the site's function. The

project site is proximate to this vantage point, but it cannot be easily viewed, particularly given that the trail and the adjacent John F. Kennedy Drive are used primarily by passing pedestrians, bicyclists, and motorists who tend not to stay in this area for extended periods of time. Because of this, and the fact that the adjacent roadway takes away somewhat from the natural scenery of the site, the visual sensitivity of views from this vantage point is considered medium.

Views from the North

Sutro Heights Park. Views of the project site, shown in the lower image of Figure IV.B-2c, are available from Sutro Heights Park, which is elevated several hundred feet in relation to the project site, approximately 0.6 mile to the north. Scenic long-range views from this vantage point are dominated by the Pacific Ocean shoreline, Ocean Beach, the Great Highway, and the west end of Golden Gate Park. Multi-family condominium complexes near the coastline are also visible. The Beach Chalet Athletic Fields Facility appears as a small patch of exposed lawn amid the otherwise densely covered parkland. This view is considered to be of high visual sensitivity for its panoramic qualities and the predominance of natural features, such as Golden Gate Park and Ocean Beach.

Beach Chalet Restaurant Outdoor Patio. Views toward the project site from the Beach Chalet Restaurant patio areas (depicted in the upper image of Figure IV.B-2d) are dominated by the historic restaurant building, picnic tables and chairs, and surrounding vegetation. The project site is not currently visible from this vantage point.

Light and Glare

Sources of light and glare in the area surrounding the project site include street lights along the local roadways, as well as lighting associated with the nearby Beach Chalet Restaurant and street lamps throughout Golden Gate Park. In addition, vehicles traveling through the park, and particularly along the Great Highway, represent a source of nighttime light and glare in the project area. Further away, within the residential neighborhoods to the north and south of the park, sources of light are typical of those in developed urban areas, and include street lights, traffic-related sources of light, and lighting related to nearby uses, including residences, motels, a gas station, restaurants, and the Safeway store. Two images are provided to illustrate views toward the project site during the evening hours and are described below.

Evening Views

48th Avenue and Lincoln Way

As shown in the upper image of Figure IV.B-2d, during the evening hours, public views toward the project site from 48th Avenue (near Lincoln Way) depict existing residential development and parked vehicles along both sides of the 48th Avenue public right-of-way. The southern edge of Golden Gate Park is visible beyond the urban features and serves as a defined edge to the residential development. The two street lights along Lincoln Way are prominent in this view and serve as primary sources of nighttime lighting. This view does not appear to be scenic, as the urban

features included in it do not contain any unique characteristics and are instead typical of many residential areas of San Francisco. In addition, the park appears too dark to constitute a prominent natural feature that otherwise contributes to the scenic quality of the views during the day.

Sutro Heights Park

As shown in the upper image of Figure IV.B-2e, existing evening views from Sutro Heights Park toward the project site include the same features as described above, under "Daytime Views"; however, they are much less visible during the evening hours. They include long-range views of the Pacific Ocean shoreline, Ocean Beach, the Great Highway, the west end of Golden Gate Park, urban development in the Outer Richmond District and, in the background, urban development in the Outer Sunset District. As illustrated in this figure, after dark, Golden Gate Park appears mostly as a dark contrast to the Great Highway and the Outer Richmond and Outer Sunset neighborhoods in the distance.

In long-range evening views from this vantage point, streetlights, vehicle headlights, and lighting associated with residential development in the Outer Sunset and Outer Richmond Districts serve as the primary sources of nighttime lighting. Existing lighting is most prominent along the Great Highway but is entirely absent within the Golden Gate Park. As a result, the park appears more subdued, while the adjacent Great Highway and the nearby residential areas appear more dominant by comparison.

Regulatory Framework

State Regulations

In 1963, the State legislature established the California Scenic Highway Program, a provision of the Streets and Highways Code, to preserve and enhance the natural beauty of California (Caltrans, 1996). The State Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such.

In San Francisco, I-280 (from San Francisco's southern boundary to Interstate [I-] 80 near First Street), I-80 (from I-280 near First Street to Oakland), and State Route 1 (the entire freeway segment within San Francisco's city limits) are Eligible State Scenic Highways. I-280 and I-80 are located in the northeastern part of the city, and State Route 1 is approximately 1 mile from the project area. The project site is not visible from these roadways and none of these are Officially Designated Scenic Highways at this time. Therefore, no officially designated or eligible scenic highways are located near the project site.

Local Regulations

Scenic vistas, roadways, and corridors are established for the purpose of protecting or preserving an aesthetic resource and are typically documented in general plans and resource management plans.

San Francisco General Plan Street View Quality Classifications

The Urban Design Element of the *San Francisco General Plan* classifies some streets with relation to the quality of street views that are available from vantage points along those streets. In the project vicinity, segments of Fulton Street and Lincoln Way are designated as having "Good Quality of Street Views" and "Excellent Quality of Street Views." No streets or roadways within Golden Gate Park or along the Great Highway have been designated by the General Plan based on the quality of views available from these areas.

The General Plan also designates Street Areas Important to Urban Design and Views. In the project vicinity, the Great Highway, just west of the project site, is designated as a "Street that Defines City Form" and "Street that Extends the Effect of Public Open Space." In addition, segments of Fulton Street and Lincoln Way to the north and south of the project site, as well as the avenues oriented north to south that terminate at Fulton and Lincoln, are all designated as "Street that Extends the Effect of Public Open Space" by the General Plan.

Golden Gate Park Master Plan

The *Golden Gate Park Master Plan* (Park Master Plan) was adopted by the Recreation and Park Commission in October of 1998.[3] The Park Master Plan is a comprehensive planning document that includes general objectives and policies for the park, management strategies, and specific objectives and policies relating to park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, Park maintenance and operations, and special area plans. The Park Master Plan, which is discussed in more detail in Chapter III, Plans and Policies, provides a framework and guidelines to ensure responsible stewardship of the park. The goals and policies concerning visual resources that would be applicable to the proposed project include the following:

> ***Objective II, Policy A – Preserve the Design Integrity of Golden Gate Park.*** Golden Gate Park has evolved from an original landscape design that provides unity and integrity. The original design intent shall be preserved.
>
> 1. All activities, features and facilities in Golden Gate Park should respect the unique design and character of the park.
>
> 2. The major design feature of Golden Gate Park and the framework within which all park activities occur is its pastoral and sylvan landscape. The integrity of the pastoral and sylvan landscape must be maintained and remain unaltered.
>
> 3. The existing form of woodlands and their relationship to meadow areas should be maintained. The size, the basic texture, and color of park woodlands should not be significantly altered, nor should the size of meadows be reduced by the introduction of additional trees.

[3] San Francisco Recreation and Parks Department (SFRPD), *Golden Gate Park Master Plan*, 1998. http://sfrecpark.org/GGPMasterPlan.aspx. This document is available for review at 1650 Mission Street, Suite 400, San Francisco, CA.

4. It should be recognized that the park, by design intent, is basically evergreen and is divided into two distinct areas. The park land east of Strawberry Hill was designed as a more finished park that includes a variety of intensively cultivated areas and developed facilities while the park land to the west was intended as woodland landscape with open meadows defined by stands of trees and enhanced by lakes. Large-scale introduction of deciduous or "flowering" trees in areas other than traditional horticultural gardens should be discouraged, particularly in the western park.

Objective IV. ***Buildings, Structures, and Monuments.*** Minimize the impacts that buildings and monuments have on the park landscape, and preserve the open space of Golden Gate Park. Maintain and preserve historic buildings and structures.

Policy B – Historic Structures. Preserve notable park structures that have historic, architectural and aesthetic value. Encourage restoration or reconstruction of other buildings and features that provide continuity with the past.

Policy C – Modification of Existing Buildings. Assure that modification or replacement of existing park buildings is compatible with the landscape character and historic form of the park, and does not diminish existing open space, in accordance with policies contained in the Recreation and Open Space Element of the *San Francisco General Plan.*[4]

1. All park buildings should be modified to meet the requirements of all applicable accessibility codes and regulations, consistent with the design of the building.
2. Modification, replacement or reconstruction of existing buildings for seismic or other structural upgrades, accessibility, or mechanical system improvements should, to the greatest extent feasible, not increase the building's footprint, height, or bulk.

The park lighting section of the Park Master Plan's Utilities and Infrastructure element describes the existing lighting system in the park as antiquated and in need of replacement.[5] According to the Master Plan, different areas of the park will be lighted to different levels based on amount of use and safety considerations. The Beach Chalet Athletic Fields areis listed in the Master Plan as a "night use" area.

Local Designated or Eligible Scenic Roads

In 1938, San Francisco's Downtown Association created the 49-mile Scenic Drive to highlight San Francisco's beauty and to promote San Francisco as a tourist destination. This scenic route passes near the project site, along the Great Highway. Although there are no associated plans or policies related to 49-mile Scenic Drive, this route is recognized for its aesthetic value.

[4] The other subpolicy of Policy C does not apply to the proposed project.
[5] SFRPD, *Golden Gate Park Master Plan;* p. 9-5.

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to aesthetics, but generally considers that implementation of the proposed project would have a significant impact on visual quality if it were to:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and other features of the built or natural environment that contribute to a scenic public setting;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area or that would substantially affect other people or properties.

Approach to Analysis

This analysis evaluates the potential impacts on visual and aesthetic resources, including impacts that could occur during both construction and operations. For the purpose of this assessment, visual resources are generally defined as the natural and built landscape features that can be seen. The overall visual character of a given area results from the unique combination of natural landscape features, including landform, water, and vegetation patterns, as well as built features, such as buildings, roads, and other structures.

The visual impact assessment is based on an evaluation of the changes to existing visual resources that would result from renovation and operation of the Beach Chalet Athletic Fields. These changes were assessed, in part, by conducting site reconnaissance, evaluating the proposed project plans and drawings, reviewing photographs of the project area and daytime and evening visual simulations, as well as preparing a comparative analysis of nighttime views (discussed below). Calculations of light distribution and brightness were evaluated based on proposed project plans. It is noted that actual measurements of light distribution and brightness at the South Sunset and Amazon Crocker Playgrounds match the designed lighting included in the proposed project plans for those fields. Thus, it is anticipated that the lighting plans developed for the Beach Chalet Athletic Fields Renovation, which were developed by the same designer as the South Sunset and Crocker Amazon projects, are accurate for the purpose of this evaluation. In developing an assessment of the visual changes, consideration was given to several factors: the specific changes in the affected visual environment's composition and character, the number and types of affected viewers and the duration of the affected view, the extent to which the west end of Golden Gate Park or the project site itself is a contributor to scenic quality of public views in the project area, and the extent to which the affected environment includes features that have been designated in plans and policies for protection/special consideration.

Visual Simulations

Computer modeling and rendering techniques were employed to produce visual simulation images illustrating potential views. These simulations illustrate the appearance of the proposed changes at the project site from the six selected daytime observation points, as well as two evening observation points. The computer-generated visual simulations are the result of an objective analytical and computer modeling process briefly described below.

Site reconnaissance was conducted to view the site and surrounding area, to identify potential viewpoints, and to take representative photographs of existing conditions. A single lens reflex (SLR) digital camera was used to shoot site photographs from representative public viewpoints.

Computer modeling and rendering techniques were then used to produce the simulation images. Existing topographic and site data provided the basis for developing an initial digital model. Using engineering surveys, digital 3D models of existing features were created to align the digital camera with the photograph. Trees and structures slated for removal were removed using Adobe PhotoShop. A 3D digital model of the bleachers, pathways, fencing, and lights was imported and rendered using a material palette indicated by the project's landscape designers, with proposed turf added using Adobe PhotoShop. Finally, in shots where they would be visible, people were added to indicate scale.

The visual simulations are presented with two images per page: the upper image is a photographic view showing the existing visual condition, and the lower image is a visual simulation depicting the proposed athletic field improvements. The evaluation of potential visual impacts associated with the proposed project includes both a comparison of the "before" and "after" visual conditions, as portrayed in the simulated images and a qualitative assessment of the degree of visual change that would result from the project.

Evening Views Comparative Photographic Analysis

A comparative photographic analysis of nighttime views was performed to provide an approximation of what views of the proposed project may look like during evening use, when field lighting is operational. As a point of comparison, the study used a similar San Francisco field as an example—the Crocker Amazon Playing Field in the Excelsior District. This facility was selected because it uses the same type of light standards as would be used at the Beach Chalet Soccer Fields facility. Also, similar to the project site, the Crocker Amazon Playing Field is located within a park setting and is surrounded by hillsides containing residential uses. As part of this analysis, two viewpoints were selected to photograph the Crocker Amazon Playing Fields. These viewpoints were framed with the goal of matching the distance and elevation of the nighttime photosimulations created for proposed project. Photography was conducted at about 9 p.m., after the sky had darkened completely. Exposure rates for photography were selected based on how accurately they reflected the field lighting's impact as observed. While the evening comparative photographic analysis is intended to present the reader with an approximate example of what the project site would look like, it is not intended to serve as an exact representation of what the project site would look like during evening use, since differences between the two sites exist.

Furthermore, the photographs of the Crocker Amazon athletic facility and visual simulations of the Beach Chalet athletic facility assume a relatively clear weather day, which is not always the case on a day-to-day basis. The comparative analysis is discussed in detail under **Impact AE-1**, below.

Impact Analysis

Impact AE-1: The construction and operation of the proposed project would not have a substantial adverse effect on a scenic vista or substantially damage scenic resources. (Less than Significant)

Construction activities associated with the project would last approximately 10 months and would include earth moving, building renovations, paving, and landscaping. As described above, the project site is barely visible from most of the surrounding viewpoints because trees and landscaping screen the site from public view. As noted in Chapter II, Project Description, construction material staging and storage are anticipated to occur entirely within the boundaries of the existing facility, which would be closed to the public during project construction. Thus, views of project construction would be mostly limited to short-range views from areas immediately surrounding the project site. It is possible that people passing through the park would catch glimpses of construction activities through gaps in vegetation; however, this impact would not be considered significant because it would be temporary and limited to the project site.

As noted above, the project site is largely obscured from all sides by existing vegetation. However, limited portions of it can be viewed from several public vantage points from the surrounding area. Those that could be considered scenic vistas include the Great Highway, Sutro Heights Park, and areas within Golden Gate Park that possess high visual quality associated with the natural features of the park. The major design features that would be altered that may affect views of the project site include (1) replacement of grass turf fields with synthetic turf, (2) installation of field lighting, (3) renovations of the existing restroom building, (4) installation of player benches and seating, (5) installation of picnic and playground areas, and (6) increasing the size of the parking lot, and (7) removing selected trees and shrubs. These are described in greater detail in Chapter II, Project Description.

As described under "Setting," above, public vantage points that would be considered high in terms of visual sensitivity are limited owing to the lack of visibility into the project site from most areas immediately outside of the site's boundaries. Nevertheless, the site can be viewed fully from areas inside the facility and can be viewed partially from the sidewalks along John F. Kennedy Drive, immediately to the east, and from streets and sidewalks in the elevated Sutro Heights neighborhood that allow direct views toward Golden Gate Park. In addition, the top of the tree canopy of the site can be viewed from the Ocean Beach promenade. All of these views can be considered scenic because all contain features related to the park and/or the adjacent shoreline, which can define scenic views.

Photosimulations from various viewpoints were produced to assess the visual changes associated with the proposed athletic facility modifications, as discussed below. Although only effects to scenic vistas need to be considered under CEQA, views from other nearby public vantage points are also discussed and depicted herein, for informational purposes.

Views within the Project Site

Project Site. As seen in the photosimulation in the lower portion of **Figure IV.B-3**, once the renovation of the project site is complete, views from within the project site would consist of grassy warm-up areas in the foreground and a large expanse of turf visible and the 42-inch-tall black vinyl chain-link fence line in the foreground and background. The synthetic turf would be uniform in color, texture, and coverage; under existing conditions, the fields are only differentiated from surrounding areas via fence, whereas with the project the field area would be clearly demarcated and differentiated. Although the areas dedicated to athletic fields would be larger than under existing conditions, this change would not be noticeable to most viewers. Players on the fields would also be visible when the fields are in use, as is the case under existing conditions. Paved pathways surrounding the fields and cutting through the surrounding areas would break up the short-range views.

The proposed galvanized steel poles and field lights would add a dominant vertical component to the project site, and would constitute possibly the greatest change in views from this perspective. The new 60-foot-tall poles would disrupt the views toward the sky and would add urbanized elements to the project site that would compete for visual dominance with the natural features of the outer edges of the site. The spectator seating areas would also be visible, although they would form a relatively minor feature within these views. Although some of the surrounding vegetation is proposed for removal and replacement, the tree line bordering the site would not appear noticeably different in these views as compared with the existing conditions, and the tree line would continue to screen views from the project site to other parts of Golden Gate Park. The renovated restroom building and patio areas along the eastern boundary of the site would also be visible and would contribute to the more developed and formalized look of the site.

A comparison of the upper and lower photos shows that, with project implementation, the project site would appear less naturalistic and more structured and urbanized. However, while this change would be substantial, it would not adversely diminish the quality of public views of the project site, as the proposed features would be consistent with the existing and proposed function of the athletic facility. Although the proposed improvements would be unique to the site, and the proposed light poles would be some of the tallest built features in the vicinity, the site would convey the general impression of a structured recreational facility.

Although not prominent in Figure IV.B-3, views from other areas within the project site would include the renovated restroom building, the new patio/barbecue areas, and the parking lot (possibly with parked cars). These areas would also appear more developed and structured but would be consistent with the functions of the Beach Chalet athletic facility and the immediate project area. Thus, while these changes, in combination, would result in a facility that would be

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-3

Existing and Proposed Views from Viewpoint A

different from the existing site in that it would appear more formal, structured, and developed, these changes would not be considered demonstrably adverse because they would be consistent with the intended purpose of the athletic fields and would not substantially diminish the facility's overall visual quality.

Views from the South and Southwest

Public Trail near Murphy Windmill. A comparison of the existing and simulated photos of the project site from the vista point depicted in **Figure IV.B-4** shows that views toward the project site from the public trail just west of the Murphy Windmill would include the same features as under existing conditions. None of the elements proposed as part of the project would be visible from this vantage point and the project site would continue to be obscured by the surrounding vegetation.

Ocean Beach Public Promenade. From the paved promenade along Ocean Beach, views toward the project site would be largely unaffected by the proposed project, as compared with the existing conditions. As shown in **Figure IV.B-5**, most of the proposed features within the Beach Chalet Athletic Fields Facility would continue to be entirely obstructed from view by the intervening vegetation along the west side of the project site. However, the tops of the light poles and standards would be visible in the distance above the tree canopy, whereas currently, the project site is not visible from this vantage point. Owing to the distance to the site from the promenade, during the day the proposed poles and standards would create a level of view disturbance similar to Great Highway street lights. Although the poles and standards would be noticeable against the views of the sky, the predominant views of the densely forested west end of the park would still be available and intact for pedestrians, bicyclists, and motorists traveling along the Great Highway. As such, the overall views toward the project site from this public vantage point would not substantially change, and this impact would be less than significant.

Views from the East

Public Trail along John F. Kennedy Drive. As noted above, views towards the project site from the sidewalks along John F. Kennedy Drive are limited by the existing vegetation surrounding the project site. As shown in **Figure IV.B-6**, with close attention, views through gaps in vegetation would reveal glimpses of the proposed synthetic turf, soccer goals, parking areas and the renovated restroom building. While fields are in use, people may also be partially visible through the trees, similar to existing conditions. However, because the site would not be visible as a whole, the change to views as compared with existing conditions would not be substantially noticeable. Thus, views from areas just east of the project site would remain largely unchanged, and this impact would be less than significant.

Views from the North

Sutro Heights Park. Long-range views from Sutro Heights Park are shown in **Figure IV.B-7**. Compared with the upper image, which depicts existing conditions, long-range views toward the project site would not be noticeably altered with implementation of the proposed project. Because the project site is more than 0.5 mile away from Sutro Heights Park, the major components

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-4

Existing and Proposed Views from Viewpoint B

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-5
Existing and Proposed Views from Viewpoint C

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-6
Existing and Proposed Views from Viewpoint D

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-7

Existing and Proposed Views from Viewpoint E (Daytime)

proposed as part of the project, including the installation of synthetic turf and the field lighting standards, would not substantially alter the view from this vantage point. This view would continue to include scenic views of the shoreline and the west end of the park, and this impact would be less than significant.

Beach Chalet Restaurant Outdoor Patio. Potential views from the area immediately north of the project site are shown in **Figure IV.B-8.** Short-range views of the project site from the Beach Chalet Restaurant outdoor patio area would continue to be screened such that the majority of the project site would not be visible. However, the proposed features that would alter this view include the field and pedestrian pathway lighting. Only one field light is visible in Figure IV.B-8, although it is expected that one or more additional field lights could be visible from other parts of the outdoor patio. The 15-foot-tall pedestrian pathway light standards would be installed at the edge of the patio area and would be clearly visible from this vantage point. However, they would be similar to lighting installed throughout much of Golden Gate Park and would be consistent with the character of the restaurant patio area, which already contains urbanized features. The pedestrian pathway light standards would not substantially affect the visual character of the project site.

The field lighting standards in the background would slightly diminish views of the sky from this vantage point; however, the overall visual character of the view would not substantially change, and this impact would be less than significant.

In conclusion, because the project site is located at the edge of the Golden Gate Park, where naturalistic features (i.e., the park, beach, ocean) and urbanized features (i.e., the Great Highway, Beach Chalet Restaurant, Murphy Windmill and Millwright's Cottage) interrelate with one another, and because the project site is screened and will continue to be screened from most public views in the area, the permanent visual impact of the proposed Beach Chalet Athletic Fields Renovation Project on daytime views would be less than significant. No mitigation is required.

As discussed above, although the proposed project would alter the project site, it would not have a substantial adverse effect on a scenic vista or substantially damage scenic resources.

Mitigation: None required.

Implementation of the proposed project would modestly interrupt or alter some existing private views currently available to nearby residences. Specifically, the private views that could potentially be affected are those to the north and south of Golden Gate Park, including those from the top of the hill in the Sutro Heights neighborhood. Changes to these views would be similar to those illustrated in the visual simulations above. Due to the relatively long distance of these residences from the project site, the most noticeable project components would be the new light poles and night lighting that would be used to illuminate evening games. With project implementation, changes to private views would differ based on proximity from the project site, quality of the view currently experienced, and relative sensitivity of the viewer. Nevertheless, such views could be perceived as undesirable consequences for affected residents who are used to the existing visual conditions. However, CEQA does not consider impacts to private views to be significant. Thus, the

Existing View

Proposed View

SOURCE: ESA

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Figure IV.B-8
Existing and Proposed Views from Viewpoint F

proposed project's impact on private views would not be considered a potentially significant environmental impact.

Impact AE-2: The project would not substantially degrade the existing visual character or quality of the site and its surroundings. (Less than Significant)

The proposed project would noticeably alter the visual character of the project site. It would do so by replacing the existing grass turf fields with synthetic turf, installing field lighting, renovating the existing restroom building, installing player benches and spectator seating, increasing the parking lot, and undertaking various other modifications intended to improve the overall conditions of the facility and increase the amount of play time available on the athletic fields. The proposed project would affect the visual character of the entire project site, as well as some of the immediately surrounding areas where existing trees and shrubs would be removed. The project would improve existing access trails to the surrounding areas, and new pedestrian lighting would be installed. Nonetheless, changes to visual character and visual quality would be less than significant for the reasons discussed below.

As shown in the lower image of Figure IV.B-3 and discussed under **Impact AE-1**, the athletic facility would take on a more developed look after project implementation, owing primarily to the installation of new light standards, spectator seating, and barbecue and picnic areas and a playground near the restroom facility. The athletic field lighting would add new vertical elements to the project site, which would constitute a change to its overall character. However, this would not be expected to degrade the visual quality of the site because the light standards would not be so intrusive as to preclude the enjoyment of the natural features of the facility. The pedestrian light fixtures along the pathways surrounding the fields would consist of non-descript fixtures that would largely recede into the landscape (the poles used throughout the park are very ornate and have an old-fashioned character) and thus would also not be expected to degrade the site's visual quality. In terms of changes to the restroom, the building would be designed to be visually compatible with the surrounding land uses, and the height, massing, and footprint of the building would remain similar to the existing conditions. In general, the restroom building would maintain its overall current visual quality. Similarly, the barbecue and picnic areas would be of modest scale and similar to the types of amenities that already exist throughout the park, and therefore would not be expected to diminish the visual quality of the Beach Chalet Athletic Fields Facility.

The synthetic turf would appear different from the existing grass turf because it would be more uniform in coverage and could appear more uniform in color and texture as compared with the existing grass. However, this kind of a change would not noticeably diminish the visual quality of the site as the fields would continue to have limited visibility from off-site vantage points. The synthetic turf would be green (a similar shade as the existing grass turf) and would approximate the look of grass, to the extent feasible. It is noted that some observers may perceive synthetic turf as inherently unattractive or visually jarring, while others may perceive it as a normal feature of

athletic fields and thus not contributing to any adverse visual change. Because the new turf would approximate grass and because the site would not be visible from most off-site locations, the change in the appearance of the turf would not be considered demonstrably adverse.

In terms of changes to the surrounding vegetation, as noted in Chapter II, Project Description, the proposed project would require the removal of 16 trees (in the northeast side of the field, just outside the existing fence line) and approximately 44 shrubs (along the southern and southeastern edge of the fencing). The project would replace each tree and shrub removed at a one-to-one or greater replacement ratio. Tree replacement locations would include the southern edge of the project area and other appropriate areas, as determined by the SFRPD Urban Forestry supervisor and Natural Areas manager. While tree removal and replacement has the potential to alter the visual character of the project site, the number of trees and shrubs proposed for replacement is minor compared with the number that surround the project site and would be retained. Even if some portions of the site result in a reduced tree and shrub coverage, as compared with existing conditions, it is expected that all sides of the existing fields would continue to have abundant vegetation, which is one of the site's primary defining visual characteristics. Therefore, the removal and replacement of trees and shrubs would not have a significant adverse impact on the visual character or quality of the project site.

The visual character of the site would also change owing to the increased use of the facility and the introduction of more people and cars to the site. However, this would also not degrade the quality of the project site, since the facility is intended for public use and already experiences visitors for games, tournaments, practices, and other recreational uses. The change in the number of visitors would not be so great as to noticeably alter the visual character or diminish the quality of the project site.

As stated above, land uses surrounding the project site include other recreational facilities within Golden Gate Park. The proposed project would appear generally consistent with the overall look and feel of these other nearby facilities, in the sense that most of them are composed of both naturalistic and built forms. Although the renovated features of the project site, including turf areas, light poles, spectator seating, restroom facility, barbecue and picnic areas, and fencing, would differ in visual character as compared with the existing conditions of the site, this impact would not be considered demonstrably adverse. Instead, these features would be consistent with the primary functions of the Beach Chalet Athletic Fields facility, which are that of a formally developed recreational area. Furthermore, the existing and proposed vegetation would continue to screen the project site from most of the surrounding views, which would generally limit to its users the unobstructed views of the project site. For the reasons stated above, the proposed project would not result in substantial adverse impacts on the visual character and quality of the project site and this impact would be less than significant.

Mitigation: None required.

Impact AE-3: Development of the proposed project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area or that would substantially affect other people or properties. (Less than Significant)

As discussed in Chapter II, Project Description, the proposed project includes installation of new lighting at the facility. Field lighting would consist of ten 60-foot-tall light standards made of galvanized steel. There would be two light standards each at the north and south ends of the facility that would be oriented toward the two end fields. The other six light standards would be located between the centermost fields and would have back-to-back light fixtures oriented to illuminate the interior fields. Each light fixture, or assembly, would consist of ten 1,500-watt metal halide lamps. During regulation play and practices (the majority of the time), seven of the ten lamps would be turned on, while all 10 lamps would be turned on during tournaments. All lighting would be controlled by an online automated control system, which would turn off all the lights at 10:00 p.m. In addition to the field light standards, the project includes 47 approximately 15-foot-tall pedestrian pathway light standards and 13 approximately 18-foot-tall parking lot light standards, which would also be controlled by an online automated control system.

Two evening visual simulations were prepared to assess potential impacts of lighting on public views. One visual simulation is presented from the sidewalk at 48th Avenue near Lincoln Way to represent the effects on proximate residential areas, while the second depicts views from the public trail within Sutro Heights Park. "Before" and "after" images from these vantage points are presented in the lower images of **Figures IV.B-9** and **IV.B-10**.

As shown in the lower image of Figure IV.B-9, evening views from 48th Avenue near Lincoln Way would not be affected by the proposed project. The scale and position of the project site in relation to this vantage point would be such that none of the components proposed by the project would be visible because they would be entirely screened by the surrounding vegetation. Furthermore, the field lighting would not spill over in a way that would be noticeable from this distance. This nighttime condition would be typical for surrounding residential neighborhoods.

As shown in the lower image of Figure IV.B-10, evening views south from Sutro Heights Park would be noticeably affected by the introduction of night lighting, even though most of the visual field would remain the same as under existing conditions. Although not as clearly visible as during the day, the shoreline areas would be visible and would continue to contribute to the scenic quality of the evening views. The Great Highway also would be visible owing to its illumination by the street lights and headlights from the passing vehicles. Most of the west end of Golden Gate Park would be only dimly visible because of darkness. However, the project site would appear as a newly illuminated urban feature in the distance. The lighting levels at the site would appear brighter than those in the surrounding vicinity, as locations within the Park outside of the fields would not be illuminated. Although the lights would draw attention with the intensity of lighting, they would not dominate this panoramic view, because the view includes many different features and covers a vast area. Thus, this change is not considered substantial and the effect would not be significant.

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-9
Existing and Proposed Views from Viewpoint G

Existing View

Proposed View

SOURCE: ESA

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.B-10
Existing and Proposed Views from Viewpoint E (Nighttime)

In addition, the Sutro Heights Park is not heavily used during the evening hours. Thus, the number of people who would experience these views would be limited.

Evening Views Comparative Photographic Analysis

As noted above, a comparative photographic analysis of the Crocker Amazon Athletic Facility was conducted to serve as a reasonable comparison with the proposed evening lighting conditions at the Beach Chalet Athletic Fields Facility site. The discussion below provides an overview of similarities and differences between the two sites, and summarizes the conclusions reached regarding the project site, based on the photographs of the Crocker Amazon Athletic Facility.

Comparison of Two Fields. The similarities that exist between the Crocker Amazon site and the proposed project are that both include synthetic turf, contain a similar number of soccer fields situated within a larger park setting (Beach Chalet contains four, while Crocker Amazon contains five), and are screened by surrounding landscaping. In addition, both sites are visible from the surrounding hillsides. The proposed project would use the same type of lighting standards (Musco brand) as already employed at the Crocker Amazon site during evening games. The light standards are capped units that emit 134 lumens per lamp, and have been designed specifically for sports fields, with the goal of lighting the field evenly while minimizing the spread of light upward. At the Crocker Amazon site, the lamps are arranged in assemblies of six lamps per assembly, with some of the poles having two back-to-back assemblies to illuminate multiple fields. At the Beach Chalet site, the proposed light poles would have assemblies containing 10 lamps per assembly, seven of which would be used during regulation game play and practice sessions, while all 10 assemblies would be used during tournaments (there could be up to 6 tournaments per year). The light assemblies at Beach Chalet would be installed at a height of 60 feet above ground level, while those at the Crocker Amazon facilities are installed at 80 feet above ground level.

Differences in perceived brightness are difficult to measure objectively; however, it is generally accepted within the scientific community that a 50 percent increase of brightness level is required for the human eye to perceive an increase in brightness.[6] Because of this phenomenon, and because each assembly would contain a shield in the back, the back-to-back assemblies were not perceived to be any brighter than the single assemblies. Thus, in terms of brightness, the Crocker Amazon is comparable to the proposed project at Beach Chalet during regulation game play, and is slightly dimmer than would be conditions at Beach Chalet during tournament play.

Regarding the relative brightness of the fields themselves, the lighting at Crocker Amazon was designed to provide an average illumination of 30.5 foot-candles over the fields, while the proposed lighting at Beach Chalet would provide an average of 34.5 foot-candles during regulation play and 51.1 foot-candles during tournament play. Thus, the illumination of the Beach Chalet field would be comparable to Crocker Amazon's field during regulation play, and brighter, but not so much as to be perceived as significantly brighter, during tournament play.

6 American Institute of Architects, Architectural Graphics Standards, 11th Edition.

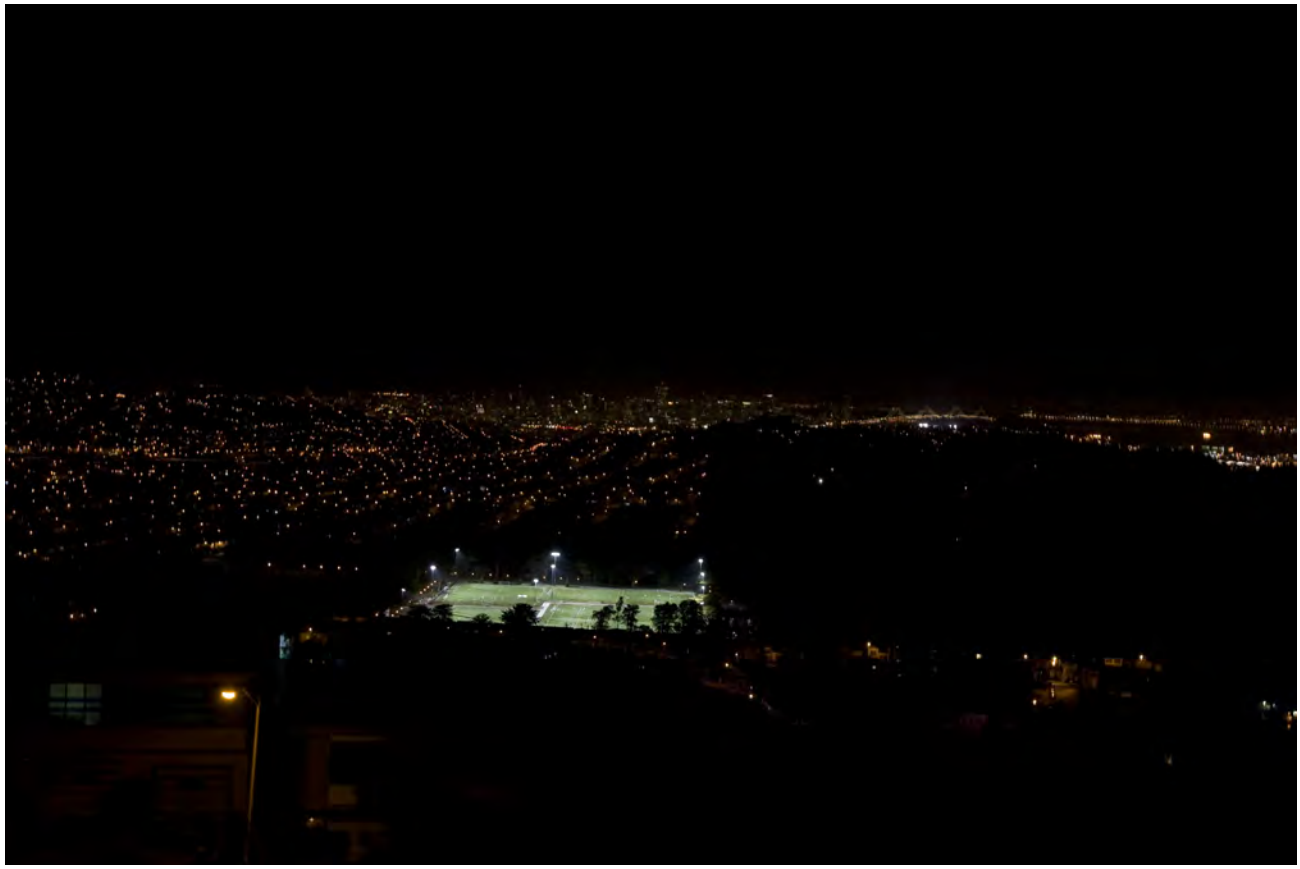
Owing to the differences in height between the light poles at the Crocker Amazon (80 feet above ground level) and the proposed light poles at Beach Chalet (60 feet above ground level), spots on the Beach Chalet fields would be approximately 32 percent brighter than their corresponding areas on Crocker Amazon. However, at the lower height, the Beach Chalet lighting would likely be obscured by nearby trees or buildings.

Description of Elevated Views. The evening view of Beach Chalet from Sutro Heights, as presented in Figure IV.B-10, is from a distance of approximately 3,500 feet. For comparison, an evening photograph of the Crocker Amazon field was taken from Alta Vista Way, approximately 3,000 feet away. As depicted in the lower image of **Figure IV.B-11**, most of the Crocker Amazon soccer fields, as well as all 11 light assemblies, are visible from this vantage point. This figure also illustrates that the back-to-back assemblies in the center of the fields appear to be no brighter than the single assemblies that illuminate single fields. Based on this, it is likely that back-to-back assemblies at the Beach Chalet facility would also not appear brighter than the single assemblies and that lighting levels would be fairly constant throughout the fields. It also is noted that, as one descends in elevation from this vantage point (at Alta Vista Way), even less of the field and the lights would be visible. It is further noted that the presented photographic analysis of the Crocker Amazon site is conservative, in that more trees exist between the Beach Chalet facility and the nearby residential areas (enough to completely screen the facility from vantage points at 48th Avenue and Lincoln Way) than what appear in photographs of the Crocker Amazon site.

Description of Street Level Views. The evening view of Beach Chalet from 48th Avenue and Lincoln Way, as presented in Figure IV.B-9, is from a distance of approximately 700 feet to the nearest light pole. For comparison, an evening photograph of the Crocker Amazon field was taken from La Grande Avenue, approximately 640 feet away. While the Beach Chalet and 48th Avenue/Lincoln Way viewpoint are at about the same elevation, the vantage point at La Grande Avenue is approximately 100 feet higher in elevation relative to the Crocker Amazon field. To approximate the dense vegetation and berm along the Lincoln Way edge of the park to the south of the Beach Chalet site (both of which entirely obscure the playing fields), a viewpoint in a residential area was selected near Crocker Amazon site, one that is already lit by existing street lightings and from which the playing fields are at least partially obscured. As shown in the lower image of Figure IV.B-10, the trees in the foreground limit views onto the Crocker Amazon fields.

Based on the evening views comparative photographic study conducted for the proposed project, it appears that, although the project site would likely appear substantially brighter as compared with existing conditions or other illuminated areas in the vicinity, the proposed lighting is unlikely to spill over the site's boundaries substantially enough to adversely affect the surrounding neighborhoods. Also, the spillover would not affect the amount of light of the night sky, as the sky appears similar above the athletic field lights as above other areas with no athletic field lights. While these assumptions may change during particularly foggy weather conditions, they would not be expected to change so much that lighting at the fields would substantially affect views of the project site from the surrounding public vantage points. Specifically, under foggy conditions, the lighting would be more diffused and would likely be more visible higher up in the sky and from vantage points further away. Other existing light sources, such as street

View from La Grande



View from Alta Vista Way

SOURCE: ESA

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Figure IV.B-11
Views of Crocker-Amazon Athletic Fields During Nighttime Use

lighting and residential and commercial building lighting, also result in light diffusion and this project would contribute to the existing general "glow" that can occur during foggy conditions. The proposed project would not result in direct light and glare in people's homes and field lighting would be turned off by 10:00 p.m. Based on the discussion above, this impact would be less than significant.

Summary

As described above, the new lighting would illuminate areas within the site's boundaries, but as indicated above, would be screened by vegetation in views from the surrounding areas. Because the proposed lighting is intended to facilitate evening sports play, this impact would be most noticeable to people standing on the Beach Chalet fields. However, it would not be considered adverse at the site because field users would benefit from it.

Factors that affect the impact of lighting are numerous and include the brightness of surrounding lighting, such as residential lights and moonlight, and the "bounce" of the field lights off the surrounding structures, the ground, and particles of water in the air (i.e., fog). Thus, the impact of additional artificial lighting on light spillover can depend on such things as the reflectivity and wetness of the synthetic turf, fog conditions, and the phase of the moon. However, even under conservative conditions, the spillover of the lighting would not be expected to travel so far as to adversely and substantially affect the closest neighborhoods, which are located approximately 800 feet from the project site. The distance from the project site and the site's screening by the surrounding vegetation would virtually eliminate any spillover lighting that could otherwise enter people's homes. Although only evening (dusk) conditions are illustrated in the visual simulations, this determination would also hold true for nighttime conditions, which, for the purposes of the proposed project, are the hours between total sundown and facility closure. A lighting study prepared for the proposed project by Musco Lighting[7] illustrates that within a very short distance of the project site's boundaries (approximately 150 feet), light measurements at heights of approximately 60, 70, 80, 90, and 100 feet above ground level would drop to zero, due to the shielding and focusing of the lights.

After facility closure at 10 p.m. most of the lights would be turned off, with parking lot, pathway and security lighting left on for a short period of time after 10 p.m. to allow for safe exit of site users. However, no lights would be left on overnight. Therefore, no spillover of artificial lighting would occur, and this impact would be less than significant. (To the extent that proposed lighting would affect public views of the project area, the associated impacts are discussed under **Impact AE-1**, above.)

In terms of daytime light and glare effects, the proposed project would not introduce large mirrored or reflective glass to the project site, either as part of restroom building renovations or anywhere else on the fields or parking lot. Proposed light standards, seating, and plaza facilities would not be composed of reflective materials. Therefore, environmental effects of daytime light and glare due to the project would not be significant.

[7] Musco Lighting, Illumination Summary, January 29, 2010 and April 28, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Based on the discussion above, the development of the proposed project would not create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area or that would substantially affect other people or properties.

Cumulative Impacts

Impact C-AE: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to aesthetics. (Less than Significant)

This analysis evaluates whether the impacts of the proposed project, together with the impacts of cumulative development, would result in cumulatively significant impacts on scenic vistas or other scenic resources, changes to visual character or quality, or impacts related to light and glare (based on the significance criteria and thresholds presented earlier). This analysis then considers whether the incremental contribution of the Beach Chalet Athletic Fields Renovation Project to a potential cumulative impact would be considerable. Both conditions must apply in order for a project's cumulative effects to rise to the level of significance.

The geographic context for analysis of cumulative impacts on visual resources encompasses Golden Gate Park and surrounding neighborhoods, about 0.5 mile in every direction from the project site, consistent with the distance defined as long-range views. Future cumulative projects that have the potential to affect the overall visual character and views of the project vicinity include construction of a recycled-water treatment facility and a groundwater well facility just south of the project site (including various pipeline improvements), the restoration of the Murphy Windmill and Millwright's Cottage, and bicycle network improvements pursuant to the San Francisco Bicycle Plan, which would improve bicycle routes along segments of Martin Luther King Jr. Drive, John F. Kennedy Drive, and the Great Highway near the project site.

In combination with the proposed project, the surrounding projects in the area would result in a change to the visual character of the western edge of Golden Gate Park and vicinity. However, those projects would not substantially degrade the character of the area. On the contrary, some of the projects, including the renovation of the Murphy Windmill, if undertaken, would be expected to improve the appearance of existing facilities. While the recycled-water treatment facility and the groundwater well facility would introduce a new building and associated facilities into Golden Gate Park, they would be located in an area that has little exposure to the general public.

Although these cumulative projects together would intensify uses in this area, they would not substantially block view corridors or views of visual resources because the visual changes brought about by these projects would largely be independent of one another; that is, observers of one would not simultaneously be able to see another (due to existing and proposed vegetation). The renovated Murphy Windmill could be partially seen, in conjunction with the proposed project, by visitors to the project area. However, views of the renovated windmill would arguably be better as compared with those currently experienced, because the existing

condition of the windmill is somewhat dilapidated. Viewpoints farther away (for example, from the Ocean Beach area), only the blades of the windmill would be visible because eye-level views of the proposed project and the recycled water and groundwater project areas would be primarily obscured by intervening vegetation. Views of the recycled-water treatment facility and the groundwater well facility would be largely obscured by intervening vegetation and it is unlikely that they would be within the same viewshed as the proposed project. The proposed bicycle improvement would be minor and would not involve construction of any new facilities (only restriping of bicycle lanes along John F. Kennedy and Martin Luther King Jr. Drives). Light and glare impacts would also not combine in a way that would result in cumulatively significant impacts, as no substantial sources of lighting are proposed as part of the other nearby projects (the Murphy Windmill, recycled-water treatment facility or the groundwater well facility). Therefore, the project, in combination with these other projects, would not make a considerable contribution to cumulative aesthetic impacts.

No other projects in sufficiently close proximity to the project site are reasonably foreseeable, such that cumulative effects related to visual character, urban design, view corridors, or scenic views, or light and glare would be anticipated. As stated above, the project site is primarily obscured from mid- and long-range vantage points, and from short-range views the project would appear generally consistent with the surrounding park setting and would continue to connect visually to the existing aesthetic character of surrounding area. Therefore, the proposed project's contribution to this impact would not be cumulatively considerable (less than significant).

IV.C Cultural Resources

This section describes historic architectural resources, which include historic cultural landscapes within the vicinity of the Beach Chalet Athletic Fields project area and evaluates the possible project-related impacts on these resources.

Setting

The California Environmental Quality Act (CEQA) requires lead agencies to determine if a proposed project would have a significant effect on historical resources, including archaeological resources. The CEQA Guidelines define a historical resource as (1) a resource in the California Register of Historic Resources (CRHR); (2) a resource included in a local register of historical resources, as defined in Public Resources Code (PRC) Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record. The Beach Chalet Athletic Fields and Restroom building are contributing features of the Golden Gate Park historic district listed on the National Register of Historic Places (NRHP) and thus also the CRHR. Therefore, the site and building are historic resources per the CEQA Guidelines.

The Beach Chalet Athletic Fields site is considered a "cultural landscape," which is defined as a geographic area that has been shaped by human activity. Cultural landscapes can result from a conscious design or plan, or they can evolve as a byproduct or result of people's activities. They may be associated with a historic event, activity, or person, or may exhibit other cultural or aesthetic values.[1] The character-defining features of the Beach Chalet Athletic Fields cultural landscape includes its spatial organization, topography, vegetation, circulation, and buildings. Each of these features is addressed in this chapter. As the only building on the site, the restroom building is treated somewhat differently in terms of its architectural description and evaluation. The Beach Chalet Athletic Fields Restroom Building is referred to simply as the Restroom Building, for purposes of this discussion. Its character-defining features are also addressed in this chapter.

A Historic Resources Evaluation (HRE) was prepared for the San Francisco Planning Department, Environmental Planning (EP) Division.[2] The HRE documents the landscape and architectural inventory for the proposed site and evaluates the potential impacts of the project to historic resources. The HRE was conducted in accordance with professional research and reporting standards established under CEQA and EP, and was prepared by ESA in July, 2011.

[1] United States Department of the Interior National Park Service (NPS), *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques*. Prepared by Robert R. Page, Cathy A. Gilbert, and Susan A. Dolan. Washington, D.C.: NPS, 1998.

[2] ESA, *Beach Chalet Athletic Fields Renovation Project, City and County of San Francisco, Final Historic Resources Evaluation*, July, 2011. (Case No. 2010.0016E). This report is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400.

The findings of the report are presented in this chapter. A Historic Resources Evaluation Response (HRER) was prepared by a preservation technical specialist at the San Francisco Planning Department who reviewed and confirmed the findings of the HRE.[3] The City and County of San Francisco (CCSF) determined that, as a cultural landscape, the Beach Chalet Athletic Fields site is "significant in the … social … [and] cultural annals of California," and is therefore considered a historical resource for purposes of CEQA, under PRC Section 5024.1(g).

CEQA-Area of Potential Effects

The CEQA-Area of Potential Effects (C-APE) includes all areas of proposed ground-disturbing activity and associated staging areas, and is used in the CEQA analysis to define the horizontal extent of potential impacts. The definition of the CEQA-Area of Potential Effects (C-APE) is borrowed from the definition of the federal Area of Potential Effects (APE) at 36 Code of Federal Regulations (CFR) 800.16(d):

> *The APE is the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historical resources* [i.e., CRHR-eligible resources] *if any such properties exist. The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.*

Figure II-6, Proposed Site Plan, in chapter II, Project Description identifies the C-APE. Construction material staging and storage are anticipated to occur entirely within the boundaries of the existing facility.

Other considerations for determining the C-APE include construction information, such as use of equipment or construction methodologies with the potential to generate vibration levels of 0.2 inch per second peak particle velocity (PPV), such as open-trenching, earth grading, directional drilling, and vibratory rollers or compactors. Construction-related vibration can cause structural damage to historical structures if they would occur within 30 feet of such resources.[4] As such, the C-APE is inclusive of any potential for significant vibration resulting from construction equipment or methodologies.

Summary of the History and Development of Golden Gate Park

Golden Gate Park is a 1,017-acre urban park in the western section of San Francisco, California. It stretches 3.5 miles (by 0.5 mile wide) from the center of the city, west to the Pacific Ocean. The park consists of expansive forests interspersed with open meadows and linked by a system of curvilinear paths and roads. Numerous gardens, lakes, and recreational features are located throughout the park, as well as naturalistic forest areas. It was designed as a picturesque park landscape that was influenced by the work of Frederick Law Olmsted, Sr. The park is listed on the National Register of Historic Places (NRHP) and is historically significant under NRHP

[3] San Francisco Planning Department, Memorandum: *Historic Resources Evaluation Response, Beach Chalet Athletic Fields Renovation Project*, from Shelley Caltagirone, July 27, 2011 (Case No. 2010.0016E). This memorandum is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400.

[4] Wilson, Ihrig & Associates, Inc., *Crystal Springs Pipeline No. 2 Noise and Vibration Study, Impacts and Mitigation Technical Memo (Final)*, February 2009.

Criterion A/1 (Events) and Criterion C/3 (Architecture), in the areas of social history and landscape architecture, as one of the pioneering examples of large urban parks in the United States and as the first naturalistic landscape park in the west for the period 1871–1943, which is the "period of significance" for Golden Gate Park.[5,6] The Golden Gate Park NRHP Registration Form provides a complete history of the development of the park's cultural landscape (NPS, 2004:8-44–8-49).

The following information regarding the development of the western edge of Golden Gate Park, Depression-era recreational development in the Park, exterior lighting, and the development of the project site from the 1890s to the present, has been summarized and excerpted from the HRE Report prepared for this project.[7]

Development of the Western Edge of Golden Gate Park

The Beach Chalet Athletic Fields site is located at the far western edge of Golden Gate Park, less than 1,000 feet from the Pacific Ocean and Ocean Beach, in the central portion of the triangular area defined by John F. Kennedy Drive on the north, Martin Luther King Jr. Drive on the south, and the Great Highway on the west. Although no development was undertaken on the actual Beach Chalet Athletic Fields site until 1933, Ocean Beach was a popular destination and various recreation-related developments occurred along the western edge of the park and next to the beach during the late 19th and early 20th centuries. The concepts for developing the Beach Chalet Athletic Fields site during this period were also recreation related, and to provide better understanding of the context for the site's history, a brief summary of the chronological development of the features located within the vicinity of the project site is included below. The description of each feature identifies when it was established, its location, and its status today.[8]

A pedestrian path that runs from along the western edge of the Beach Chalet Athletic Fields site is a remnant of the former right-of-way of the Park & Ocean (P & O) Railroad, which began serving Golden Gate Park in 1883 as a steam railroad, converted to electric streetcars in 1898, and ended service in 1948. The path begins at an abutment on the north side of Martin Luther King Jr. Drive that once supported a rail bridge, and continues behind the Beach Chalet, and under John F. Kennedy Drive, to end at the northern edge of the park at Fulton Street. This path along the former P & O line was re-graded and surfaced with a mixture of sand and base rock during park renovations in 1998.

The Dutch Windmill and its associated millwright's cottage were built in 1903. The Dutch Windmill (originally called the North Windmill) and the Murphy Windmill were built to pump water from the groundwater aquifer for use in the park's irrigation system. However after the

5 United States Department of the Interior National Park Service (NPS), National Register of Historic Places Registration Form. *Golden Gate Park*. Prepared by Douglas Nelson, October 2004.

6 Period of significance denotes is the time when a resource was associated with important persons or events and/or attained the characteristics that qualify it for listing as a historical resource.

7 ESA, *Beach Chalet Athletic Fields Renovation Project, City and County of San Francisco, Final Historic Resources Evaluation*, July, 2011. (Case No. 2010.0016E). This report is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400.

8 Former features no longer extant today are not discussed here.

pumping system was electrified in 1913, they were no longer used for this purpose. The cottage, located east of the Dutch Windmill, burned in 1958, and its masonry ruins were removed at some later date. The Queen Wilhelmina Tulip Garden, on the east side of the windmill, was dedicated in 1962. In 1981, a restoration of the Dutch Windmill was completed. It was also designated as City Landmark No. 147 during the same year. Both the windmill and the Queen Wilhelmina Tulip Garden are identified as contributing resources to the Golden Gate Park NRHP historic district.

In 1907, the Murphy Windmill, located south of the Beach Chalet Athletic Fields site, and its associated lake (no longer present), which stored the pumped irrigation water, were completed. The Millwright's Cottage, immediately west of the windmill, was completed the next year and housed the mill's operator. The windmill was named after a local banker, Samuel G. Murphy, who donated funds for its construction. The Murphy Windmill and the Millwright's Cottage were designated as City Landmark No. 210 in 2000, and both are contributing resources to the Golden Gate Park NRHP historic district. In 2002, the windmill was disassembled and its headcap was shipped to the Netherlands for repair. Restoration work on the windmill was completed in 2011.

In 1925, the Beach Chalet, designed by architect Willis Polk, was completed just northwest of the Beach Chalet Athletic Fields site. The building was individually listed on the NRHP in 1981 and was designated as City Landmark No. 179 in 1985. In 1992, after a long period of decline, restoration work and a seismic upgrade on the building and restoration of its frescos, mosaics, and carved millwork, completed by artist Lucien Labaudt as part of the Federal Art Project in the 1930s, began. The building reopened as the Beach Chalet Brewery & Restaurant in 1996.

The Great Highway, which runs from Point Lobos Avenue south to Skyline Boulevard, defines the western edge of the park. During the early 1900s, the Great Highway was more of an informal roadway that was wide enough for two carriages. The idea of a formal boulevard running alongside the ocean, linking the Cliff House to Lake Merced, was initially conceived by John McLaren around the turn of the 20th century and was reiterated in Daniel Burnham's 1905 plan for the city. However, it was not until 1917 that the Board of Supervisors adopted a resolution to approve the construction of an "Esplanade" along the Great Highway. The road was built in sections, with much of the widening and improvements to the road, which created its formal alignment, occurring between 1927 and 1929 and culminating in the dedication of the Great Highway Seawall and Promenade in 1929. At some point, a pedestrian tunnel was constructed under the highway, connecting the Seawall and Promenade to a pedestrian path that ran on the north side of the Beach Chalet. This pedestrian tunnel was closed or demolished in the 1980s. The width of the highway in the area immediately west of the Beach Chalet was narrowed and the roadway was realigned in the mid 1990s to accommodate the construction of a parking lot in front of the Beach Chalet.

In 1935, CCSF adopted a sewage facilities plan that recommended the construction of three separate sewage treatment plants to serve the city's three natural drainage basins. Plans for the originally named Richmond-Sunset Sewage Treatment Plant (or Richmond-Sunset Water

Pollution Control Plant [WPCP]) were approved in 1937 and the plant was constructed and operating by 1938. The facility was located to the south of the Beach Chalet Athletic Fields. It became obsolete when the City's Oceanside WPCP became operational in 1994. Demolition plans were approved in 1995, and most of the facility was demolished in 1996. The original plant's garage/storage building remains on the site today. The site now also includes the South Windmill Deepwell structure, which is used for park landscape irrigation and was built in 2001, as well as piles of debris associated with park maintenance activities from across the city.

Depression-Era Recreational Development in Golden Gate Park

The onset of the Great Depression drastically limited the resources of the Park Commission and Playground Commission[9] to continue to add facilities at the very time that the demand for services was increasing. Parks and public recreation facilities became increasingly important with the decreased disposable income that resulted from the Depression Era unemployment. The sudden availability of state and federal relief money from the various New Deal agencies—such as the California State Emergency Relief Administration (SERA) (1933–1935); the short-lived Civil Works Administration, which provided money for public works projects for the unemployed during the winter of 1933–1934; and the Works Progress Administration (WPA), which funded projects from 1935 to 1943—provided both funding for projects and an urgency to spend the relief money. Projects built in Golden Gate Park during this period included the addition of Park Presidio through the park, a police academy at 37th Avenue and Fulton Street (now a senior center), the Model Yacht Club basin, Golden Gate Stables, the Park Police Stables, the Bercut Equitation Field, the Angler's Lodge and fly-casting pools, the archery field, a number of restroom buildings throughout the park, and improvements to Kezar Stadium.

The Beach Chalet Athletic Fields and the Restroom Building were added during the Depression Era expansion of recreation facilities in the park. However, it is not clear whether either one was built with funding from one of the relief agencies. The initial work on the site, which had been undertaken by April 1933, occurred before funding for the Civil Works Administration project in Golden Gate Park in November 1933. It is possible that some work at the site may have been accomplished as part of relief money work that was occurring throughout the city through funding by SERA, but no information was found to confirm this. The park's Construction Superintendent recommended to the Park Commission in February 1939 that improvements and alterations to a "convenience station" (i.e., public restroom) at the fields be submitted to WPA as a possible project; it is not known if this project was submitted to WPA or if it was approved. Under a park and beach improvement project, work was undertaken in what was then called the "West Meadows" between October 1935 and December 1937.

[9] Before 1950, the Park Commission and Recreation Commission (called the Playground Commission before 1932) were separate entities and oversaw separate departments. In this section, "Park Commission" is used when the reference is before 1950 and "Recreation and Park Commission" after the commissions were combined in 1950.

Exterior Lighting in Golden Gate Park

The use of exterior lighting in Golden Gate Park began with the Midwinter Fair in 1894. By 1912, this lighting system became obsolete in many places and had been partially damaged by the 1906 Earthquake. Illumination on the main roads of Golden Gate Park was boosted within the park in 1916, when the Park Commissioners granted a permit to the Pacific Gas and Electric Company to install a new lighting system and appropriated $5,000 for the effort. The plans called for some 100 poles to be erected from the Stanyan Street entrance to the Great Highway and along one unnamed crossroad between the Richmond and Sunset sides of the park. The poles would be 12 feet high and include a 150–200 candlepower light source, with lamps designed so that the bulk of the light would hit the roadway.

The first known mention of lighting on a Golden Gate Park recreation field occurred in 1920, when experimental nighttime lighting of the Golden Gate Park Tennis Complex was installed for a tennis exhibition. However, the lighting was not made permanent, possibly because of some concern about the safety of the women players, since the path over which the players had to walk to get to the courts were not lit at night. It is not known if this experiment only lasted for this one exhibition match or until the lighting was removed, but no court lighting exists today.

Currently, Kezar Stadium is the only illuminated recreation field within Golden Gate Park. The original Kezar Stadium, constructed in 1925 and demolished in 1989, did not originally have nighttime lighting. However, lighting was added and at the time of demolition lighting consisted of six metal open truss towers with lights on top that sat outside the oval-shaped stadium. Today a number of lighting systems exist at the stadium, including posts with street lights around the upper-level pedestrian oval and two stadium lights behind the concession buildings on each side of the stadium.

There are also street lights on most streets within the park. Some of these were installed after Proposition A bond measure was passed by voters in 1992. The posts are modeled on a traditional form used in the park of reinforced cast concrete with a colored concrete and exposed aggregate finish, topped by a small-scale clear polycarbonate shade; the junction plate on the base is painted cast metal and bears "G. G. Park San Francisco" in raised letters.

Evolution of the Beach Chalet Athletic Fields Site

Plans for developing the land at the western edge of the park—the Beach Chalet Athletic Fields site—into some type of lake for swimming, and later boating, were discussed for decades without any construction taking place. At the time of the original suggestion in 1894, W. W. Stow, the president of the Park Commission, pursued the idea of finding a donor to pay for the construction of an 800-foot-long by 400-foot-wide lake that would be supplied with ocean water for boating and have two bathing tanks for swimming. The lake never became a reality, and from the 1900s through the early 1930s only a scattering of shrubs and trees existed on the site. In 1933, during the Depression-Era expansion of recreation facilities within the park, the Beach Chalet Athletic Fields were constructed at the site. Some amount of work at the site had been undertaken by April 1933, when the Park Commission meeting minutes for April 19 referred to

the area, under Resolution No. 24, as the "new meadow at the west end of Golden Gate Park"; however no description of the work that had occurred was provided. Four months later, the site was referred to as the "new recreation field" (under Resolution No. 39 in the meeting notes for August 22nd), and on October 5th the commission voted to approve the addition of a baseball diamond and permanent backstop for the "recreation field directly east of the Beach Chalet." By the following January, the field area was being used for team sports, and articles in the *Oakland Tribune* announced a rugby match and then the results of a game between the Claremont Rugby Club and Lane Hospital at the "Chalet Field". In July 1934, the paper reported on a cricket match at the fields. A 1937 guide to the park listed the area as the "Chalet Foot Ball Field" and described it as having room for five fields that were used for soccer and rugby.

The area between Main Drive (John F. Kennedy Drive) on the east and the P & O streetcar tracks and a windbreak along the Great Highway to the west were sloped down from Main Drive, and then graded to create the recreation fields. The grading necessitated cutting into the existing slopes on the north and east sides and resulted in the field area being surrounded or enclosed by slopes along the north and east. The field area was surrounded by existing vegetation on all four sides, but trees were planted on the more open slopes around the northeast corner to reinforce the visual screen in this location. Additionally, trees or shrubs were planted in the area in front of a convenience station located within a stand of existing trees at the south end of the field area; this planting was probably meant to buffer the view of the building from the fields. The fields were planted with grass which contrasted with the sparse, nonirrigated vegetation of the ground in the surrounding woodland areas. This contrast denoted the end of the field grade and the transition to the existing slope of the woodland area. The field area formed a rectangle that was approximately 400 feet wide (from east to west) by 900 feet long (from north to south). The field area extended north at the northwest corner for another 200 feet to form a gradually narrowing extension, which was defined by the curving hillside on the east and row of vegetation between the field area and the P & O streetcar track to the west. An unpaved path led from the end of this extension over to the P & O line, which could be crossed to reach a path leading over to the Great Highway. The vehicular connection into the field area was from an unpaved road from Main Drive down the slope to the northeast corner.

Based on brief references in the Park Commission meeting notes, a "convenience station" for the fields was built around this same time; however none of these references have any descriptive information on this building. Funding for a "convenience station" was approved in Resolution No. 24 on April 19, 1933. Based on a subsequent reference in the Park Commission minutes and a review of historical aerial photographs, this building was originally located at the south end of the fields and not at the present-day location east of the fields. The construction of the sewage treatment plant required the removal of the original (1933) building, which was either moved or reconstructed in a similar form, around 1938 or 1939, to its current location on the slope east of the field area and set within a stand of existing trees.

The sewage treatment plant was completed immediately south of the recreation fields in 1938. This facility bordered the entire south end of the field area and wrapped around its southeast corner. Its construction removed the stand of trees that originally bordered the south end and

changed the setting along the south end of the field area. Initially park woodland extended from the south edge of field area out to South Drive (Martin Luther King Jr. Drive); this woodland was similar in appearance to that along the north and east sides of the field area. The transition between the woodland and fields was lost on this south side and views were changed after the construction of the sewage treatment plant. A row of plants was added to this south end to provide some screening between the fields and treatment plant; however, this narrow band of vegetation was different in character to the woodland vegetation that existed on the other sides of the field area.

During the 1940s, the characteristics of the recreation fields landscape were basically unchanged, although by the mid 1940s, an unpaved road or path had been added to the area north of the recreation fields landscape, between John F. Kennedy Drive and the P & O track alignment, and the far northwest corner of the field area connected to this path.

Between 1952 and 1959, the northern half of the Beach Chalet Athletic Fields was used as a temporary Cold War military installation, which was part of a precursor program to the Nike Missile Program. The Beach Chalet Athletic Fields site was ideally suited to the mission's requirements, since the site was near the Golden Gate but was completely hidden from the casual park visitor's view by the mature forest surrounding the site. During this period, the U.S. Army has installed an anti-aircraft gun emplacement. When the Nike sites became operational, the defense areas were no longer required, and in 1959, the north end of the field area was restored and returned to recreational use.

The south half of the field area remained under the control of CCSF during this period. A road was added from John F. Kennedy Drive, down the hillside to the Restroom Building, to provide access to the fields and restroom. Some of the vegetation in the vicinity of the Restroom Building was removed, such that the areas to the north and east became more open and, as a result, the building became more visible. Also by this time, additional vegetation had been added to the west side of the fields, and thus the groups of trees along the west side of the fields had evolved into a more solid border.

Recreation and Park Commission minutes and historic aerial photographs, maps, and books indicate that the recreation fields were used for soccer, football, rugby, cricket, and softball until the early 1960s. Since then, the fields have been used almost exclusively for soccer and occasionally for special events, such as the 1997 Summer of Love concert and the 2001 Fifth Annual Friends of Recreation & Parks Multicultural Kite Festival.

The most noticeable alterations to the landscape over the last five decades occurred sometime in 1968–1969, when a parking lot was added east of the Restroom Building and some of the vegetation surrounding the building were removed. By the late 1960s the interior of the Restroom Building had fallen into disrepair and many of the bathroom fixtures were non-operational. The interior was eventually rehabilitated at some later time, likely in the early 1970s, judging from the type of industrial, stainless steel bathroom fixtures currently in place. It was likely around this same time that the dressing/shower rooms were closed to the public and converted into the

locked storage rooms that exist today. In the 1980s, the pavement around the Restroom Building was expanded, further eroding the building's original setting and connection to the landscape. Additionally, the original Spanish tile roof of the Restroom Building has been removed, and an asphalt shingle roof now exists, which outward appearances suggest has been installed within the last 10 years.

Around 1998, a chain link fence was added around the athletic field defining and enclosing a large rectangular area to limit access to the athletic fields to allow grass to re-grow when the fields were not in use. This addition altered the way the fields are perceived and used, and it divided the field-area ground plane into multiple areas—the rectangular "field" area within the fence; narrower sections of "lawn" outside of the fence on the north, west, and south sides, and along the north end of the east side; and a broader lawn area around the Restroom Building. The expansive feeling of one large grassed plane extending across the field area has been interrupted by the presence of the fence.

In 1996, the Richmond-Sunset WPCP, immediately south of the recreation fields, was demolished. The removal of this facility did not result in any changes to the field area.

Research Methods and Results

The methodology used in the completion of the cultural resources evaluation included a records search and literature review of all pertinent records and field surveys. Each of these methodologies and their findings is described below.

Records Search and Literature Review

The focus of the research was the history and evolution of the Beach Chalet Athletic Fields cultural landscape and the Restroom Building. Repositories that were consulted included the San Francisco Public Library, including the San Francisco History Center and the San Francisco Historical Photo Collection, the Golden Gate National Recreation Area Park Archives, the California Historical Society Baker Library, the Pacific Aerial Surveys' collection, the David Rumsey online map collection, Earth Sciences and Map Collection Library at the University of California, Berkeley, and a variety of online repositories. Additionally, the collection of historical information compiled by Christopher Pollock as part of his ongoing research on Golden Gate Park was also reviewed. This collection includes San Francisco Recreation and Park Commission (Recreation and Park Commission) minutes and reports,[10] historic photographs, historic postcards, historic brochures, historic maps, historic books and clippings, and files assembled for his two books on the park.[11]

[10] Before 1950, the Park Commission and Recreation Commission (called the Playground Commission before 1932) were separate entities and oversaw separate departments. In this report, "Park Commission" is used when the reference is before 1950 and "Recreation and Park Commission" after the commissions were combined in 1950.

[11] Pollock, Christopher. *San Francisco's Golden Gate Park: A Thousand and Seventeen Acres of Stories*. Published by Graphic Arts Center Publishing Co., 2001. And Pollock's *Golden Gate Park: San Francisco's Urban Oasis in Vintage Postcards*. San Francisco: Arcadia Publishing, 2003.

The history and significance of Golden Gate Park are provided in the Golden Gate Park National Register of Historic Places Registration Form, prepared by Douglas Nelson[12] and in the *Golden Gate Park Master Plan.*[13]

Historical maps, newspaper photographs, newspaper articles, and guide or picture books of the park provided limited information on the Beach Chalet Athletic Fields site before the fields were constructed in 1933. No information was found about the design and construction of the fields or restroom building, and no historical plans were found for these features in SFRPD's archive of digitized plans. Brief references in the Park Commission minutes and annual reports helped to identify the date of construction, and newspaper articles provided information on its early use for a variety of sports other than soccer. The review of the aerial photographs in the San Francisco History Center, primarily from Pacific Aerial Surveys from 1935 to 2001 provided the most detailed information on the evolution of the Beach Chalet Athletic Fields cultural landscape. Local historian John Martini provided the initial identification of the anti-aircraft guns on the field in the 1950s and identified information in the Golden Gate National Recreation Area Archives that was then reviewed by Cate Blainton and Mary Nelson who prepared a Historic American Landscapes Survey (HALS) inventory form on the "Chalet Recreation Field at Golden Gate Park" for the HALS Northern California Chapter.[14] Additionally, a number of National Park Service publications were consulted. A records search was also conducted at the Northwest Information Center of the California Historical Resources Information System on August 9, 2010 (File No. 10-0143) by ESA for the San Francisco Public Utility Commission's San Francisco Westside Recycled Water Project. The recycled water project C-APE includes the former Richmond-Sunset WPCP, Martin Luther King Jr. Drive, John F. Kennedy Drive, and thus includes all areas in the immediate vicinity of the Beach Chalet Athletic Fields C-APE. The purpose of the records search was to (1) determine whether known cultural resources have been recorded within or adjacent to (within 0.5 mile of) the recycled water project C-APE; (2) assess the likelihood for unrecorded cultural resources to be present, based on historical references and the distribution of nearby sites; and (3) develop a context for the identification and preliminary evaluation of cultural resources. Because the recycled water project records search included all areas within 0.5 mile of that project C-APE, which is larger than and surrounds the Beach Chalet Athletic Fields C-APE, the records search conducted for the recycled water project includes all areas within 0.5 mile of the Beach Chalet Athletic Fields C-APE. The records search for that project consisted of an examination of the following documents, all of which were also used to prepare this document:

- **Resource Inventories:** The California Department of Parks and Recreation's 1976 *Inventory of Historical Resources, a*nd the California Office of Historic Preservation's *Historic Properties Directory for the City and County of San Francisco* (through April 2011).

[12] United States Department of the Interior National Park Service (NPS), National Register of Historic Places Registration Form. *Golden Gate Park*. Prepared by Douglas Nelson, October 2004.

[13] Royston Hanamoto Alley and Abey et al. *Golden Gate Park Master Plan*. San Francisco: Recreation and Park Commission, October 1998.

[14] Blainton, Cate and Mary Nelson. *Chalet Recreation Field at Golden Gate Park (Beach Chalet Athletic Fields, HALS No. CA-49-A. Historic American Landscapes Survey Inventory Form* prepared for the HALS Northern California Chapter. January 2011

- **Historic Background Sources:** Plans, maps, and historical overviews from the San Francisco Department of Public Works, National Park Service NRHP Nomination for Golden Gate Park [also identified above], San Francisco Public Library Historic Photo Collection [also identified above]), published sources by the Sunset-Parkside Education and Action Committee (SPEAK), and online sources at the Western Neighborhoods Project.[15]

- **Historic Maps:** An extensive online historic map collection with over 300 maps and views of San Francisco is available online at http://davidrumsey.com; H.W. Faust's 1890 *Map of the City and County of San Francisco, California;* Sanborn Insurance Company, Fire Insurance Maps of San Francisco, available online at http://sanborn.umi.com/splash.html; General Land Office/Rancho plats of San Francisco Pueblo and Rancho Laguna de la Merced.

- **City Records:** A review of San Francisco historical landmarks, as well as city Tax Assessor information, also was accessed.

Records Search and Literature Findings

Recorded Historical Resources Within the C-APE

The records search indicated that two contributors to the Golden Gate Park National Register Historic District have been recorded within C-APE: the Beach Chalet Athletic Fields and the Restroom Building. Detailed descriptions of each of these resources and their character-defining features are described below under the subheading *Evaluation and Findings.*

Recorded Historical Resources Outside of, but Adjacent, to the C-APE

There are two previously recorded historic resources located outside of, but adjacent to, the C-APE. These include the Murphy Windmill and Millwright's Cottage (considered one resource), and the Beach Chalet. Each of these is described below.

The Murphy Windmill and Millwright's Cottage were built in 1908 and 1909, respectively. Although the windmill is currently undergoing extensive restoration, the windmill and Millwright's Cottage are listed as City of San Francisco Landmark no. 210 and are contributors to the Golden Gate Park National Register Historic District. These resources are located approximately 350 feet south of the C-APE. The Murphy Windmill and the associated Millwright's Cottage are considered historical resources for CEQA purposes.

The Beach Chalet, constructed in 1925, is listed as City of San Francisco Landmark No. 179. It is also listed on the NRHP as an individual resource, and is a contributor to the Golden Gate Park National Historic District. The Beach Chalet is located approximately 200 feet northwest from the C-APE. The Beach Chalet is considered a historical resource for CEQA purposes.

[15] Western Neighborhoods Project, Western Neighborhoods Project, www.outsidelands.org/index.php (accessed various dates in, 2011)

Field Surveys

Denise Bradley, ASLA, conducted an intensive-level survey of the Beach Chalet Athletic Fields cultural landscape on April 6, 7, and 8, 2011, and recorded the cultural landscape with photographs and field notes, which were then used in preparing the DPR523 A and B record for the fields as a cultural landscape. On April 6, Ms. Bradley and Christopher Pollock conducted a reconnaissance-level review of other historic resources outside of the C-APE, but along the western edge of Golden Gate Park, to better understand the landscape context that surrounds the Beach Chalet Athletic Fields and the Restroom Building. They reviewed the Murphy Windmill and Millwright's Cottage, the site of the former Richmond-Sunset WPCP, remnants of the nonextant P&O Railroad alignment, the Dutch Windmill and related features (maintenance buildings, the concrete reservoir north of the windmill, various maintenance structures, pedestrian paths, and the sites of certain non-extant features.

Brad Brewster, ESA architectural historian, conducted an intensive-level survey of the Beach Chalet Athletic Fields Restroom Building on April 11, 2011, and recorded the building with photographs and field notes, which were then used in preparing the DPR523 A and B record.

Evaluation and Findings

Golden Gate Park NRHP Historic District

Golden Gate Park is listed on the NRHP and is historically significant under Criterion A/1 (Events) and Criterion C/3 (Architecture) in the areas of social history and landscape architecture as one of the pioneering examples of a large urban park in the United States and as the first naturalistic landscape park in the west.

The Golden Gate Park NRHP Registration Form provided the following summary statement of significance:

> *Golden Gate Park, begun in 1871, has national significance for listing on the National Register of Historic Places under Criterion C, for landscape architecture, as one of the pioneering examples of the large urban park in the United States. It is the first application of Olmsted park design principles in the western United States. Golden Gate Park is also the first park to be created on reclaimed land that was barren and unwelcoming, resulting in a landscape transformation that was unprecedented. Golden Gate Park was also important in advancing the field of park design by successfully integrating active recreation features into the Romantic landscape. Golden Gate Park also has regional significance under Criterion A for social history as the first naturalistic landscape park in the west. At the time of the park's conception, San Francisco was the only large city in the west. City leaders sought to provide its residents, both rich and poor, the social benefits afforded by a naturalistic park as a foil to the pressures of urban life. This was a major advancement for San Francisco, and the West, helping transform the city from a western outpost to a progressive city comparable to its eastern counterparts. As a work of landscape architecture it has endured the test of time and remains a vibrant landscape of function and beauty. Much of the original park developed during the period of significance is still present and maintains its integrity. Its significance in social history is its role in advancing the importance of parks in society for improving the quality of peoples' lives. Golden Gate Park was a pioneering effort that required great vision and courage to develop* (NPS, 2004:8-39).

The Golden Gate Park NRHP Registration Form states that the period of significance begins in 1871 and ends in 1943:

> *The period of significance, 1871 to 1943, covers the years from the start of construction through the tenure of John McLaren as Superintendent. 1943 also marks the World War II years that brought an end to the New Deal construction projects, which included some significant recreation features such as the Angler's Lodge, the Model Yacht Club and the Stables. The period of significance encompasses all major elements in the park that are considered historic. It also includes the period that the park was under the leadership of William Hammond Hall and John McLaren. William Hammond Hall served as surveyor, park engineer, the park's first superintendent (1870-1876), and as a park consultant from 1886 to 1890. He is most responsible for the plan and initial development of the park. John McLaren was park superintendent from 1890 until his death in 1943. He is credited with implementing much of Hall's original vision. McLaren continued the development of the park and the addition of many significant features during his 53-year tenure. (Between Hall and McLaren, there were three other Superintendents—William Bond Prichard was appointed park superintendent in 1876 and served until 1881. F.P. Hennessey and John J. McEwen served as superintendents for short periods during 1881 and 1882, after which the position was vacant until William Hammond Hall's return in 1886.)* (NPS, 2004:8-39).

Beach Chalet Athletic Fields and Restroom Building as Contributing Resources to the Golden Gate Park NRHP Historic District

The Beach Chalet Athletic Fields are listed as one contributing site in the Golden Gate Park NRHP Registration Form. The Beach Chalet Athletic Fields Restroom Building is listed as a contributing building.

The NRHP Registration Form did not provide a description of either of these resources, and separate DPR523 Records were prepared for the Beach Chalet Athletic Fields and the Restroom Building to provide the history of the site's evolution and a description of the cultural landscape and restroom to identify the character-defining features that convey their historical significance as contributing resources to the Golden Gate Park NRHP Historic District.

The Beach Chalet Athletic Fields cultural landscape was added to Golden Gate Park in 1933, during the Depression Era expansion of recreation facilities in the park. The Restroom Building, located on a slope to the east of the fields, is an integral part of the Beach Chalet Athletic Fields cultural landscape, although the current building was relocated (or reconstructed in a similar form) to its current location on the east side of the fields when the Richmond-Sunset WPCP was built in 1938. The Restroom Building is stylistically similar to many of the other public restrooms found throughout Golden Gate Park that were built before World War II, with their plaster walls painted light green to blend in with the landscape, hipped roofs with open eaves, and minimal Spanish Revival style of architecture.

Potential for Individual Significance

The Beach Chalet Athletic Fields cultural landscape was evaluated for its potential to be individually significant under either the CRHR or NRHP criteria. After a review of the history of the Beach Chalet Athletic Fields, it does not appear that this cultural landscape is individually significant under Criteria A/1 (History), B/2 (Person), or C/3 (Design).

It is not clear if either the Beach Chalet Athletic Fields or the Restroom Building was built with funding from one of the New Deal era relief agencies. Their stronger associations are as part of the development of Golden Gate Park within its period of significance. No important person is linked with the Beach Chalet Athletic Fields. Although John McLaren undoubtedly shaped the design for this area, he did the same for all modifications to the park during his tenure, and there is no individual significance to his association with the Beach Chalet Athletic Fields cultural landscape or the Restroom Building. The significance of the design of the Beach Chalet Athletic Fields as a cultural landscape derives from how it fits within the design of this part of the park to form an integral part of the woodland landscape, and not from any individual significance related to the design.

The Restroom Building was also evaluated for its potential to be individually significant under either the CRHR or NRHP criteria. After a review of the history of the Beach Chalet Athletic Fields, it does not appear that this building is individually significant under Criteria A/1 (History), B/2 (Person), or C/3 (Design). The building plays a secondary and supporting role to athletic fields facility, as well as fulfills its utilitarian function, rendered in a minimal Spanish Revival style of architecture. Research did not identify any important persons associated with the Restroom Building. For these reasons, it does not appear individually significant.

Potential for Significance in Relationship to the Development of the West End of the Park

Ocean Beach was a popular destination, and various recreation-related developments occurred in its vicinity and along the west end of the park during the late 19th and early 20th centuries. However, while these features (such as the U.S. Life-Saving Station [1878-1959], the P & O Railway [1883–1948], and the Beach Chalet [1925–present]) were linked somewhat by their location near the beach, no integrity remains to this rather loose association. Additionally when development finally occurred within the Beach Chalet Athletic Fields site in 1933, it was related to the need for additional sports fields within the city and not to any association with recreational features at Ocean Beach. For this reason, there does not appear to be any separate significance in the relationship between the Beach Chalet Athletic Fields or the Restroom Building and the west end of the park, beyond their previously defined significance as part of the Golden Gate Park NRHP historic district.

List of Character Defining Features – Beach Chalet Athletic Fields

The character-defining features of the Beach Chalet Athletic Fields cultural landscape include the following:

- **Spatial Organization:** Its spatial organization consists of an expansive plane (the fields) surrounded by sloping woodland along its north end and east side and by bands of mature vegetation on its south end and west side. This spatial organization—the field surrounded by trees/shrubs—gives the field area the appearance of being set within the park's woodland.

  The central feature within the landscape is the field area, which is an opening in the woodland that covers approximately 8.5 acres. It has a rectangular form approximately 400 feet wide (from east to west) and about 900 feet long (from north to south). However,

the edges of the field area are not strictly linear, and the interface with the vegetation around it is maintained in a manner that softens these edges. Additionally, an extension of the field area at the northwest corner softens the rectangular form. Here the level ground extends north for about 100 feet to form a gradually narrowing extension of the field area; this extension is defined by the curving hillside and vegetation on the east side and vegetation between the fields and a pedestrian path to the west.

- **Topographic Characteristics:** Its character-defining topographic characteristic consists of the contrast between the graded field area and the surrounding "unaltered" topography of the man-made park—the sloping hillsides to the north and east and the slight decline to the west. (The topography to the south was altered by the Richmond-Sunset WPCP, and after the plant's construction in 1938, the topography no longer exhibited "woodland" characteristics.)

- **Vegetation Features:** Character-defining vegetation features include the grass in the field area and the stands of vegetation that surround it, which are primarily composed of mature Monterey cypress trees (*Cypressus macrocarpa*) and myoporum shrubs (*Myoporum laetum*). The stands of trees and shrubs along the north and east sides are part of the broader wooded areas of the surrounding park land. The trees and vegetation along the south side are growing in a more defined area. Along the south end, the vegetation is growing in the narrow space between the end of the fields and the beginning of the former WPCP site. The vegetation along the west side is located in a bed between the field area and a pedestrian path to the west. A windbreak between this path and the Great Highway adds another layer of vegetation to the area west of the fields. A reforestation project under way to the west of the fields is characteristic of rehabilitation that must occur periodically with vegetation features, and the northern half of the bed along the west side of the field area has young plants interspersed with the older vegetation.

- **Building and Structures:** The Restroom Building on the slope overlooking the east side of the fields is the only character-defining building or structure within the Beach Chalet Athletic Fields cultural landscape (see discussion of this building's character-defining features, below).

- **Circulation Features:** During the park's period of significance, circulation connections into the Beach Chalet Athletic Fields cultural landscape included an unpaved road from John F. Kennedy Drive to the northeast corner of the fields and pedestrian connections from informal park paths. The road is no longer extant. The current informal, unpaved pedestrian connections at the northwest corner of the field area and along the field's west side that connect to the surrounding park paths are characteristic of the pedestrian connections during the period of significance.

The most noticeable alterations to the cultural landscape since the end of the period of significance in 1943 have been the addition of the parking lot and entrance road from John F. Kennedy Drive in 1968–1969 and the addition of the chain-link fence around the fields that occurred around 1998. The addition of the parking lot required changes to the site's topography and vegetation. The slope area east of the Restroom Building was graded to create a relatively level terrace for the parking lot, and a short entrance road was added between John F. Kennedy Drive and the northeast corner of this lot. The vegetation that was cleared from this area and from the south side of the Restroom Building as part of this project has resulted in a more open slope east of the field area than was

historically the case, has altered the setting, and has lessened the feeling of connection between the fields and the surrounding woodland at this particular location.

The chain link fence that was added around 1998 encloses a large rectangular area and limits access to the athletic fields when they were not in use in order to preserve the condition of the turf grass for athletic use. This addition has altered the way the field area is perceived and used, and divides the ground plane into multiple areas—the rectangular "field" area within the fence; narrower sections of "lawn" outside of the fence on the north, west, south sides, and along the north end of the east side; and a broader lawn area around the Restroom Building. The expansive feeling of one large grassed plane extending across the landscape—a key character-defining characteristic of the spatial organization of the site—has been interrupted by the presence of the fence.

The final major change that has occurred to the cultural landscape is the setting immediately around the Restroom Building. Originally, this building was surrounded by trees on its north, east, and south sides and was a less visible feature within the landscape. Additionally, the asphalt pavement around the building (added in the 1980s) has further eroded its original setting and connection to the landscape.

However, even with these changes, the Beach Chalet Athletic Fields cultural landscape retains its key character-defining features as listed above, and retains its integrity of location, design, materials, workmanship, setting, feeling, and association. In summary, because the Beach Chalet Athletic Fields cultural landscape retains these character-defining features and integrity, it remains a contributing resource to the Golden Gate Park NRHP Historic District.

List of Character Defining Features – Beach Chalet Athletic Fields Restroom Building

The ca. 1938–39 public restroom at the Beach Chalet Athletic Fields, the Restroom Building, is a single-story structure with an irregular plan, a hip roof clad in asphalt shingles, and painted plaster walls over board-formed concrete. Construction is reinforced concrete, with a concrete slab foundation, and a wood-frame roof. The exterior walls have expressed pilasters and corners, and a flared concrete base. Scrolled wooden rafter tails support the unenclosed roof eaves. Metal flashing is located along the entire roof cornice. Fenestration is minimal, and consists of concrete-framed, multi-port window vents located high on the wall surfaces, and open doorways covered with steel security doors. Florescent lights covered in wire cages are found on the front (west-facing) and side (north- and south-facing) elevations. A wood-frame cabinet and stainless steel drinking fountain are attached to the front elevation. The interior is divided into two primary spaces: restrooms and storage. The men's and women's restrooms are oriented toward the front (west-facing) elevation, and storage rooms are oriented toward the rear (east-facing) elevations. The restrooms are accessed from the front elevation, while the storage rooms are accessed from within the interior. The restroom interiors are comprised of concrete floors, painted plaster walls and ceilings, wood-frame stall dividers, and newer industrial stainless steel fixtures.

The character-defining features of the Beach Chalet Athletic Fields Restroom Building include the following:

- Location on a slope on the eastern side of the athletic fields
- Irregular plan
- Hip-shaped roof form
- Carved wood rafter tails and open eaves
- Board-formed concrete walls clad in painted plaster
- Expressed pilasters and flared base
- Concrete-framed multi-port window vents
- Open restroom doorways

Interior alterations completed in the early 1970s, such as replacement stainless steel bathroom fixtures and dividers, as well as the interiors of the dressing rooms that were converted into locked storage rooms, would not be considered character-defining features of the building. The steel doorway covers, exterior lighting, chalk board, drinking fountain, and asphalt shingle roofing also would not be considered character-defining features of the building, as they are all recent alterations to the building.

Despite its visible exterior and interior alterations, the building retains integrity of location, design, materials, workmanship, setting, feeling, and association. The building's relocation from the south side of the fields to the east side, or construction of a facility in a similar form, was completed early in its history and within the Golden Gate Park's period of significance (which ended in 1943). As such, it retains integrity of location.

In summary, because the Beach Chalet Athletic Fields Restroom Building retains these character-defining features and integrity, it remains a contributing resource to the Golden Gate Park NRHP Historic District.

Regulatory Framework

State Regulations

The State of California implements the National Historic Preservation Act (NHPA) of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Register of Historical Resources

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1[a]). The criteria for eligibility to the CRHR are based on NRHP criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be

automatically included in the CRHR, including California properties formally determined eligible for or listed in the NRHP.

To be eligible for the CRHR, a historical resource must be significant at the local, state, and/or federal level. It must be determined that, under one or more of the following criteria, the resource:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,

4) Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c]).

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

Local Regulations of the San Francisco Planning Department

San Francisco Historic Preservation Commission and Planning Code Articles 10 and 11

Created in 2008, the Historic Preservation Commission is a seven-member body that makes recommendations to the Board of Supervisors on the designation of landmark buildings, historic districts, and significant buildings. The Historic Preservation Commission replaces and retains most of the responsibilities of the former Landmarks Preservation Advisory Board (Landmarks Board). The Landmarks Board was a nine-member body, appointed by the mayor, which served as an advisory board to the Planning Commission and the Planning Department. The Landmarks Board was established in 1967 with the adoption of Article 10 of the Planning Code. The work of the Landmarks Board, the Planning Department, and the Planning Commission has resulted in an increase of public awareness about the need to protect CCSF's architectural, historical, and cultural heritage.

The Historic Preservation Commission reviews and approves Certificates of Appropriateness for building permit applications that involve construction, alteration, or demolition of landmark sites and resources located within historic districts. The Historic Preservation Commission may also review and comment on projects affecting historical resources that are subject to environmental review under the CEQA.

Article 10 of the Planning Code describes procedures regarding the preservation of sites and areas of special character or special historic, architectural, or aesthetic interest or value, such as officially designated city landmarks and buildings included within locally designated historic districts. Article 11 of the Planning Code designated six downtown conservation districts.

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to cultural resources, but generally considers that implementation of the proposed project would have a significant impact if it were to:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.

Approach to Analysis

The analysis considers direct and indirect impacts on historical resources within the C-APE. Potential impacts on historic resources are assessed by determining whether project activities would affect any such resources that have been identified as historical resources for the purposes of CEQA. Most historical resources are significant because of their association with important events, people, or design (National Register Criteria A, B, and C / California Register Criteria 1, 2, and 3).

Once a resource has been identified as significant, it must be determined whether the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines 15064.5[b]). A substantial adverse change in the significance of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historical resource would be materially impaired" (CEQA Guidelines Section 15064.5[b][1]). The significance of an historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the California Register (CEQA Guidelines Section 15064.5[b][1] and [2]).

A project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or the *Guidelines for Rehabilitating Historic Buildings* is generally considered to have mitigated impacts on historical resources to a less-than-significant level (CEQA Guidelines Section 15064.5[b][3]). Similarly, the *Secretary of the Interior's Standards with Guidelines for the Treatment of Cultural Landscapes* (NPS, 1996) provides guidance about the appropriate rehabilitation of historic landscape features, such as spatial organization, topography, vegetation, buildings and structures, and circulation. As such, the Standards for Cultural Landscapes were used to evaluate the proposed change to the Athletic Field's landscape features, while the Standards for Historic Buildings were applied to changes to the Restroom Building.

The Standards are not to be construed as CEQA significance criteria. Although compliance with the Secretary's Standards may indicate that a project would have a less-than-significant impact on an historical resource, a project that does not comply with the Secretary's Standards does not, by definition, result in a significant impact under CEQA. Alterations that are not consistent with the

Secretary's Standards may, or may not, result in a significant impact under the "material impairment" significance standard of CEQA Guidelines Section 15064.5(b)(1).

Impact Analysis

Impact CP-1: The proposed project would cause a substantial adverse change in the significance of a historic resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code. (Significant and Unavoidable)

The impact analysis is organized by each element of the project - spectator seating installation, grade alterations, synthetic turf installation, tree and shrub removal, circulation path alterations and additions, lighting installation, fencing installation, parking lot expansion, plaza installation, and restroom building alteration - followed by a discussion of how each element would impact the character defining features of the historical resources in the C-APE, and result in "material impairment" as defined by CEQA. Where relevant, each element is also evaluated against the general recommendations of the Secretary of the Interior's Standards, as a project which complies with the Standards.

Spectator Seating Installation

The spatial organization of the field as an expansive plane is considered a character defining feature of the Beach Chalet Athletic Fields. The proposed spectator seating would accommodate up to 1,046 people, and would be located in the northern, central, and southern portions of the field. Bleacher seating located at the end of the field area would consist of concrete with wood slat seats and would be approximately three to four feet tall, depending on their location on the field (see Chapter II, Project Description). The insertion of spectator seating would alter the character defining feature of the spatial organization of the field as an expansive plane. This open, expansive plane would be interrupted by the placement of the 18-inch high center benches, in particular, by bisecting the open field area into two halves. The placement of seating at the northern and southern ends would 'bookend' the currently open field with new seating structures. The new spectator seating would also alter the historic character of the landscape by introducing permanent new structures that are incompatible with the landscape's mass, scale, form, features, materials, texture and color. Seating for more than 1,000 people located in three distinct areas on the field would be highly noticeable new elements on the landscape; a landscape which never contained formalized spectator seating during its period of significance or afterwards. The design of the bleacher and bench seating would contrast with the naturalistic form, features, materials, texture, and color of the existing environment. Because the proposed spectator seating would significantly alter a character-defining feature of the field as an expansive plane, and would introduce incompatible elements to the historic landscape, this element of the proposed project would reduce the Field's integrity. This project element, alone, would not reduce the integrity of the Field to the degree that it loses its ability to convey its historical significance as a contributor to the District. However, this element combined with other proposed elements, described below, would collectively result in a significant impact to a historical resource.

Grade Alterations

The topographical contrast between the graded field surrounded by the sloping hillsides is considered a character defining feature of the Beach Chalet Athletic Fields. A minimal amount of grading would occur in the northeast corner of the field to maintain the warm-up area and trail connection to the Beach Chalet. The overall character defining topography of the site would be minimally altered, and would retain the contrast between the graded fields surrounded by the sloping hillsides. The integrity of the Athletic Fields' topographical characteristics would be generally maintained.

Synthetic Turf Installation

The grass turf is considered a character defining vegetation feature of the Beach Chalet Athletic Fields. Under the proposed project, the grass turf would be replaced by synthetic turf to allow for increased recreational use, reduced maintenance costs, and longer play times on the field. The removal of grass turf and replacement with synthetic turf would alter in an adverse manner a character defining feature of the Athletic Fields. The elimination of grass turf and the introduction of replacement synthetic turf would reduce the Athletic Fields' integrity. This project element, alone, would not reduce the integrity of the Athletic Fields to the degree that it loses its ability to convey its historical significance as a contributor to the District. However, this element combined with other proposed elements, such as the spectator seating described above, and other elements described below, would collectively result in a significant impact to a historical resource.

This project element has been evaluated against the general recommendations provided within the Secretary of the Interior's Standards with Guidelines for the Treatment of Cultural Landscapes (Standards) in order to understand whether the impact of the synthetic turf installation can be considered to be mitigated to a less-than-significant level. As discussed below, this project element does not meet the Standards and, therefore, is not mitigated to a less-than-significant level.

The Standards call for retention of historic vegetation and rejuvenating it, rather than replacement or destruction of the material. Since rejuvenation of the existing grass turf is possible (but would not meet the durability requirement that is critical for extending playing time on the fields), replacement with a synthetic material would not meet this standard.

The Standards also call for replacement of a compatible substitute if using the same kind of material is not technically, economically, or environmentally feasible. In this case, using the same kind of grass turf to replace the existing deteriorated turf is feasible, but does not have the same technical or economic advantages that a synthetic turf replacement material has as required under the project sponsor's objectives for longer play and improved access. The Standards do allow for replacement of historic vegetation with a new compatible feature that conveys the same visual appearance. Synthetic turf has some properties that are visually similar to grass turf (i.e., color), while other properties that are not. For example, the often shinier appearance of synthetic turf at a close distance may be discernable from the more flat visual characteristics of grass turf. In terms of texture, synthetic turf, in general, could have a texture that is somewhat rougher and

more bristly than grass turf, which tends to be softer to the touch. Synthetic turf could have a more uniform look compared with grass turf, which has areas of uneven growth or random blade length and spaces of bare dirt or mud. Even in terms of color, however, synthetic turf can be a lighter or brighter shade of green than grass turf, which is often darker and more mottled in appearance depending on the time of year or the variety of the turf. Since replacement of the grass turf with other grass turf is technically feasible (it just would not meet the project objectives), and the visual appearance of synthetic turf may be noticeably dissimilar from grass turf at close range, the replacement with a synthetic material would not meet this standard.

Finally, the Standards call for compatible new vegetation when required by the new use to assure preservation of the historic character of the landscape. The improved access, increased use and longer play under the project sponsor's objectives are made possible by the use of synthetic turf. However, such a material would not be considered 'compatible vegetation' since it is not vegetation at all, but rather, a man-made product that would entirely replace rather than preserve or maintain a character defining feature (i.e., grass turf) of the Beach Chalet Athletic Fields. While none of the examples provided in the Standards address synthetic turf directly, all examples provided are natural/vegetative in character (trees, hedges, plants, etc.) and are not man-made or synthetic, which indicates that such materials would not be an appropriate substitute for historic vegetation. The Standards also call for the avoidance of new features which may damage historic vegetation or are incompatible with the character of the landscape. As described above, the grass turf would be largely removed and replaced with an incompatible substitute. Finally, the Standards do not recommend alterations that are visually incompatible in terms of its habit, form, color, texture, bloom, fruit, fragrance, scale, or context. Of these factors general vegetation characteristics, only color and texture would apply to the proposed turf replacement. In terms of color, synthetic turf can be a lighter or brighter shade of green than grass turf, which is darker and more mottled in appearance depending on the time of year. In terms of texture, synthetic turf can have a texture which is somewhat rougher and more bristly than grass turf, which tends to be softer to the touch. As such, the replacement with a synthetic material would not meet this standard.

Tree and Shrub Removal

The stands of vegetation that surround the field area are character-defining features of the Beach Chalet Athletic Fields. Some of the individual trees and shrubs within these character-defining stands would be removed as part of the proposed project. Approximately 16 Monterey cypress/Monterey pine and 44 myoporum shrubs would be removed to accommodate the project. Although these character defining elements of the landscape would be removed, they would be replaced in kind at a 1:1 ratio, which would generally maintain these features upon completion of the project and over time. For informational purposes, replacement of significant trees and shrubs in-kind and at a 1:1 ratio would also be consistent with the guidance provided in the Standards. As such, the integrity of the Athletic Fields' trees and shrubs would be generally maintained.

Circulation Path Alterations and Additions

The pedestrian circulation patterns consisting of the current informal, unpaved pathways at the northwest corner of the field area and along the field's west side that connect to the surrounding park paths are character defining circulation features of the Beach Chalet Athletic Fields. These existing, informal connections would remain generally unaltered by the proposed project. Retaining and preserving these character defining circulation features would also be consistent with the guidance provided in the Standards. As such, no significant impact to these existing, character defining features is anticipated.

However, the proposed project would alter historic circulation patterns of the Athletic Fields by including a new American's with Disabilities Act (ADA)-compliant concrete pathway that would encircle the four fields and provide players, spectators, and maintenance staff access to each of the fields, as well as provide connection with existing pedestrian circulation routes within the park and to the pathway at the Great Highway. The introduction of new, formalized, concrete pedestrian pathways would be incompatible with the informal and unpaved pathways that currently exist within the historic landscape. The proposed new pathways would also be visually incompatible in terms of surface treatment, width, edge treatment, and materials because they would add concrete materials and patterns that are incongruous with the landscape's historic character of a grassy field set within the park's woodland. The paths alone would add approximately 0.7 acre of new impervious surface material to the project. The installation of new, formalized, concrete pathways would alter in an adverse manner a character defining feature of the Athletic Fields. This project element would reduce the Athletic Fields' integrity. This project element, alone, would not reduce the integrity of the Athletic Fields to the degree that it loses its ability to convey its historical significance as a contributor to the District. However, this element combined with other proposed elements described here would collectively result in a significant impact to a historical resource. Accordingly, Mitigation Measure M-CP-1 has been proposed.

> **Mitigation Measure M-CP-1:** The circulation paths shall be designed with a more naturalistic and compatible surface material such as decomposed granite, NaturePave (a decomposed granite product with a resin binding agent), or compacted earth in place of the proposed concrete surface materials. The paths shall also be redesigned to create a more informal path edge treatment such as a 'soft' planted edge.

Level of Significance after Mitigation. Although technologically feasible to use, decomposed granite and other similar soft ground materials do not provide an accessible surface for walkways because they are not always stable, firm and slip-resistant. Because of this, it may not be feasible to use such materials and meet the accessibility requirements for the proposed project. Additionally, implementation of Mitigation Measure M-CP-1 alone would not reduce the overall impact to the cultural landscape to a less-than-significant level.

Lighting Installation

The proposed project would include installation of new lighting at the facility. Field lighting would consist of ten 60-foot-tall light standards made of galvanized steel. There would be two light

standards each at the north and south ends of the facility that would be oriented toward the two end fields. The other six light standards would be located between the centermost fields and would have back-to-back light fixtures oriented to illuminate the interior fields. Each light fixture, or assembly, would consist of ten 1,500-watt metal halide lamps. All lighting would be controlled by an automated control system, which would turn lights on at sunset and to turn off all the lights upon field closure at 10:00 p.m. daily. In addition to the field light standards, the project includes 47 approximately 15-foot-tall pedestrian pathway light standards and 13 approximately 18-foot-tall parking lot light standards, which would also be controlled by an automated control system.

As described above in the Historic Context section, the first known mention of lighting on a Golden Gate Park recreation field occurred in 1920 at the tennis complex. This lighting was later dismantled and the courts currently have no nighttime lighting. Kezar Stadium is currently the only illuminated recreation field within Golden Gate Park although eleven other park facilities and attractions are lit for evening use, including the Beach Chalet, and are identified in the Golden Gate Park Master Plan as "Night use areas". Although the stadium was constructed in 1925, lighting was not added to this facility until 1989. Street lighting throughout the park began in earnest in 1916, and today, there are street lights on most streets within the park, including John F. Kennedy Drive outside of but adjacent to the project site. Most of these lights are 1920s-era replicas installed in the 1990s. Aside from street lights and pedestrian-scale lighting surrounding the Beach Chalet, the Beach Chalet Athletic Fields and most of the western end of Golden Gate Park, has no historical precedent with regard to electrical illumination.

The addition of ten new 60-foot-tall steel lamp poles would be a highly visible new addition to the landscape, not only during the day, but also at night in an area of the park which has been historically dark at night. The addition of new poles and lights would alter the character defining land patterns within the Athletic Fields by introducing a large-scale lighting element which is incompatible with the informal and naturalistic character of the fields. Similar to the installation of spectator seating, the addition of new light poles at the center and ends of the field could also alter the character defining feature of the spatial organization of the field as an expansive, uninterrupted plane. The introduction of field lighting would reduce the Field's integrity. This project element, alone, would not reduce the integrity of the Field to the degree that it loses its ability to convey its historical significance as a contributor to the District. However, this element combined with other proposed elements, such as the spectator seating and synthetic turf described above would collectively reduce in a significant impact to a historical resource.

The field lighting element has been evaluated against the general recommendations provided within the Standards in order to understand whether the impact of the installation can be considered to be mitigated to a less-than-significant level. The Standards provide no guidance with regard to the addition of lighting within historic landscapes, specifically. However, the guidelines for additions including structures, furnishings, and objects state that that "new additions should not radically change, obscure, or destroy character-defining spatial organization and land patterns or features and materials." The proposed new field lighting would generally conflict with the spirit or intent of the Standards because they would substantially change the character defining spatial organization and land patterns of the Athletic Fields Therefore, the impact of the

field lighting would be significant, and no mitigation is available to reduce the impact. Modifications are addressed in Section VI., Alternatives.

The proposed new lighting for the pedestrian pathways and the parking lot would also introduce new lighting into an area that has been, and is currently, dark at night. This proposed pedestrian and parking lot lighting would be substantially smaller and less intrusive than that proposed for the athletic fields. This type of lighting is also consistent in scale and placement with the lighting installations dating from the park's period of significance. The lighting for the parking lot, in particular, would add a new element to an area that is not considered a character defining feature of the landscape. As such, the introduction of the smaller amount of lighting for the pedestrian pathways and the parking lot would be acceptable at the project site.

Fencing Installation

The existing 8-foot-tall metal chain link fencing surrounding the athletic fields was added circa 1998 and is not a character defining feature of the landscape. Under the proposed project, this fencing would be removed and replaced with 3.5-foot-tall black vinyl chain link fencing. The areas behind the goals would have 16-foot-tall fencing to ensure that balls remain on the fields. The proposed project would essentially replace one type of non-historic landscape feature with another. While the lowering of the fence height from 8 feet to 3.5 feet and changing the materials from a bright metallic to a darker vinyl could be seen as a visual improvement, the doubling of fencing heights to 16 feet behind the goals could worsen this condition. Overall, the changes to the fencing could be considered neither deleterious nor beneficial to the historic landscape, but rather, an 'even' trade-off. As such, the removal of the existing fencing and installation of new fencing would have a neutral effect on the integrity of the Beach Chalet Athletic Fields as a historical resource.

Parking Lot Expansion

The existing 50-space parking lot would be renovated and expanded by approximately 33% to include a drop-off area adjacent to the location of the existing Restroom Building, and approximately 20 additional parking spaces. The parking lot was constructed in 1968-69, outside of the period of significance, and is not considered a character defining feature of the historic landscape. The proposed expansion of new paved areas would not remove any character defining features of the landscape. Alterations to this area would have a minimal effect on the integrity of the Beach Chalet Athletic Fields as a historical resource.

Plaza Installation

The new concrete plaza surrounding the Restroom Building would be approximately 775 feet square feet in size, and would include a small playground to the south of the Restroom Building, as well as picnic tables and permanent barbeque pedestals. It is noted that, as described in Chapter 2, Project Description, SFRPD incorporated a project change into the proposed project that reduced the size of the plaza area by removing seating and tables, and added landscaping to screen the face of the plaza.

The asphalt pavement immediately surrounding the Restroom Building was expanded the 1990s and is not considered a character defining feature of the historic landscape. The proposed replacement of asphalt pavement with a new concrete plaza would not remove any character defining features of the landscape. While the new plaza would alter the setting of the Restroom Building, the setting of the building was already significantly altered when the parking lot was constructed and asphalt paving placed around this structure. Alterations to this area would have a minimal effect on the integrity of the Beach Chalet Athletic Fields as a historical resource. As stated in Chapter 2, Project Description, SFRPD incorporated project changes to the proposed plaza area that included reducing the size of the plaza area by removing seating and tables, and adding landscaping to screen the face of the plaza.

Restroom Building Alterations

The Beach Chalet Athletic Fields Restroom Building is a contributor to the Golden Gate Park National Historic District. It is also one of the character defining features of the Beach Chalet Athletic Fields as an historic landscape. The Restroom Building itself has seven character defining features, only two of which would be altered by the proposed project: the board-formed concrete walls and the concrete-framed multi-port window vents (see Figures II-8 through II-10). Three new pedestrian doorways would be cut into the existing wall surfaces to access the revised interior spaces. One window on the north elevation would be enlarged to become a pedestrian doorway accessing the new interior community room space (the wall below the window would be removed to accomplish this). Similarly, two windows on the south elevation would be removed and replaced with pedestrian doors to access a new electrical control room in the interior of the building. Finally, a new metal roll-up style window would be cut into the center of the west elevation to provide access to the interior community space.

These alterations would remove some historic wall fabric, but they are considered relatively minor changes, and would result in the loss of only about 5% of the wall surface. The overall character of the building would remain largely intact, as approximately 95% of the wall surface would remain unaltered. Although three out of the existing 15 (or 20%) concrete-framed, multi-port windows would be lost and new doorways created in their place, the overall character of the building would remain largely intact, as the vast majority or 80% of the windows would remain unaltered. The existing open doorways on the west elevation would remain intact and would be used to access the bathrooms as they were historically. The metal security grills which cover these entrances are non-contributing, and can be altered or replaced.

The interior of the Restroom Building has been renovated within the past 30 years (outside of the period of significance) and no longer retains integrity. As such, no character defining interior features were identified. Although the interior would be significantly revised, these alterations would have no adverse effect to the integrity of the Restroom Building as a historic structure. The continued restroom use and new community room use would be compatible with the historic uses of the building. These alterations would also meet the general recommendations provided in the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.

Impact Summary

The Beach Chalet Athletic Fields Renovation Project would materially impair in an adverse manner many of the character defining features of the Beach Chalet Athletic Fields, a contributor to the Golden Gate Park National Historic District. Alterations to the Athletic Fields, including the addition of spectator seating, synthetic turf, and field lights would collectively result in a significant impact under the CEQA definition of material impairment because they would alter an adverse manner many of the character defining features that convey the Athletic Fields' historical significance and justify its inclusion in the National Register (and therefore the California Register) as a contributor to the Golden Gate Park National Register Historic District. Although no individual project component would result in the total loss of integrity of the resource, these components would collectively cause the Fields to lose historic integrity to the degree that its significance would no longer be apparent, resulting in a significant adverse impact to a historical resource per CEQA Section 15064.5. These alterations would also conflict with many of the recommendations provided in the Secretary of the Interior's Standards for the Treatment of Cultural Landscapes. As the installation of spectator seating, synthetic turf, and field lights are crucial to the implementation of the proposed project, there are no mitigation measures for these elements that would reduce the level of impact to the less-than-significant level while continuing to meet the objectives of the project. As such, the impact is considered significant and unavoidable.

As described in Chapter 2, Project Description, SFRPD incorporated a series of project changes into the proposed project that minimize impacts on the Golden Gate Park National Historic District, such as: changing the proposed seating from utilitarian aluminum bleachers to low-profile wood and concrete terraced seating; angling and recessing the proposed seating into the sloped topography on the south and north ends of the project site; lowering of the field lights from up to 100 feet to 60 feet and moving the field lights from the perimeter of the field onto the field in an effort to screen them from views from outside the park; and, modifying the proposed pathway design from the parking lot/plaza to field level to have a meandering form. Because design changes have been incorporated into the project, few options remain for mitigation measures that would reduce this impact further.

The impacts from the installation of concrete pedestrian paths can be reduced to a less-than-significant level by replacing the paving materials with more naturalistic substitute materials and informal edge treatments (see Mitigation Measure M-CP-1). However, due to accessibility requirements, it might not be feasible to use materials that would adequately reduce this impact, and the impact is presumed to remain significant. Thus, although technologically feasible, this mitigation measure may not be feasible because use of such materials may not meet the proposed project's accessibility requirements.

Proposed alterations to the Restroom Building would be relatively minimal, and would be restricted to the minor replacement of three windows with three new pedestrian doors to access new interior spaces, and the installation of one new community room window where no window currently exists. This would result in the loss of 20% of the original windows and about 5% of the wall surfaces. These activities would have a less-than-significant impact to historical resources

under the CEQA definition of material impairment, and would generally meet the recommendations provided in the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings. No mitigation measures would be required.

After completion of the project, the Beach Chalet Athletic Fields would no longer be a contributor to the Golden Gate Park National Historic District because its integrity would be substantially reduced, although the Restroom Building would continue to be a contributor as the proposed changes to it would be fairly minimal and unobtrusive. Considering there are 137 contributing resources to the District, the potential loss of one contributor or about 0.7% of the total would not constitute a significant impact to the District as a historical resource. In terms of size, the conversion of the 6.8-acre grass turf fields to synthetic turf, in the context of the 1,017-acre Golden Gate Park Historic District, would represent approximately less than 1% of the total acreage of the park. The removal of the Athletic Fields as a contributor to the District could not be perceived by an individual given the size of the District and the fact that the project site is relatively obscured from view along public roadways due to the intervening vegetation. No single identified project feature would reduce the integrity of the site to the degree that it loses its ability to contribute to the District. As such, the District would remain eligible for listing in the National Register after completion of the project. Although the proposed project would not materially impair the District, the Beach Chalet Athletic Fields facility is unique in character within the historic district, and its alteration would be considered a significant impact.

Cumulative Impacts

Impact C-CP: The proposed project would not result in cumulatively considerable impacts related to historic resources. (Less than Significant)

This analysis evaluates whether the impacts of the proposed project, together with the impacts of cumulative development, would result in cumulatively significant impacts on historical resources (based on the significance criteria and thresholds presented earlier). This analysis then considers whether the incremental contribution of the Beach Chalet Athletic Fields Renovation Project, in combination with other past, present, and reasonably foreseeable projects, would have a potential cumulatively considerable impact to the Golden Gate Park National Register Historic District.

The geographic context for analysis of cumulative impacts on historical resources encompasses Golden Gate Park and surrounding neighborhoods, about 0.5 mile in every direction from the project site. Future cumulative projects that have potential to affect the historic significance of the District include the construction of a recycled-water treatment facility and a groundwater well facility just south of the project site (including various pipeline improvements), the restoration of the Murphy Windmill and Millwright's Cottage, and bicycle network improvements pursuant to the San Francisco Bicycle Plan, which would improve bicycle routes along segments of Martin Luther King Jr. Drive, John F. Kennedy Drive, and the Great Highway near the project site.

In combination with the proposed project, the surrounding projects in the area would result in an alteration to the historic character of the western edge of Golden Gate Park and vicinity.

However, those projects would not substantially alter the historic character of the area to the extent that the District would no longer be eligible for listing in the National Register.

Although these cumulative projects together would intensify uses in this area, they would not substantially alter historical resources because the changes brought about by these projects would largely be independent of one another; that is, observers of one would not simultaneously be able to see or experience another (due to existing and proposed vegetation). The renovated Murphy Windmill could be partially seen, in conjunction with the proposed project, by visitors to the project area. However, the renovated windmill would arguably be improved, because the existing condition of the windmill is somewhat dilapidated. The recycled-water treatment facility and the groundwater well facility would be largely obscured from the project site by existing intervening vegetation, and thus the interaction of effects to historical resources would be largely attenuated. The proposed bicycle improvement would be minor and would not involve construction of any new facilities (only restriping of bicycle lanes along John F. Kennedy and Martin Luther King Jr. Drives). Although new lighting at the project site would be significant impact at the project level, as no substantial sources of lighting are proposed as part of the other nearby projects (the Murphy Windmill, recycled-water treatment facility or the groundwater well facility), light impacts on the western end of Golden Gate Park would not combine in a way that would result in cumulatively significant impacts on historical resources. Therefore, the project, in combination with these other projects, would not make a considerable contribution to cumulative cultural impacts.

No other projects are currently known by the Planning Department to be proposed in sufficiently close proximity to the project site, such that cumulative effects related to historic resources would be anticipated.

IV.D Transportation and Circulation

This section discusses the existing transportation and circulation setting for the Beach Chalet Athletic Fields and evaluates potential impacts on transportation and circulation that could result from implementation of the proposed project. A transportation study was prepared for the EIR, and this analysis is based on and summarizes the information contained in the transportation study.[1]

Setting

Street System

The project site is located in the northwestern portion of San Francisco, at the western end of Golden Gate Park, accessed by vehicle by John F. Kennedy Drive just north of Martin Luther King Jr. Drive and east of the Great Highway. Other streets within the area include Lincoln Way, Fulton Street, 47th Avenue, and South Fork Drive / Bernice Rodgers Way (which connects John F. Kennedy Drive to Martin Luther King Jr. Drive.) While the athletic fields are predominantly for local use, vehicles traveling to/from the east (including *East Bay* via I-80 and the Bay Bridge) and the west (including *Peninsula* via U.S. 101) use various routes to access the project vicinity including the Great Highway, Sunset Boulevard, Geary Boulevard, 19th Avenue, Fell and Oak Streets, Martin Luther King Jr. and John F. Kennedy Drives, and Lincoln Way. Vehicles traveling to/from the *North Bay* primarily use the Great Highway, Park Presidio Boulevard (and bypass), Fulton Street, John F. Kennedy Drive, and Balboa Street.

Within the project vicinity, Fulton Street and Lincoln Way are designated in the Transportation Element of the *San Francisco General Plan*[2] as Secondary Arterials, which the *General Plan* defines as "primarily intra-district routes of varying capacity serving as collectors for the major thoroughfares; in some cases supplemental to the major arterial system." Fulton Street is also classified as a Secondary Transit Street. The Great Highway, John F. Kennedy Drive, and Martin Luther King Jr. Drive are designated as Recreational Streets, which the *General Plan* defines as:

> *a special category of street whose major function is to provide for slow pleasure drives and cyclist and pedestrian use; more highly valued for recreational use than for traffic movement. The order of priority for these streets should be to accommodate: 1) pedestrians, hiking trails or wilderness routes, as appropriate; 2) cyclists; 3) equestrians; 4) automobile scenic driving. This should be slow and consistent with the topography and nature of the area. There should be adequate parking outside of natural areas.*

Great Highway is also designated as a Pedestrian Coastal Trail in the *General Plan*. Class I bike paths are designated along Great Highway and Chain of Lakes Drive West, meaning separated

1 Environmental Science Associates, *Beach Chalet Athletic Fields Renovation Project Transportation Impact Study*, 2011. This report is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, as part of Project File No. 2010.0016E.

2 San Francisco Planning Department. Amended by Resolution 16942, 2/3/2005. *San Francisco General Plan: Transportation Element,* available online at: http://www.sf-planning.org/ftp/General_Plan/I4_Transportation.htm, accessed on September 19, 2011.

paths are provided for bicyclists along these routes. John F. Kennedy Drive, Bernice Rodgers Way, and 47th Avenue are designated as Class III Citywide Bicycle Routes in the Transportation Element, meaning bicyclists and motorists share the roadway width.

John F. Kennedy Drive is a two-lane east-west street that runs through the entire length of Golden Gate Park, between Stanyan Street to the east and the Great Highway to the west. ***Martin Luther King Jr. Drive*** is a two-lane east-west street in the vicinity of the project site. Martin Luther King Jr. Drive generally travels the length of Golden Gate Park from Kezar Drive to Lincoln Way just east of the Great Highway. ***Bernice Rodgers Way (aka South Fork Drive)*** is a two-lane, north-south street that serves as a connector roadway between John F. Kennedy Drive and Martin Luther King Jr. Drive. ***47th Avenue*** is a two-lane north-south street that extends from Point Lobos Avenue to the north and John F. Kennedy Drive to the south; it continues to the south of Golden Gate Park and Lincoln Way. ***Chain of Lakes Drive East*** is a two-lane north-south street that extends from Fulton Street to Lincoln Way. The street connects to 43rd Avenue north of Fulton Street and to 41st Avenue south of Lincoln Way. ***Great Highway*** is a four-lane north-south roadway that runs along the entire western boundary of San Francisco, extending from Skyline Boulevard to the south to Point Lobos Avenue to the north. ***Fulton Street*** is a four-lane east-west roadway that extends from Franklin Street to the east to the Great Highway to the west. ***Lincoln Way*** is a four-lane east-west street that extends from Kezar Drive to the east and the Great Highway to the west.

Transit

The project site is not directly served by Muni bus service or light rail lines, but has such service within 1/2 mile of the project site, and those routes connect to regional transit service providers (i.e., BART, AC Transit, Golden Gate Transit, Caltrain, and SamTrans) in the downtown area. Therefore the focus of existing transit conditions is on local transit service. There are four Muni lines (5 Fulton, 18 46th Avenue, and 31 Balboa bus lines, and the N Judah Light Rail) with stops generally within an approximate six- to ten-minute walking distance of the project site, the exception being the N Judah, which is an approximate 13-minute walking distance.[3]

SFMTA's established capacity utilization service standard for peak period transit operations is 85 percent, which is a ridership/capacity ratio that includes both seated and standing passengers, so that at 85 percent utilization, all seats are taken, and there are many standees. All of the Muni routes in the vicinity of the project site operate below the Muni 85-percent capacity utilization standard, with the 5 Fulton in the outbound direction operating with the highest capacity utilization at 81 percent.

The San Francisco Recreation and Parks Department (SFRPD), using a private van service, operates the Golden Gate Park Shuttle on weekends and holidays between 9:00 a.m. and 6:00 p.m., every 15 to 20 minutes. The closest shuttle stop to the project site is on John F. Kennedy Drive at 47th Avenue.

[3] The NX-Judah Weekday Express bus line (from 48th Avenue to downtown during the morning peak, and in the reverse direction during the afternoon peak) started service on June 13, 2011, for a six-month pilot period.

Pedestrians and Bicycles

Pedestrian facilities in the project area include a dirt path (about three feet wide) along the project side of John F. Kennedy Drive, as well as a paved sidewalk (about five feet) on the Dutch Windmill side of John F. Kennedy Drive west of 47th Avenue. There are also dirt recreational paths that lead from the western portion of the project site toward the Great Highway (to the west, north, and south). Based on field observations, the volume of pedestrians on sidewalks and dirt paths along John F. Kennedy Drive, as well as dirt paths between the project site and the Great Highway, is relatively low throughout the day, consisting of the occasional person or couple walking past the site as part of a "walk in the park", and people walking between the project site and their vehicle parked off-site when the project site's parking lot is full.

As described above, the majority of roadways and recreational paths in proximity to the project site are designated as Citywide Bicycle Routes in the Transportation Element (see Section IV.E, Recreation, for more detail on regional bicycle routes).[4] Route 30 is an east-west bicycle route extending from the Embarcadero to Ocean Beach. In the project area it is located on John F. Kennedy Drive. Route 34 is an east-west Class III bicycle route that is located along portions of Martin Luther King Jr. Drive and Middle Road, and extends from Transverse Drive to the east and the Great Highway to the west. Route 95 crosses into San Francisco from the Golden Gate Bridge and extends to San Mateo County. Near the project site the route runs as a Class III bicycle route along the Great Highway. This bikeway also includes a Class I path that is located adjacent to the Great Highway between the roadway and the beach, and extends from Sloat Boulevard to the south and Fulton Street to the north. Route 730 is a Class I path that is located on Chain of Lakes West (closed to automobiles), which connects Route 20 (Cabrillo Street) to Route 830 (Martin Luther King Jr. Drive). Route 20 is a Class III bicycle route that extends from Market Street / McAllister Street to Ocean Beach. In the project area, it is located on Cabrillo Street. Route 830 is a Class I path that extends the entire length of Golden Gate Park, offering an off-street alternative to Route 34 (Martin Luther King Jr. Drive) and Route 30 (John F. Kennedy Drive) and is located adjacent to portions of John F. Kennedy Drive in the project area. Route 930 is a Class III bicycle route that connects Route 20 (Cabrillo Street) to Route 30 (John F. Kennedy Drive) along 47th Avenue.

Bicycle activity in the vicinity of the project site can be characterized as low to moderate, consisting of mostly recreational bicyclists. There are no near-term or long-term bicycle improvement plans identified in *The San Francisco Bicycle Plan* (2009) for implementation in the project area.

Parking

A total of 50 parking spaces are located in the lot adjacent to the athletic fields. During period of peak usage of the athletic fields, the on-site parking lot is generally 100 percent occupied, and the parking demand spills onto John F. Kennedy Drive.

[4] Class I bicycle facilities are designated bike paths with exclusive right-of-way for use by bicyclists or pedestrians. Class II bicycle facilities are bike lanes striped with the paved areas of roadways and established for the preferential use of bicycles. Class III bicycle facilities may consist of streets with wide curb lanes, traffic-calming measures, streets signed as bicycle routes, etc.

An inventory of the existing on-street public parking supply within an approximate five-minute walking distance of the project site was conducted. The parking study area comprised John F. Kennedy Drive, 47th Avenue, and Bernice Rodgers Way (aka South Fork Drive). The inventory accounted for about 174 on-street parking spaces that are readily available to people who are unable to park in the above-described project site's parking lot, and an additional 84 spaces that are "conditionally" available.[5]

Observations of parking occupancy were conducted in April 2011 during the above-described weekday and weekend periods of peak usage of the athletic fields (i.e., between 4:30 and 5:30 p.m. on weekdays, and between 2:30 and 3:30 p.m. on weekends). The field surveys indicate that people who cannot park in the 50-space on-site parking lot park their vehicles on John F. Kennedy Drive east of 47th Avenue and, as needed, on Bernice Rodgers Way, and on John F. Kennedy Drive east of Bernice Rodgers Way. Parking occupancy was also observed during weekday and weekend periods when the athletic fields are not in use (with the access gate closed), and the on-street parking spaces were essentially empty except on John F. Kennedy Drive west of 47th Avenue (used by people visiting the Dutch Windmill / Queen Wilhelmina Tulip Garden, the Beach Chalet, and the Golden Gate Park Golf Course) and on 47th Avenue north of John F. Kennedy Drive (used by people using the Golden Gate Park Archery Field, and the golf course).

Loading

There are no on-street parking spaces designated for loading (passenger or freight/service) within the study area. In addition, there is no designated space for freight/service or passenger loading and unloading in the project site's parking lot, and people who are dropped off or picked up are done so informally in the area near the restroom building.

Regulatory Framework

Federal, State and Regional Regulations

There are no federal, state or regional transportation regulations applicable to the proposed project.

Local Regulations

San Francisco General Plan

The Transportation Element of the San Francisco General Plan is composed of objectives and policies that relate to the eight aspects of the citywide transportation system: General Regional Transportation, Congestion Management, Vehicle Circulation, Transit, Pedestrian, Bicycles, Citywide Parking, and Goods Management.

[5] The availability of the additional 84 spaces is conditioned on the demand for those spaces by people going to the Dutch Windmill / Queen Wilhelmina Tulip Garden (51 parking spaces on John F. Kennedy Drive west of 47th Avenue) and to the Golden Gate Park Archery Field (33 spaces on 47th Avenue south of Fulton Street).

The San Francisco City Charter (Section 16.102) includes the Transit-First Policy, a set of principles which underscore the City and County of San Francisco (CCSF) commitment that travel by transit, bicycle, and foot be given priority over the private automobile. These principles are embodied in the policies and objectives of the Transportation Element of the San Francisco General Plan. All CCSF boards, commissions, and departments are required, by law, to implement transit-first principles in conducting CCSF affairs.

The Transportation Element references San Francisco's "Transit First" Policy in its introduction, and contains the following objectives and policies that are directly pertinent to consideration of the proposed project:

***Objective 1*:** Meet the needs of all residents and visitors for safe, convenient and inexpensive travel within San Francisco and between the city and other parts of the region while maintaining the high quality living environment of the Bay Area.

Policy 1.2: Ensure the safety and comfort of pedestrians throughout the city.

***Objective 9*:** Improve bicycle access to San Francisco from all outlying corridors.

Policy 9.2: Where bicycles are prohibited on roadway segments, provide parallel routes accessible to bicycles or shuttle services that transport bicycles.

***Objective 11*:** Maintain public transit as the primary mode of transportation in San Francisco and as a means through which to guide future development and improve regional mobility and air quality.

***Objective 13*:** Promote the development of marketing strategies that encourage and facilitate the use of transit and other alternatives to the single-occupant automobile for shopping, recreation, cultural and other non-work trips.

***Objective 14*:** Develop and implement a plan for operational changes and land use policies that will maintain mobility and safety, despite a rise in travel demand that could otherwise result in system capacity deficiencies.

Policy 14.4: Reduce congestion by encouraging alternatives to the single-occupant auto through the reservation of right-of-way and enhancement of other facilities dedicated to multiple modes of transportation.

***Objective 23*:** Improve the city's pedestrian circulation system to provide for efficient, pleasant, and safe movement.

***Objective 24*:** Improve the ambiance of the pedestrian environment.

***Objective 27*:** Ensure that bicycles can be used safely and conveniently as a primary means of transportation, as well as for recreational purposes.

***Objective 28*:** Provide secure and convenient parking facilities for bicycles.

Policy 28.3: Provide parking facilities which are safe, secure, and convenient.

San Francisco Bicycle Plan

The San Francisco Bicycle Plan describes a CCSF program to provide the safe and attractive environment needed to promote bicycling as a transportation mode. The San Francisco Bicycle Plan identifies the citywide bicycle route network, and establishes the level of treatment (i.e., Class I, Class II or Class III facility) on each route. The Plan also identifies near-term improvements that could be implemented within the next five years, as well as policy goals, objectives and actions to support these improvements. It also includes long-term improvements, and minor improvements that would be implemented to facilitate bicycling in San Francisco.

Impacts and Mitigation Measures

Significance Criteria

Below is a list of significance criteria used by the San Francisco Planning Department to assess whether a proposed project would result in significant impacts. These criteria are organized by mode to facilitate the transportation impact analysis; however, the transportation impact criteria are essentially the same as the ones presented in Appendix G (checklist) of the CEQA Guidelines.

- ***Traffic.*** The operational impact on signalized intersections is considered significant when project-related traffic causes the intersection level of service (LOS) to deteriorate from LOS D or better to LOS E or LOS F, or from LOS E to LOS F. The operational impacts on unsignalized intersections are considered potentially significant if project-related traffic causes the level of service at the worst approach to deteriorate from LOS D or better to LOS E or LOS F and California Department of Transportation (Caltrans) signal warrants would be met, or would cause Caltrans signal warrants to be met when the worst approach is already operating at LOS E or LOS F. The project may result in significant adverse impacts at intersections that operate at LOS E or LOS F under existing conditions depending upon the magnitude of the project's contribution to the worsening of the average delay per vehicle. In addition, the project would have a significant adverse impact if it would cause major traffic hazards or contribute considerably to cumulative traffic increases that would cause deterioration in levels of service to unacceptable levels.

- ***Transit.*** A project would have a significant effect on the environment if it would cause a substantial increase in transit demand that could not be accommodated by adjacent transit capacity, resulting in unacceptable levels of transit service; or cause a substantial increase in delays or operating costs such that significant adverse impacts in transit service levels could result. With the Muni and regional transit screenlines analyses, the project would have a significant effect on the transit provider if project-related transit trips would cause the capacity utilization standard to be exceeded during the peak hour.

- ***Pedestrians.*** A project would have a significant effect on the environment if it would result in substantial overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas.

- ***Bicycles.*** A project would have a significant effect on the environment if it would create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas.

- ***Loading.*** A project would have a significant effect on the environment if it would result in a loading demand during the peak hour of loading activities that could not be accommodated within the proposed on-site loading facilities or within convenient on-street loading zones, and as a consequence created potentially hazardous conditions or significant delays affecting traffic, transit, bicycles, or pedestrians.

- ***Emergency Access.*** A project would have a significant effect on the environment if it would result in inadequate emergency access.

- ***Construction.*** Construction-related impacts generally would not be considered significant due to their temporary and limited duration.

Travel Demand Analysis

This transportation analysis provides an estimate of the travel demand that would be generated from the proposed project. In general, travel demand refers to the new vehicle, transit, pedestrian, bicycle and other traffic generated by a proposed project. Because the land use (athletic fields) is not covered in the Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines), estimates of net-new project travel and parking demand were made based on field observations and information provided by the SFRPD about existing and projected future use schedules (weekdays and weekend days) for the athletic fields, similar to an approach used for the athletic fields in the Treasure Island and Yerba Buena Island Redevelopment Plan Draft EIR (July 2010).

The proposed project represents an expansion of an existing use, adding one additional available field (currently, one grass turf field is closed at any given time to allow for maintenance/regrowth), expanding the consistency of use year-round with synthetic turf, and expanding the hours of use with the installation of field lighting. Travel demand was estimated for both weekday p.m. peak-hour (4:30 – 5:30 p.m.) and weekend (Saturday) peak-hour (2:30 – 3:30 p.m.) conditions, both of which represent periods of highest "turnover" of users (i.e., people arrive ahead of the scheduled start of their game/practice, and other people leave after the end of their game/practice). Based on existing use and observations, assumptions were made regarding the typical number of players, referees, and spectators per field for both peak weekday (p.m.) and weekend (mid-day) conditions. For weekdays, up to 40 players and referees per field were assumed between 3:30 and 5:00 p.m., and up to 54 players and referees were assumed between 5:00 and 6:30 p.m., with an estimated 5 spectators per field (primarily practices during weekday). For weekends, an estimated 36 players and referees, and up to 36 spectators per field were assumed.

On the basis of the above assumptions, the proposed project would generate an estimated 104 net-new p.m. peak-hour person trips and 144 net-new Saturday peak hour person trips. Although expressed on a person trip basis, the trip generation typically includes all travel to and from the project in autos, on public transit, by foot, and by other modes (e.g., walking, bicycles, taxis, etc.). Because of the characteristics of the users of the athletic fields, observations made in the field and from the SFRPD staff, and the walking distance between the project site and the closest transit stops (i.e., no less than approximately six minutes, and as many as 13 minutes), it is estimated that players, officials or spectators do not typically use public transit to travel to and

from the project site. Similarly, although some players, officials or spectators may occasionally travel by bicycle or walk if they live nearby, these are not typical methods of travel. Therefore, it was assumed for this analysis that all person trips generated by the project would be automobile trips. Vehicle occupancy would be expected to vary, from single-occupant vehicles to multi-person carpools, but to estimate vehicle trips for this analysis, an average vehicle occupancy of two people per vehicle was assumed. Therefore, the project would generate about 52 net-new peak-hour vehicle trips during the weekday peak hour (30 inbound trips to the site, and 22 outbound trips from the site). During the weekend peak hour, the project would generate about 72 net-new vehicle trips (36 inbound and 36 outbound). The trip distribution and assignment to local streets for the purposes of analyzing intersection operating conditions was based on reasonable assumptions made about travel patterns.[6]

Impact Analysis

Impact TR-1: The proposed project would not have a substantial operational impact on levels of service at local intersections. (Less than Significant)

As described above, the proposed project would generate about 52 and 72 net-new vehicle trips (104 and 144 net-new person trips) during the weekday p.m. peak hour and Saturday peak hour, respectively. Outside of providing a new passenger drop-off area within the expanded on-site parking lot, the proposed project would not change traffic circulation on or near the project site. Overall the proposed project would result in minor changes to the average delay per vehicle at the study intersections. As shown in **Table IV.D-1**, all but one of the ten intersections studied currently operate at acceptable (LOS D or better) service levels during both weekday p.m. and weekend mid-day peak hours. Note that Table IV.D-1 includes information regarding cumulative traffic conditions within the project area, which is discussed below under Impact C-TR.

Similar to existing conditions, the worst (southbound) approach at the unsignalized intersection of Martin Luther King Jr. Drive and Chain of Lakes Drive East (all-way stop-control) would continue to operate at LOS F during the weekday p.m. peak hour, under existing plus project conditions, and the intersection would continue to meet peak-hour signal warrants. However, the proposed project would not contribute any trips to the worst (southbound) approach during the weekday p.m. peak hour, and therefore, the proposed project would have a less-than-significant impact to traffic operating conditions.

Although the proposed project would have a less-than-significant impact on traffic operating conditions, the transportation analysis recommended the SFRPD develop and implement a Transportation Demand Management program for its recreation programs, specifically for its athletic field use, which it currently does not have, with the goal of further reducing vehicle trips to and from the project site by encouraging the use of rideshare, transit, bicycle, and walking modes of travel.

[6] Although not directly applicable to the proposed project use, the SF Guidelines trip distribution tables were used as a starting point for trip distribution, with adjustments made based on professional judgment, to account for more local trips, and to determine the most likely travel paths to and from the project site.

TABLE IV.D-1
INTERSECTION LEVEL OF SERVICE (LOS) WEEKDAY PM PEAK-HOUR AND SATURDAY PEAK-HOUR EXISTING, EXISTING PLUS PROJECT, AND 2035 CUMULATIVE CONDITIONS[a]

	Existing Conditions				Existing Plus Project				Cumulative (2035) Conditions[b]			
	p.m. Peak Hour		Saturday Peak Hour		p.m. Peak Hour		Saturday Peak Hour		p.m. Peak Hour		Saturday Peak Hour	
Intersections	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Signalized [c]												
7. Lincoln Way / Great Highway	B	19.8	C	20.0	B	19.8	C	20.0	C	21.2	C	21.6
8. John F. Kennedy Drive / Great Highway	B	15.6	B	14.6	B	15.6	B	14.6	B	18.2	B	16.8
9. Fulton Street / Great Highway	B	19.9	B	19.6	B	19.9	B	19.6	C	25.9	C	24.3
Unsignalized [d]												
1. John F. Kennedy Drive / 47th Avenue (SSSC)	B Southbound	11.1	B Southbound	10.5	B Southbound	11.3	B Southbound	10.7	B Southbound	12.7	B Southbound	11.5
2. John F. Kennedy Drive / Bernice Rodgers Way (AWSC)	A Southbound	8.5	A Southbound	8.0	A Southbound	8.8	A Southbound	8.3	A Southbound	8.6	A Southbound	8.1
3. Martin Luther King Jr. Drive / Bernice Rodgers Way (AWSC)	A Southbound	8.6	A SB & WB	8.1	A Southbound	8.8	A Southbound	8.3	A Southbound	9.1	A Southbound	8.4
4. Martin Luther King Jr. Drive / Chain of Lakes Drive (AWSC)	**F** Southbound	**52.6**	C Southbound	24.4	**F** Southbound	**56.4**	D Southbound	26.0	**F** Southbound	**>80**	**E** Southbound	**46.9**
5. Lincoln Way / 41st Avenue (AWSC)	D Southbound	27.5	C Southbound	16.2	D Southbound	29.3	C Southbound	17.2	D Southbound	33.8	C Southbound	17.8
6. Lincoln Way / Martin Luther King Jr. Drive (AWSC)	A Northbound	9.8	A Northbound	10.0	A Northbound	9.8	A Northbound	10.0	A Northbound	10.0	B Northbound	10.3
10. Fulton Street / 47th Avenue (AWSC)	B Westbound	11.3	A Westbound	9.8	B Westbound	11.5	A Westbound	10.0	C Westbound	16.9	B Westbound	12.4

[a] Level of service (LOS) were determined using the analysis methodologies presented in the 2000 *Highway Capacity Manual*.
[b] Cumulative volumes were derived on the basis of information about traffic growth patterns, which used the San Francisco County Transportation Authority countywide travel demand forecasting model, taking into account the development anticipated in the vicinity of the project, plus the expected growth in housing and employment for the remainder of San Francisco and the nine-county Bay Area.
[c] The LOS and delay for signalized intersections represent conditions for the overall intersection.
[d] The LOS and delay for unsignalized intersections represent conditions for the worst (most congested) approach, with the worst approach identified (e.g., Southbound for Intersection 4).

SOURCE: ESA 2011

Improvement Measure I-TR-1: Transportation Demand Management

Formalize a Transportation Demand Management Plan that addresses travel to recreational sites, including athletic fields, providing transit and rideshare information to its users on reservations, permits or websites, and including the ongoing collection of travel mode data of its users, and developing methods to encourage carshare, transit, pedestrian and bicycle travel particularly as related to recreational field activities.

Impact TR-2: The proposed project would not exceed the capacity utilization standard for Muni lines or regional transit providers, and would not cause a substantial increase in delays or operating costs. (Less than Significant)

Given the characteristics of the users of the athletic fields, and the walking distance between the project site and the closest transit stops (i.e., no less than approximately six minutes and as many as 13 minutes[7]), it is estimated that players, officials or spectators do not typically use public transit to travel to and from the project site. Input from the project sponsor and field observations support that assumption, and therefore, it was assumed for this analysis that all person trips generated by the project would be automobile trips. Even if the expanded use occasionally generated transit trips above the existing use of the fields on a typical weekday or weekend peak period, those transit trips would not be anticipated to substantially change transit operating conditions, specifically capacity utilization on nearby transit service.

The new vehicle trips generated by the proposed project could potentially introduce some delay to Muni transit operations. However, any such delay would be minimal because, as indicated in the traffic impact analysis, nearby intersections would continue to operate acceptably and/or the same with the addition of the proposed project's vehicle trips. Potential delays to Golden Gate Park Shuttle operations also would be minimal because of the frequency of the shuttle service (weekends and holidays only, every 15 to 20 minutes).

Because the project would not generate transit trips, and project-generated vehicle trips would not substantially affect local or regional transit operations, including Golden Gate Park Shuttle operations, there would be a less-than-significant project impact to transit conditions.

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7 The closest stops for the transit lines in the area are the following approximate walking distances from the project site: 5 Fulton (Fulton Street at La Playa Street, 7.5-minute walk); 18 46th Avenue (Great Highway south of Beach Chalet, 6-minute walk); 31 Balboa (Cabrillo Street at 47th Avenue, 10-minute walk); and N Judah (Judah Street at La Playa Street, 13-minute walk).

Impact TR-3: The proposed project would not result in overcrowding on public sidewalks, create potentially hazardous conditions for pedestrians, or otherwise interfere with pedestrian accessibility to the site and adjoining areas, nor would it create potentially hazardous conditions for bicyclists or otherwise substantially interfere with bicycle accessibility to the site and adjoining areas. (Less than Significant)

Generally, pedestrian trips associated with the project site are by people who walk between their off-site (on-street) parking spaces and the project site. Although an increased amount of vehicle traffic at the parking lot driveway could incrementally increase the number of conflicts between drivers and pedestrians on the recreational path along John F. Kennedy Drive, background pedestrian volumes in the immediate vicinity of the project site are generally low, consisting of the occasional recreational user. The peak number of pedestrian trips in the immediate vicinity would likely increase under project conditions because the four fields would accommodate more people than the current three fields (one field is always closed for rest and re-growth), and despite the proposed increased capacity of the on-site parking lot, more people would need to park off-site (on-street). However, the proposed project would neither substantially affect current pedestrian flow conditions, nor result in potentially hazardous pedestrian conditions beyond what exists in the area today (e.g., people walking across John F. Kennedy Drive, or conflicts at parking lot access driveways), and therefore, would have a less-than-significant pedestrian impact.

Although an increased amount of vehicle traffic at the parking lot driveway could incrementally increase the number of conflicts between drivers and bicyclist on John F. Kennedy Drive, bicycle activity in the vicinity of the project site can be characterized as low to moderate, consisting predominantly of recreational bicyclists. There are no near-term or long-term bicycle improvement plans identified in *The San Francisco Bicycle Plan* (2009) for implementation in the project area. The project would not be expected to generate a noticeable increase in bicycles in the area, nor would it be expected to noticeably affect existing bicycle conditions or facilities in the area, and therefore, would have a less-than-significant impact to bicycle operations and facilities.

Impact TR-4: The proposed project would not result in a substantial change to freight/service or passenger loading demand or facilities. (Less than Significant)

As described above, there are no spaces designated for loading (passenger or freight/service) within the study area (on-street or in the project site's parking lot), and people who are dropped off or picked up are done so informally in the area near the restroom building. The proposed project would not increase the service-related vehicle trips to the project site (e.g., vehicles to maintain the restroom building and the grounds, and to make repairs as required). The proposed project's expansion of the on-site parking lot would include a drop-off area that would be adjacent to the location of the existing restroom. Provision of this area would allow players and equipment to be dropped off, if needed, by people who then drive to park in the parking lot or a nearby on-street parking space.

The proposed project would have a less-than-significant (passenger) loading impact because inclusion of a drop-off area is expected to improve passenger loading activity without creating new potentially hazardous conditions or significant delays affecting internal circulation within the parking lot.

Impact TR-5: The proposed project would not result in inadequate emergency access. (Less than Significant)

The proposed project would not alter existing emergency access provided to the project site. In the event of an emergency, vehicles can access the project site via the main access driveway on John F. Kennedy Drive or, if needed, via a service vehicle access on Martin Luther King Jr. Drive. Therefore, the proposed project would have a less than significant impact on emergency vehicle access.

Parking Analysis

The San Francisco Planning Department does not consider parking supply as part of the permanent physical environment in San Francisco and therefore, does not consider changes in parking conditions to be environmental impacts as defined by CEQA.[8] However, the San Francisco Planning Department acknowledges that parking conditions may be of interest to the public and the decision makers. Therefore, this report presents a parking analysis for information purposes.

Parking conditions are not static, as parking supply and demand varies from day to day, from day to night, from month to month, etc. Hence, the availability of parking spaces (or lack thereof) is not a permanent physical condition, but changes over time as people change their modes and patterns of travel.

Parking deficits are considered to be social effects, rather than impacts on the physical environment as defined by CEQA. Under CEQA, a project's social impacts need not be treated as significant impacts on the environment. Environmental documents should, however, address the secondary physical impacts that could be triggered by a social impact (CEQA Guidelines Section 15131(a). The social inconvenience of parking deficits, such as having to hunt for scarce parking spaces, is not an environmental impact, but there may be secondary physical environmental impacts, such as increased traffic congestion at intersections, air quality impacts, safety impacts, or noise impacts caused by congestion. In the experience of San Francisco transportation planners, the absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a

[8] Under California Public Resources Code (CEQA) Section 21060.5, "environment" can be defined as "the physical conditions that exist within the area that will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise and objects of historic or aesthetic significance."

relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service in particular, would be in keeping with CCSF's "Transit First" policy. The Transit First Policy, established in San Francisco's Charter Article 8A, Section 8A.115, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation." As described above, the project area is well served by public transit and bike routes.

The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. Moreover, the secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area. Hence, any secondary environmental impacts that may result from a shortfall in parking in the vicinity of the proposed project would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects. In summary, changes in parking conditions are considered to be social impacts rather than impacts to the physical environment. Accordingly, the parking analysis below is presented for informational purposes only.

The San Francisco Planning Code (Planning Code) Section 151 lists the off-street parking requirements for a variety of land uses. However, recreational uses such as the proposed athletic fields are not listed. *Planning Code* Section 153(b) states that, "the requirements for off-street parking and loading for any use not specifically mentioned in Sections 151 and 152 shall be the same as for a use specified which is similar, as determined by the Zoning Administrator."

As described above, people who cannot park in the on-site parking lot park their vehicles on John F. Kennedy Drive east of 47th Avenue and, as needed, on Bernice Rodgers Way, and on John F. Kennedy Drive east of Bernice Rodgers Way. Field observations during weekday and weekend periods when the athletic fields are not in use indicate that the on-street parking spaces were essentially empty except on John F. Kennedy Drive west of 47th Avenue (used by people visiting the Dutch Windmill / Queen Wilhelmina Tulip Garden, the Beach Chalet, and the Golden Gate Park Golf Course) and on 47th Avenue north of John F. Kennedy Drive (used by people using the Golden Gate Park Archery Field, and the golf course).

The existing peak weekday parking demand, based on anticipated vehicle trips discussed above, is about 157 spaces. Under the proposed project, the peak parking demand would be about 208 spaces. Therefore, the net increase in parking demand would be about 51 spaces. On Saturdays, the net increase in peak parking demand would be about 72 spaces (from about 216 spaces to about 288 spaces).

- **Weekday Conditions:** The proposed project would have a demand for up to 208 spaces, and 138 vehicles would seek off-site (on-street) parking spaces. The 174 on-street parking

spaces that are readily available to people who are unable to park in the project site's parking lot would be about 79 percent occupied.

- **Weekend Conditions:** The proposed project would have a demand for up to 288 spaces, and 218 vehicles would seek off-site (on-street) parking spaces. The 174 on-street parking spaces that are readily available to people who are unable to park in the project site's parking lot would be fully occupied, and drivers of the extra 44 vehicles would seek parking spaces "conditionally available" (as defined by Footnote 5, page IV.D-3) within a five-minute walking distance, on John F. Kennedy Drive west of 47th Avenue, or on 47th Avenue north John F. Kennedy Drive, or parking spaces a longer walking distance from the project (e.g., on John F. Kennedy Drive north of Bernice Rodgers Way, Martin Luther King Jr. Drive west of Bernice Rodgers Way, or the Ocean Beach Parking Lot).

Existing parking conditions in the area, including available nearby on-street parking spaces, would accommodate the anticipated weekday project parking demand. Peak weekend parking demand would be accommodated by available on-street and off-street parking spaces, but would require use of parking spaces beyond those readily available.

As noted above, parking deficits are considered to be social effects, rather than physical impacts on the environment as defined by CEQA.

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Cumulative Impacts

Impact C-TR: The proposed project, in conjunction with past, present, and reasonably foreseeable future projects, would not have a cumulatively considerable contribution to traffic and circulation impacts. (Less than Significant)

The Cumulative 2035 traffic volumes in the vicinity of the project area are based on expected traffic growth rates between 2010 and 2035 obtained from the San Francisco County Transportation Authority countywide travel demand forecasting model. Cumulative traffic operating conditions at the ten study intersections are shown in Table IV.D-1, above. Under 2035 traffic conditions, all except one of the study intersections would continue to operate at an acceptable level of service (LOS D or better). As described above in Impact TR-1, the worst (southbound) approach at the all-way stop-controlled (unsignalized) intersection of Martin Luther King Jr. Drive and Chain of Lakes Drive East would operate at LOS F during the weekday p.m. peak hour, and the intersection would continue to meet peak-hour traffic signal warrants. Nevertheless, the proposed project would not contribute any new trips to the worst (southbound) approach during the weekday p.m. peak hour, and therefore, the project's contribution to the existing and future operations at this intersection would not be cumulatively considerable (less than significant).

As with existing-plus-project conditions, traffic from the Beach Chalet Athletic Fields Renovation project and from other projects considered in the cumulative analysis would affect intersections other than those included in the project-specific analysis. As with existing-plus-project

conditions, however, project traffic would have less impact on intersections farther from the project site as vehicles bound for different destinations disperse.

As described above in Impact TR-2, the project would not generate new transit trips, and therefore would not contribute to any potential cumulative effects on local or regional transit operations. Even with the implementation of the traffic-related Improvement Measure I-TR-1 (see Impact TR-1), which would likely shift some private vehicle trips to transit trips over time, these shifts and the amount that could occur during the peak periods would not substantially affect local or regional cumulative transit conditions.

IV.E Recreation

This section discusses the existing recreation setting of the Beach Chalet Athletic Fields, evaluates potential impacts on recreational resources that could result from implementation of the proposed project, and identifies mitigation measures to reduce or avoid impacts, as appropriate. The analysis addresses publicly accessible recreational resources in the project area, including local roadways used for bicycling and designated recreational trails. This section also describes regulations pertinent to the proposed project.

Setting

The project site is located at the western end of Golden Gate Park, which is less intensely developed than the eastern end of the park yet contains multiple active recreational areas, including the Beach Chalet Soccer Fields, the Polo Fields, the Golden Gate Park Golf Course, the Archery field, the Bercut Equitation Field, the Flycasting Pools, and the Golden Gate Park 45th Avenue playground. The recreational features at the western end of the park are generally located in the lowland meadows, while the hills are typically woodland areas. The western end of the park contains eight lakes, with open grassy areas at the golf course, Speedway Meadow, Elk Glen Meadow, Lindley Meadow, Park and Beach Chalet restaurants, Polo Fields, Bison Paddock, Disc Golf Course, and the Archery field.

The majority of the public space and recreational resources in the project area that could be affected by the proposed project are managed by the San Francisco Recreation and Parks Department (SFRPD). The SFRPD manages over 230 parks, playgrounds, and open spaces throughout San Francisco that are open to the public. The area also contains several Golden Gate National Recreation Area (GGNRA) sites, which are designated by the U.S. Department of the Interior and administered by the National Park Service (NPS). Several of the paved recreational trails in the project vicinity are maintained and managed by the San Francisco Department of Public Works (SFDPW).

Golden Gate National Recreation Area

The GGNRA, established by Congress in 1972, is the largest national park unit in an urban area in the United States. The GGNRA lands are located in Marin, San Francisco, and San Mateo Counties. Upwards of 20 million people per year visit this recreation area, which includes visitor destinations such as Alcatraz Island, Muir Woods, Crissy Field, the Presidio, Marin Headlands, Stinson Beach, Fort Mason, and Ocean Beach, which is described in detail below.[1] The GGNRA operates under NPS policies and guidelines, in accordance with the General Management Plan published in 1980.[2]

[1] National Park Service, U.S. Department of the Interior (NPS). 2010a. Frequently Asked Questions, available online at: http://www.nps.gov/faqs.htm, accessed on September 10, 2010.

[2] National Park Service, U.S. Department of the Interior (NPS). 2010b. Golden Gate National Recreational Area, Management, available online at: http://www.nps.gov/goga/parkmgmt/, accessed on September 10, 2010.

Ocean Beach

Ocean Beach is part of the GGNRA and is administered by the NPS. It stretches about 3.5 miles along San Francisco's western shore, from the Cliff House to Fort Funston along the Pacific Ocean. There is open access to Ocean Beach along the Great Highway, with three parking lots adjacent and south of the Sloat Boulevard and Great Highway intersection. There are restroom facilities in the parking lot at the intersection of Sloat Boulevard and Great Highway and a boat access at stairwell 15. Ocean Beach lies approximately 500 feet west of the Beach Chalet Athletic Fields. Ocean Beach is open year-round with no entrance fees.[3]

Golden Gate Park

Golden Gate Park is owned by the CCSF and administered by the SFRPD. It is a 1,017-acre park bounded on the west by the Great Highway (along Ocean Beach), on the north by Fulton Street, on the east by Stanyan Street, and on the south by Lincoln Way. The main body of Golden Gate Park is over 3 miles long and 0.5 mile wide. Extending eastward, about 0.75 mile from the main body of the park, is the block-wide strip known as the Panhandle, which is bounded on the west by Stanyan Street, on the north by Fell Street, on the east by Baker Street, and on the south by Oak Street. Golden Gate Park comprises 680 acres of forest; 130 acres of meadows, fields, and open areas; 33 acres of lakes; and 15 miles of drives.[4] The park has a variety of outdoor attractions, including two athletic stadiums, nine lakes, a Japanese tea garden, an arboretum and botanical gardens, a conservatory of flowers, a horticultural library, and a number of gardens, walkways, and groves. Golden Gate Park also provides a wide range of recreational facilities, including a boathouse and anglers lodge, handball and racquetball courts, baseball diamonds, lawn bowling greens and clubhouse, disc golf course, archery field, tennis courts and clubhouse, dog training area, soccer fields, golf course and clubhouse, polo green, horseshoe pits, three children's playgrounds, and a carrousel. The park also houses the M.H. de Young Museum, the California Academy of Sciences and Aquarium, the Beach Chalet Restaurant and multiple concession stands, the Model Yacht Club, a senior adult center, and the park's administrative offices.[5] There are over 20 vehicle access roads into Golden Gate Park, with Fell Street to John F. Kennedy Drive and Ninth Avenue off of Lincoln Boulevard serving as primary entrances. Golden Gate Park is open year-round and attracts 13 million visitors annually.[6]

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[3] Golden Gate National Parks Conservancy (GGNPC). 2010. Ocean Beach, available online at: http://parksconservancy.org/visit/park-sites/ocean-beach.html, accessed on September 10, 2010.

[4] San Francisco Recreation and Parks Department (SFRPD), 1998. *Golden Gate Park Master Plan.* Prepared by Royston Hanamoto Alley & Abey. Adopted October 1998. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

[5] SFGate, 2010. Golden Gate Park, San Francisco Neighborhoods, Travel, available online at: http://www.sfgate.com/travel/neighborhoods/sf/goldengatepark/, accessed on September 14, 2010.

[6] San Francisco Recreation and Parks Department (SFRPD) 2011, available online at: http://sfrecpark.org/ggp.aspx, accessed on April 5, 2011.

Beach Chalet Athletic Field Usage

As described in Section II.B, Project Site Characteristics and Setting, the existing Beach Chalet Athletic Field facility is approximately 409,500 square feet in size, comprising 9.4 acres of the 1,017-acre Golden Gate Park. The Athletic Fields currently include four grass turf athletic fields surrounded by an 8-foot-tall metal chain link fence, an approximately 25,320-square-foot, 50-space asphalt parking lot (including one accessible space), a restroom building, and a cargo container being used as a maintenance shed. The play fields and parking lot are surrounded by trees and scattered shrubs, with existing trail routes. The site slopes gradually from east downward to the west at an average grade of 5 percent.

The fields are closed to the public for 3–4 months out of the year to allow the grass to rest and re-grow. The fields are also closed on Mondays for maintenance activities. The fields are open from 3:30 p.m. to dark, Tuesday through Friday, and on weekends from 8:00 a.m. to dark, and are closed during and following rain events. When the fields are open and available to the public, the fields are used exclusively through reservation by youth and adult soccer, lacrosse and ultimate frisbee leagues, via either an advanced reservation system or a first-come, first-served occasional reservation system.

When not reserved, the fields are closed and unavailable for use. Grassy areas outside the fenced field area are available for open play and other recreational activities.

Dutch Windmill and Queen Wilhelmina Tulip Garden

The Dutch Windmill located on the far western edge of Golden Gate Park is a wooden windmill built in 1902 to pump groundwater for irrigating the park's lawns and gardens. It was taken out of service around 1935. The Queen Wilhelmina Tulip Garden is a public space planted below the Dutch Windmill, which features thousands of tulips and Icelandic poppies.[7] The Dutch Windmill and Queen Wilhelmina Tulip Garden are located about 550 feet to the north of the Beach Chalet Athletic Fields.

Murphy Windmill and Millwright's Cottage

The Murphy Windmill is located on Lincoln Drive, at the southwest corner of Golden Gate Park. The windmill was the largest in the world when it was built in 1908 and was able to pump 40,000 gallons of water per day to irrigate the park.[8] Currently, the windmill is closed to the public; however, there are plans to renovate the windmill, which would include restoring its sails, replacing rotting wood, and earthquake proofing the structure before opening the area to Golden Gate Park visitors. Similar to the Dutch Windmill, the interior of the Murphy Windmill would not be open to public access.

7 San Francisco Recreation and Parks Department (SFRPD) 2011.
8 Western Neighborhoods Project website, available online at: http://www.outsidelands.org/murphy_windmill.php, accessed on April 5, 2011.

The Millwright's Cottage is situated adjacent to the Murphy Windmill currently being restored. Built in 1903 as the residence for the caretaker of the windmill, the cottage is historically significant. The two-story, 2,560-square-foot cottage is currently being renovated. The SFRPD has issued a Request for Qualifications to find a partner to turn the building into a "restaurant featuring locally and sustainably grown foods, potentially grown on adjacent park land." Included with the building is room for outdoor seating, event space, and the aforementioned possibility of an adjacent garden.[9] The Murphy Windmill and Millwright Cottage are approximately 400 feet south of the Beach Chalet Athletic Fields.

Other Western Golden Gate Park Resources

In addition to the facilities, buildings, and natural areas described above, the west end of the park also contains the following recreational facilities within 1 mile of the project site (see Figure IV.A-1):

- Archery fields, at 47th Avenue and John F. Kennedy Drive (approximately 600 feet northeast of the project site);
- Bison Paddock, at Chain of Lakes Drive and John F. Kennedy Drive (approximately 0.5 mile east of the project site);
- Petanque Courts, just south of intersection of Fulton Street and 38th Avenue (approximately 0.5 mile northeast of the project site);
- Golden Gate Park Senior Center, at Fulton and 37th Avenue (just over 0.5 mile northeast of the project site);
- Model Yacht Clubhouse, at 36th Avenue and John F. Kennedy Drive (approximately 0.75 mile from the project site);
- Flycasting Pools and Anglers Lodge, south of John F. Kennedy Drive (approximately 0.6 mile from the project site); and
- Golden Gate Stadium and Polo Fields, between John F. Kennedy Drive and Middle West Drive (approximately 0.75 mile from the project site).
- Dog Run, at 38th Avenue and Fulton Street (approximately 0.5 mile from the project site).
- Playground, at 36th Avenue and Lincoln Way (approximately 0.20 mile from the project site)
- Picnic area, located east of the Beach and Park Chalet Restaurants between Great Highway and John F. Kennedy Drive (approximately 200 feet from the project site).

In combination, these facilities provide such active outdoor activities as walking, running, biking, fishing, archery, equestrian riding, golfing, picnicking, and recreational sports associated with playing fields and children's play areas. Additionally, passive outdoor activities, such as nature watching, are popular in this portion of the park.

[9] San Francisco Recreation and Parks Department (SFRPD). 2010. Re: Request for Qualifications for the Millwright's Cottage Concession. Published May 6, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Recreational Trails

Golden Gate Park Recreational Trails

Trails in Project Area

There are several informal recreational trails surrounding the Beach Chalet Athletic Fields. A trail to the west of the fields runs north-south, connecting the Beach Chalet with the Murphy Windmill, and trails connect Martin Luther King Jr. Drive and John F. Kennedy Drive to the athletic fields.

Oak Woodland Trails

Golden Gate Park Oak Woodland Trails are located on the eastern end of the park, between Fulton Street, John F. Kennedy Drive, and Stanyan Street. The trails are paved and unpaved multi-use paths that are separated from the vehicular roadways and are maintained by SFRPD.

Juan Bautista de Anza National Historic Trail

The Juan Bautista de Anza National Historic Trail is a 1,210-mile historic route from Nogales, Arizona to San Francisco, California, commemorating the route of the 1775–1776 Spanish Expedition. The NPS operates and maintains signage for the trail, and promotes public access to areas related to the Anza expedition to provide educational opportunities and to preserve this significant part of Southwestern history. In San Francisco, the expedition members founded and established the Mission and Presidio of San Francisco. The Historic Trail travels up State Route 1 north (19th Avenue) to Golden Gate Park. The trail then continues north to Mountain Lake Park, the Presidio of San Francisco, and Fort Point. The Historic Trail Corridor also extends north from Lake Merced and parallels 19th Avenue, between 23rd Avenue and 31st Avenue.[10]

Great Highway Multi-use Path

The Great Highway Multi-use Path is a paved trail located east of the Great Highway, which extends approximately 3 miles north to south from Balboa Street to Sloat Avenue. The multi-use path is separated from the vehicular roadway. The path is maintained by SFRPD.

Bicycle Routes

Local and regional roadways in San Francisco are popular routes for commuters, independent bicyclists, and recreationists. These routes exist within a larger regional network of popular bicycling routes in the surrounding areas, including abundant popular routes south of San Francisco in the Peninsula foothills and north of San Francisco in Marin County. CCSF Municipal Transportation Agency (SFMTA) classifies bicycle routes in the project area as Class I,

[10] National Park Service, U.S. Department of the Interior (NPS). 2010c. *Juan Bautista de Anza Nation Historic Trail Guide: San Francisco County*, available online at: http://www.solideas.com/DeAnza/TrailGuide/San_Francisco/index.html, accessed on September 10, 2010.

II, or III facilities.[11] Class I bicycle facilities are designated bike paths with exclusive right-of-way for use by bicyclists or pedestrians. Class II bicycle facilities are bike lanes striped with the paved areas of roadways and established for the preferential use of bicycles. Class III bicycle facilities may consist of a variety of treatments, including streets with wide curb lanes (travel lane width closest to the curb is at least 14 feet), sharrows[12], traffic-calming measures, or simply streets signed as bicycle routes, which allow bicycles to share streets or sidewalks with vehicles or pedestrians.[13] The bicycle routes in the vicinity of the project area are described below and in **Table IV.E-1**.

Route 30: The Embarcadero to Ocean Beach via Golden Gate Park

Beginning as a Class II bicycle facility, Route 30 travels from the Embarcadero and the Howard Street to 11th, Mission, Otis, McCoppin, and Market Streets, and Duboce Avenue until the intersection of Duboce Avenue, Sanchez and Steiner Streets. The route travels to Fell Street via Steiner, Waller, Pierce, and Scott Streets. Route 30 follows Fell Street to the Panhandle Park multi-use pathway (Class I bikeway). Route 30 continues on the Panhandle multi-use pathway to Golden Gate Park. Within Golden Gate Park, the route follows Kezar Drive and John F. Kennedy Drive to the Great Highway via Class II and III bicycle facilities.[14]

Route 34: Middle Drive and Martin Luther King Jr. Drive

Route 34 begins on Middle Drive West at Transverse Drive and travels along Middle Drive West to Martin Luther King Jr. Drive and Lincoln Way, ending at the Great Highway.[15]

Route 95: Lincoln Boulevard/El Camino del Mar/Great Highway/Skyline Boulevard

Route 95 crosses San Francisco from the Golden Gate Bridge to San Mateo County. It connects the Presidio, Sea Cliff, Outer Richmond, Golden Gate Park, Outer Sunset, Parkside, and Lake Merced. In addition, it is the San Francisco portion of the Pacific Coast Bicycle Route, a state-marked route along the coast. Beginning at the Golden Gate Bridge, this route continues south via the Toll Plaza undercrossing, Merchant Road, Lincoln Boulevard, El Camino del Mar, and Route 10 (30th Avenue/Clement Street/Seal Rock Drive). It continues to El Camino del Mar, and Point Lobos Avenue to the Great Highway. The Great Highway offers two routes between which bicyclists may choose: an on-street route on the Great Highway and a parallel multi-use pathway between the roadway and the beach. Route 95 continues to San Mateo County via Skyline Boulevard (State Route 35).

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11 Bicycle facilities are defined by the State of California in the California Streets and Highway Code, Section 890.4. available online at: http://www.leginfo.ca.gov/cgi-bin/displaycode?section=shc&group=00001-01000&file=890-894.2, accessed on September 10, 2010.

12 Shared roadway bicycle pavement markings within traffic lane.

13 San Francisco Municipal Transportation Agency (SFMTA), 2009a. *San Francisco Bicycle Plan,* available online at: http://www.sfmta.com/cms/bproj/documents/SFMTA-CitizensGuideBike_000.pdf, accessed on September 10, 2010.

14 San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide, available online at:* http://www.sfbike.org/download/SF_Bike_Map_2010.pdf, accessed on September 10, 2010.

15 San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide.*

TABLE IV.E-1
RECREATIONAL RESOURCES IN THE PROJECT AREA

Resource	Location	Activities/Facilities	Jurisdiction
Recreational Facilities			
Ocean Beach	Great Highway between Point Lobos Avenue to Sloat Avenue.	Swimming, surfing, restrooms, parking facilities.	National Park Service
Golden Gate Park	West San Francisco; bounded on the west by the Great Highway (along Ocean Beach), on the north by Fulton Street, on the east by Stanyan Street, and on the south by Lincoln Way.	A boathouse and anglers lodge, handball and racquetball courts, baseball diamonds, lawn bowling greens and clubhouse, disc golf course, archery field, tennis courts and clubhouse, dog training area, soccer fields, golf course and clubhouse, polo green, horseshoe pits, three children's playgrounds, a carousel, and numerous special events, such as marathons and races, concerts, etc.	San Francisco Recreation and Parks Department
	Murphy Windmill and Millwright Cottage. Lincoln Drive at the southwest corner of Golden Gate Park.	Facilities are currently being renovated and are not open to the public.	San Francisco Recreation and Parks Department
Recreational Trails			
Great Highway Multi-use Path	Extends 3 miles north along Great Highway, between Sloat Avenue and Balboa Street.	Paved walking, running, and bicycle trail.	San Francisco Department of Public Works
Golden Gate Park Oak Woodlands Trail	A network of trails on the northeastern side of Golden Gate Park, between Fulton Street, John F. Kennedy Drive, and Stanyan Street; surrounding the San Francisco Conservancy of Flowers.	Unpaved walking, running, and mountain biking trail.	San Francisco Recreation and Parks Department
Bicycle Routes			
Route 30: The Embarcadero to Ocean Beach via Golden Gate Park	Extends east to west from the Embarcadero and Howard Street to Mission Street. The route then travels to Fell Street via Steiner, Waller, Pierce, and Scott Streets. The route follows Fell Street to the Panhandle Park multi-use pathway to Golden Gate Park. Within Golden Gate Park, the route follows Kezar Drive and John F. Kennedy Drive to the Great Highway.	Designated Class II bicycle facility on Howard, 11th, Mission, Otis, McCoppin, Market, Fell, Steiner, Waller, Pierce, and Scott Streets and Duboce Avenue. Designated Class I bicycle facility to the Panhandle Park multi-use pathway (Class I bikeway). Designated Class II/III bicycle facilities within Golden Gate Park, Kezar Drive, John F. Kennedy Drive, and the Great Highway.	San Francisco Recreation and Parks Department
Route 34: Middle Drive and Martin Luther King, Jr. Drive	Extends east to west through Golden Gate Park, from Middle Drive West at Transverse Drive, to Martin Luther King Jr. Drive, to Lincoln Way, ending at the Great Highway.	Designated Class II and Class III bicycle facility.	San Francisco Recreation and Parks Department
Route 95: Lincoln Boulevard/ El Camino del Mar/ Great Highway/ Skyline Boulevard	Route 95 crosses San Francisco from the Golden Gate Bridge to San Mateo County. It connects the Presidio, Sea Cliff, Outer Richmond, Golden Gate Park, Outer Sunset, Parkside, and Lake Merced. In addition, it is the San Francisco portion of the Pacific Coast Bicycle Route, a state-marked route along the coast.	The Great Highway offers two routes between which bicyclists may choose: an on-street route on the Great Highway (Class II and III) and a parallel multi-use pathway between the roadway and the beach (Class I).	San Francisco Recreation and Parks Department

TABLE IV.E-1 (Continued)
RECREATIONAL RESOURCES IN THE PROJECT AREA

Resource	Location	Activities/Facilities	Jurisdiction
Bicycle Routes (cont.)			
Route 234: McClain's Bend Connector	Route 234 connects Route 34 (Martin Luther King Jr. Drive) to Route 30 (John F. Kennedy Drive) within Golden Gate Park via Bernice Rogers Way.	Designated Class III bicycle facility.	San Francisco Recreation and Parks Department
Route 730: 43rd Avenue and Chain of Lakes Drive West Connector	A connector route that extends north to south within Golden Gate Park, between Cabrillo Street along 43rd Avenue (Route 20) and to Martin Luther King Jr. Dive and Middle Drive West (Route 830) via a path along Chain of Lakes Drive.	Designated Class I bicycle facility along path adjacent to Chain of Lakes Drives. Designated Class III facilities along 43rd Avenue.	San Francisco Recreation and Parks Department
Route 830: Martin Luther King Jr. Drive and Middle Drive West Pathway Connector	A connector route extends east to west within Golden Gate Park, between Route 30 (John F. Kennedy Drive) across from Lloyd Lake and runs south of Speedway Meadows, the Polo Field, Middle Lake, and the Bercut Equitation Field, ending near the intersection of Lincoln Way and the Great Highway.	Route 830 is a Class I bicycle facility that offers bicyclists in Golden Gate Park an off-street alternative to Route 34 (Middle Drive West/Martin Luther King Jr.) and Route 30 (John F. Kennedy Drive).	San Francisco Recreation and Parks Department
Route 930: 47th Avenue and Dutch Windmill Connector	Route 930 connects Route 20 (Cabrillo Street) to Route 30 (John F. Kennedy Drive) via 47th Avenue.	Designated Class II bicycle facility.	San Francisco Recreation and Parks Department

Route 234: McClain's Bend Connector

Route 234 connects Route 34 (Martin Luther King Jr. Drive) to Route 30 (John F. Kennedy Drive) within Golden Gate Park via Bernice Rogers Way.[16]

Route 730: 43rd Avenue and Chain of Lakes Drive West Connector

Route 730 connects Route 20 (Cabrillo Street) to Route 830 (Martin Luther King Jr. Drive and Middle Drive West Pathway Connector) via 43rd Avenue and the multi-use pathway along Chain of Lakes Drive West. In the northbound direction, the route briefly jogs onto Chain of Lakes Drive East to avoid the one-way section of Chain of Lakes Drive West open to motor vehicles.[17]

Route 830 Martin Luther King Jr. Drive and Middle Drive West Pathway Connector

Route 830 begins at Route 30 (John F. Kennedy Drive) across from Lloyd Lake and runs south of Speedway Meadows, the Polo Field, Middle Lake, and the Bercut Equitation Field, ending near the intersection of Lincoln Way and the Great Highway. Route 830 offers bicyclists in Golden

16 San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide.*
17 San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide.*

Gate Park an off-street alternative to Route 34 (Middle Drive West/Martin Luther King Jr.) and Route 30 (John F. Kennedy Drive).[18]

Route 930: 47th Avenue and Dutch Windmill Connector

Route 930 connects Route 20 (Cabrillo Street) to Route 30 (John F. Kennedy Drive) via 47th Avenue.[19]

San Francisco Recreation and Parks Department Athletic Fields

The San Francisco Recreation and Parks Department operates more than 50 athletic fields throughout San Francisco. These fields include a variety of soccer fields dimensions, baseball diamonds, and football and lacrosse fields. The Beach Chalet Athletic Fields is one of three primary ground sports athletic facilities citywide that provide space for soccer; others are Polo Fields (approximately 1 mile east of the project area within Golden Gate Park) and Crocker Amazon (7 miles south in John McLaren Park).

Regulatory Framework

San Francisco General Plan

The *San Francisco General Plan* provides general policies and objectives to guide land use decisions.

Recreation and Open Space Element

The Recreation and Open Space Element of the *San Francisco General Plan* is composed of several sections, each addressing a certain aspect of CCSF's recreation and open space system. The plan sections are (1) The Regional Open Space System, (2) The Citywide Open Space System, (3) The Shoreline, (4) The Neighborhoods, and (5) Downtown.

Western Shoreline Area Plan

The Western Shoreline Area Plan, which is part of the *San Francisco General Plan,* is CCSF plan for the Local Coastal Zone established by the California Coastal Commission. This area plan includes objectives and policies pertaining to open space in the area covered by the plan.

> **Great Highway**
>
> Develop the entire Great Highway right-of-way from Sloat Boulevard north to Point Lobos as a recreational parkway. Emphasize slow pleasure traffic and safe pedestrian access to the beach. Create and maintain bicycle, pedestrian and equestrian trails along the corridor and link them to Golden Gate Park and regional coastal trail systems. When a new seawall is constructed, extend the pedestrian promenade and provide convenient beach access stairs at regular intervals.

[18] San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide.*
[19] San Francisco Municipal Transportation Agency (SFMTA), 2009b. *San Francisco Bicycle Map and Walking Guide.*

Design the seawall, promenade, and beach access system to afford maximum protection to the dune ecosystem. Provide safe access to Ocean Beach by installing signalized crosswalks which are well lit after dark. Provide and maintain trail linkages between Golden Gate Park and Sutro Heights Park by creating a landscaped recreational corridor adjacent to the former Playland-at-the-Beach site. Where possible, create new playgrounds for adjacent neighborhoods.

Ocean Beach (GGNRA)

Continue as natural beach area for public recreation. Improve and stabilize sand dunes where necessary with natural materials to control erosion.

Golden Gate Park

Strengthen the visual connection and physical access between the park and the beach. Improve the western end of the park for public recreation and when possible eliminate the sewer treatment facilities. Extend the reforestation program, which has been established to replace dead and dying trees at the windbreak along the ocean, throughout the park to ensure vigorous forest tree growth and maintain high visual quality. Emphasize the naturalistic landscape qualities existing at the western portion of the park, and encourage increased visitor use in the area. (Golden Gate Park is more fully discussed in the Citywide System section, policy 11.)

Golden Gate Park Master Plan

The *Golden Gate Park Master Plan* (Park Master Plan) was adopted by the Recreation and Park Commission in October of 1998.[20] The Park Master Plan is a comprehensive planning document that includes general objectives and policies for the park, management strategies, and specific objectives and policies relating to park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, park maintenance and operations, and special area plans. The Park Master Plan is intended to provide a framework and guidelines to ensure responsible stewardship of the park. The overarching goal of the plan is to manage the current and future park and recreation demands while preserving the historic significance of the park.[21] The plan includes the following elements: Objectives and Policies, Park Landscape, Circulation, Recreation, Visitor Facilities, Buildings and Monuments, Utilities and Infrastructure, Maintenance and Operations Areas, Park Management, Park Funding, and Special Area Plans.

Regarding athletic fields, the Recreation element of the Park Master Plan states:

> *There are problems with overuse of some fields at the Polo Field and the Beach Chalet soccer fields. The lack of drainage systems under some fields makes maintenance difficult after rains. The turf is often damaged when fields are wet. The demand for these fields is very high and fields are receiving heavy use. Regular maintenance is not always scheduled into field permit schedules.*[22]

[20] San Francisco Recreation and Parks Department (SFRPD), *Golden Gate Park Master Plan*, 1998. available online at, http://sfrecpark.org/GGPMasterPlan.aspx. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

[21] SFRPD, *Golden Gate Park Master Plan;* p. 1-6.

[22] SFRPD, *Golden Gate Park Master Plan;* p. 6-1.

Figure IV.E-1 shows the project area mapped as part of the West End Special Area of the Golden Gate Park Master Plan. Objectives and policies from the plan sections relevant to the proposed project are summarized below.

Objective I: Ensure that land uses and activities in Golden Gate Park contribute to the mission and purpose of the park. The activities within a designated land use zone should be appropriate to the land use purpose.

***Policy C*:** The major recreation areas within Golden Gate Park have been established to meet specific recreational needs. The land within major recreation areas is programmed or designed for specific types of recreation or sport.

Objective II: Landscape Preservation and Renewal – Provide for the protection and renewal of park landscape.

***Policy B*:** Preserve and Renew the Parks Forests – Continue the implementation of a long-range plan for effective management of the park's forested areas.

***Policy E*:** Water Supply and Irrigation System – Develop new irrigation water supplies and improve water distribution and application systems.

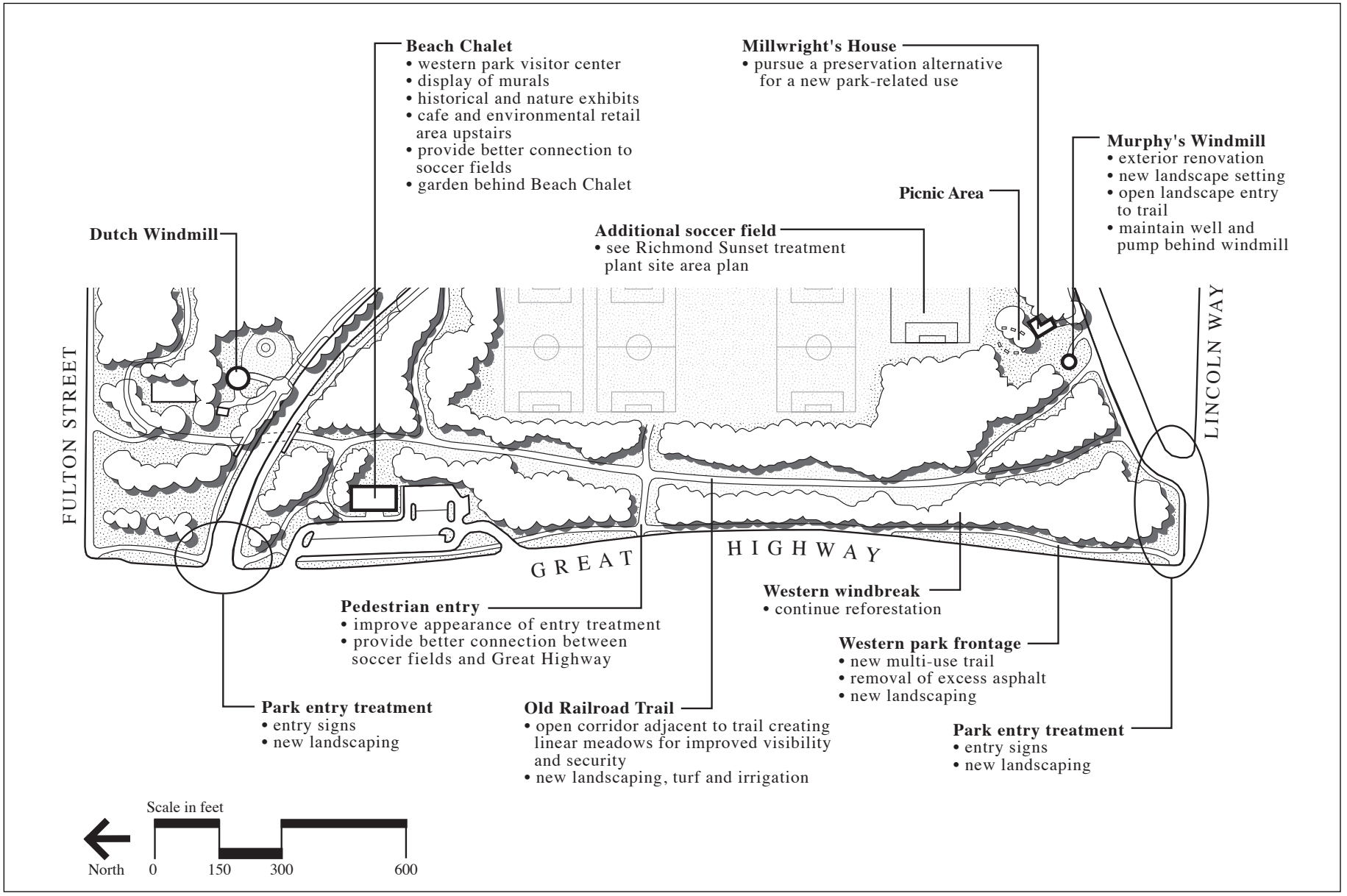
4. Plan for the future use of reclaimed water where appropriate in the park as mandated by the San Francisco reclaimed water ordinance. Analyze the impacts of reclaimed water on human, wildlife, sensitive plants, irrigation lines, water quality in lakes and water features, and maintenance and cost considerations. Where possible, provide a flexible system that can use reclaimed water or well water.

Objective III: Park Circulation – Create and maintain a parkwide system of recreational roadways, pathways, and trails. Minimize motor vehicular traffic.

Policy M: Traffic Generators – Major traffic generators, within Golden Gate Park or adjacent to the park, preparing development or improvement plans or staging major activities shall be required to prepare a transportation analysis or environmental evaluation detailing possible transportation impacts to Golden Gate Park. Where appropriate, such development plans, improvement programs, or activities should provide a transportation management system that will prevent additional motor vehicle congestions, user conflicts, and all-day parking by nonrecreational users within Golden Gate Park and encourage alternative modes of transportation.

Objective IV: Buildings, Structures, and Monuments – Minimize the impacts that buildings and monuments have on the park landscape, and preserve the open space of Golden Gate Park. Maintain and preserve historic buildings and structures.

***Policy B*:** Historic Structures – Preserve notable park structures that have historic, architectural and aesthetic value. Encourage restoration or reconstruction of other buildings and features that provide continuity with the past.



SOURCE: SFRPD, *Golden Gate Park Master Plan*

Case No. 2010.0016E: Beach Chalet Athletic Fields Renovation Project

Figure IV.E-1
West End Special Area

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to recreational resources but generally considers that implementation of the project would have a significant impact if it were to:

- Increase the use of existing neighborhood parks and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated;

- Physically degrade existing recreational facilities.

Approach to Analysis

Due to the nature of the proposed Beach Chalet Athletic Fields Renovation project, the following criterion is not analyzed in this section for the reasons described below:

- ***Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.*** The project would result in the renovation of existing athletic fields and thus, construction of project facilities is considered construction of recreational facilities. Therefore, analysis of the construction or expansion of recreational facilities, as it relates to the Beach Chalet Athletic Fields Renovation project, is the subject of this EIR, since the primary purpose of this EIR is to evaluate the potential impacts of implementing this project. Project construction would cause some significant effects as described and analyzed throughout this EIR, Chapters 1 through 6.

This analysis assesses recreation and public space impacts associated with the implementation of the Beach Chalet Athletic Fields Renovation. For the purpose of this assessment, recreational resources are generally defined as the natural and built features that people use for recreation (e.g., fields, trails, and playgrounds), including facilities associated with the recreational resource that enable recreation, such as parking facilities and restrooms. Local planning documents and maps were reviewed to identify the recreational resources in the project area that, because of their proximity, could be directly or indirectly affected by the proposed project.

To determine the potential for construction activities to cause direct effects on recreation, the proposed project's construction areas were compared with the locations of identified recreational resources. Potential indirect effects on recreational resources were identified through the same means, as well as by reviewing the impact findings presented in other pertinent sections of this EIR. Indirect effects that typically result from other environmental impacts and that could adversely affect the recreational experience include construction-related traffic hazards along recreational routes or impeded access to recreational resources (Section IV.D, Transportation and Circulation).

Under CEQA, the lead agency may evaluate impacts on existing recreational resources in the context of the availability of similar recreational resources to the public. Physical degradation of a

recreational facility (e.g., a bike path or a park) does not automatically result in a finding of a significant recreational impact under CEQA if the public has access to alternative, similar resources. For example, the physical degradation of a single bicycle route might not be significant in a region containing numerous alternative bicycle routes; that is, the resource—recreational bicycling on public roads—would not be significantly diminished by the loss of one route. Accordingly, the following analysis evaluates specific recreational impacts in the context of public availability of similar, alternative recreational resources. Any loss of recreational opportunity is evaluated only in the context of being caused by the physical degradation of recreational facilities or resources.

Impact Analysis

Impact RE-1: The project would not increase the use of existing neighborhood parks and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated and would not result in physical degradation of recreational resources. (Less than Significant)

The proposed project would renovate the existing athletic facility to increase the amount of playable time and subsequently the use of this recreational facility. Currently, the existing fields can host 4,738 hours of annual play, while the proposed project would add 9,582 hours of new play each year, for a total of 14,320 hours of annual play. The existing grass fields are in poor condition; the renovation of Beach Chalet Athletic Fields with lights and synthetic turf would not only increase the amount of playable time on these fields, but would also increase the safety, performance, and accessibility of the fields. As described above under the "Setting" section, three of the four fields are available daily, and all four fields are closed on Mondays, during and following rain events, and during an annual 3-4 month rest and re-growth period. When the fields are open and available to the public, the fields are used through reservation by school teams, youth soccer leagues and adult leagues, via either an advanced reservation system or a first-come, first-served occasional reservation system. When not reserved, the fields are not available for use. However, grassy areas outside the fenced field area are available for open play and other recreational activities that are allowed throughout Golden Gate Park.

The fields would be closed to the public during project construction, which is expected to occur over a 10-month period. It is expected that other fields within the park and the overall SFRPD system would accommodate some of the field use currently occurring at the Beach Chalet Athletic Fields. However, it is expected that the number of practices, games, and tournaments currently occurring at the Beach Chalet Athletic Fields may not be fully accommodated at other SFRPD athletic fields, along with the existing reservations of those fields; there would likely be a temporary overall reduction in citywide reservations allocated during the construction period. Because the number of reservations at other SFRPD fields would be controlled during the project construction period, other SFRPD fields would not experience overuse resulting in physical deterioration of the facilities. Further, sufficient recreation opportunities are available throughout Golden Gate Park and other San Francisco recreation resources such that much of the open play and other recreational activities currently occurring at the project site (outside the fenced athletic

field area) could be accommodated for the 10-month construction period without over use of those facilities and related potential for physical deterioration of those facilities. At any rate, the less than one year of construction could have temporary impacts with respect to field use and availability, but would not be expected to result in any permanent adverse changes.

Following project construction, the existing recreation opportunities available at the Beach Chalet Athletic Fields would resume (including use of the fields by reservation and other recreation activities). However, the available play time would increase as the synthetic turf doesn't need time to rest or re-grow and doesn't degrade as quickly as grass as a result of heavy or light use. Because the proposed synthetic turf requires less maintenance than the existing grass turf fields, which are currently in poor condition, the increased play time could be accommodated and the facility maintained in good condition with 1/3 full time equivalent staff without resulting in physical deterioration of the facility.

As described in Section IV.B, Aesthetics, the immediate project site would likely appear brighter as compared with existing conditions. However the proposed lighting is unlikely to spill over the site's boundaries substantially enough to adversely affect the surrounding neighborhoods. Field lighting would be turned off at 10:00 p.m., with parking and pathway lighting turned off shortly thereafter. Therefore, night sky viewing from areas open to the public at night would not be affected.

The increased use of the athletic fields would require increased access to the facility from existing roadways and pedestrian paths/roadways, which could result in overuse of pathways/trails and potential creation of new social trails, resulting in potential deterioration or physical degradation of recreation resources. However, the proposed project includes pedestrian pathway/trail improvements and lighting for connections between the athletic fields and John F. Kennedy Drive to the east and north; and an unnamed trail located to the west of the facility, which connects the site to the Beach Chalet Restaurant, Great Highway, and Ocean Beach to the west, Martin Luther King Jr. Drive to the south, and John F. Kennedy Drive to the north. In addition, the project includes improvements to the existing parking lot, including an increase in parking spaces, a drop off location, Americans with Disabilities Act accessible parking spaces, and a bicycle rack. The access improvements would provide several managed ingress/egress options for the site, and substantial physical deterioration or degradation of recreational resources surrounding the facility is not anticipated. Moreover, the increase in access to the fields would not be beyond the capacity of nearby streets and paths, many of which are much less intensively used than streets and paths in the eastern portion of Golden Gate Park and elsewhere in San Francisco (see Section IV.D, Transportation and Circulation).

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Cumulative Impacts

Impact C-RE: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to recreation and public space. (Less than Significant)

The geographic scope of potential cumulative, construction-related recreation impacts encompasses the construction and staging sites at the Beach Chalet Athletic Fields and recreational facilities, trails, and bicycle routes in the immediate vicinity of the project.

The projects identified on the cumulative projects list in Table IV-1 include various civic facilities and utility projects in the site vicinity. The construction schedule for the proposed project would begin in the summer/fall of 2013 and continue for 10 months. Past projects include the development of civic facilities and infrastructure. The majority of current and reasonably foreseeable cumulative projects occur in Golden Gate Park and surrounding neighborhoods. These projects include infill development or renovation of existing facilities such as the Murphy Windmill/ Millwright's Cottage Restoration, and the San Francisco Botanical Garden Sustainable Gardening Project; and construction of new pipelines and facilities associated with the San Francisco Westside Recycled Water Project and the San Francisco Groundwater Supply Project. These projects are expected to have primarily temporary construction-related impacts on recreational resources, such as potential temporary bicycle route detours, but are not expected to result in the physical degradation of any recreational facilities. The San Francisco Westside Recycled Water Project and San Francisco Groundwater Supply Project facility locations are located in areas not generally used by the public for recreation. These projects, when combined with past projects and the Beach Chalet Athletic Fields Renovation Project, would not have a cumulatively considerable contribution to impacts on recreational resources.

IV.F Biological Resources

This section describes the biological resources that occur or have the potential to occur within or adjacent to the Beach Chalet Athletic Fields project area and evaluates the possible project-related impacts on these resources. Mitigation measures to reduce adverse impacts on biological resources to less-than-significant levels are identified.

Information on existing vegetation, wildlife, and special-status species was obtained from regional plans and reports, records from the California Natural Diversity Database (CNDDB), California Native Plant Society (CNPS) Electronic Inventory, the U.S. Fish and Wildlife Service (USFWS), aerial photo interpretation, and other biological literature.[1]

Setting

Regional Setting

The Beach Chalet Athletic Fields project area is located in the Bay-Delta Bioregion.[2] This bioregion consists of a variety of natural communities that range from the open waters of the Bay and Delta to salt and brackish marshes to grassland, chaparral, and oak woodlands. The temperate climate is Mediterranean in nature, with relatively mild, wet winters and warm, dry summers. The high diversity of vegetation and wildlife found in the region is a result of soil, topographic, and micro-climate diversity that combines to promote relatively high levels of endemism.[3] This, in combination with a long history of uses resulting in alteration of the natural environment, has resulted in a relatively high degree of endangerment for certain local flora and fauna.

The San Francisco Bay-Delta is the second largest estuary in the United States and supports numerous aquatic habitats and biological communities. It encompasses 479 square miles, including shallow mudflats, tidal marshes, and open waters. The San Francisco Bay-Delta is an important wintering and migratory stop-over site for the Pacific Flyway. More than 300,000 wintering waterfowl use the region.

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1 CNDDB. 2011. California Natural Diversity Data Base, Rarefind 3 computer application, Sacramento, CA; CNPS. 2011. Online Inventory of Rare and Endangered Plants. Version 7-08b (04/02/08), available online at: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi, accessed on 4/14/2011; USFWS. 2011. Official List of Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in San Francisco North and the San Francisco South USGS 7.5 Minute Quadrangles, Document Number: 11041402353, retrieved April 14, 2011. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

2 A *bioregion* is an area defined by a combination of ecological, geographic and social criteria, and consists of a system of related, interconnected ecosystems. The Bay-Delta Bioregion is considered the immediate watershed of the Bay Area and the Delta, not including the major rivers that flow into the Delta. It is bounded on the north by northern edge of Sonoma and Napa Counties and the Delta, and extends east to the edge of the valley floor; on the south, it is bounded by the southern edge of San Joaquin County, the eastern edge of the Diablo Range, and the southern edge of Santa Clara and San Mateo Counties.

3 *Endemism* refers to the degree to which organisms or taxa are restricted to a geographical region or locality and thus are individually characterized as endemic to that area.

Project Setting

The CEQA baseline for biological resources analysis comprises an area of San Francisco's Golden Gate Park that contains the current 6.8-acre grass turf playing fields, as well as additional grass-covered areas and landscape trees that surround the perimeter of the existing field. The project area is located at the western edge of Golden Gate Park, less than 1,000 feet from the Pacific Ocean and Ocean Beach, and is contiguous with adjacent trees and vegetation of the park. In the mid-19th century, before construction and landscaping of the existing park, the area was characterized by sparsely vegetated sand dunes, which was typical of vegetation along the San Francisco peninsula at the time.[4] Development within San Francisco has almost entirely removed sand dune habitat on the peninsula, and within San Francisco only Fort Funston State Park still contains sand dunes and native sand dune vegetation. Currently, Golden Gate Park contains large groves of mature landscape trees, landscaped areas, ponds and lakes with wetland vegetation, and recreational turfgrass fields similar to the existing Beach Chalet Athletic Fields. While native habitats of the park have been extensively modified, the park contains several habitats capable of supporting a significant diversity of wildlife species, especially nesting and migratory birds.

The site is bounded by the Great Highway and Ocean Beach to the west; the former Richmond-Sunset Water Pollution Control Plant site, currently used for debris disposal, and Murphy Windmill and Millwright's Cottage to the south; and John F. Kennedy Drive and Golden Gate Municipal Golf Course to the north and northeast.

Vegetation Communities

Vegetation communities in the project area are classified based on Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California*[5], and include landscaped, non-native forest, and developed (see **Figure IV.F-1**). "Developed" is not a natural vegetation community per se, as it lacks vegetation, but it is used here to describe areas that cannot be classified under any of Holland's vegetation communities. The following paragraphs include a description of these communities.

Landscaped

The majority of the project site consists of fenced, irrigated, regularly mowed, and maintained turf grass used as athletic fields. Turf grass species used on the athletic fields include fescue (*Festuca* sp.) and blue grass (*Poa* sp.), as well as other cultivated grass species. Weedy non-native plant species, such as English lawn daisy (*Bellis perennis*), pineapple weed (*Matricaria matricarioides*), and panic veldt grass (*Ehrharta erecta*), were also observed in the turf grass area, and are considered locally common in landscaped and disturbed areas.

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4 S.F. Recreation and Parks. 1998. Golden Gate Park Master Plan, available online at: http://sfrecpark.org/GGPMasterPlan.aspx.

5 Holland, Robert F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* California Department of Fish and Game. Sacramento, CA. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Beach Chalet Athletic Fields Renovation . 210585

SOURCE: ESA, 2011; ESRI, 2011

Figure IV.F-1
Vegetation Types in the Project Area

0 200
Feet

Non-native Forest

Trees and wooded habitats are abundant in areas directly adjacent to the current playing field, and these habitats connect directly with woodlands associated with Golden Gate Park. Surrounding the fields are cultivated tree species, including Monterey cypress (*Cupressus macrocarpa*) with a few scattered Monterey pine (*Pinus radiata*) and Italian stone pine (*Pinus pinea*). Large shrubs are also present in these areas, including myporum (*Myoporum laetum*) and pittosporum (*Pittosporum* sp.). Monterey cypress and myoporum dominate the non-native forest areas, forming an overstory consisting of mature cypresses and an understory of mature myoporum. North and west of the athletic fields, canopy cover is dense and ranges from 50 to 75 percent. Understory in these areas is generally sparse as a result of the shaded conditions and consists of cypress duff, with sparsely distributed grasses and poison hemlock (*Conium maculatum*). A small restoration area west of the playing fields contains young Monterey cypress and myoporum, as well as native shrubs that include California sage (*Artemisia californica*) and black sage (*Salvia mellifera*). Wooded habitat directly south of the existing playing field is dominated by myoporum, with a canopy cover of around 50 percent and a dense understory of Himalayan blackberry (*Rubus armeniacus*), Cape ivy (*Delairea odorata*), and tamarisk (*Tamarix* sp.). Where the canopy is densest, little understory is present. Mature Monterey cypress and blue-gum eucalyptus (*Eucalyptus globulus*) are located east of John F. Kennedy Drive.

Developed

Developed areas include driveways/pathways, a parking lot, a restroom, and other facilities. The current parking lot is paved and provides little habitat for wildlife. Although paved areas themselves generally lack habitat for wildlife, within the project site wildlife may cross developed areas to get to nearby landscaped habitat or non-native forest. Thus, developed areas often have wildlife species similar to landscaped and non-native forest communities, as discussed below.

Sensitive Natural Communities, Including Wetlands

Sensitive natural communities are designated as such by various resource agencies, such as the California Department of Fish and Game (CDFG), or in local policies and regulations, and are generally considered to have important functions or values for wildlife and/or are recognized as declining in extent or distribution, and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, state, and most local agencies also consider wetlands and riparian habitat as sensitive communities. The CNDDB (administered by CDFG) tracks communities it believes to be of conservation concern, and these communities are typically considered sensitive for the purposes of CEQA analysis.

As discussed above, the project area consists of irrigated turf grass athletic fields, non-native forests, and developed areas. There are no sensitive communities within the project area, nor is there any riparian habitat. The CNDDB reports no sensitive natural community occurrences for the San Francisco North U.S. Geological Survey (USGS) 7.5 Minute quadrangle containing the project[6], and most of the vegetation within the project area is non-native.

6 *Op. cit.*

The proposed project area consists of landscaped areas, turfgrass, and developed areas, such as pathways and parking lots. There are no waterways, lakes, or other impoundments of water, and thus no potentially jurisdictional waters or wetlands within the proposed project area.

Tree Resources

A tree and large shrub report was prepared for the proposed project by HortScience, Inc., in March, 2010.[7] Trees and large shrubs at the project site were surveyed in September 2009. The survey included all plants larger than 6 inches in diameter. The survey also evaluated the health and structural condition of each plant, and rated each tree or shrub for its suitability for preservation. The suitability for preservation considered each plant's health, age, and structural condition, as well as its potential to remain an asset to the site in the future. A total of 130 trees and large shrubs were surveyed and evaluated. All 130 plants had been installed as part of landscape development. None of the species are native to San Francisco.

Wildlife

Dark-eyed junco (*Junco hyemalis*), black phoebe (*Sayornis nigricans*), and Say's phoebe (*Sayornis saya*) were observed foraging in the athletic fields during a reconnaissance-level survey in February 2011 conducted by ESA, with activity centered around perches, such as goalposts and fence lines. Immediately after mowing, the playing field could support additional common birds that forage for invertebrates, such as American robin (*Turdus migratorius*) or Brewer's blackbird (*Euphagus cynaocephalus*). Other common birds observed flying over the existing playing fields included rock dove (*Columba livia*), American crow (*Corvus brachyrhynchos*), and common raven (*Corvus corax*). At the time of the February site visit, mowed grasses in the athletic fields contained patches of pocket gopher (*Thomomys bottae*) burrows. Gopher activity was limited to approximately five different patches in the mowed grass area of the field, with 10–15 excavated dirt mounds in each activity area. This gopher population could act as a prey base for foraging raptors, such as red-tailed hawk (*Buteo jamaicensis*), as nearby trees for perching and nesting are abundant and the field represents the open foraging habitat preferable to most raptors. Ambient noise levels on the athletic field were relatively low at the time of the site visits, with traffic noise from John F. Kennedy Drive to the east and the Great Highway to the west largely attenuated by the trees and shrubs surrounding the field.

Northern flicker (*Colaptes auratus*) and dark-eyed junco were observed in the restoration area to the west of the athletic fields, which contains a greater diversity of vegetation (both in terms of species composition and structure) and thus microhabitats capable of supporting foraging passerines (perching birds and songbirds). No birds were observed in the wooded habitat south of the playing fields, but shrubs and trees here could support nesting passerine birds. A pair of red-tailed hawks were observed soaring above the wooded habitat to the east of John F. Kennedy Drive during the February 2011 site visit, and the mature trees there are large enough to support nesting raptors. No nests of any kind were observed during the reconnaissance survey; all of the

[7] HortScience, Inc., 2010, *Tree and Large Shrub Report: Golden Gate Park Soccer Fields.* This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

trees and shrubs immediately surrounding the field were observed directly. Further avian surveys in May of 2011, during the nesting season, focused on identifying breeding birds in the vicinity of the athletic fields and found only three nests within approximately 100 to 150 feet of the playing fields, all of which were inactive. In addition, few cavities were noted in larger Monterey cypress surrounding the fields. The results of these surveys suggest that trees and shrubs surrounding the athletic fields are not commonly used for nesting.

Wildlife Movement Corridor

Rugged terrain, changes in vegetation, or areas of human disturbance or urban development can fragment wildlife habitats and impede wildlife movement between areas of suitable habitat. This fragmentation creates isolated "islands" of vegetation that may not provide sufficient area to accommodate sustainable populations, and can adversely affect genetic and species diversity. Wildlife movement corridors link habitat areas and mitigate the effects of this fragmentation by allowing animals to move between remaining habitats, in turn allowing depleted populations to be replenished and promoting genetic exchange between separate populations.

The San Francisco peninsula is an important migratory stopover for birds in the Pacific flyway, one of the four major migratory routes in North America. Raptors, songbirds, shorebirds, and waterfowl all stop in San Francisco, particularly in Golden Gate Park and Lake Merced, during their fall and spring migrations.

Special-Status Species

A number of species known to occur in the vicinity of the proposed project area are protected pursuant to federal and/or State endangered species laws, or have been designated Species of Special Concern by the CDFG. In addition, Section 15380(b) of the CEQA Guidelines provides a definition of rare, endangered, or threatened species that are not currently included in an agency listing, but whose "survival and reproduction in the wild are in immediate jeopardy" (endangered) or which are "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens" or "is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the Federal Endangered Species Act" (rare).[8] Species recognized under these terms are collectively referred to as "special-status species." For the purposes of this EIR, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or State endangered species acts;
- Species that are candidates for listing under either federal or State law;
- Species formerly designated by the USFWS as Species of Concern or by CDFG as Species of Special Concern;

[8] For example, CDFG interprets Lists 1A, 1B, and 2 of the California Native Plant Society's *Inventory of Rare and Endangered Vascular Plants of California* to consist of plants that, in a majority of cases, would qualify for listing as rare, threatened, or endangered. However, the determination of whether an impact is significant is a function of the lead agency, absent the protection of other laws.

- Species designated as "special animals" by the state;[9]
- Species designated as "fully protected" by the state (of which there are about 35, most of which are also listed as either endangered or threatened);[10]
- Raptors (birds of prey), which are specifically protected by the California Fish and Game Code Section 3503.5, which prohibits the take, possession, or killing of raptors and owls, their nests, and their eggs;[11] and
- Species, such as candidate species, that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

Data on species occurrence was obtained from the CNDDB, the CNPS Electronic Inventory, USFWS[12], and other biological literature pertaining to these areas. List of special-status plant and animal species that have been documented to occur or have the potential to occur in suitable habitat within the project area were developed, and it was determined whether there is a low, moderate, or high potential for species occurrence at the project area, based on previous special-status record locations and current site conditions, as discussed below.

Species Assessed in Detail

Special-status species with the potential to occur in the project area were assessed based on the literature review, professional judgment, and the following criteria:

1) A determination of susceptibility. This determination is a three-level process that evaluated for each species: a) potential occurrence in the study area (generally, the habitats of the project area, including the existing athletic fields and surrounding wooded habitats); b) potential occurrence within the footprint of the athletic fields or associated structures; or, c) absence from either the study area or proposed development sites. If the species was determined unlikely to be found in the study area, (e.g., if no potential habitat exists for the species in the project area), then the species was given no further consideration.

2) If a species was determined to have the potential to occur in the project area, further analyses were made of life history and habitat requirements, as well as the suitability of habitat for the species found within the project area or its immediate vicinity.

3) If suitable habitat was determined present within the project area or vicinity and the species has been documented as observed within the project area or has some potential to occur, additional analysis considered whether the species would be adversely affected by

[9] Species listed on the current CDFG Special Animals List (July 2009), which includes 883 species. This list includes species that CDFG considers "those of greatest conservation need."

[10] The "fully protected" classification was California's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. The designation exists in the State Fish and Game Code.

[11] The inclusion of birds protected by Fish & Game Code Section 3503.5 is in recognition of the fact that these birds are substantially less common in California than most other birds, having lost much of their habitat to development, and the recognition that the populations of these species are therefore substantially more vulnerable to further loss of habitat and to interference with nesting and breeding than are most other birds. It is noted that a number of raptors and owls are already specifically listed as threatened or endangered by state and federal wildlife authorities.

[12] CNDDB, CNPS, USFWS, *Op. cit.*

the proposed project. Both direct effects (e.g., displacement of habitat) and indirect effects (e.g. noise effects on wildlife) were considered. In addition, life history and habitat requirements were evaluated to ascertain the likelihood and severity of impact.

Special-Status Plants

Table IV.F-1 presents the name, status, habitat, and potential to occur of special-status plant species known from the general project area (San Francisco North quadrangle) that includes and surrounds the project site. None of the special-status plant species are considered to have a high potential to occur in the project area, and no special-status plant species were observed during a January 2010 biological resources site assessment (May & Associates, 2010) or the February 2011 site visit. Although these site assessment were conducted outside the blooming period for most of the special-status plants in Table IV.F-1, the overall potential of the site to support special-status plant species is considered low based on the lack of native plants and native plant habitats, and on the disturbed and heavily managed condition of the area.

Special-Status Animals

Of the special-status animals presented in **Table IV.F-2**, only species classified as having a moderate or high potential for occurrence in the project area were considered in the impact analysis. Species addressed in detail include the following:

- Bank swallow
- American kestrel
- Cooper's hawk
- Red-tailed hawk
- Red-shouldered hawk
- Western red bat

These species are described in further detail below.

Birds

Bank swallow (*Riparia riparia*). Bank swallows are colonial nesters in sandy banks and cliffs of rivers and coastal bluffs. They forage from dawn to dusk for insects over lakes, ponds, rivers and streams, meadows, fields, pastures, bogs, and occasionally over forests and woodlands. Foraging habitats include aerial areas over lakes, ponds, rivers and streams, meadows, fields, pastures, bogs, and occasionally over forests and woodlands. During breeding, feeding sites are usually within 200 meters of the colony when young are being fed, however, this distance may vary depending on the availability of good foraging areas.[13] There is no suitable nesting habitat at the project site. This species was documented as nesting in the cliffs at Ocean Beach in 1960[14] but there is no current information on whether this population is extant or not. If they do still occur at Ocean Beach, they would be south or north of the Beach Chalet Athletic Fields as the beach nearest the project site has no cliffs. Bank swallows may occasionally use the Beach Chalet Athletic Fields for foraging purposes although they have not been documented there.

[13] Garrison, B. A. 1998. Bank Swallow (*Riparia riparia*). In The Riparian Bird Conservation Plan: a strategy for reversing the decline of riparian-associated birds in California. California Partners in Flight, available online at: http://www.prbo.org/calpif/htmldocs/riparian_v-2.html.

[14] CDFG, *Op. Cit.*

TABLE IV.F-1
SPECIAL-STATUS PLANT SPECIES REPORTED OR WITH POTENTIAL TO OCCUR NEAR THE BEACH CHALET ATHLETIC FIELDS PROJECT

Common name Scientific name	Listing Status USFWS/ CDFG/CNPS	Habitat	Potential to Occur
Species Listed or Proposed for Listing			
Plants			
Presidio manzanita *Arctostaphylos montana* ssp. *ravenii*	FE/CE/1B.1	Open, rocky, serpentine slopes in chaparral, coastal scrub, and coastal prairie.	**Not observed;** no suitable habitat present.
Marsh sandwort *Arenaria paludicola*	FE/CE/1B.1	Freshwater of brackish marshes and swamps.	**Not observed;** no suitable habitat present; presumed extirpated in San Francisco.
Presidio clarkia *Clarkia franciscana*	FE/CE/1B.1	Serpentine outcrops in coastal scrub, and valley and foothill grassland.	**Not observed;** no suitable habitat present.
Marin western flax *Hesperolinon congestum*	FT/CT/1B.1	Chaparral and grassland, usually on serpentine barrens.	**Not observed;** no suitable habitat present.
Beach layia *Layia carnosa*	FE/CE/1B.1	Sparsely vegetated, semi-stabilized coastal dunes and scrub.	**Not observed;** no suitable habitat present.
San Francisco lessingia *Lessingia germanorum*	FE/CE/1B.1	Open, sandy, coastal dunes and scrub.	**Not observed;** no suitable habitat present.
White-rayed pentachaeta *Pentachaeta bellidiflora*	FE/CE/1B.1	Open, dry, rocky slopes and grassy areas, usually on serpentine.	**Not observed;** no suitable habitat present.
San Francisco popcorn-flower *Plagiobothrys diffusus*	--/CE/1B.1	Coastal prairie, and valley and foothill grasslands.	**Not observed;** no suitable habitat present.
Federal Species of Concern or State Species of Special Concern			
Franciscan manzanita *Arctostaphylos franciscana*	--/–/1B.1	Open, rocky, serpentine outcrops in chaparral.	**Not observed;** no suitable habitat present. This species was believed to be extinct in the wild (although still alive through cultivation), but was rediscovered in Presidio National Park in late 2009.
Alkali milk-vetch *Astragualus tener var. tener*	--/--/1B.2	Alkali flats, flooded grassland, playas, and vernal pools.	**Not observed;** no suitable habitat present; presumed extirpated in San Francisco.
Bristly sedge *Carex comosa*	--/--/2.1	Lake margins, marshes, swamps, coastal prairie, and valley and foothill grasslands.	**Not observed;** no suitable habitat present.
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidata*	–/–/1B.2	Coastal bluff scrub, dunes, prairie, and coastal scrub; sandy soils on terraces and slopes.	**Not observed;** no suitable habitat present.
Franciscan thistle *Cirsium andrewsii*	--/--/1B.2	Coastal bluff scrub, coastal prairie, coastal mesic scrub, and broadleaf upland forest; sometimes on serpentine.	**Not observed;** no suitable habitat present.
Round-headed Chinese-houses *Collinsia corymbosa*	--/--/1B.2	Coastal dunes and coastal prairie.	**Not observed;** no suitable habitat present. This species has not been seen in San Francisco for more than 100 years.

TABLE IV.F-1 (Continued)
SPECIAL-STATUS PLANT SPECIES REPORTED OR WITH POTENTIAL TO OCCUR NEAR THE BEACH CHALET PROJECT

Common name Scientific name	Listing Status USFWS/ CDFG/CNPS	Habitat	Potential to Occur
Federal Species of Concern or State Species of Special Concern (cont.)			
San Francisco collinsia *Collinsia multicolor*	–/–/1B.2	On humus-covered soil derived from mudstone in closed-cone coniferous forest and coastal scrub.	**Not observed;** no suitable habitat present.
Point Reyes bird's-beak *Cordylanthus maritimus ssp. palustris*	--/--/1B.2	Coastal salt marshes and swamps.	**Not observed;** no suitable habitat present.
Fragrant fritillaria *Fritillaria liliacea*	–/–/1B.2	On clay, often serpentine-derived soils in coastal scrub, grassland, and coastal prairie.	**Not observed;** no suitable habitat present.
Blue coast gilia *Gilia capitata ssp. chamissonis*	--/--/1B.1	Coastal scrub and coastal dunes.	**Not observed;** no suitable habitat present.
Dark-eyed gilia *Gilia millefoliata*	--/--/1B.2	Coastal dunes.	**Not observed;** no suitable habitat present. Potentially extirpated from San Francisco.
San Francisco gumplant *Grindelia hirsutula var. maritima*	--/--/1B.2	On sandy or serpentine slopes of sea bluffs in coastal scrub, or valley and foothill grasslands.	**Not observed;** no suitable habitat present. Reintroduced in Pine Lake Park (SF Recreation and Parks, 2006), but not known to occur in project area.
Seaside tarplant *Hemizonia congesta* ssp. *congesta*	--/--/1B.2	Grassy valleys and hills, often on fallow fields in coastal scrub.	**Not observed;** no suitable habitat present.
Kellogg's horkelia *Horkelia cuneata* ssp.*sericea*	--/--/1B.1	Openings in old dunes, coastal and sandhill, in closed-cone coniferous forest, coastal scrub, and chaparral.	**Not observed;** no suitable habitat present.
Rose leptosiphon *Leptosiphon rosaceus*	--/--/1B.1	Coastal bluff scrub.	**Not observed;** no suitable habitat present.
Marsh microseris *Microserus paludosa*	--/--/1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland.	**Not observed;** no suitable habitat present.
Choris's popcorn-flower *Plagiobothrys chorisianus* var. *chorisianus*	–/–/1B.2	Mesic sites in chaparral, coastal scrub, and coastal prairie.	**Not observed;** no suitable habitat present but historic record in Golden Gate Park.
Hairless popcorn-flower *Plagiobothrys glaber*	–/–/1A	Coastal salt marshes and alkaline meadows.	**Not observed;** no suitable habitat present.
Oregon polemonium *Polemonium carneum*	–/–/1B.1	Coastal prairie, coastal scrub, lower montane coniferous forest.	**Not observed;** no suitable habitat present.
Adobe sanicle *Sanicula maritima*	--/Rare/1B.1	Moist clay or ultramafic soil in chaparral, coastal prairie, meadows, seeps, and valley and foothill grassland.	**Not observed;** no suitable habitat present.
San Francisco campion *Silene verecunda* ssp. *verecunda*	–/–/1B.2	Mudstone, shale, or serpentine substrates in coastal scrub, coastal prairie, chaparral and valley and foothill grassland.	**Not observed;** no suitable habitat present.

TABLE IV.F-1 (Continued)
SPECIAL-STATUS PLANT SPECIES REPORTED OR WITH POTENTIAL TO OCCUR NEAR THE BEACH CHALET PROJECT

Common name Scientific name	Listing Status USFWS/ CDFG/CNPS	Habitat	Potential to Occur
Federal Species of Concern or State Species of Special Concern (cont.)			
Santa Cruz microseris *Stebbinsoseris decipiens*	--/--/1B.2	On sandstone, shale, or serpentine-derived seaward-facing slopes in broadleaf upland forest, closed-cone coniferous forest, chaparral, coastal prairie, and coastal scrub.	**Not observed;** no suitable habitat present.
San Francisco owl's-clover *Triphysaria floribunda*	--/--/1B.2	Coastal prairie, and valley and foothill grasslands; occasionally on serpentine.	**Not observed;** no suitable habitat present.
Coastal triquetrella *Triquetrella californica*	--/--/1B.2	On soil in coastal bluff and coastal scrub.	**Not observed;** no suitable habitat present.

STATUS CODES:

Federal Categories (USFWS)
FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
FPE = Proposed for listing as endangered
FPT = Proposed for listing as threatened
FC = Candidate for federal listing
FSC = Former federal species of concern. Species designated as such in this EIR were listed by the Sacramento FWS office until 2006, when they stopped maintaining their list. These species are still considered to be at-risk species by other federal and State agencies, as well as various organizations with recognized expertise, such as the Audubon Society.

State Categories (CDFG)
CE = Listed as endangered by the State of California
CT = Listed as threatened by the State of California
CR = Listed as rare by the State of California

CNPS
List 1A = Plants presumed extinct in California.
List 1B = Plants rare, threatened, or endangered in California and elsewhere.
List 2 = Plants rare, threatened, or endangered in California, but more common elsewhere.
List 3 = Plants about which more information is needed.
List 4 = Plants of limited distribution.

[a] High Potential = Species is expected to occur and habitat meets special requirements.
Moderate Potential = Habitat is only marginally suitable or is suitable but not within species' geographic range.
Low Potential = Habitat does not meet species requirements as currently understood in the scientific community.

TABLE IV.F-2
SPECIAL-STATUS ANIMAL SPECIES REPORTED OR WITH POTENTIAL TO OCCUR WITHIN OR ADJACENT TO THE BEACH CHALET ATHLETIC FIELDS PROJECT

Common name Scientific name	Listing Status USFWS/CDFG	Habitat	Potential to Occur[a]
Species Listed or Proposed For Listing			
Invertebrates			
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE/--	Coastal scrub.	**Absent;** no suitable habitat present.
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT/–	Serpentine grasslands.	**Absent;** no suitable habitat present, nearby CNDDB occurrences on the San Francisco peninsula have been extirpated.
Mission blue butterfly *Plebejus icarioides missionensis*	FE/--	Grassland with *Lupinus albifrons, L. Formosa*, and *L. varicolor*.	**Absent;** no suitable habitat present.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE/--	Found in native grasslands with *Viola pedunculata* as larval food plant.	**Absent;** no suitable habitat present.
Amphibians			
California red-legged frog *Rana draytonii*	FT/CSC	Freshwater ponds and slow streams with emergent vegetation for egg attachment.	**Absent;** While suitable habitat and recorded occurrences are present in ponds in Golden Gate Park, the nearest pond with recorded occurrences is more than 1.5 miles east of the project area. The project area does not contain aquatic habitat or undisturbed upland habitat suitable for this species.
Reptiles			
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE/CE	Freshwater ponds and slow streams with emergent vegetation.	**Absent;** no suitable habitat present and this species is likely extirpated from San Francisco County.
Birds			
Western snowy plover *Charadrius alexandrinus nivosus*	FT/CSC	Nests and forages on sandy beaches on marine and estuarine shores—requires sandy, gravely, or friable soils for nesting.	**Absent;** no suitable habitat present.
California black rail *Laterallus jamaicensis coturniculus*	--/CT	Tidally influenced, heavily vegetated, high-elevation marshlands.	**Absent;** no suitable habitat present.
California brown pelican *Pelecanus occidentalis californicus*	FE/3511	Nests on coastal islands of small to moderate size that affords protection from predators.	**Low;** no suitable nesting habitat present, individuals foraging along the shore may fly over the project area.
California clapper rail *Rallus longirostris obsoletus*	FE/CE	Salt marsh wetlands along the SF Bay.	**Absent;** no suitable habitat present.
Bank swallow *Riparia riparia*	--/CT	Colonial nester on sandy cliffs near water, marshes, lakes, streams, the ocean. Forages in fields.	**Moderate;** no suitable nesting habitat present, however, this species nests nearby at Ocean Beach and may forage over the existing Beach Chalet Athletic Fields.
California least tern *Sterna antillarum browni*	FE/CE	Colonial breeder on bare or sparsely vegetated flat substrates, including sand beaches, alkali flats, land fills, or paved areas.	**Absent;** no suitable habitat present.

TABLE IV.F-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES REPORTED OR WITH POTENTIAL TO OCCUR WITHIN OR ADJACENT TO THE BEACH CHALET ATHLETIC FIELDS PROJECT

Common name Scientific name	Listing Status USFWS/CDFG	Habitat	Potential to Occur[a]
Species Listed or Proposed For Listing (cont.)			
Mammals			
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE/CE	Salt marshes along San Francisco Bay.	**Absent;** no suitable habitat present.
Federal Species of Concern or State Species of Special Concern			
Invertebrates			
Incredible harvestman *Banksula incredula*	**--/--**	Franciscan sandstone talus slope.	**Absent**; only known from San Bruno Mountain (CDFG, 2011). No suitable habitat present.
Tomales isopod *Caecuditea tomalensis*	FSC/**--**	Localized freshwater ponds or still streams.	**Absent;** collected in 1984 from Lake Merced (CDFG, 2011). No suitable habitat present.
Sandy beach tiger beetle *Cicindela hirticollis gravida*	FSC/*	Sandy areas around water; larva live in burrows in sand along sea beaches, creeks, seepages, and lake shores.	**Absent**; known population of this species near the project area has been extirpated (CDFG, 2011). No suitable habitat present.
Monarch butterfly *Danaus plexippus*	**--/***	Eucalyptus groves (winter sites).	**Low**; Nearest records of this species in Golden Gate Park (CDFG, 2011) are historical. There are no large trees in the project area that could support wintering colonies.
Stage's dufourine bee *Dufourea stagei*	**--/--**	Ground-nesting bee. Habitat otherwise unknown.	**Low;** known range is south of the project area (this species is only known from San Bruno Mountain and Santa Cruz County).
Leech's skyline diving beetle *Hydroporus leechi*	FSC/**--**	Found in freshwater ponds, shallow water of streams marshes and lakes.	**Absent;** no known populations of this species in project vicinity, and no suitable habitat in project area.
Bumblebee scarab beetle *Lichnanthe ursina*	FSC/--	Inhabits coastal sand dunes.	**Low;** suitable habitat not present within the project area, and CNDDB records of this species along Ocean Beach are historic (CDFG, 2011).
A leaf-cutter bee *Trachusa gummifera*	--/--	Habitat preferences are unknown.	**Low**; no records of this species in the project area (CDFG, 2011).
Marin hesperian *Vespericola marinensis*	--/--	Moist areas in coastal brushfield and chaparral vegetation, in Marin County.	**Absent;** no suitable habitat within the project area; known range is north of the proposed project area.
Birds			
Cooper's hawk *Accipiter cooperi*	--/3503.5	Typically nests in riparian growths of deciduous trees and live oak woodlands. Becoming more common as an urban breeder.	**Moderate;** Large trees near the existing athletic fields could support nests for this species, and individuals could forage for birds on the existing field and in surrounding shrubs and trees.
Red-tailed hawk *Buteo jamaicensis*	--/3503.5	Almost any open habitat, including grassland and urbanized areas.	**Moderate;** Large trees near the existing athletic fields could support nests for this species, and individuals could forage for small mammals on the existing field.

TABLE IV.F-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES REPORTED OR WITH POTENTIAL TO OCCUR WITHIN OR ADJACENT TO THE BEACH CHALET ATHLETIC FIELDS PROJECT

Common name Scientific name	Listing Status USFWS/CDFG	Habitat	Potential to Occur[a]
Federal Species of Concern or State Species of Special Concern (cont.)			
Birds (cont.)			
Red-shouldered hawk *Buteo lineatus*	--/3503.5	Forages along edges of marshes and grasslands; nests in mature trees in a variety of habitats.	**Moderate;** Large trees near the existing athletic fields could support nests for this species, and individuals could forage for small mammals on the existing field.
American kestrel *Falco sparverius*	--/3503.5	Frequents generally open grasslands, pastures, and fields; primarily a cavity nester.	**Moderate;** Large trees near the existing athletic fields could provide nesting cavities for this species, and individuals could forage for small mammals on the existing field.
Salt-marsh common yellowthroat *Geothlypis trichas sinuosa*	FSC/CSC	Inhabits tidal salt and brackish marshes in winter, but breeds in freshwater brackish marshes and riparian woodlands during spring to early summer.	**Low;** riparian woodland and other suitable habitat is not present in the project area. Possibly present on a transient basis during migratory or dispersal periods.
Alameda song sparrow *Melospiza melodia pusillula*	--/CSC	Salt marshes of eastern and south San Francisco Bay.	**Low;** no suitable habitat is present for this species in the project area. Possibly present on a transient basis during migratory or dispersal periods.
San Pablo song sparrow *Melospiza melodia samuelis*	--/CSC	Salt marshes of eastern and south San Francisco Bay.	**Low;** no suitable habitat is present for this species in the project area. Possibly present on a transient basis during migratory or dispersal periods.
Double-crested cormorant *Phalacrocorax auritus*	--/--	Nests along coast on isolated islands or in trees along lake margins.	**Low;** freshwater habitats for this species are not present onsite, but individuals moving between Golden Gate Park and the Pacific Ocean may fly over the project area.
Mammals			
Pallid bat *Antrozous pallidus*	–/CSC	Roosts in caves, old buildings, and under bark. Forages in open lowland areas, and forms large maternity colonies in the spring.	**Low;** Potential roosting habitat is available in large-diameter trees in Golden Gate Park, but this species was not detected during recent surveys in the Park (Krauel, 2009). Not expected to breed here but may be present on a transient basis.
Townsend's big-eared bat *Corynorhinus townsendii*	FSC/CSC	Roosts in caves, buildings, bridges, rock crevices, and hollow trees.	**Low;** no buildings or hollow trees suitable for roosting are present in the project vicinity.
Western red bat *Lasiurus blossevillii*	--/CSC	Roosts in tree/shrub foliage, particularly in riparian areas.	**Moderate;** roosting habitat is available in tree/shrub foliage in Golden Gate Park. In recent surveys, this species was one of the most commonly encountered bat species in San Francisco (Krauel, 2009), but the lack of waterbodies in the immediate vicinity of the existing playing fields may preclude occurrence of this species.

TABLE IV.F-2 (Continued)
SPECIAL-STATUS ANIMAL SPECIES REPORTED OR WITH POTENTIAL TO OCCUR WITHIN OR ADJACENT TO THE BEACH CHALET ATHLETIC FIELDS PROJECT

Common name Scientific name	Listing Status USFWS/CDFG	Habitat	Potential to Occur[a]
Federal Species of Concern or State Species of Special Concern (cont.)			
Mammals (cont.)			
Hoary bat *Lasiurus cinerus*	--/*	Roosts in tree/shrub foliage.	**Low;** potential roosting habitat is available in large-diameter trees in Golden Gate Park, but this species was not detected during recent surveys in the park (Krauel, 2009). May be present on a transient basis.
Yuma myotis *Myotis yumanensis*	--/*	Open forests and woodlands with sources of water over which to feed.	**Moderate;** roosting habitat is available in tree/shrub foliage in Golden Gate Park. In recent surveys, this species was one of the most commonly encountered bat species in San Francisco (Krauel, 2009), but the lack of water bodies in the immediate area of the existing playing fields may preclude occurrence of this species.
American badger *Taxidea taxus*	--/CSC	Open grasslands with loose, friable soils.	**Absent;** suitable habitat for this species is no longer present in the project vicinity.
Point Reyes jumping mouse *Zapus trinotatus orarius*	--/CSC	Upland areas of bunch grass marshes in Point Reyes.	**Absent;** project area is south of the known range for this species.
Reptiles			
Southern Pacific pond turtle *Actinemys marmorata pallida*	--/CSC	Freshwater ponds and slow streams edged with sandy soils for laying eggs.	**Absent;** potential habitat is present in ponds within Golden Gate Park, but no aquatic habitat is present in the project area.

STATUS CODES:

Federal Categories (USFWS)
FE = Listed as endangered by the federal government
FT = Listed as threatened by the federal government
FPE = Proposed for listing as endangered
FPT = Proposed for listing as threatened
FC = Candidate for federal listing
FSC = Former federal species of concern. Species designated as such in this EIR were listed by the Sacramento FWS office until 2006, when they stopped maintaining their list. These species are still considered to be at-risk species by other federal and State agencies, as well as various organizations with recognized expertise, such as the Audubon Society.

State Categories (CDFG)
CE = Listed as endangered by the State of California
CT = Listed as threatened by the State of California
CSC = California species of special concern
* = California special animal
3511 = A Fully Protected Species

[a] High Potential = Species is expected to occur and habitat meets species requirements.
Moderate Potential = Habitat is only marginally suitable or is suitable but not within species geographic range.
Low Potential = Habitat does not meet species' requirements as currently understood in the scientific community.

SOURCE: CDFG, 2011 (USGS 7.5-minute quadrangles: San Francisco North, San Francisco South); Krauel, J.K. 2009. Foraging Ecology of Bats in San Francisco. M.S. Thesis, San Francisco State. These documents are available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

American kestrel *(Falco sparverius).* American kestrel, a relatively small member of the falcon family, preys on small birds and on mammals, lizards, and insects. The kestrel is most common in open habitats, such as grasslands or pastures. American kestrels nest in cavities, primarily in trees[15], but may also use buildings for nesting. Two breeding pairs were noted in San Francisco during data collection for the *San Francisco Breeding Bird Atlas 2001–2003* (SFBBA).[16] While these were not located within the project area, both nests were located in cavities or crevices in buildings, and the SFBBA indicates nearly any cavity could provide suitable nesting habitat for this species. Cavities in large trees near the project area could support nesting kestrels, and foraging habitat is present on the existing athletic field. American kestrel is protected under Section 3503.5 of the California Fish and Game Code.

Cooper's hawk (*Accipiter cooperi*). Cooper's hawk ranges over most of North America and may be seen throughout California, most commonly as a winter migrant. Nesting pairs have declined throughout the lower-elevation, more populated parts of the state. Cooper's hawk generally forages in open woodlands and wooded margins and nests in tall trees, often in riparian areas. This species is known to nest locally in Bay Area urban neighborhoods but has not been documented as breeding in San Francisco.[17] This species occasionally may forage in and around the project area, and could potentially nest in large trees in the vicinity of the project area. Cooper's hawk is protected under Section 3503.5 of the California Fish and Game Code.

Red-tailed hawk (*Buteo jamaicensis*)**.** Red-tailed hawks are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in urban, woodland, and agricultural habitats and have been observed throughout the San Francisco. Breeding for this species within San Francisco has been confirmed in areas that included sufficient grassland habitat for foraging.[18] Red-tailed hawks are common in Golden Gate Park and have been observed at the Beach Chalet Athletic Fields. This hawk may forage in and around the project area, and could nest in trees in the vicinity of the existing athletic fields. Red-tailed hawk is protected under Section 3503.5 of the California Fish and Game Code.

Red-shouldered hawk (*Buteo lineatus*). Red-shouldered hawks are another common raptor species, typically found in a variety of woodlands with nearby open areas for foraging. This species has a highly varied diet of small mammals, snakes, lizards, amphibians, small or young birds, and large insects. Red-shouldered hawks build large stick nests in mature trees, including riparian woodland trees and large eucalyptus groves. Breeding for this species has been recorded in San Francisco, and the SFBBA identified Golden Gate Park as a representative breeding site.[19] Large trees adjacent to the project area could support breeding, and red-shouldered hawks could

15 Sibley, D.A., *The Sibley Guide to Bird Life and Behavior,* A.A Knopf, New York, NY, pp. 228, 2001. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

16 San Francisco Field Ornithologists, *San Francisco Breeding Bird Atlas, 2001–2003,* available online at: http://www.sffo.org, accessed on July 26, 2010.

17 San Francisco Field Ornithologists, *Op. Cit*.

18 *Ibid*.

19 *Ibid.*

use the existing athletic field to forage for small mammals. Red-shouldered hawk is protected under Section 3503.5 of the California Fish and Game Code.

These three hawk species have been observed in the project area[20] and may well use the area for foraging. No large stick nests were observed in trees immediately adjacent to the project site or in large trees within line of sight of the athletic fields during ESA's 2011 reconnaissance and nesting bird surveys.

Mammals

Special-status and other bat species. Surveys for bats have been conducted in San Francisco, focusing on natural areas and parks. Findings were that the three most commonly encountered species in the area are Mexican free-tailed bat (*Tadaridia brasiliensis*), Yuma myotis (*Myotis yumanensis*), and western red bat (*Lasiurus blossevillii*), a California species of concern. While Mexican free-tailed bats were widespread and abundant throughout the sampled natural areas, Yuma myotis and western red bat were much less abundant and generally restricted to parks with lakes.[21] Knowing that these bats do occur in natural areas of San Francisco, it is noted that while the project area provides potential roosting habitat for the Yuma myotis and western red bat, the lack of any large water bodies in or adjacent to the project area reduces the likelihood that they would occur there. The Mexican free-tailed bat, which has no special-status, is the most likely species to utilize habitat in and around the athletic fields, especially for foraging activities. This species is considered to be highly colonial, with maternity colonies ranging in size from a few hundred to 20 million, and no such colonies are known from this part of California. The most commonly used natural roosts are caves and rock crevices on cliff faces. However, this species also roosts in abandoned mines and tunnels, highway bridges and large culverts, buildings, and bat houses.[22] Data from J.K. Krauel's 2009 study showed that activity for this species was highest in the late summer and early fall, indicating that while the species may breed in the area, it is more likely to be passing through during the fall migratory period. While conducting nest surveys in May 2011, ESA searched trees for signs of bat occupation as well and did not observe any signs of bat occupation. ESA also determined that the existing bathroom structure has no potential to support roosting bats.

Other Breeding and Migratory Birds

San Francisco and surrounding San Francisco Bay waters provide habitat for well over 200 species of birds, with some species being year-round residents, other species being winter residents, and still others passing through along the Pacific Flyway during spring and fall migrations. Avian diversity in San Francisco is highest in areas with relatively large, diverse patches of habitat remaining. Surveys conducted at the Chain of Lakes and Rhododendron Dell/Strybing Aboretum areas of

[20] Clark, *Op. Cit.*

[21] Krauel, J.K. 2009. Foraging Ecology of Bats in San Francisco. M.S. Thesis, San Francisco State. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[22] Western Bat Working Group (WBWG), 2005, Species description for *Tadaridia brasiliensis mexicana*, Mexican free-tailed bat, available online at: http://www.wbwg.org/speciesinfo/species_accounts/molossidae/tabr.pdf, accessed on 03/28/11.

Golden Gate Park recorded 133 and 124 bird species, respectively.[23] While the majority of the project area is uniformly landscaped grass, a total of 52 different bird species have been observed at the project area during ESA's 2011 surveys and several additional surveys previously conducted by others.[24] The mosaic of open landscaped fields and nearby mature trees provides breeding and foraging habitat for resident or migratory birds not considered as special-status species.

Designated Critical Habitat

USFWS designates critical habitat for certain species that it has listed as threatened or endangered. "Critical habitat" is defined in Section 3(5)(A) of the federal Endangered Species Act as those lands within a listed species' current range that contain the physical or biological features considered essential to the species' conservation, as well as areas outside the species' current range that are determined to be essential to its conservation. Critical habitat has been designated for Central Coast steelhead trout (*Oncorhychus mykiss*), winter-run Chinook salmon (*Oncorhynchus tshawytscha*), and Steller sea-lion (*Eumetopias jubatus*) in the waters off San Francisco's shoreline. However, the project area is not located within designated critical habitat for any federally listed species.

Regulatory Framework

This section briefly describes federal, state, and local regulations, permits, and policies pertaining to biological resources and wetlands as they apply to the proposed project.

Special-Status Species

Federal Endangered Species Act

The USFWS, which has jurisdiction over plants, wildlife, and most freshwater fish, and the National Marine Fisheries Service (NMFS), which has jurisdiction over anadromous fish, marine fish, and mammals, oversee implementation of the federal Endangered Species Act. Section 7 of the act mandates that all federal agencies consult with USFWS and NMFS to ensure that federal agencies actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species. A federal agency is required to consult with USFWS and NMFS if it determines a "may effect" situation will occur in association with the proposed project. The federal Endangered Species Act prohibits the "take"[25] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

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[23] Morlan, J., 2011. Bird lists for various sites in Golden Gate Park and nearby sites (data collected 1985-2010), available online at: http://fog.ccsf.cc.ca.us/~jmorlan/spr00lists.htm and http://fog.ccsf.cc.ca.us/~jmorlan/fall99lists.htm, accessed on April 1, 2011.

[24] ESA, 2011; Clark, J., 2009, Birds on San Francisco's GGP West end Soccer Fields; May & Associates, 2010, Biological Resource Assessment Report: City and County of San Francisco's Beach Chalet Soccer Field Improvement Project. These documents are available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[25] "Take," as defined in Section 9 of the ESA, is broadly defined to include intentional or accidental "harassment" or "harm" to wildlife. "Harass" is further defined USFWS as an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding, and sheltering. "Harm" is defined as an act that actually kills or injures wildlife. This may include significant habitat modification or degradation that results in death or injury of wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering.

California Endangered Species Act

Under the California Endangered Species Act, CDFG has the responsibility for maintaining a list of threatened and endangered species (California Fish and Game Code, Section 2070). CDFG also maintains a list of "candidate species," which are species formally noticed as being under review for addition to either the list of endangered species or the list of threatened species. In addition, CDFG maintains lists of "species of special concern," which serve as "watch lists." Pursuant to the requirements of the act, an agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species could be present on the project area and determine whether the proposed project could have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that may impact a candidate species.

California Native Plant Protection Act

State listing of plant species began in 1977, with the passage of the California Native Plant Protection Act (NPPA), which directed CDFG to carry out the legislature's intent to "preserve, protect, and enhance endangered plants in this state." The NPPA gave the California Fish and Game Commission the power to designate native plants as endangered or rare and to require permits for collecting, transporting, or selling such plants. The California Endangered Species Act expanded on the original NPPA and enhanced legal protection for plants. The California Endangered Species Act established threatened and endangered species categories, and grandfathered all rare animals—but not rare plants—into the act as threatened species. Thus, three listing categories for plants are employed in California: rare, threatened, and endangered.

Special-Status Natural Communities

Special-status natural communities are identified as such by CDFG's Natural Heritage Division and include those that are naturally rare and those whose extent has been greatly diminished through changes in land use. The CNDDB tracks 135 such natural communities in the same way that it tracks occurrences of special-status species: information is maintained on each site in terms of its location, extent, habitat quality, level of disturbance, and current protection measures. CDFG is mandated to seek the long-term perpetuation of the areas in which these communities occur. While there is no statewide law that requires protection of all special-status natural communities, CEQA requires consideration of the potential impacts of a project to biological resources of statewide or regional significance.

Federal Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (16 USC, Section 703, Supplement I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs.

California Fish and Game Code

Under Section 3503 of the California Fish and Game Code, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Section 3503.3 of the code prohibits take, possession, or destruction of any birds in the orders Falconiformes (hawks) or Strigiformes (owls), or of their nests and eggs. Code Sections 3511 (birds), 4700 (mammals), 5050 (reptiles and amphibians), and 5515 (fish) allow the designation of a species as Fully Protected. This is a greater level of protection than is afforded by the California Endangered Species Act, since such a designation means the listed species cannot be taken at any time, except, under certain circumstances, in association with a species recovery plan.

Golden Gate Park Master Plan

The *Golden Gate Park Master Plan* was published in 1998 and intended to provide a framework and guidelines to ensure responsible and enlightened stewardship of the park. The main goal of the plan is to balance recreation demands of the park with preservation of its historical significance. Objectives and policies in the plan aim to preserve the park's contribution to the diversity of cultural, natural, and recreational resources available to park visitors from San Francisco, the Bay region, and elsewhere. Policies relevant to biological resources are described below.

Objective II, Policy B—Preserve and Renew the Park's Forests.

2. The forest management program should focus on:

    b. Removal of hazardous, diseased and dying trees; replacement with appropriate tree species. (Some dead/dying trees should be retained for wildlife habitat ecological purposes.)

    g. Control of invasive plant species.

The *Golden Gate Park Master Plan* proposes the following recommendations for preserving Golden Gate Park's forests:

- Structurally weak trees that pose a significant risk to the public and to property need to be identified, monitored and removed as part of an ongoing safety program.
- Individual large trees should be replaced in kind with similar species. Specimen sized trees should be used where judged to be feasible.

Objective II, Policy C—Wildlife and Habitat.

1. Manage, protect, and enhance the park's landscape for wildlife habitat and other natural values. Managing the landscape for these values should include preserving and enhancing food sources, nesting sites, and roosting sites, thinning and providing openings in the forest canopy, and maintaining understory vegetation.

2. Continue diversification of tree species within the park by planting California native species such as oak, buckeye, madrone, bay laurel, and toyon, where appropriate.

3. Preserve selected dead and aging trees for habitat value.

5. Designate areas within the park that have special resources or habitat values as natural resource areas. Natural resource areas should be managed to preserve and enhance the natural resource values. Control park uses in and near natural resource areas to preserve natural values.

Standards for Bird-Safe Buildings

The San Francisco Planning Department adopted the Standards for Bird-Safe Buildings in 2011.[26] These standards include guidelines for use and types of glass and façade treatments, wind generators and grates, and lighting treatments. The standards would impose requirements for bird-safe glazing and lighting minimization in structures or at sites that represent a 'bird hazard' and would recommend educational guidelines and voluntary programs. The Standards define two types of bird hazards. Location-related hazards are buildings located inside of, or within a clear flight path of less than 300 feet from, an Urban Bird Refuge.[27] Such buildings require treatment when new buildings are constructed; additions are made to existing buildings; or existing buildings replace 50% or more of the glazing within the "bird collision zone."[28] The standards require implementation of the following treatments for facades facing, or located within, an Urban Bird Refuge:

- No more than 10 percent untreated glazing on the building facades within the bird collision zone.
- Minimal use of lighting. Lighting is to be shielded and no uplighting permitted. No event searchlights would be permitted for the property.
- Sites will not be permitted to use horizontal access windmills or vertical access wind generators that do not appear solid.

Feature related hazards include building or structure related features that are considered potential "bird traps" no matter where they occur (e.g., glass courtyards, transparent building corners, clear glass walls on rooftops or balconies).

San Francisco Park Code

Section 4.06—Removal of Trees, Wood, Etc. The San Francisco Recreation and Parks Department (SFRPD) has jurisdiction over all trees in Golden Gate Park and Lincoln Park. Thus, SFRPD must grant approval for any trimming or removal of trees in these areas.

[26] City and County of San Francisco, Planning Department, *Standards for Bird-Safe Buildings*, July 2011, available online at: http://www.sf-planning.org/ftp/files/publications_reports/bird_safe_bldgs/Standards_for_Bird-Safe_Buildings_8-11-11.pdf, accessed on September 7, 2011.

[27] An *Urban Bird Refuge* is defined in the Guidelines as an area of open space 2 acres or larger that is dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, water features, or wetlands; open water; and some green rooftops.

[28] The *bird collision zone* is that portion of the building that begins at grade and extends upward for 60 feet.

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to biological resources, but generally considers that implementation of the proposed project would have a significant impact if it were to:

- Have a substantial adverse effect, either directly or 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;

- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS;

- Interfere substantially 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;

- Conflict with any applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or

- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or State habitat conservation plan.

Approach to Analysis

Due to the nature of the proposed project, there would be no impacts related to the following criteria; therefore, no impact discussion is provided for this topic for the reasons described below:

> *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.* As noted under "Setting" above, there is no riparian or otherwise sensitive habitat in the proposed project area.
>
> *Conflicts with the provisions of an adopted plan.* There are no adopted habitat conservation plans, natural community conservation plans, or other approved plan for the project area; therefore, impacts related to conflicts with such a plan are not applicable and are not further discussed.

Impacts on biological resources are evaluated based on the likelihood that special-status species, sensitive habitats, wildlife corridors, and protected trees are present within the project area (as described in Section IV.F.1, Setting), and the likely effects that construction or facility siting, operation, and maintenance might have on these resources. Special-status resources that have no potential or are unlikely to occur in the project area (as presented in Tables IV.F-1 and IV.F-2) are not considered in the impact analysis.

For the purposes of this EIR, the word "substantial" as used in the significance criteria above is defined by the following three principal components:

- Magnitude and duration of the impact (e.g., substantial/not substantial)
- Uniqueness of the affected resource (rarity)
- Susceptibility of the affected resource to disturbance

Impacts Analysis

Impact BI-1: The proposed project could potentially adversely impact species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service. (Less than Significant with Mitigation)

As noted under "Setting" above, the overall potential of the athletic fields renovation site to support special-status plant species is considered extremely low, based on the lack of native plants and native plant habitats, and on the disturbed and heavily managed condition of the area. Therefore, development of the project would not affect any special-status plants.

As discussed under "Setting," there are several special-status animals that may potentially use habitat in the project area for roosting, foraging, or breeding purposes, including Cooper's hawk, red-tailed hawk, red-shouldered hawk, American kestrel, and western red bat. In addition, although ESA's May 2011 nesting bird surveys suggest few birds make use of vegetation in the vicinity of the athletic fields for nesting, there are a number of native resident and migratory bird species protected under federal and State legislation with potential to use trees, shrubs, and buildings within the project area for nesting, and the athletic fields and surrounding shrubs and trees for foraging.

The proposed project would result in the replacement of approximately 9 acres of mowed turfgrass with synthetic turf (approximately 7.2 acres, based on the project site plan, as shown in Figure II-6, and based on modern athletic field size standards) and other surfaces or structures, including new pathways and spectator seating, as well as the addition of play structures and a picnic area (approximately 1.8 acres, based on the project site plan, as shown in Figure II-6). This would remove approximately 9 acres of habitat for rodents, such as gophers and voles, and a variety of insects and other invertebrates, which are typical prey for both special-status and common wildlife, including hawks and other birds, bats, and other mammals found in Golden Gate Park, such as raccoons and opossum. The loss of foraging habitat (and prey) for raptors and other birds protected under the California Fish and Game Code, as well as for special-status bats, could be considered significant; however, there are over 200 acres of similar habitat in Golden Gate Park, including the nearby golf course, archery range, and bison paddock. Additional open-space areas are available to wildlife throughout San Francisco, including Lake Merced, Stern Grove/Pine Lakes Park, McCoppin Square, Sutro Heights Park, and Lincoln Park, as well as at Fort Funston, the Presidio, and nearby Golden Gate National Recreation Area lands. The loss of approximately 9 acres of turfgrass represents a loss of approximately 4.5 percent of similar

habitat in Golden Gate Park[29] and 0.3 percent of similar available foraging habitat (e.g. turf grass and grasslands) for raptors and special-status bats in the project region.[30] Therefore, this loss is not considered substantial in either the local or regional context and is not expected to affect raptors and special-status bats in any significant way.

The proposed project would result in the removal of 16 trees (Monterey cypress and Monterey pine) within the non-native forest habitat on site as well as the removal of approximately 44 myoporum shrubs and one pittosporum shrubs. These trees and shrubs could provide potential nesting, roosting or foraging habitat for special-status birds and bats as well as native resident and migratory bird species. The loss of potential nesting, roosting or foraging habitat for raptors and other birds protected under the California Fish and Game Code, as well as for special-status bats, could be considered significant; however, there are approximately 600 acres[31] of similar habitat throughout Golden Gate Park. Therefore, this loss is not considered substantial in either the local or regional context and is not expected to affect raptors and special-status bats in any significant way. In addition, the proposed project includes replacement of each tree removed at a one-to-one or greater ratio. Most of the shrubs that would be removed, *Myoporum laetum*, are considered an invasive plant by the California Invasive Plant Council.[32]

The loss of an active nest also would be considered a significant impact under CEQA, if that nest were occupied by a special-status bird species. Moreover, disruption of nesting migratory or native birds is not permitted under the federal Migratory Bird Treaty Act or the California Fish and Game Code. Thus, the loss of any active nest (i.e., removing a tree or shrub or demolishing a building containing a nest) must be avoided under federal and State law.

To reduce potential for effects on nesting birds, SFRPD shall conduct tree removal and pruning activities, as well as other construction activities, outside the bird nesting season (January 15 to August 15) to the extent feasible. If construction during bird nesting season cannot be fully avoided, preconstruction nesting surveys will be conducted by a qualified wildlife biologist prior to work in order to comply with the Migratory Bird Treaty Act and California Fish and Game Code. SFRPD shall conduct preconstruction bird nesting surveys within seven days of the start of construction (i.e. active ground disturbance, vegetation removal, building demolition). If active nests are located during the preconstruction bird nesting survey, SFRPD will contact the California Department of Fish and Game for guidance on avoiding take. Such guidance may include setting up and maintaining a line-of-sight buffer area around the active nest and prohibiting construction activities within the buffer; modifying construction activities; and/or removing or relocating active nests. In addition, SFRPD has adopted a Pre-Work Bird Survey Policy as part of SFRPD's Urban Forestry tree policy. This policy is in accordance with the California Fish and Game Code and the Migratory Bird Treaty Act and prohibits a wide range of

[29] May and Associates (2010) estimated approximately 200 acres of similar "grassy" habitat in Golden Gate Park.
[30] The amount of potential foraging habitat in the project vicinity was determined by reviewing aerial photographs and calculating a rough acreage for each significant area of open space within a 5 mile radius of the project area. The total amount of open space within a five mile radius, inclusive of the Project site, is roughly 7,050 acres. The amount of grassland habitat within the same area, including turfgrass and open space grasslands, is approximately 2,650 acres.
[31] Golden Gate Park Forest Management Plan, State of California Department of Forestry. Sacramento, 1980.
[32] California Invasive Plant Council (Cal-IPC), California Invasive Plant Inventory, Cal-IPC. Publication 2006-02, Berkeley, CA. 2006.

activities that might adversely affect birds, including destruction and general disturbance of active nests. Thus, direct mortality of special-status and otherwise protected birds through vegetation removal or building demolition activities would be less than significant.

However, direct mortality of special-status bats through vegetation removal or building demolition would be considered significant. To avoid direct impacts to special-status bats that may use the athletic fields and surrounding habitat for foraging and roosting purposes during construction activities, the following mitigation measure shall be implemented:

> **Mitigation Measure M-BI-1: Pre-Construction Bat Surveys.** Conditions of approval for building and grading permits issued for demolition and construction within the project area shall include a requirement for pre-construction special-status bat surveys when large trees are to be removed. If active day or night roosts are found, the bat biologist shall take actions to make such roosts unsuitable habitat prior to tree removal or building demolition. A no-disturbance buffer of 100 feet shall be created around active bat roosts being used for maternity or hibernation purposes. Bat roosts initiated during construction are presumed to be unaffected, and no buffer would be necessary.

Level of Significance after Mitigation: With implementation of Mitigation Measure M-BI-1 to conduct pre-construction surveys for special-status bats prior to vegetation removal and building construction and renovation, direct impacts on special-status bats resulting from project implementation would be less than significant.

Impact BI-2: Implementation of the proposed project would not interfere substantially with the movement of native resident wildlife species and with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. (Less than Significant)

Given that the native wildlife species using the project site are primarily birds, removal of habitat (i.e. conversion of turf and removal of trees and shrubs) is not expected to result in substantial impacts on any migratory wildlife corridor nor would construction of the proposed project result in a barrier to wildlife movement. The proposed project would result in the introduction of nighttime lighting to an area that is currently not directly lighted at night, although surrounding lights from San Francisco neighborhoods, John F. Kennedy Drive and other park roads, and the Great Highway already produce ambient light levels at the athletic fields site far greater than those from purely natural sources.

Proposed field lighting would consist of ten 60-foot-tall light standards made of galvanized steel. There would be two light standards each at the north and south ends of the facility that would be oriented toward the two end fields. The other six light standards would be located between the centermost fields and would have back-to-back light fixtures oriented to illuminate the interior fields (with each back-to-back fixture directed at two adjacent fields). Each light fixture, or assembly, would consist of ten 1,500-watt metal halide lamps. During regulation youth and adult evening play and practices (the majority of the evening time), seven of the ten lamps would be

turned on, while all 10 lamps would be turned on during tournaments. The assemblies would contain metal shields and would be directed to minimize spillover lighting beyond the project's boundaries. All lighting, including the field lighting and lights at the restrooms and along pathways,would be controlled by an online automated control system which would turn lights on at sunset and turn all field lights off upon field closure at 10:00 p.m. daily. The introduction of nighttime lighting has the potential to interfere with migratory corridors and impede the use of wildlife nursery sites, which could be considered significant impacts under CEQA, as discussed further below.

The proposed project would result in temporary increases in ambient noise associated with construction and renovation of the athletic fields and the restroom building. The proposed project would also result in an overall increase in ambient noise levels associated with athletic field use, since field use would be extended throughout the year and into the night as compared with the baseline conditions, where the fields are only used seasonally and during daylight hours. Increases in ambient noise levels have the potential to interfere with avian reproduction in the vicinity of the athletic fields, as well as deter use of adjacent habitat by special-status bats, which could be considered significant impacts under CEQA, as discussed further below.

Bird Strikes, Nighttime Lighting, and Migratory Birds

The project site is within the Pacific Flyway at the westernmost edge of Golden Gate Park, and is located less than 1,000 feet from the Pacific Ocean and Ocean Beach. While exact migratory corridors through the area are unknown and vary by species, birds typically follow coastlines, rivers, and mountain ranges in their migratory passages from wintering to breeding grounds and back again. Golden Gate Park provides foraging and roosting habitat for numerous migratory species.

The migratory flights of different types of birds occur at different altitudes. Soaring migrants, such as hawks, usually take advantage of thermal drafts and typically migrate at 3,000 feet or less. Migrating waterfowl use a wide range of flight altitudes, from as low as 300 feet to as high as 10,500 feet. Most passerine species migrate at night and, over land, they typically fly at 1,500 feet to 2,400 feet in altitude but can also fly much lower, depending on conditions. Over water, migration takes place at a much higher altitude, from 6,000 to 12,000 feet. Weather conditions often affect the migratory altitude, since birds may fly higher or lower to avoid or take advantage of prevailing winds or to avoid a cloud deck.[33]

It is estimated that, in North America alone, millions of songbirds are killed as a result of collisions with buildings and other structures each year.[34] Daytime collisions occur most often when birds fail to recognize window glass as a barrier. Regardless of overall height, the ground floor and first few stories of buildings present the greatest hazards to most birds; reflections of attractive ground-level features, such as vegetation, draw birds toward glass surfaces and often result in collisions. Recent increases in glass surfaces used to improve daylight buildings can be

[33] Cornell Lab of Ornithology, 2007, Migration Pathways, available online at: http://www.birds.cornell.edu/AllAboutBirds/studying/migration/pathways, accessed on April 1, 2011.

[34] Ogden, L.E., 1996, Collision Course: The Hazards of Lighted Structures and Windows to Migrating Birds, Special Report for the World Wildlife Fund and the Fatal Light Awareness Program, September, available online at: www.flap.org, accessed on April 1, 2011.

considered a "biologically significant" issue, potentially affecting the viability of local and regional bird populations.[35] Transparent features—especially buildings where birds can see through two glass surfaces to vegetation on the other side—also attract birds and cause collisions. Vegetated areas and bodies of water provide potentially valuable stopover habitat for migratory birds. Open space areas adjacent to developed areas create bird habitats in the vicinity of proposed buildings and other facilities, potentially resulting in higher bird collision risks.

The Beach Chalet Athletic Fields are located within an Urban Bird Refuge as defined by the City's *Bird-Safe Guidelines*. Renovation of the restroom building includes relocation of some windows and an overall reduction in the number of windows on the building. None of the existing windows in the building are glazed—they consist of an open lattice work of concrete and would not be changed. Although the site plans include a window on the western façade of the building, located in the bird collision zone, which would make up greater than 10 percent of the façade, the window would consist of an opening with a roll-up steel covering or door. Therefore, the building would be consistent with the *Bird-Safe Guidelines* with respect to window treatments and is not expected to pose an increased risk for avian collisions over existing conditions.

Many collisions are induced by artificial nighttime lighting, particularly from large buildings, which can be especially problematic for migrating songbirds, since many are nocturnal migrants.[36] The tendency of birds to move toward lights at night when migrating, and their reluctance to leave the sphere of light influence for hours or days once encountered[37], has been well documented.[38] It has been suggested that structures located at key points along migratory routes may present a greater hazard than those at other locations.[39] Other research suggests that fatal bird collisions increase as light emissions increase, that weather often plays an important part in increasing the risk of collisions[40], and that nights with heavy cloud cover and/or precipitation present the conditions most likely to result in high numbers of collisions. The type of light used may affect its influence on the birds; for example, studies have indicated that blinking lights or strobe lights affect migrating birds substantially less than nonblinking lights.[41,42]

Collisions with lighted buildings and other structures are not the only danger that nighttime lighting has for migratory birds. Even if collisions are avoided, birds are still at risk of death or

35 Ogden, L.E., Op. Cit.
36 Ibid.
37 Graber, R., 1968, Nocturnal Migrations in Illinois—Different Points of View, The Wilson Bulletin 20 (1): 36-71. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.
38 Ogden, L.E., Op. Cit.
39 Ogden, L.E., 2002, Summary Report on the Bird Friendly Building Program: Effect of Light Reduction on Collision of Migratory Birds, Special Report for the Fatal Light Awareness Program, available online at: www.flap.org, accessed on April 18, 2011.
40 Verheijen, F.J., 1981, Bird kills at lighted man-made structures: not on nights close to a full moon. American Birds 35 (3): 251-254. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.
41 Gauthreaux, S.A., Belser, C.G., 2006, Effects of Artificial Night Lighting on Migrating Birds, In: Rich, C. and Longcore, T., Ecological Consequences of Night Lighting, Island Press, Covelo, CA, pp. 67–93. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.
42 Evans, W.R., Akashi, Y., Altman, N.A., Manville, A.M., 2007, Response of night-migrating songbirds in cloud to colored and flashing light, North American Birds, 60 (4): 476–88. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

injury. Birds could become "trapped" by a light source and, disoriented, continue to fly around the source until they become exhausted and drop to the ground, where they may be killed by predators[43] or die from stress or exhaustion.[44,45] Light attraction in birds is positively related to light intensity, and studies have shown that reduction in lighting intensity and changing fixed lighting to a flashing or intermittent light system can dramatically reduce avian mortality at lighted structures.[46] At least one controlled experiment has shown avian mortality can be dramatically reduced through shielding upward radiance of lighting fixtures. In an experiment with fledgling seabirds in Hawaii, shielding the upward radiation of lights resulted in a 40 percent reduction in attraction to lights as the fledglings made their way from their nesting colonies to the sea.[47] Furthermore, during the study the sides of large buildings and the grounds remained fully lit by the shielded lights, suggesting that birds are not attracted to lighted areas per se but, rather to point-sources of light, which may be related to the use of stars and the moon as navigational aids.[48] Although the project site is located within the Pacific Flyway and in close proximity to the Pacific Ocean shoreline, migratory corridors in the vicinity of the Beach Chalet Athletic Fields are unknown. It can be assumed, however, that numerous birds pass overhead or in the project vicinity during spring and fall migrations.

All new lighting would be fully shielded to eliminate upward radiance and would therefore not appear as a point source of light from above—the athletic field lighting would illuminate a large area as seen from a bird's vantage point. Even at an altitude of 10,000 feet this would not be perceived as a point light source. In addition, the glow from the athletic fields is not expected to appear as a distinct and isolated light source due to the proximity of other lighted areas such as John F. Kennedy Drive, the Great Highway, and nearby neighborhoods.

Given the typical altitude at which migrating birds fly, the fact that the proposed athletic field lights would be shielded, and studies that suggest night-flying birds are attracted to point-sources of light, rather than larger illuminated areas, it is unlikely that the lighting associated with the proposed project would interfere with a migratory corridor or provide a hazard for migratory birds through the phenomenon of light "entrapment."

43 Ogden, L.E., 1996, Op. Cit.
44 Weir, R.D., 1976, Annotated bibliography of bird-kills at man-made obstacles: a review of the state of the art and solutions, Department of Fisheries and the Environment, Canadian Wildlife Service, Ontario Region. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.
45 Reed, J.R., Sincock, J.L., and J.P. Hailman, 1985, Light Attraction in Endangered Procellariiform Birds: Reduction by Shielding Upward Radiation, The Auk 102: 377–383. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.
46 Jones, J., Francis, C.M., 2003, The effects of light characteristics on avian mortality at lighthouses, J. Avian Biology 34: 328–333. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.
47 Reed et al., Op. Cit.
48 *Ibid*.

Nighttime Lighting and Breeding Birds

Nighttime lighting along roads has been shown to disrupt breeding behavior in birds.[49] Molenaar et al. also cite numerous other effects on birds that could have potential impacts on reproductive success, such as disruption of circadian and circannual rhythms. Numerous studies have shown that artificially increasing day length induces hormonal, physiological, morphological, and behavioral changes related to reproduction. For example, Lofts and Merton[50] found that wild bird species could be brought into premature breeding condition by experimental exposure to artificially short nights in winter. Artificial lighting may extend foraging time, a beneficial effect that could increase reproductive fitness, but at the same time may increase the risk of intraspecific competition, individual predation, and increased predation on eggs and nestlings.[51]

The introduction of nighttime lighting at the Beach Chalet Athletic Fields may deter some birds from using habitat directly surrounding the fields for breeding purposes. Light spill-off from the fields, however, would be minimal, as is discussed in Section IV.B, Aesthetics. However, if birds are deterred, it would be difficult to separate out the effects of nighttime lighting from increases in ambient noise (see discussion below) and human activity as the potential cause. The breeding bird population in the immediate area that would potentially be affected by nighttime lighting is apparently quite small. No nests were observed during ESA's February 2011 reconnaissance survey in the trees and shrubs immediately adjacent to the athletic fields, and observation of nesting birds was not mentioned in May and Associates' 2010 report. Three inactive nests were observed in trees located within 100 to 150 feet of the athletic fields during ESA's May 2011 surveys, suggesting that this area is not frequently used by nesting birds. Birds that typically nest in urban environments would likely not be deterred at all by introduction of night lighting. Those that are deterred have abundant habitat available to them elsewhere within Golden Gate Park, additional San Francisco parks and natural areas, and the Presidio. Therefore, potential indirect impacts to nesting birds resulting from nighttime lighting are not considered substantial.

Effects of Nighttime Lighting on Special-status Bats

Similar to birds, bats may be deterred from roosting in trees and shrubs immediately adjacent to the renovated athletic fields by the addition of nighttime lighting, but it would be difficult to separate effects of nighttime lighting from the overall increase in ambient noise and human activity that would also occur at the site. The addition of nighttime lighting has potential benefits for bats in that it typically attracts more moths and other flying insects than might normally be present. However, some bat species may be more comfortable foraging in well-lighted areas than others, and this could lead to potential changes in the composition of local bat populations. Due to the relatively low potential for special-status bats to use the existing habitat at the athletic fields in large numbers, the introduction of nighttime lighting is not expected to substantially affect special-status bats or local bat populations in general.

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49 Molenaar, J.G., Sanders, M.E., Jonkers, D.A., 2006, Road lighting and grassland birds, In: Rich, C. and Longcore, T., Ecological Consequences of Night Lighting, Island Press, Covelo, CA, pp. 67–93. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

50 Lofts, C., Merton, D.,1968, Photoperiodic and physiological adaptations regulating avian breeding cycles and their ecological significance, J. of the Zoological Society of London, 155: 327–394. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

51 Molenaar et al., Op. Cit.

Effects of Increases in Ambient Noise on Wildlife

Noise pollution can be detrimental to wildlife, and bird populations are particularly susceptible because they rely on acoustic signals for mating, predator evasion, and communication between adults and offspring, among other behaviors. Reijnen and Foppen[52] showed that male willow warblers (*Phylloscopus trochilus*) experience difficulties in mate attraction near highways, as a result of noise pollution. Ellis[53] describes studies that show "noticeably alarmed" responses in raptors to sounds within the 82–114 A-weighted decibel (dBA) range.[54] Jehl and Cooper[55] found that seabirds flushed off their nests at 72–89 dBA, and Stewart[56] found that seabirds were absent for as long as 10 minutes at 115 dBA. More recent research has found certain types of unnatural noise to be disruptive to bird life at a much lower level; Delaney et al.[57] found that spotted owl flush rates in response to chain saws were apparent at levels above 46 dBA. Finally, West et al.[58] found that chronic intense noise (e.g., oil field compressor station) of 92 dBA or more may induce physiological stress in some bird species, if they cannot avoid exposure. None of these studies were able to conclude that nest failure resulted from higher noise levels. Nevertheless, a single stimulus event clearly had an effect on bird behavior, and the studies suggest that short-term loud noises can affect foraging and roosting birds by temporarily disturbing these behaviors, and may deter bird use of an area (including nesting) if such noises persist over the long term.

On the other hand, Dooling and Popper[59] report that several studies show that birds adapt quite well, and even sometimes prefer, noisy environments with high levels of traffic noise. Furthermore, humans have more sensitive hearing than birds. For example, distant traffic noises in a natural setting that are barely audible to humans, are certainly inaudible to birds and would have no effect on any aspect of their acoustic behavior.[60] In addition, birds are much more

52 Reijnen, R., Foppen, R., The effects of car traffic on breeding bird populations in woodland. Journal of Applied Ecology, 32, pp. 85-94 and 481-491, 1995. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

53 Ellis, D.H., C.H. Ellis, and D.P. Mindell, Raptor Responses to Low-Level Jet Aircraft and Sonic Booms, Environmental Pollution 74:53-83, 1981. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

54 Ibid.

55 Jehl, J.R., and C.F. Cooper, eds., Potential Effects of Space Shuttle Booms on the Biota and Geology of the California Channel Islands: Research Reports. Center for Marine Studies, San Diego State University, San Diego, CA, Tech. Rep. 80-1. 246 pp.,1980. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

56 Stewart, B.S., 1982, Studies on the Pinnipeds of the Southern California Channel Islands, 1980-198, in Manci, K. M., et. al., Effects of Aircraft Noise and Sonic Booms on Domestic Animals and Wildlife: A Literature Synthesis; U.S. Fish and Wildlife Service National Ecology Research Center, 1988. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

57 Delaney, D.K., T.G. Grubb, P. Beier, L.L. Pater, and M.H. Reiser, Effects of Helicopter Noise on Mexican Spotted Owls, Journal of Wildlife Management 63:60-76, published 1999. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

58 West EW, Dooling RJ, Popper AN, and Buehler DM, Noise Impacts on Birds: Assessing Take of Endangered Species, The Journal of the Acoustical Society of America, 122(5): 3082, 2007 Nov. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

59 Dooling, Robert J., and Arthur N. Popper. The Effects of Highway Noise on Birds, prepared for California Department of Transportation, September 30, 2007, available online at: http://www.dot.ca.gov/hq/env/bio/files/caltrans_birds_10-7-2007b.pdf, accessed on April 18, 2011.

60 Dooling and Popper, Op. Cit.

resistant to hearing loss and auditory damage from acoustic over-exposure than are humans and other mammals.[61]

Birds in the study area are accustomed to varying levels of ambient noise emanating from existing human activities and traffic in the area. Under existing conditions, noise varies seasonally as the playing fields are open and closed for use. Use of the fields is currently seasonal; however the highest use levels, and consequently, highest levels of playing field associated noise and human activity, already occur during the avian breeding season, which is when birds would be most sensitive. Noise typically generated at athletic fields during events can range from 72 dBa to 86 dBa at smaller events, up to 137 dBa at larger events, depending on the number of spectators.[62] These readings suggest that the roar of an excited crowd at a Beach Chalet athletic event could generate a loud enough noise to cause birds to flush from perches in the immediate vicinity of the fields. However, while increased noise levels, especially in the off season when the fields have been closed to play, could potentially deter the general use of the study area by migratory birds for wintering, foraging, or roosting purposes, there is abundant similar habitat available in the vicinity. In addition, because the highest levels of noise and activity at the fields already occur during the avian breeding season, the proposed project is not expected to have a substantial effect over that of baseline conditions on avian reproduction in the project area.

Impact Summary

As described above, renovation of the existing restroom building includes relocation of some windows but would not increase the risk of birds colliding with the building over the existing condition. In light of the analysis above, it is not expected that substantial impacts on wildlife from either the proposed changes in night lighting or athletic field use would occur. Nonetheless, it is possible that the combined effects of nighttime lighting, increased human activity, and increased noise levels could result in local changes in species composition and diversity, as individuals of species less tolerant of human presence and activities move out of the immediate vicinity. However, there is abundant similar habitat in nearby open space areas, and potentially affected individuals have the ability to move readily and relocate to similar or better habitat. Therefore, this combined potential impact is considered less than significant. Although this impact is less than significant without mitigation, the following improvement measure is recommended to further minimize potential impacts on wildlife, in keeping with the *Bird Safe Guidelines* and the Golden Gate Park Master Plan.

> **Improvement Measure I-BI-2:** In compliance with the voluntary San Francisco Lights Out Program and the Standards for Bird-Safe Buildings, the following bird-safe facility construction and operations measures could be implemented to prevent and minimize the nighttime lighting effects on birds, bats, and other wildlife:
>
> - Fully shield all lights to prevent upward and outward light spill beyond the needed illumination area.

[61] Ibid.

[62] Albany Unified School District, Recirculation of the Draft Environmental Impact Report for the Albany High School Cougar Fields Improvement Project, State Clearing House No. 2006042124, April 2007.

- Focus lights specifically on areas needing illumination.
- Use lights of an intensity no higher than necessary.
- Use flat glass and ultra-low profile light fittings.
- Tightly seal lamp housings and locate them away from structures that may trap insects.

Impact BI-3: The proposed project could potentially conflict with applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (Less than Significant with Mitigation)

As described under Setting, a tree and large shrub report was prepared for the proposed project by HortScience, Inc., in March of 2010. See **Table IV.F-3** for a summary of the tree and large shrub resources within the project site. Of the 130 plants, 16 trees and 44 shrubs are planned for removal, while the remaining plants would be retained on-site.

TABLE IV.F-3
EXISTING TREE AND LARGE SHRUB RESOURCES

Species	Number Removed	Number Retained
Trees		
Monterey cypress (*Cupressus macrocarpa*)	10	57
Monterey pine (*Pinus radiata*)	6	0
Italian stone pine (*Pinus pinea*)	0	3
Tree Subtotal	**16**	**60**
Shrubs		
Myoporum (*Myoporum laetum*)	43	10
Pittosporum (*Pittosporum* sp.)	1	0
Shrub Subtotal	**44**	**10**

SOURCE: HortScience, 2010

Most of the plants to be removed are myoporum shrubs. The myoporum onsite are typified by mature and over mature shrubs with multiple stems, raised canopies, thin crowns, and extensive dieback. Most of the shrubs are rangy and unattractive, with unbalanced or asymmetrical form. Stems commonly are bowed or heavily leaned, and stem failure is widespread. It is noted that *Myoporum laetum* is considered an invasive plant by the California Invasive Plant Council (Cal-IPC).[63]

[63] Cal-IPC. 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council. Berkeley, CA. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

The 16 trees proposed for removal are under the jurisdiction of the San Francisco Recreation and Parks Department. Five of the trees were recommended for removal in the 2010 HortScience report because of their poor health or they are dead. The remaining 11 trees are within the project footprint and would need to be removed prior to construction. The Golden Gate Park Forest Management Plan has plans for long-term care and replacement of trees within the park. Many of the trees in Golden Gate Park are nearing or at maturity and are in a state of decline. Consistent with *Section 4.06—Removal of Trees, Wood, Etc.*, the SFRPD must grant approval for any trimming or removal of trees in the project area. Although the SFRPD does not have a policy or ordinance that specifically identifies tree significance or requires tree replacement, in practice SFRPD has implemented the policies summarized above relating to forest management and removal and replacement of trees, and the management of wildlife habitat as requiring replacement of trees removed from SFRPD-managed lands at a 1 to 1 ratio. As described in Chapter II, Project Description, trees removed under the proposed project would be replaced at a 1 to 1 ratio, consistent with SFRPD practice.

The Golden Gate Park Master Plan states that individual large trees should be replaced in kind with similar species (see Regulatory Framework). While Chapter II, Project Description, includes tree replacement, the species of trees has not been identified. If tree replacement does not include similar species as the trees removed under the proposed project, the project would conflict with the Golden Gate Master Plan. Consequently, this analysis considers removal of trees within SFRPD-managed lands to result in a significant impact related to conflict with applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Implementation of the following mitigation measure would reduce impacts to less than significant levels.

> **Mitigation Measure M-BI-3: Plant Replacement Trees.** The SFRPD shall replace the trees removed within SFRPD-managed lands with trees of equivalent ecological value (i.e., similar species) to the trees removed. If trees of equivalent ecological value are not feasible or available, removed trees shall be replaced at a ratio of 1 inch for 1 inch of the diameter at breast height of the removed tree. SFRPD shall monitor tree replacement plantings annually for a minimum of three years after completion of construction to ensure establishment of the plantings and, if necessary, shall replant to ensure the success of the replacement plantings.

In addition, implementation of the proposed project may adversely affect protected trees that are to be preserved through construction activities adjacent to or under the tree's dripline. Grading, excavation, or other ground-disturbing activities may injure roots. Construction of the project may damage trunks, limbs, or crowns if construction activities take place near preserved trees. There are no SFRPD policies or ordinances related to construction within a tree dripline. Therefore, potential tree damage would be a less than significant impact. However, the following improvement measure is recommended to further reduce this impact, which would be less than significant with implementation of Mitigation Measure M-BI-3, above.

> **Improvement Measure I-BI-3:** Although no significant impacts were identified, the following improvement measures could be implemented to provide protection for trees and shrubs to be retained onsite during construction activities for the Beach Chalet Athletic Fields Renovation Project.

- Establish a Tree Protection Zone (TPZ) around any tree or group of trees to be retained. The formula typically used is defined as 1.5 times the radius of the dripline or 5 feet from the edge of any grading, whichever is greater. The TPZ may be adjusted on a case-by-case basis after consultation with a Certified Arborist.

- Mark the TPZ of any protected trees/shrubs with permanent fencing (e.g., post and wire or equivalent), which would remain in place for the duration of construction activities in the area. Post "keep out" signs on all sides of fencing.

- Prohibit construction-related activities, including grading, trenching, construction, demolition, or other work within the TPZ. No heavy equipment or machinery should be operated within the TPZ. No construction materials, equipment, machinery, or other supplies should be stored within a TPZ. No wires or signs should be attached to any tree. Any modifications should be approved and monitored by a Certified Arborist.

- Prune selected trees to provide necessary clearance during construction and to remove any defective limbs or other parts that may pose a failure risk. All pruning should be completed by a Certified Arborist or Tree Worker and adhere to the *Tree Pruning Guidelines* of the International Society of Arboriculture.

- Monitor the TPZs of protected trees on a weekly basis.

- A Certified Arborist should monitor the health and condition of the protected trees and, if necessary, recommend additional mitigations and appropriate actions. This could include the monitoring of trees adjacent to project facilities in order to determine if construction activities (including the removal of nearby trees) would affect protected trees in the future.

- Provide supplemental irrigation and other care, such as mulch and fertilizer, as deemed necessary by a Certified Arborist. Treatment of any injuries should be performed by a Certified Arborist.

Cumulative Impacts

Impact C-BI: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable impact on biological resources. (Less than Significant)

This analysis evaluates whether the impacts of the project, together with the impacts of cumulative development, would result in cumulatively significant impacts on special-status species or other biological resources protected by federal, State, or local regulations or policies (based on the significance criteria and thresholds presented earlier). This analysis then considers whether the incremental contribution of the Beach Chalet Athletic Fields Renovation Project to this cumulative impact would be considerable. Both conditions must apply for a project's cumulative effects to rise to a significant level.

The geographic context for analysis of cumulative impacts to biological resources encompasses Golden Gate Park and surrounding neighborhoods, as well as biologically linked (e.g., by bird movement) and ecologically similar areas throughout the San Francisco and within a 5 mile radius of the project site. Projects of particular relevance include the Murphy Windmill/ Millwright's Cottage Restoration, the Polo Field Renovation Project, and the San Francisco Botanical Garden Sustainable Gardening Project; and construction of new pipelines and facilities associated with the San Francisco Westside Recycled Water Project and the San Francisco Groundwater Supply Project (see Table IV-1, Cumulative Projects).

Impacts on biological resources associated with the proposed project include the conversion of approximately 9 acres of turfgrass, used by raptors and other birds protected by federal and State legislation and by common wildlife as foraging habitat, to synthetic turf; the removal of 16 trees and 44 shrubs that provide potential foraging opportunities, cover, and nesting and roosting opportunities for birds and bats; and possible effects on breeding and migratory birds and special-status bats through the introduction of nighttime lighting and increases in ambient noise. However, this EIR analysis either finds no significant impact or presents mitigation measures that would support a conclusion of "less than significant with mitigation" for all potentially significant impacts on biological resources.

Past projects, including the development of civic facilities and infrastructure, have already caused substantial adverse cumulative changes to biological resources in San Francisco. For example, the project area was converted from its original sand dune habitat to a city park over a century ago, with a nearly complete loss of the original habitat types and many of the species that once occurred there. Revegetated areas have matured over time and provide a "new normal" in terms of habitat, often simplified in terms of diversity, and supporting a different suite of species than once existed here. Overall, this is true of many areas throughout the region.

As noted above, the majority of current and reasonably foreseeable cumulative projects occur in Golden Gate Park and include renovation of existing facilities as well as construction of new pipelines and facilities associated with the San Francisco Westside Recycled Water Project and the San Francisco Groundwater Supply Project. These projects are expected to have primarily temporary construction-related impacts on biological resources and are not expected to result in the conversion or removal of more than minor areas of existing habitat for plants and wildlife. These projects, when combined with past projects and the Beach Chalet Athletic Fields Renovation Project, could be considered to have a cumulatively significant impact on biological resources as witnessed by the reduction of natural habitat and diversity of species throughout San Francisco.

Several of the cumulative projects discussed are likely to require the removal of trees within Golden Gate Park. In particular, the San Francisco Westside Recycled Water Project in western Golden Gate Park, including a proposed recycled water treatment plant on the parcel immediately south of the athletic fields, would require the removal of a number of Monterey pine and Monterey cypress trees. However, trees would be replaced as part of the cumulative projects or as mitigation. In addition, the Golden Gate Park Forest Management Plan has plans for long-term care and replacement of trees within the park. Many of the trees in Golden Gate Park are

nearing or at maturity and are in a state of decline. These trees would need to be replaced and the Golden Gate Park Forest Management Plan addresses this. In addition, the Golden Gate Park Master Plan states that individual large trees should be replaced in kind with similar species. The proposed project, as well as other projects within Golden Gate Park, would need to be consistent with both the Forest Management Plan and the Master Plan.

Environmentally protective laws and regulations have been applied with increasing rigor since the early 1970s. These include the California Endangered Species Act, federal Endangered Species Act, Migratory Bird Treaty Act, and the Clean Water Act, as described under "Regulatory Framework," above. The project and other likely future projects within the vicinity of the project area would be required to comply with local, State, and federal laws and policies, and all applicable permitting requirements of the regulatory and oversight agencies intended to address potential impacts on biological resources. Additionally, future projects would be required to demonstrate that they would not have significant effects on these biological resources, although it is possible that some projects may be approved even though they would have significant, unavoidable impacts on biological resources. These regulatory requirements should serve, in many cases, to reduce future contributions to cumulative impacts on biological resources in the project area.

The current impact analysis has shown that the project, after mitigation, would result in relatively minor and less-than-significant impacts on biological resources within and in the vicinity of the project site. When considered relative to the existing state of biological resources in the project area, the project would add only a minor, incremental contribution. In terms of habitat loss, the project would result in the loss of approximately 9 acres of turfgrass, as well as less than an acre of trees and shrubs within the project area. With the exception of trees around the perimeter of the site, the proposed recycled water treatment project area to the south of the athletic fields consists of bare ground, refuse piles, and existing structures so the combined projects would not result in a cumulative loss of grassland foraging habitat beyond that described for the project. In addition, new landscaping, including tree planting, is proposed as part of the project. As noted previously in this document, the amount of similar grassland habitat (including turfgrass, golf courses, and open space grasslands) within a 5-mile radius of the project site, is approximately 2,650 acres. The project's incremental contribution to grassland habitat loss in the cumulative geographic context amounts to 0.03 percent of available similar habitat, an amount that is not considered cumulatively considerable.

The project's contribution to cumulative effects on biological resources in Golden Gate Park and surrounding neighborhoods, as well as biologically linked and ecologically similar areas throughout the San Francisco and within a 5 mile radius of the project site would not be cumulatively considerable; therefore, in combination with past, present, and reasonably foreseeable future projects, the proposed project's cumulative effects on biological resources would be less than significant.

IV.G Hydrology and Water Quality

This section describes the existing hydrology and water quality conditions at the project area and evaluates the potential for the synthetic turf that would be used on the playfields to contribute pollutants to stormwater runoff or the underlying groundwater.

Setting

Water Features

The native San Francisco coastal landscape included a substantial number of freshwater ponds, lakes, and wetlands, partly because the dunes along the coast captured and percolated rainfall. Most of these natural features were filled during development of San Francisco, and there are no natural surface water bodies or streams within or adjacent to the project area. The Pacific Ocean, less than 1,000 feet to the west of the project area, is the only major water feature in the vicinity. All of the artificial lakes within Golden Gate Park are located to the east of the project site. Average annual precipitation in the San Francisco Bay Area is about 21 inches, which predominantly occurs from November through April.

Drainage and Combined Sewer System

Freshwater flow from the western portions of San Francisco to the ocean, including stormwater runoff and natural stream flow, has been almost entirely diverted to the City and County of San Francisco's (CCSF) combined sewer and stormwater system which collects and transports both sanitary sewage and stormwater runoff in the same set of pipes. Stormwater from the project site is not currently collected in the combined system, but instead infiltrates directly into the groundwater below. However, because the project proposes to connect the renovated athletic fields to the combined system, that system is described here.

San Francisco's wastewater composition is estimated to be 47 percent residential, 47 percent commercial, and 6 percent industrial, on average, over the entire citywide system.[1] In 2010, approximately 14 million gallons per day (mgd) of treated wastewater (effluent) was discharged from the Westside Drainage Area to the Pacific Ocean through the Oceanside Water Pollution Control Plant (OWPCP) located at 3500 Great Highway.[2] This plant has the capability to treat up to 43 mgd of wastewater to a secondary level. Therefore, existing dry weather flows are within the capacity of the OWPCP, and all dry weather wastewater flows are treated to a secondary level prior to discharge to the Pacific Ocean, 3.75 miles off shore, through the Southwest Ocean Outfall (SWOO).

1 San Francisco Public Utilities Commission, *Wastewater System Reliability Assessment, Baseline Summary Report, Draft*. December 2003. Prepared by SFPUC Water Pollution Control Division, San Francisco Department of Public Works, Bureau of Engineering, Hydraulic & Mechanical Sections, and The Water Infrastructure Partners. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

2 San Francisco Public Utilities Commission. Email from Bonnie Jones, Senior Engineer, to Beth Goldstein, HydroConsult Engineers. March 9, 2011. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

During wet weather, the combined wastewater and stormwater flow is conveyed to treatment facilities before eventual discharge to the ocean. Depending on the amount of rainfall, wet weather flows are treated to varying levels before discharge to the ocean. Up to 43 mgd of wet weather flows receive secondary treatment at the OWPCP. Up to an additional 22 mgd of wet weather flows are treated to a primary standard[3] at the OWPCP and discharged through the SWOO, as further discussed below. Approximately 50 percent of the wet weather flows are treated at the OWPCP and the effluent quality generally meets secondary standards.

Wet weather flows in excess of 65 mgd, the combined primary and secondary treatment capacity of the OWPCP, receive flow-through treatment equivalent to primary treatment in three large storage/transport boxes: the Westside Transport, Richmond Transport, and Lake Merced Transport, which have a combined storage capacity of 73.5 million gallons, including 2.2 million gallons of storage in the sewer lines. Wet weather flows between 65 mgd and 175 mgd (approximately 37 percent of the total wet weather flows) are discharged to the ocean through the SWOO, and flows in excess of 175 mgd (about 13 percent of the total wet weather flows) are discharged at the shoreline through one of seven combined sewer overflow (CSO) structures located along the ocean coast. These overflow facilities are designed for a long-term average of eight overflows per year. During the 8-year period from 1997 to 2004, the Westside drainage basin met the goal of an annual average of eight or fewer overflows per year.[4]

Because the ocean outfall is located beyond the California territorial limit of 3 miles, regulatory authority for the discharge is jointly administered by the Regional Water Quality Control Board (RWQCB), San Francisco Bay Region, and the U.S. Environmental Protection Agency (USEPA). All dry and wet weather discharges from the combined sewer system to the ocean, through either the SWOO or the CSO structures, are operated in compliance with the federal Clean Water Act and the State's Porter-Cologne Water Quality Control Act through National Pollutant Discharge Elimination System (NPDES) permit CA0037681 issued by the RWQCB and the USEPA.[5]

The San Francisco Public Utilities Commission (SFPUC) Wastewater Enterprise manages the CCSF wastewater collection, treatment, and discharge system, and is developing the Sewer System Improvement Program that identifies capital improvement projects for the CCSF treatment and collection system, which are planned for construction prior to 2040. Prepared over 7 years with extensive input from the public, the Sewer System Improvement Program focuses on providing reliable, efficient, sustainable, and environmentally-acceptable operation and

[3] In 1989 the California Regional Water Quality Control Board deleted the requirement for disinfection of the primary treated wastewater discharged from the Oceanside Water Pollution Control Plant because studies conducted in 1987 and 1988 indicated that the non-disinfected wastewater discharges from the SWOO do not violate the California Ocean Plan bacteriological body contact standards. Monitoring conducted since 1986 supports this conclusion.

[4] San Francisco Public Utilities Commission, *Southwest Ocean Outfall Regional Monitoring Program, Eight-Year Summary Report, 1997 – 2004*, January 2006. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[5] California Regional Water Quality Control Board, Waste Discharge Requirements for City and County of San Francisco Oceanside Water Pollution Control Plant (Southwest Ocean Outfall) and Collection System, Including the Westside Wet Weather Facilities, NPDES Permit No. CA 0037681, Order No. R2-2009-0062. Effective beginning October 1, 2009. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

management of the sewer system through addressing both critical near-term needs and long-term issues, and incorporates adaptations for climate change.

Surface Water Quality

SFPUC conducts the Southwest Ocean Outfall Regional Monitoring Program to assess the environmental effects related to the discharge of effluent from the OWPCP and associated CSO facilities. The program includes a Beach Monitoring Program to monitor bacterial concentrations at recreational beaches and a regional Offshore Monitoring Program involving the collection and analysis of physical, chemical, and biological parameters to assess and compare the SWOO outfall region to reference conditions.[6] The Offshore Monitoring Program has demonstrated that, between 1997 and 2004, San Francisco beaches were available for water contact recreation 95 percent or more of the time during the 8-year monitoring period. Biological parameters and sediment pollutant concentrations at the SWOO discharge area have generally been the same or essentially the same as at reference stations.

Bacterial concentrations may increase to levels above water quality standards in the vicinity of the combined sewer overflows.[7] When overflows occur, signs must be posted on beaches in the vicinity of the CSO until the bacteria level drops below the single sample minimum protective bacteriological standards contained in the California Department of Health Services regulations for public beaches and ocean water contact sports. Although bacterial concentrations are a concern, they do not currently result in a violation of either of the CCSF wastewater NPDES permits.

Groundwater

The proposed project site is underlain by the Westside Groundwater Basin, which extends from San Francisco south to San Mateo County.[8] The Westside Groundwater Basin is separated from the Lobos Basin to the north by a northwest-trending bedrock ridge through the northeastern part of Golden Gate Park. San Bruno Mountain and San Francisco Bay form the eastern boundary, and the San Andreas Fault and Pacific Ocean form the western boundary. The southern limit of the Westside Groundwater Basin is defined by an area of high bedrock that separates it from the San Mateo Plain Groundwater Basin. The basin opens to the Pacific Ocean on the northwest and San Francisco Bay on the southeast. Within San Francisco, the basin includes three aquifers known as the Shallow Aquifer, Primary Production Aquifer, and Deep Aquifer. In many parts of the groundwater basin, these aquifers are separated by clay layers. However, in Golden Gate Park there is no clay layer separating the Shallow Aquifer from the

[6] San Francisco Public Utilities Commission, *Southwest Ocean Outfall Regional Monitoring Program, Eight-Year Summary Report, 1997–2004.* January 2006. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[7] San Francisco Public Utilities Commission, *Wastewater System Reliability Assessment, Summary Report, Draft*. December 2003. Prepared by SFPUC Water Pollution Control Division, San Francisco Department of Public Works, Bureau of Engineering, Hydraulic & Mechanical Sections, and The Water Infrastructure Partners. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[8] Department of Water Resources, *San Francisco Bay Hydrologic Region, Westside Groundwater Basin, California's Groundwater, Bulletin 118.* Updated January 20, 2006. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Primary Production Aquifer, meaning that in this area the aquifers are hydraulically connected and can effectively be considered one aquifer.

Within San Francisco, groundwater from the Westside Groundwater Basin is primarily used for irrigation at Golden Gate Park, the Edgewood Development Center, and three golf courses located in the vicinity of Lake Merced. Groundwater is also used for San Francisco Zoo operations and to maintain lake levels in Golden Gate Park and Pine Lake. The production well located nearest to the project site is the South Windmill Deepwell, approximately 190 feet to the southeast of the proposed playfields. This well is operated by the San Francisco and Recreation and Parks Department (SFRPD) and is used for irrigation in Golden Gate Park. Based on a geotechnical investigation conducted immediately to the southeast and east of the Beach Chalet Athletic Fields, in the vicinity of the South Windmill Deepwell, the depth to groundwater in the vicinity of the project area was between 25 and 27 feet below ground surface in October 2009 when groundwater levels were at a seasonal low.[9] Based on a hydrograph of groundwater levels in the USGS South Windmill monitoring well MW-57 between 2006 and 2009, shallow groundwater levels in the area fluctuate 6 to 8 feet seasonally, and therefore groundwater levels could rise 6 to 8 feet during the wet season. The groundwater flow direction in this portion of the North Westside Groundwater Basin is to the west, towards the Pacific Ocean.

Synthetic Playfields Task Force Findings and SFRPD Recommendations

As also discussed in Section IV.H, Hazards and Hazardous Materials and Air Quality, the San Francisco Recreation and Parks Commission (Commission) established the Task Force to review, discuss, and vet existing research on synthetic playfields in March 2008.[10] The key objectives of the Task Force were to:

- Identify primary environmental and health concerns related to synthetic turf materials;
- Synthesize the scientific research available and discuss the relevance to San Francisco playfields; and
- Provide feedback to inform SFRPD recommendations and a course of action to the Commission.

The Task Force identified for study 11 environmental and health issues related to synthetic turf products that are of public concern, and for which there would be readily available research. A study team comprised of subject matter experts and park users was established for each issue and reviewed existing research, synthesized the findings, discussed the strengths and weaknesses of the research, assessed the relevance of the research to San Francisco playfields implementation, and identified suggestions and recommendations for SFRPD staff to make to the Commission on how to improve the synthetic turf implementation process. The two issues summarized below are

[9] AGS, Inc., Draft Geotechnical Data Report, Westside Golden Gate Park Recycled Water Project, San Francisco, California. November, 2009.

[10] San Francisco Recreation and Park Department, *Draft Synthetic Playfields Task Force Findings and Department Recommendations, Report to San Francisco Recreation and Parks Commission.* July 28, 2010, available online at: http://sf-recpark.org/ftp/uploadedfiles/wcm_recpark/SPTF/SPTFDR072508.pdf accessed on March 28, 2011.

related to the analysis of water quality and aquatic toxicity impacts. Many studies reviewed by the Task Force are discussed in the summaries below, and the Task Force report includes a complete listing of all literature reviewed.

While the Task Force recommended that the SFRPD continue to review literature and new studies as they become available, the primary conclusions and recommendations of each study group are discussed below, followed by a summary of additional research reviewed since completion of the Task Force recommendations. The Commission approved the recommendations of the Task Force on October 2, 2008.

Ecosystem

The study group evaluating the effects of synthetic turf on the ecosystem did not find independent studies that specifically addressed this topic. However, they found one study commissioned by the King County Water and Land Resources Division in Seattle that looked at the quality of stormwater runoff from synthetic turf. According to the task force report, the researchers found that the runoff had no effect on test organisms, and met all state and federal water quality standards.

Water Quality

The water quality study group evaluated the current scientific knowledge concerning the quantity, toxicity, and longevity of heavy metals (particularly cadmium, lead, mercury, and zinc) and known carcinogens that may leach from the synthetic turf materials. For this evaluation, the group reviewed 22 studies and papers which showed that in a laboratory setting, the concentration of heavy metals in leachate from synthetic materials and/or materials used in synthetic turf (i.e. styrene butadiene rubber (SBR) infill from recycled tires or tire shreds) can exceed national and state water quality standards, however the concentrations decreased to safe standards after a few months. Note that several of the studies refer to styrene butadiene rubber material as "crumb rubber" or "tire crumb." Additional studies found that toxic substances that leached only affected a very localized area. The study group for water quality concluded that more evidence is needed to evaluate the environmental effects of leachate from synthetic fields, but that water quality concerns regarding leachate could be addressed by lining fields so that leachate could be collected and diverted to the CCSF wastewater collection system, allowing it to be treated at one of the San Francisco wastewater treatment plants. Accordingly, the study group made the following recommendations regarding water quality:

- Prevent leachate from infiltrating to the groundwater basin by collecting it and retaining it, particularly during storm events, for eventual discharge to the CCSF combined sewer system.

- Request (from the manufacturer) or perform leachate tests on synthetic turf to determine if the leachate meets drinking water quality standards before allowing it to infiltrate to the groundwater basin. If the leachate does not meet drinking water quality standards, avoid groundwater infiltration until studies can be performed to understand any potential impacts on ground water quality. If the study results indicate that groundwater quality will not be adversely affected, infiltration may be appropriate. This action should be followed in consultation with the SFPUC and San Francisco Department of Public Health (SFDPH).

The study group for Materials Composition: Overall Chemical Composition and Flammability also made the following recommendations that apply to water quality:

- The Department should conduct or participate in tests of field stormwater runoff to determine the presence and potential levels of zinc and other possible contaminants.
- If the stormwater runoff meets drinking water standards, the SFRPD should recharge it into groundwater, if feasible. If the water does not meet drinking water standards, the Department should collect runoff for discharging into the sewer system, where it will be treated appropriately.
- Immediately following storm events, any stormwater discharges should be managed on site to support efforts to manage the overall CCSF storm water system.
- The Department should not install synthetic turf fields in areas of parks that are prone to flooding.
- All synthetic turf fields should be installed above the water table and feature state of the art drainage systems.
- When purchasing new turf products, SFRPD should request full material composition disclosures and share them with DPH and San Francisco Department of the Environment for feedback.

Runoff and Leachate from Synthetic Playfields

The use of synthetic turf on athletic fields has generated some public concern over the potential for pollutants in leachate and stormwater runoff from these materials, particularly tire-derived SBR that is manufactured from recycled tires and is used as infill material in some synthetic turf products. A number of studies have been conducted to assess the quality of stormwater runoff and leachate from synthetic playfields, and SFRPD has also conducted 2 years of stormwater monitoring at two synthetic turf installations in San Francisco. The results of these studies are discussed below and summarized in **Table IV.G-1** (see Section IV.H, Hazards and Hazardous Materials, for a summary of studies that address overall hazardous materials associated with synthetic turf).

2007 Integrated Waste Management Board Study

In 2007, the Integrated Waste Management Board published a report prepared under contract by the Office of Environmental Health Hazard Assessment (OEHHA) assessing potential risks to children using outdoor playground and track surfaces constructed from recycled waste tires.[11] The report, titled *Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products*, also summarized existing information regarding leachate from these surfaces. The OEHHA report states that published studies indicate that concentrated leachate produced in the

[11] Integrated Waste Management Board, *Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products.* January 2007. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

TABLE IV.G-1
SUMMARY OF LITERATURE REVIEW

Name of Study	Summary of Conclusions
2007 Integrated Waste Management Board Study	• While concentrated leachate has been found to be toxic to a variety of aquatic organisms, and has been found to contain metals concentrations greater than drinking water standards, it is unlikely that leachate from tire shreds used in outdoor applications, such as playground surfaces, would yield such concentrated leachate with high enough concentrations to cause adverse effects. • When installations of playfields are above the water table, risks to groundwater quality are low.
2007 Leachate Study	• The concentrations of metals and organic chemicals detected in leachate samples from conditions that mimicked rainfall were generally lower than the applicable drinking water standards. The samples exhibited slight acute and chronic toxicity at 15 days after installation, but none of the samples showed toxicity 3 months after installation.
New York State Studies	• Laboratory leaching methods indicated the potential for release of zinc, aniline, phenol, and benzothiazole from synthetic turf installations. However, laboratory leaching procedures are more aggressive than would occur due to rainfall, and these results are not necessarily representative of potential leachate quality from a synthetic turf installation. • Zinc, chromium, copper, lead, and nickel were detected in one stormwater runoff sample. However, the concentrations were below New York surface water standards. • Semivolatile organic compounds were not detected in groundwater samples collected down gradient of four synthetic turf installations.
Connecticut Studies	• Laboratory leaching methods indicate that there is a potential for synthetic turf to leach metals, especially copper and zinc. The tests also indicate the presence of benzothiazole in the leachate. • Stormwater samples collected from four fields contained benzothiazole as well as the metals barium, copper, iron, vanadium, and zinc. Concentrations of aluminum, barium, and zinc all exceeded aquatic toxicity criteria at least once during sampling. Based on these findings, zinc was identified as a potential risk to surface waters. Implementation of stormwater BMPs to control stormwater runoff quality are recommended.
San Francisco Stormwater Monitoring	• Total iron and manganese concentrations in stormwater samples from two synthetic turf installations exceeded secondary drinking water standards. Dissolved copper concentrations exceeded the marine surface water environmental screening level in stormwater samples from both fields.

laboratory from tire shreds, crumb rubber, or whole tires was toxic to a variety of aquatic organisms in 19 of 31 studies evaluated. Affected organisms include bacteria, algae, aquatic invertebrates, fish, frogs, and plants. Iron and manganese were the only pollutants that exceeded the federal maximum contaminant level (MCL) for drinking water in more than one of the studies (see the subsection "Water Quality Regulations," below, for a discussion of drinking water standards). In one study, the concentrations of cadmium, chromium, aluminum, and lead exceeded their MCL. However, the OEHHA report concluded that it is unlikely that leachate from tire shreds used in outdoor applications, such as playground surfaces, would yield such concentrated leachate with high enough concentrations to cause adverse effects on aquatic organisms. In three cases reviewed by OEHHA, groundwater quality was monitored where tire shreds were contained in trenches and in constant contact with the groundwater. In these cases, groundwater in contact with the tire shreds contained elevated levels of many chemicals. However, the concentrations rapidly decreased a few feet away from the trench the tire shreds were contained in. The report concluded that when installations of playfields are above the water table, as the Synthetic Turf Task Force Report recommends, and are not in long-term contact with the groundwater, risks to groundwater quality associated with use of synthetic turf materials containing tire shreds are low.

2007 Leachate Study

A joint study conducted by ALIAPUR (a French governmental agency responsible for regulating the use of used tires) and ADEME (the French Agency for Environment and Energy Management), installed a rain collection system beneath four applications of different synthetic field types, subjected the fields to simulated rain events, and collected samples of the leachate from each field over an 11-month period.[12] The field types included three types of infill material (two with virgin materials and one with recycled tire granules), and one control without infill material. The collected samples were analyzed for total cyanide, phenol, total hydrocarbons, 16 polynuclear aromatic hydrocarbons, total organic carbon, 15 metals, fluorides, nitrates, ammonium, chlorides, sulfates, pH, and conductivity.

The results of that study showed relatively low but detectable concentrations of a number of organic compounds and metals. However, these concentrations were generally lower than the applicable drinking water standards. The leachate initially showed a slight acute and chronic toxicity at 15 days after installation, but none of the samples showed toxicity 3 months after installation.

New York State Studies

The New York State Department of Environmental Conservation conducted a series of studies to assess the potential for release of pollutants from crumb rubber material into the air and by

[12] Moretto, Robert. Environmental and Health Assessment of the Use of Elastomer Granulates (Virgin and from Used Tyres) as Filling in Third-Generation Artificial Turf. 2007. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2001.0016E.

leaching.[13] The studies included laboratory analysis of four types of crumb rubber material (car, truck, a mixture of car and truck, and cryogenically produced), sampling of air and surface water at two turf fields in New York City, and groundwater sampling downgradient of four turf fields.

Laboratory analysis of crumb rubber samples using the Synthetic Precipitation Leaching Procedure[14] indicated the potential for release of zinc, aniline, phenol, and benzothiazole. Although the laboratory leaching method may not be representative of actual field conditions, these results were used as an indicator for the selection of analytes to be considered for the field sampling. The results also indicated that the leaching potential is dependent on the type of crumb rubber, and crumb rubber composed of truck tires had the highest leaching potential.

Only one surface water runoff sample was collected, so the data is inconclusive. No organics were detected in this sample. While zinc, chromium, copper, lead, and nickel were detected in the runoff sample, the concentrations were below New York surface water standards. To assess effects on groundwater quality, four turf fields in areas where sandy soil is predominant (ranging in age from less than 1 year old to 7 years old) were selected, and two to three downgradient wells were installed at each field. A total of 32 groundwater samples were collected at depths ranging from 8 to 70 feet and analyzed for semivolatile organic compounds (SVOCs). SVOCs were not detected in any of the samples.

Connecticut Studies

In 2010, five Connecticut agencies under a joint agreement completed a study of synthetic turf fields to assess health and environmental risks from off-gassing and leaching of chemicals from crumb rubber material. One component of the study included measurements of off-gassing and leaching of chemicals under defined laboratory conditions,[15] and another component included measurements of leaching of metals in stormwater runoff from turf fields.[16] These findings are discussed below.

Laboratory testing of crumb rubber material was performed using the Synthetic Precipitation Leaching Procedure to indicate the primary pollutants likely to be found in stormwater coming from synthetic turf fields. Results indicated the presence of benzothiazole with an average concentration of 0.153 micrograms per liter (µg/L). The predominant metals identified in the leachate from the crumb rubber material were zinc, followed by copper, manganese, and lead. The concentrations of zinc detected in the leachate were about 500 times greater than

[13] New York State Department of Conservation, New York State Department of Health. *An Assessment of Chemical Leaching, Releases to Air and Temperature at Crumb-Rubber Infilled Synthetic Turf Fields*. May 2009. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[14] The Synthetic Precipitation Leaching Procedure, conducted in accordance with USEPA Test Method 1312, is designed to determine the mobility of both organic and inorganic analytes present in liquids, soils, and wastes.

[15] Connecticut Agricultural Experimental Station, *2009 Study of Crumb Rubber Derived From Recycled Tires, Final Report*, revised May 4, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[16] Connecticut Department of Environmental Protection, *Artificial Turf Study, Leachate and Stormwater Characteristics Final Report*, July 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Connecticut's toxicity criteria. The leachate study indicates that there is a potential for synthetic turf to leach metals, especially copper and zinc.

A stormwater sampling plan was implemented at four synthetic turf fields to collect runoff during or after precipitation events. A total of eight stormwater samples were collected between September and December 2009 and analyzed for volatile organic compounds (VOCs), SVOCs, metals, pesticides, and polychlorinated biphenyls (PCBs), pH, and acute aquatic toxicity. No standard VOC or SVOC compounds were detected; however, nine compounds were tentatively identified at concentrations ranging from 1 to 150 (μg/L). Benzothiazole was detected in two samples at up to 4.9 μg/L. Of the compounds tentatively identified, none are considered particularly toxic to aquatic organisms at the estimated concentrations. Metals analyses identified the presence of aluminum, barium, copper, iron, vanadium, and zinc in the runoff. Concentrations of zinc in three of the samples exceeded Connecticut's acute aquatic life criteria of 65 μg/L, with concentrations ranging from 130 to 260 μg/L. Concentrations of aluminum, barium, and zinc all exceeded chronic aquatic toxicity criteria at least once during sampling. Toxicity tests indicated that three of the eight samples were acutely toxic.[17] Based on these findings, zinc was identified as a potential risk to surface waters.

The Connecticut Department of Environmental Protection report notes, however, that while zinc concentrations in stormwater from synthetic turf fields may pose a risk to surface waters, especially to smaller water courses, these fields are not the sole source of stormwater runoff in any given watershed. Runoff from the fields would be combined with the runoff from adjacent areas. Further, the Connecticut Department of Environmental Protection notes the levels of zinc in urban runoff are comparable to the concentrations detected in the discharge from synthetic turf fields. The Connecticut Department of Environmental Protection recommends that stormwater best management practices (BMPs) that demonstrate significant removal of dissolved zinc be incorporated into the design of drainage systems for synthetic turf fields.

San Francisco Stormwater Monitoring

To provide an assessment of stormwater runoff quality specific to San Francisco synthetic playfields, SFRPD conducted stormwater sampling at Garfield Square Park and the South Sunset Playground during two rainy seasons. The sampling included two events in February and March of 2010, near the end of the 2009-2010 rainy season, and two events in the 2010-2011 rainy season, one in December 2010 and one in February 2011. For each sampling event, the sampling was conducted in accordance with the Synthetic Turf Stormwater Quality Monitoring Plan developed by SFPUC.[18] One grab sample of stormwater was collected from the catch basin at each field, and the samples were analyzed at the SFPUC Water Quality Division Laboratory for pH; specific conductance; turbidity; total dissolved solids; total suspended solids; total and dissolved metals (including antimony, arsenic, barium, beryllium, cadmium, cobalt, chromium, copper, iron,

[17] Acute toxicity is observed when there is less than 90 percent survival of the test organisms in the undiluted effluent.

[18] San Francisco Public Utilities Commission. *Synthetic Turf Stormwater Quality Monitoring Plan*. February 2, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

manganese, mercury, molybdenum, nickel, lead, selenium, silver, thallium, vanadium, and zinc); volatile organic compounds; and semivolatile organic compounds. The temperature of the samples was also measured in the field.

The analytical results for the runoff samples from Garfield Square Park and South Sunset Playground are summarized in **Tables IV.G-2** and **IV.G-3**, respectively, along with drinking water MCLs and environmental screening levels (ESLs) for freshwater and marine surface waters and groundwater that is a potential drinking water source (see the subsection "Water Quality Regulations," below, for a description of MCLs, and the subsection "Environmental Screening Levels," below, for a description of ESLs). As indicated in these tables, VOCs and SVOCs were not detected in any of the stormwater samples from either field.

The metals results are presented for total and dissolved concentrations; though dissolved metals concentrations (rather than total metals) are the relevant indicator for potential to be transported to groundwater. All of the dissolved concentrations were below the applicable MCL. With the exception of total iron and manganese, all of the total metals concentrations were also below the applicable MCL. The total iron concentration in the stormwater runoff samples from the Garfield Square Park field in February and December 2010, and in February 2011, were 14.40 μg/L, 14.98 μg/L, and 187.65 μg/L, respectively. The total iron concentration in the March 2010 sample was 1741.50 μg/L, and this was the only total iron concentration that exceeded the secondary MCL of 300 μg/L in stormwater runoff samples from the field at Garfield Square Park. The total iron concentrations in stormwater runoff samples from the South Sunset Playground field ranged from 1,386.80 μg/L to 3624.30 μg/L and exceeded the secondary MCL of 300 μg/L in all four samples collected.

The total manganese concentration in the February and March 2010 and February 2011 runoff samples from the South Sunset Playground field were 51.21 μg/L, 144.25 μg/L, and 66.15 μg/L, respectively. All three of these total concentrations exceeded the secondary MCL of 50 μg/L, but none of the total manganese concentrations detected in the stormwater samples from the field at Garfield Square Park exceeded the secondary MCL. As discussed in Section IV.H, Hazards and Hazardous Materials and Air Quality, iron and manganese are components of the steel belts and beads used in tires. The MCLs for both iron and manganese are secondary MCLs, and as discussed below under "Water Quality Regulations," secondary MCLs are established to protect the aesthetic quality of drinking water, and are based on effects such as taste and odor. Unlike primary MCLs, these drinking water standards are not based on potential health effects.

ESLs for freshwater and marine surface waters are generally based on dissolved chemical concentrations.[19] None of the dissolved metals concentrations exceeded the freshwater surface water ESL. The only dissolved metals concentrations that exceeded ESLs for marine surface waters were the dissolved copper concentrations. The dissolved copper concentrations in the runoff samples from the Garfield Square Park field ranged from 4.67 to 5.90 μg/L, all of which are in excess of the marine surface water ESL of 3.1 μg/L. The concentration of dissolved copper in

[19] The ESLs for arsenic and selenium are based on total metals concentrations.

TABLE IV.G-2
SYNTHETIC TURF STORMWATER QUALITY MONITORING—GARFIELD SQUARE PARK

Parameter	Units	*2009 - 2010*		*2010 - 2011*		MCL[a]	Freshwater Environmental Screening Level[b]	Marine Environmental Screening Level[b]	Groundwater Environmental Screening Level[b]
		2/24/2010	3/2/2010	12/22/2010	2/17/2011				
pH		7.2	7.1	7.78	7.5	-	-	-	-
Temperature	°F	56	58	54	60	-	-	-	-
Specific Conductance	UMHOS/CM	382	390	304.4	228.1	-	-	-	-
Turbidity	NTU	1	43	2	13.8	-	-	-	-
Total Dissolved Solids	MG/L	212	152	136	126	-	-	-	-
Total Suspended Solids	MG/L	< 7	28.5	7	7	-	-	-	-
Antimony	UG/L	0.67	0.70	0.59	0.54	6	-	-	-
Dissolved Antimony	UG/L	0.61	0.62	0.57	< 0.5		6.0	500	6.0
Arsenic	UG/L	< 2	< 2	< 2	< 2	10	0.14	0.14	-
Dissolved Arsenic	UG/L	< 2	< 2	< 2	< 2		-	-	36
Barium	UG/L	56.66	137.50	59.20	56.09	1000	-	-	-
Dissolved Barium	UG/L	54.60	68.83	55.84	39.80		1000	1000	1000
Beryllium	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	4	-	-	-
Dissolved Beryllium	UG/L	< 0.5	< 0.5	< 0.5	< 0.5		2.7	0.53	0.53
Cadmium	UG/L	< 0.25	< 0.25	< 0.25	< 0.25	5	-	-	-
Dissolved Cadmium	UG/L	< 0.25	< 0.25	< 0.25	< 0.25		0.25	9.3	0.25
Chromium	UG/L	< 0.5	1.81	< 0.5	< 0.5	50	-	-	-
Dissolved Chromium	UG/L	< 0.5	0.54	< 0.5	< 0.5		50	180	50
Cobalt	UG/L	0.22	1.72	0.20	0.57	-	-	-	-
Dissolved Cobalt	UG/L	0.22	0.18	0.16	0.19		3.0	3.0	3.0
Copper	UG/L	5.48	8.91	5.70	5.75	1000[c]	-	-	-
Dissolved Copper	UG/L	***5.90***	***4.67***	***5.49***	***4.82***		9.0	3.1	3.1
Iron	UG/L	14.40	***1741.50***	14.98	187.65	300[c]	-	-	-
Dissolved Iron	UG/L	< 2.5	< 2.5	2.98	5.99		-	-	-
Lead	UG/L	< 0.5	1.69	< 0.5	< 0.5	15	-	-	-
Dissolved Lead	UG/L	< 0.5	< 0.5	< 0.5	< 0.5		2.5	5.6	2.5
Manganese	UG/L	0.87	35.00	0.68	5.00	50[c]	-	-	-
Dissolved Manganese	UG/L	1.87	0.53	0.30	1.50		-	-	-
Mercury	UG/L	< 0.2	< 0.2	< 0.2	< 0.2	2	-	-	-
Dissolved Mercury	UG/L	< 0.2	< 0.2	< 0.2	< 0.2		0.025	0.025	0.025
Molybdenum	UG/L	8.69	8.26	9.35	7.32	-	-	-	-
Dissolved Molybdenum	UG/L	8.44	7.37	9.51	7.83		35	240	35
Nickel	UG/L	3.80	7.34	4.01	3.58	100	-	-	-
Dissolved Nickel	UG/L	3.64	3.89	3.78	2.53		52	8.2	8.2
Selenium	UG/L	< 2	< 2	< 2	< 2	50	5.0	71	5.0
Dissolved Selenium	UG/L	< 2	< 2	< 2	< 2		-	-	-
Silver	UG/L	< 0.25	< 0.25	< 0.25	< 0.25	100[c]	-	-	-

TABLE IV.G-2 (Continued)
SYNTHETIC TURF STORMWATER QUALITY MONITORING—GARFIELD SQUARE PARK

Parameter	Units	*2009 - 2010*		*2010 - 2011*		MCL[a]	Freshwater Environmental Screening Level[b]	Marine Environmental Screening Level[b]	Groundwater Environmental Screening Level[b]
		2/24/2010	3/2/2010	12/22/2010	2/17/2011				
Dissolved Silver	UG/L	< 0.25	< 0.25	< 0.25	< 0.25		0.34	0.19	0.19
Thallium	UG/L	< 1	< 1	< 1	< 1	2	-	-	-
Dissolved Thallium	UG/L	< 1	< 1	< 1	< 1		2.0	4.0	2.0
Vanadium	UG/L	1.60	6.52	1.62	2.07	50[d]	-	-	-
Dissolved Vanadium	UG/L	1.49	2.14	1.34	1.39		15	19	15
Zinc	UG/L	58.50	136.75	51.61	40.98	5000[c]	-	-	-
Dissolved Zinc	UG/L	42.16	72.79	60.29	29.51		120	81	81
Volatile Organic Compounds	UG/L	ND	ND	ND	ND	-	-	-	-
Semi Volatile Organic Compounds	UG/L	ND	ND	ND	ND	-	-	-	-

[a] California Maximum Contaminant Levels (MCL)

[b] Source is California Regional Water Quality Control Board, San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. Interim Final – November 2007 (Revised May 2008).

[c] Secondary MCL

[d] California Department of Public Health notification level

Bold-face italics with shading indicates value in excess of MCL or ESL

°F = degrees Fahrenheit
MG/L (mg/L) = milligrams per liter
ND = Not detected
NTU = nephelometric turbidity units
UG/L (µg/L) = micrograms per liter
UMHOS/CM = micromhos per centimeter
- = criteria not established for this parameter
< = parameter not detected at the detection limit indicated

SOURCE: San Francisco Recreation and Parks Department, Synthetic Turf Stormwater Quality Monitoring, Garfield Square Park; Orion Environmental Associates

TABLE IV.G-3
SYNTHETIC TURF STORMWATER QUALITY MONITORING—SOUTH SUNSET PLAYGROUND

Parameter	Units	*2009 - 2010*		*2010 - 2011*		MCL[a]	Freshwater Environmental Screening Level[b]	Marine Environmental Screening Level[b]	Groundwater Environmental Screening Level[b]
		2/23/2010	3/2/2010	12/8/2010	2/17/2011				
pH		6.3	6.6	6.8	8.1	-	-	-	-
Temperature	°F	52	56	54	62	-	-	-	-
Specific Conductance	UMHOS/CM	237	224	197.1	112.8	-	-	-	-
Turbidity	NTU	49	117	28.9	65.2	-	-	-	-
Total Dissolved Solids	MG/L	102	62	54	74	-	-	-	-
Total Suspended Solids	MG/L	25	45	20	23	-	-	-	-
Antimony	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	6	-	-	-
Dissolved Antimony	UG/L	< 0.5	< 0.5	< 0.5	< 0.5		6.0	500	6.0
Arsenic	UG/L	< 2	< 2	< 2	< 2	10	0.14	0.14	-
Dissolved Arsenic	UG/L	< 2	< 2	< 2	< 2		-	-	36
Barium	UG/L	70.00	107.79	76.45	59.18	1000	-	-	-
Dissolved Barium	UG/L	50.08	61.06	60.96	32.76		1000	1000	1000
Beryllium	UG/L	< 0.5	< 0.5	< 0.5	< 0.5	4	-	-	-
Dissolved Beryllium	UG/L	< 0.5	< 0.5	< 0.5	< 0.5		2.7	0.53	0.53
Cadmium	UG/L	< 0.25	< 0.25	< 0.25	< 0.25	5	-	-	-
Dissolved Cadmium	UG/L	< 0.25	< 0.25	< 0.25	< 0.25		0.25	9.3	0.25
Chromium	UG/L	5.13	12.25	4.11	6.66	50	-	-	-
Dissolved Chromium	UG/L	1.54	0.84	0.90	0.79		50	180	50
Cobalt	UG/L	1.10	2.64	0.87	1.34	-	-	-	-
Dissolved Cobalt	UG/L	0.16	0.08	0.19	0.13		3.0	3.0	3.0
Copper	UG/L	4.39	8.99	4.86	4.69	1000[c]	-	-	-
Dissolved Copper	UG/L	***4.32***	2.40	***3.52***	1.40		9.0	3.1	3.1
Iron	UG/L	***1386.80***	***3624.30***	***1426.24***	***2440.02***	300[c]	-	-	-
Dissolved Iron	UG/L	15.11	5.50	7.56	10.79		-	-	-
Lead	UG/L	0.64	1.59	0.61	0.91	15	-	-	-
Dissolved Lead	UG/L	< 0.5	< 0.5	< 0.5	< 0.5		2.5	5.6	2.5
Manganese	UG/L	***51.21***	***144.25***	41.90	***66.15***	50[c]	-	-	-
Dissolved Manganese	UG/L	2.36	0.37	0.67	0.43		-	-	-
Mercury	UG/L	< 0.2	< 0.2	< 0.2	< 0.2	2	-	-	-
Dissolved Mercury	UG/L	< 0.2	< 0.2	< 0.2	< 0.2		0.025	0.025	0.025
Molybdenum	UG/L	0.46	0.34	0.31	0.23	-	-	-	-
Dissolved Molybdenum	UG/L	0.57	0.42	0.36	0.34		35	240	35
Nickel	UG/L	7.57	18.54	5.59	10.26	100	-	-	-
Dissolved Nickel	UG/L	< 1	< 0	< 1	< 1		52	8.2	8.2
Selenium	UG/L	< 2	< 2	< 2	< 2	50	5.0	71	5.0
Dissolved Selenium	UG/L	< 2	< 2	< 2	< 2		-	-	-
Silver	UG/L	< 0.25	< 0.25	< 0.25	< 0.25	100[c]	-	-	-

TABLE IV.G-3 (Continued)
SYNTHETIC TURF STORMWATER QUALITY MONITORING—SOUTH SUNSET PLAYGROUND

Parameter	Units	*2009 - 2010*		*2010 - 2011*		MCL[a]	Freshwater Environmental Screening Level[b]	Marine Environmental Screening Level[b]	Groundwater Environmental Screening Level[b]
		2/23/2010	3/2/2010	12/8/2010	2/17/2011				
Dissolved Silver	UG/L	< 0.25	< 0.25	< 0.25	< 0.25		0.34	0.19	0.19
Thallium	UG/L	< 1	< 1	< 1	< 1	2	-	-	-
Dissolved Thallium	UG/L	< 1	< 1	< 1	< 1		2.0	4.0	2.0
Vanadium	UG/L	3.70	8.83	3.29	4.23	50[d]	-	-	-
Dissolved Vanadium	UG/L	1.33	1.31	1.30	0.86		15	19	15
Zinc	UG/L	31.43	32.29	21.28	6.13	5000[c]	-	-	-
Dissolved Zinc	UG/L	6.40	3.72	7.37	27.08		120	81	81
Volatile Organic Compounds	UG/L	ND	ND	ND	ND	-	-	-	-
Semi Volatile Organic Compounds	UG/L	ND	ND	ND	ND	-	-	-	-

[a] California Maximum Contaminant Levels (MCL)

[b] Source is California Regional Water Quality Control Board, San Francisco Bay Region, Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater. Interim Final – November 2007 (Revised May 2008).

[c] Secondary MCL

[d] California Department of Public Health notification level

Bold-face italics with shading indicates value in excess of MCL or ESL

°F = degrees Fahrenheit
MG/L (mg/L) = milligrams per liter
ND = Not detected
NTU = nephelometric turbidity units
UG/L (µg/L) = micrograms per liter
UMHOS/CM = micromhos per centimeter
- = criteria not established for this parameter
< = parameter not detected at the detection limit indicated

SOURCE: San Francisco Recreation and Parks Department, Synthetic Turf Stormwater Quality Monitoring, South Sunset Playground; Orion Environmental Associates

the February and December 2010 samples from the South Sunset Playground Field were 4.32 μg/L and 3.53 μg/L, respectively. Both of these concentrations also exceeded the marine surface water ESL of 3.1 μg/L.

These sampling results are representative of the stormwater runoff quality from the Garfield Square Park and the South Sunset Playground. However, the composition of the styrene butadiene rubber infill material used in synthetic turf can vary widely because of the variable composition of the tires used to manufacture the infill material. Therefore, for other fields, it would be necessary to conduct additional sampling to assess stormwater runoff quality specific to that installation, and future studies should also evaluate background metals concentrations in runoff from grass fields to evaluate the contribution of metals due to the synthetic turf materials.

San Francisco Synthetic Turf Standards

In accordance with the findings of the Task Force discussed above, SFRPD developed synthetic turf standards in 2009 to address the required composition of synthetic turf products used in San Francisco, as well as the post-consumer recycled content of the new turf products purchased and recyclability of used turf products at the end of their useful life.[20] In accordance with these standards, the SFRPD requires potential vendors to provide the information regarding the turf composition when submitting project bids, and any bids with incomplete information or insufficient data are rejected. These standards were used to purchase synthetic turf for the Kimbell Playground in 2010 and Mission Playground field renovations in 2011.

As discussed in Section IV.H, Hazards and Hazardous Materials and Air Quality, the synthetic turf standards specify that the vendor must submit a product analysis with their project bids, quantifying the content of their product. Maximum levels for soluble chromium, lead, and zinc in SBR infill materials and non-SBR infill materials are specified in the standards. For both categories of infill materials, the maximum soluble concentration of chromium is 0.05 milligrams per liter (mg/L) and the maximum soluble concentration of lead is 0.0025 mg/L. The maximum concentration of soluble zinc in SBR infill is 250 mg/L and the maximum concentration in non-SBR infill materials is 0.081 mg/L. These maximum levels are summarized in **Table IV.G-4** along with environmental screening levels (ESLs) for groundwater that is a current or potential drinking water source and drinking water maximum contaminant levels for each metal (see "Environmental Screening Levels," and "Drinking Water Standards," below, for a discussion of these criteria). For chromium and lead, these maximum concentrations are all equal to or less than the criteria identified. Although the zinc standard for SBR infill is higher than the drinking water MCL, the Waste Extraction Test used to determine the soluble concentration for waste disposal purposes uses an acidic solution which is more aggressive at dissolving constituents from a material than water, and is not necessarily representative of the zinc concentration that could dissolve into water as a result of stormwater runoff or leachate through the field.

[20] City and County of San Francisco Recreation and Park Department, *Synthetic Turf Standards Information Only*. July 8, 2009, available online at: http://www.scparks.com/pdfs/Synthetic%20Turf%20Standards.pdf, accessed on March 30, 2011.

TABLE IV.G-4
SYNTHETIC TURF STANDARDS, SCREENING LEVELS, AND HAZARDOUS WASTE CRITERIA—SOLUBLE CONCENTRATIONS

	Synthetic Turf Standard		Screening Level	California Drinking Water Standard
Parameter	Maximum Concentration in SBR Infill Leachate[a] (mg/L)[b]	Maximum Concentration in Non-SBR Infill Leachate[a] (mg/L)	Environmental Screening Level for Groundwater that is a Current or Potential Drinking Water Source[c] (mg/L)	Drinking Water Standard (mg/L)
Chromium[d]	0.05	0.05	0.18	5.0[e]
Lead	0.0025	0.0025	0.0025	0.015[e]
Zinc	250	0.081	0.081	5.0[f]

NOTES:
[a] Source is CCSF, 2009
[b] mg/L = milligram per liter
[c] Source is RWQCB, 2008
[d] There are no screening criteria or hazardous waste criteria for total chromium, so values for trivalent chromium are used.
[e] Primary drinking water standard
[f] Secondary drinking water standard
[g] – = criterion has not been established for this parameter

Regulatory Framework

Water Quality Regulations

The federal Clean Water Act (CWA) and subsequent amendments, under the enforcement authority of the USEPA, was established "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." The CWA established the basic structure for regulating discharges of pollutants into waters of the United States. It gave the USEPA the authority to implement pollution control programs, such as setting wastewater standards for industry. The CWA also set water quality standards for all contaminants in surface waters and made it unlawful for any person to discharge any pollutant from a point-source into navigable waters, unless a permit was obtained under its provisions.

The CWA established the NPDES program to protect water quality of receiving waters. Under CWA Section 402, discharge of pollutants to receiving waters is prohibited unless the discharge is in compliance with an NPDES permit. In California, the USEPA has determined that the State's water pollution control program had sufficient authority to manage the NPDES program under California law in a manner consistent with the CWA. Therefore, implementation and enforcement of the NPDES program is conducted through the California State Water Resources Control Board (SWRCB) and the nine RWQCBs.

The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code) regulates water quality within California and established the authority of the SWRCB and the nine RWQCBs.

The San Francisco Bay area groundwater resources are regulated under the jurisdiction of the RWQCB (San Francisco Bay Region). The RWQCB established regulatory standards and objectives for water quality in the Bay in the *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan)*, most recently updated in 2010 and commonly referred to as the "Basin Plan."[21] The Basin Plan identifies existing and potential beneficial uses for groundwater and provides numerical and narrative water quality objectives designed to protect those uses.

SWRCB regulates water quality in the Pacific Ocean through regulatory standards and objectives in the *Water Quality Control Plan, Ocean Waters of San Francisco*, commonly referred to the "Ocean Plan".[22] The Ocean Plan identifies beneficial uses of the ocean water and provides water quality objectives that are protective of these uses. Objectives for bacteriological, physical, chemical, biological, and radioactive characteristics are provided, as well as general requirements for the management of waste discharges to the ocean. Although the SWOO discharges to federal waters of the Pacific Ocean 3.75 miles from shore, USEPA uses the water quality objectives of the Ocean Plan for the purposes of regulating discharges from the SWOO.

Water Quality Criteria

The CWA established ambient water quality criteria for the protection of aquatic life and human health that serve as guidance for states to use in adopting water quality standards. In 1980, USEPA published water quality criteria for 64 pollutants and pollutant classes and considered noncancer, cancer, and taste and odor effects. Additional criteria were adopted under the 1992 National Toxics Rule, and criteria specific to California were adopted under the 2000 California Toxics Rule. In 2002, USEPA revised its recommended water quality criteria for 83 chemicals, based on a revised methodology adopted in 2000 to protect human health, and in 2003, USEPA published an additional 15 revised human health criteria.[23] The 2002 revisions incorporate new toxicity information on compounds and other changes in the calculation method.

Drinking Water Standards

MCLs are health protective drinking water standards that must be met by public water systems. California's MCLs are specified in Title 22 of the California Code of Regulations, Chapter 15, and include primary and secondary MCLs. The primary MCL is the highest level of a contaminant that is allowed in drinking water. The MCL is set as close to the maximum contaminant level goal (the level below which there is no known or expected health risk to human health) as is economically or technically feasible. While the MCL is higher than the MCL goal, it is considered protective of human health. Secondary MCLs are established to protect the aesthetic quality of drinking water, and are based on effects such as taste and odor.

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[21] California Regional Water Quality Control Board, *San Francisco Bay Region, San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan),* incorporating all amendments approved by the Office of Administrative Law as of December 21, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[22] State Water Resources Control Board, *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan,* 2005, available online at: http://www.swrcb.ca.gov/water_issues/programs/ocean/docs/oplans/oceanplan2005.pdf.

[23] United States Environmental Protection Agency. National Recommended Water Quality Criteria Table, Fact Sheet, May 2005. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

Beneficial Uses

Applicable water quality criteria for a specific water body, specified by the National Toxics Rule or the California Toxics Rule, are determined on the basis of the beneficial use(s) of the water. The Basin Plan identifies agricultural supply as an existing beneficial use for the Westside Groundwater Basin in San Francisco; municipal supply, domestic supply, industrial service supply, and industrial process supply are listed as "potential" beneficial uses. The Ocean Plan designates the following beneficial uses for the ocean waters of the state: industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance; rare and endangered species; marine habitat; fish migration; and fish spawning and shellfish harvesting.

NPDES Waste Discharge Regulations

The CWA, Section 402, established the NPDES program to protect water quality of receiving waters. The NPDES program requires all facilities that discharge pollutants into waters of the United States to obtain a permit. The permit provides two levels of control—technology-based limits and water-quality-based limits—to control discharge of pollutants for the protection of water quality. Technology-based limits are based on the ability of dischargers in the same category to treat wastewater, while water-quality-based limits are required if technology-based limits are not sufficient to provide protection of the water body. Water-quality-based effluent limitations required to meet water quality criteria in the receiving water are based on criteria specified in the National Toxics Rule, the California Toxics Rule, and the Basin Plan. NPDES permits must also incorporate Total Maximum Daily Load waste-load allocations when they are developed.

The regulations initially focused on municipal and industrial wastewater discharges in 1972, followed by stormwater discharge regulations, which became effective in November 1990. NPDES permits for wastewater and industrial discharges specify discharge prohibitions and effluent limitations, and also include other provisions (such as monitoring and reporting programs) deemed necessary to protect water quality. In California, SWRCB and RWQCBs implement and enforce the NPDES program.

NPDES Permit for Oceanside Water Pollution Control Plant

CCSF currently holds an NPDES permit adopted in August 2009 that covers the OWPCP, SWOO, and Westside Wet Weather Facilities.[24] The permit specifies discharge prohibitions, dry-weather effluent limitations, wet-weather effluent performance criteria, receiving water limitations, sludge management practices, and monitoring and reporting requirements. The permit also prohibits overflows from the CSO structures during dry weather, and requires that wet-weather

24 California Regional Water Quality Control Board and U.S. Environmental Protection Agency, Waste Discharge Requirements for the City and County of San Francisco Oceanside Water Pollution Control Plant (Southwest Ocean Outfall) Collection System, including the Westside Wet Weather Facilities, NPDES Permit No. CA 0037681, Order No. R2-2009-0062. Adopted on August 12, 2009. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

overflows comply with the nine minimum controls specified in the federal Combined Sewer Overflow Control Policy, as described below.

Federal Combined Sewer Overflow Control Policy

On April 11, 1994, USEPA adopted the Combined Sewer Overflow Control Policy (CSO Control Policy), which became part of the Clean Water Act in December 2000. This policy establishes a consistent national approach for controlling discharges from combined sewers to the nation's water. Using the NPDES permit program, the policy initiates a two-phased process with higher priority given to more environmentally sensitive areas. During the first phase, the permittee is required to implement the following nine minimum controls that constitute the technology-based requirements of the CWA and can reduce the frequency of CSOs and their effects on receiving water quality:

1. Conduct proper operation and regular maintenance programs for the combined sewer system and CSO outfalls;
2. Maximize the use of the collection system for storage;
3. Review and modify pretreatment programs to ensure that CSO impacts are minimized;
4. Maximize flow to the treatment plant for treatment;
5. Prohibit CSOs during dry weather;
6. Control solids and floatable materials in CSOs;
7. Develop and implement pollution prevention programs that focus on contaminant reduction activities;
8. Notify the public; and
9. Monitor to effectively characterize CSO impacts and the efficacy of CSO controls.

CCSF is currently implementing these controls as required by the CSO Control Policy. This includes development of a Water Pollution Prevention Program, which focuses on minimizing pollutants from entering the CCSF combined sewer system and addresses pollutants from residential, commercial, industrial, and nonpoint pollutant sources.

During the second phase, the permittee is required to continue implementation of the nine minimum controls, properly operate and maintain the completed CSO controls in accordance with the operational plan, and implement the post-construction monitoring program. In conformance with the CSO Control Policy, CCSF has developed a long-term control plan to select CSO controls to comply with water quality criteria and to protect the beneficial uses of the receiving waters. The plan utilizes the presumptive approach for the protection of water quality. In accordance with the CSO Control Policy, this approach must meet one of these criteria:

- An average of four CSO events per year;
- Elimination or capture of no less than 85 percent by volume of the combined sewage collected in the combined sewer system during precipitation events on a systemwide average basis; or

- Removal of the mass of any contaminant causing water quality impairment that would be otherwise removed by eliminating or capturing the flow as specified above.

The CSO Control Policy requires that any CSOs that occur after implementation of the nine minimum control measures should receive a minimum of primary clarification (removal of floatables and settleable solids), solids and floatable disposal, and disinfection (if necessary to meet water quality standards and protect the beneficial uses of the receiving water). The San Francisco Wastewater Control Program exceeds the specifications of the presumptive approach because 100 percent of the combined sewer flows are captured and treated rather than the required 85 percent. As defined in the CSO Control Policy, San Francisco has no remaining untreated overflow events because the overflows that occur in San Francisco currently receive the equivalent of primary treatment within the storage/transport boxes, consisting of removal of floatables and settleable solids.

CCSF is currently in full compliance with the CSO Control Policy. In 1997, CCSF completed construction of its 20-year, 1.6-billion-dollar Wastewater Master Plan facilities, which included extensive storage, transport, and treatment upgrades to the combined sewer system that meet approved design criteria for overall protection of beneficial uses. Operation and implementation of these facilities satisfies the CSO Control Policy, including maximizing use of the system during wet weather.

Wastewater Discharges

Discharges of non-sewage wastewater to the combined sewer system are subject to the permit requirements specified in Article 4.1 of the San Francisco Public Works Code and supplemented by Department of Public Works Order No. 158170. The permit requirements include compliance with the federal CSO Control Policy minimum controls, including development and implementation of a pollution prevention program. The San Francisco pollution prevention program includes requirements for BMPs to minimize the amount of pollutants carried by stormwater to the combined sewer system from industrial uses, and CCSF conducts periodic inspections to ensure compliance.

Stormwater Management

In accordance with the San Francisco Stormwater Management Ordinance, approved in April 2010, development projects that discharge stormwater to the combined sewer system must comply with the San Francisco Stormwater Design Guidelines developed by SFPUC and the Port of San Francisco.[25] The Guidelines offer five tools to help project developers achieve compliance with stormwater management requirements:

[25] San Francisco Public Utilities Commission and Port of San Francisco, San Francisco Stormwater Design Guidelines, November, 2009. Adopted by the SFPUC Commission January 12, 2010, available online at: http://sfwater.org/index.aspx?page=466. Stormwater Management Ordinance: Ordinance 83-10, approved by the Board of Supervisors April 13, 2010, and signed by the Mayor April 22, 2010, available online at: http://www.sfbos.org/ftp/uploadedfiles/bdsupvrs/-ordinances10/o0083-10.pdf.

- A step-by-step guide describing how to manage stormwater onsite;
- A set of stormwater BMP fact sheets;
- A vegetation palette to assist in BMP-appropriate plant selection;
- Sizing calculators to determine the required size of each BMP; and
- Maintenance checklists explaining the types and frequencies of the maintenance activities associated with each BMP.

In accordance with the San Francisco Stormwater Design Guidelines, developers of projects that disturb more than 5,000 square feet of ground (such as the proposed project) must implement BMPs to reduce the flow rate and volume of stormwater going into the combined sewer system by achieving Leadership in Energy and Environmental Design (LEED®) Sustainable Sites Credit 6.1 (Stormwater Management Rate and Quantity). Development projects must also comply with Article 4.2 of the San Francisco Public Works Code and must submit a stormwater control plan (including an operations and maintenance plan) and LEED® checklist, along with the building application that demonstrates compliance with the specified performance standards. SFPUC reviews the plan and certifies compliance with the San Francisco Stormwater Design Guidelines. Examples of BMPs that may be implemented are rainwater harvesting, rain gardens, green roofs, and permeable paving. (Separate requirements exist for parts of San Francisco that have separate storm sewer systems.)

SFPUC inspects stormwater BMPs once they are constructed, and any issues noted by the inspection must be corrected before the certificate of occupancy can be issued for the building. The owner is responsible for completing an annual self-certification inspection, and must submit completed checklists and maintenance logs for the year to SFPUC. In addition, SFPUC will inspect all stormwater BMPs every third year. Any issues identified by either inspection must be resolved before SFPUC can renew the certificate of compliance.

Projects that are required to implement the San Francisco Stormwater Design Guidelines are also subject to review by the San Francisco Department of Building Inspection, and subject to building codes that include provisions for managing drainage for new construction. Specifically, Section 306.2 of the San Francisco Plumbing Code and Section 1503.4 of the San Francisco Building Code allow roofs and other building areas to drain to locations other than the combined sewer. In 2008, SFPUC, the Department of Building Inspection, and the Department of Public Health also entered into a Memorandum of Agreement concluding that applicants can safely harvest rainwater for use in nonpotable applications, such as toilet flushing, irrigation, and vehicle washing, without treating it to potable standards.

Implementation of the low-impact development measures described above helps to reduce and delay the volumes of discharge entering the combined sewer system, thereby reducing the frequency of combined sewer overflows, minimizing flooding effects, and protecting water quality. Other plans and ordinances also contribute to reducing the frequency of combined sewer overflows by addressing stormwater management. The Sewer System Improvement Program (described above) includes the evaluation of use of low-impact design infrastructure as a tool to

address stormwater management in San Francisco. The Better Streets Plan identifies innovative methods for reducing stormwater runoff from streets and sidewalks to create a more attractive and sustainable public realm in San Francisco. The Green Building Ordinance expands the scope of the green building standards to apply to private developments and redevelopment projects, in addition to public buildings; it fosters environmentally sensitive design and sustainability in new development projects. The stormwater management performance standards specified in the San Francisco Stormwater Design Guidelines were developed as part of this ordinance, and the ordinance provides the regulatory authority to implement stormwater management requirements in combined sewer areas.

Environmental Screening Levels

RWQCB ESLs for surface water and groundwater are developed to address environmental protection goals presented in the Basin Plan.[26] These goals include protection of drinking water sources and protection of aquatic habitats. For surface water, ESLs are established for both freshwater and marine habitats[27] and are based on a number of sources including the Basin Plan, California Toxics Rule, and others.

In addition, RWQCB ESLs have been established for groundwater that is an existing or potential drinking water source. For the purposes of developing the screening levels, the RWQCB assumed that all groundwater could discharge to a surface water body either through natural processes or human activities. Accordingly, the ESL reflects the lowest screening level of drinking water toxicity, aquatic habitat protection, indoor-air impacts, and a ceiling level for tastes, odors, or other nuisance concerns.

Because of the conservative assumptions used in development of the surface water and groundwater ESLs, the presence of a chemical at a concentration in excess of an ESL does not necessarily indicate that adverse effects could occur. It is simply an indication that the potential for adverse effects exists and further evaluation of this potential is warranted. Conversely, the presence of a chemical at a concentration that is less than the ESL is a good indication that adverse effects would not occur.

[26] California Regional Water Quality Control Board, San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.* Interim Final – November 2007 (Revised May 2008). This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[27] ESLs are also provided separately for estuarine habitats, but are the lowest of either the freshwater or marine ESL. Therefore, they are not considered separately in this analysis.

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to hydrology and water quality, but generally considers that implementation of the proposed project would have a significant impact on hydrology and water quality if it were to:

- Violate any water quality standards or waste discharge requirements.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Otherwise substantially degrade water quality.

Approach to Analysis

This analysis of hydrology and water quality impacts evaluates the potential for water quality degradation attributable to operation of the proposed project, with consideration of legally mandated requirements for protecting water quality. The analysis evaluates the nature, magnitude, duration/frequency, and overall severity of the project effects relative to the significance criteria to determine whether the project would result in significant impacts and thus whether mitigation measures would be required.

Impacts Analysis

Impact HY-1: The proposed project would not violate water quality standards, or provide an additional source of polluted runoff that would adversely affect water quality, or otherwise substantially degrade water quality. (Less than Significant)

Potential sources of polluted runoff associated with the proposed project include runoff from the synthetic turf and new impervious surfaces. These potential impacts are discussed below.

Potential Sources of Polluted Runoff

The proposed project would include the installation of approximately 312,000 square feet of synthetic turf on the existing athletic fields. The synthetic turf would consist of four components: fiber, infill, backing, and underlayment. The fiber, which would consist of polyethylene, would be grass-like in appearance. The infill, which would be used to provide stability, would comprise about 70 percent SBR material and 30 percent sand. The SBR infill is recovered from scrap tires and from the tire re-treading process. The fiber and infill would be supported by a backing made up of a combination of permeable woven and un-woven polypropylene fabrics that provide strength and vertical drainage. Underlayment would consist of drainage tile or an aggregate rock base.

While there is a substantial amount of research (described under "Setting," above) that suggests the runoff from the fields would not cause adverse water quality effects, the composition of SBR material is dependent on the tires used in the manufacturing process and can be variable.

Therefore, additional material-specific information is needed to assess the specific levels of contaminants in runoff from the synthetic turf fields.

However, as discussed in the "Setting", the SFRPD would require the vendor for the synthetic turf to comply with San Francisco's Synthetic Turf Standards which limits the concentration of metals in the turf product. Further, to prevent the generation of polluted runoff from the fields until material-specific information is available regarding stormwater runoff quality from the Beach Chalet synthetic turf installation, the SFRPD would construct the playfields with an underlying liner and a drainage system equipped to capture all runoff and leachate from the fields, as described in Chapter II, Project Description. The drainage system would initially direct all runoff and leachate to the combined sewer system via a new pipeline and connection. SFRPD would conduct periodic water sampling from the underdrain system, in conjunction with SFPUC, and evaluate the quality of water drained from the synthetic turf. If sampling by the SFRPD indicates that runoff and leachate quality is acceptable, SFPUC could allow drainage from the synthetic turf athletic fields to infiltrate into the groundwater basin.

If approval is obtained from the SFPUC to infiltrate runoff from the synthetic turf, the proposed project would be required to comply with the San Francisco Stormwater Management Ordinance described under "Stormwater Management," above. This ordinance requires that projects that disturb more than 5,000 square feet of land capture and treat rainfall from a design storm of 0.75 inch using acceptable BMPs. Compliance with the ordinance would require that SFRPD prepare a stormwater control plan describing the BMPs that would be implemented, including a plan for post construction operation and maintenance of the BMPs. Specifically, the plan would include the following elements:

- Site characterization
- Design and development goals
- Site plan
- Site design
- Source controls
- Treatment BMPs
- Comparison of design to established goals
- Operations and maintenance plan

The project would be required to achieve the standards specified in LEED® SS6.1 (Stormwater Design: Quantity Control) to minimize the flow and volume of stormwater into the combined sewer system. The selection of treatment BMPs to reduce pollutant loads in stormwater runoff is guided by existing site conditions and the pollutants of concern at the site. Treatment BMPs would reduce the pollutant loads stormwater via infiltration (e.g., permeable pavement or infiltration basins or trenches), detention (constructed wetlands, detention pond or vault, or wet pond), bioretention (e.g., flow through planter or rain garden), or biofiltration (e.g., vegetated areas; media, sand, or vegetated rock filters; swirl separators, water quality inlets, or drain inserts). One or more treatment BMPs could be required to address each of the potential stormwater pollutants of concern.

The operations and maintenance plan prepared as part of the stormwater control plan would identify who has the operational responsibility for the facility, applicable maintenance requirements for each stormwater control, detailed requirements for each treatment and control BMP, and required maintenance of facilities. These requirements would transfer to any new owner, occupant, or lessee of the facility.

The stormwater control plan must be reviewed and stamped by a licensed landscape architect, architect, or engineer. SFPUC reviews the plan and certifies compliance with the guidelines and inspects stormwater BMPs once they are constructed; any issues noted during the inspection must be corrected. The owner is responsible for completing an annual self-certification inspection, and must submit completed checklists and maintenance logs for the year to SFPUC. In addition, SFPUC would inspect all stormwater BMPs every third year, and any issues identified by either inspection must be resolved before SFPUC could renew the certificate of compliance.

With implementation of the monitoring program described above to evaluate runoff quality from the playfields, and compliance with the Stormwater Design Guidelines once approval is obtained to infiltrate stormwater runoff, impacts related to additional sources of polluted runoff would be less than significant.

Impact HY-2: The proposed project would not violate water quality standards, or provide an additional source of polluted runoff that would adversely affect groundwater quality, or otherwise substantially degrade groundwater quality. (Less than Significant)

As described above, potential sources of polluted runoff associated with the proposed project include runoff from the synthetic turf and new impervious surfaces. Runoff and leachate from the synthetic turf fields could potentially degrade groundwater quality if allowed to infiltrate to the groundwater.

As discussed in the "Setting", the project site is underlain by the Westside Groundwater Basin, and in the vicinity of Golden Gate Park, the three aquifers comprising the basin are hydraulically connected and can effectively be considered one aquifer. While there is a substantial amount of research (described under "Setting," above) that suggests the leachate from the fields would not cause adverse water quality effects, the composition of SBR material is dependent on the tires used in the manufacturing process and can be variable. Therefore, additional material-specific information is needed to assess the specific levels of contaminants in leachate from the synthetic fields and whether the detected levels could cause degradation of water quality. As discussed above, the SFRPD would construct the playfields with an underlying liner and a drainage system equipped to capture all stormwater runoff and leachate from the fields, as described in Chapter II, Project Description. The drainage system would initially direct all stormwater runoff and leachate to the combined sewer system via a new pipeline and connection, and the SFRPD would conduct periodic water sampling from the underdrain system, in conjunction with SFPUC, and

evaluate the quality of water drained from the synthetic turf. If sampling by the SFRPD indicates that water quality is acceptable, SFPUC could allow drainage from synthetic field to infiltrate into the groundwater basin. Because the SFRPD would not allow leachate or runoff from the fields to infiltrate to the groundwater until sampling data indicate that the quality is acceptable, impacts related to degradation of groundwater quality would be less than significant.

Impact HY-3: The proposed project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems. (Less than Significant)

Discharge of runoff from these areas to the CCSF combined sewer system, in combination with increased sewage from increased use of the Beach Chalet recreational facilities, could contribute to combined sewer overflows.

Because the project site is not currently served by the CCSF combined sewer system (with the exception of the restroom building), any runoff to the system would result in an increase of flows in the system. Increased sewage volumes resulting from increased use of recreational facilities in combination with stormwater runoff from the project area could potentially contribute to combined sewer overflows during the wet season. However, as discussed below, modeling has demonstrated that while the additional flows would cause a slight increase in the duration of combined sewer overflows, they would not increase the frequency of overflows. Further, during high-flow periods, such as during or following a storm event, runoff and drainage from the synthetic turf fields could be detained onsite.

Dry Weather Flows

As described in Chapter II, Project Description, there would be an increase of approximately 360 visitors per day to the Beach Chalet athletic facilities, and this increase would result in an increase in sanitary sewage produced at the site. While the project would implement water conservation measures in accordance with LEED, and these measures would decrease the volume of sewage produced for each use, there would still be an overall increase in sewage volume of 1,100 gallons per day (0.0011 mgd). As discussed under "Setting," above, dry weather flows to the OWPCP (typically May 1–October 15) are currently 14 mgd, and the treatment plant has the capacity to treat up to 43 mgd to a secondary level. The increased flows from the project represent a small portion of the existing dry weather flows to the OWPCP and are well within the capacity of the treatment plant. Therefore, no significant impact would ensue.

Wet Weather Flows

During wet weather (typically October 16–April 30), there is a wide variation in volume of flow to the combined system because of the addition of stormwater discharges to the sewer system. The volume of wet weather flows is directly related to the rainfall intensity, and treatment of the wet weather flows varies depending on the characteristics of any individual rainstorm. As discussed under "Setting," above, flows in excess of 175 mgd (about 13 percent of the total wet

weather flows) are discharged at the shoreline through one of seven CSO structures located along the ocean coast. These overflow facilities are designed for a long-term average of eight overflows per year. The potential impact of the proposed project on the frequency, volume, and duration of combined sewer overflows at Ocean Beach was analyzed using the Westside Planning Model.[28] As a worst case, this model was used to evaluate the effects of discharging the sanitary sewage and all of the stormwater runoff from the synthetic playfields and parking area to the combined sewer system, and found that these discharges would increase the volume of wet weather discharges to the combined sewer by an estimated 3.35 million gallons per year.[29] This increase would not result in an increase in the number of CSO discharges, but could increase the volume of these discharges by approximately 1.2 million gallons (from 310.6 million gallons per year to 311.8 million gallons per year), and could increase the duration of the discharges by 0.1 hour per year (from 32.0 hours per year to 32.1 hours per year). Further, when brought into compliance with the Stormwater Design Guidelines, project-related discharges of stormwater to the combined sewer system would decrease, and the project would result in less of an effect on CSO discharge volumes and duration. Because the worst case increased volume of sanitary sewage and stormwater discharged to the combined sewer would not increase the frequency of CSO discharges and would only minimally increase the duration of CSO discharges, and because discharges to the combined sewer system would be reduced when the project is brought into compliance with the Stormwater Design Guidelines, impacts on CSO discharges would be less than significant.

Cumulative Impacts

Impact C-HY: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not adversely affect hydrology and water quality. (Less than Significant)

As discussed under Impact HY-3, implementation of the proposed project would increase sanitary sewage and stormwater runoff discharges to the combined sewer system, but these discharges would not increase the frequency of CSO discharges at Ocean Beach, even under worst-case conditions with all of the site runoff directed to the combined sewer system. Of the projects listed in Table IV-1, the Golden Gate Park Tennis Courts and several small expansion projects would involve an increase in site occupancy or expanded facilities that could increase sanitary sewage and wet weather flows to the combined sewer system. However, the increased discharges to the combined sewer under these cumulative projects would likely be minimal. Existing dry weather flows to the OWPCP are 14 mgd, and the treatment plant has the capacity to treat up to 43 mgd to a secondary level, and therefore increased sanitary sewage flows from these projects would not exceed the capacity of the OWPCP. Further, wet weather flows from these projects would comprise a small portion of the 13 percent of wet weather flows that are

[28] HydroConsult Engineers, *Westside Model Documentation*, July, 2001. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[29] HydroConsult Engineers, *Hydrology Study, Beach Chalet,* August 2011. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

discharged at the shoreline through one of seven CSO structures located along the ocean coast. Therefore, cumulative impacts related to increases in CSO discharges would be less than significant.

As discussed in Impact HY-1, there is a substantial amount of research (described under "Setting," above) that suggests the runoff from the fields would not cause adverse water quality effects. However, the composition of tire crumb is dependent on the tires used in the manufacturing process and can be variable. Therefore, the quality of stormwater runoff and leachate from the proposed synthetic playfields is unknown and could contain pollutants that could degrade groundwater quality if infiltrated to the Westside Groundwater Basin. Several of the projects listed in Table IV-1 could also provide additional sources of polluted runoff. Further, the San Francisco Groundwater Supply Project would involve conversion of the existing South Windmill Deepwell (located approximately 190 feet south of the proposed playfields) to use as a municipal supply well. Therefore, cumulative impacts related to degradation of water quality are potentially significant. However, as discussed in Impact HY-1, the proposed project includes construction of the playfields with an underlying liner and a drainage system equipped to capture all runoff and leachate from the fields, and discharge the drainage to the combined sewer system. The quality of the discharge would be monitored, and the SFPUC would not allow drainage from synthetic turf fields to infiltrate into the groundwater basin until the water quality meets acceptable standards. Therefore, the project's contribution to this potential cumulative impact would not be cumulatively considerable. Further, the projects listed in Table IV-1 would be required to comply with the Stormwater Design Guidelines, which would ensure that water quality would not be adversely affected by stormwater runoff from these sites.

IV.H Hazards and Hazardous Materials and Air Quality

This section provides an assessment of potential impacts related to hazards and hazardous materials. Potential hazards addressed in this section include exposure to hazardous materials in the synthetic turf (including air emissions), disposal of the synthetic turf at the end of its useful life, and hazardous building materials that would be encountered during renovation of the existing restroom facilities. Mitigation measures to reduce significant impacts to a less-than-significant level are identified.

Setting

The use of synthetic turf on athletic fields has generated some public concern over the potential health issues associated with the use of these materials, particularly the tire-derived styrene butadiene rubber (SBR) that is manufactured from recycled tires and is used as infill material in some synthetic turf products. To address this, the San Francisco Recreation and Parks Department (SFRPD) consulted with the City and County of San Francisco's Department of the Environment (SFE) and Department of Public Health (SFDPH). The San Francisco Recreation and Parks Commission subsequently established a Synthetic Fields Task Force (Task Force) to review, discuss, and vet existing scientific research on synthetic turf products. This section discusses the findings of the Task Force related to the hazardous-materials-related health effects of the use of synthetic turf products and issues related to disposal of the turf at the end of its useful life. Relevant research since the Task Force findings were published in 2008 is also discussed, along with a discussion of the 2007 Integrated Waste Management Board study also reviewed by the Task Force. To help provide a framework for these discussions, the composition of synthetic turf and a description of the process used to evaluate human health risks are also addressed.

SFRPD has developed synthetic turf standards that specify requirements for the content and recyclability of synthetic turf products that would be used on the City and County of San Francisco's (CCSF's) recreational fields. A discussion of these standards follows the discussion of research addressing the hazardous-materials-related health effects of the use of synthetic turf products. This "Setting" subsection also includes an overview of hazardous building materials commonly used in building construction, and a description of the hazardous building material survey conducted for the Beach Chalet restroom facilities that would be renovated under the proposed project.

Composition of Synthetic Turf

As described in Chapter II, Project Description, the synthetic turf to be installed under the proposed project would consist of four components: fiber, infill, backing, and underlayment. The fiber, which would consist of polyethylene, would be grass-like in appearance. The infill, which would be used to provide stability, would be comprised of about 70 percent SBR and 30 percent sand. The SBR infill is recovered from scrap tires and from the tire re-treading process. The fiber and infill would be supported by a backing made up of a combination of permeable woven and

unwoven polypropylene fabrics that provide strength and vertical drainage. Underlayment would consist of a drainage tile or an aggregate rock base.

SBR is finely ground rubber derived from recycled scrap tires, and has been demonstrated to contain a number of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) (including polynuclear aromatic hydrocarbons), and metals. VOCs in the SBR originate from the use of carbon black and petroleum oils in the tire production process.[1] The predominant SVOCs identified are benzothiazoles, which are used in tire production to accelerate the vulcanization process and help bond the metal wires and metal beads to the tire rubber; aniline, which is added to tires to inhibit rubber degradation; and phenols, which are present in petroleum oils and/or coal tar fractions used as softeners and extenders in tire production. The predominant metals include zinc, resulting from zinc oxide used as an activator in the tire vulcanization process (purposely added to tires at concentrations of two percent or more); iron and manganese from the steel belts and beads used in the tires; barium, which is used to catalyze the synthesis of polybutadiene rubber; lead, which was formerly used as an activator of the vulcanization process; and chromium, which is used in steel production. Today, the production of SBR material from tires typically includes a step to remove 99 percent of the steel belting and bead material, which should result in lower levels of iron, manganese, and chromium in the SBR material relative to earlier products. The SBR material also contains carbon black, an industrial chemical used in the manufacturing of automobile tires and other plastic materials. It is composed of nanoparticles that are much smaller than PM_{10} and $PM_{2.5}$ (nanoparticles vary in size from 1 to 100 nanometers, with a billion nanometers forming a meter).

Concepts of Human Health Risk Evaluation

A human health risk evaluation is used to assess whether exposure to chemicals would pose a health risk to humans. The evaluation includes several components, including data evaluation to characterize the chemicals present and their concentrations; an exposure assessment to evaluate what receptors could be exposed to the chemicals and through which pathways (i.e., inhalation, ingestion, dermal contact); and a risk characterization. The risk characterization includes the assessment of noncarcinogenic (noncancer) and carcinogenic (cancer) risks to each potential receptor.

The hazard quotient is used to evaluate potential noncancer health risks for each chemical. To address potential additive noncancer effects, the individual hazard quotient for each chemical and exposure route is summed to calculate a hazard index. A hazard index of less than or equal to 1 is indicative of acceptable levels of exposure for chemicals having an additive effect.

Cancer health risks are defined in terms of the probability of an individual developing cancer as the result of exposure to a given chemical at a given concentration. To address potential additive effects, the estimated cancer risks for each chemical and exposure route are summed to estimate

[1] Integrated Waste Management Board, *Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products.* January 2007, available online at: http://www.calrecycle.ca.gov/publications/Tires/62206013.pdf, accessed on March 28, 2011.

the total excess cancer risk for the exposed individual. The U.S. Environmental Protection Agency (USEPA) considers estimates of theoretical excess cancer risk of less than 1 in 1,000,000 (1×10^{-6}) to be *de minimis*, or acceptable. Risks within the range of 1 in 1,000,000 to 100 in 1,000,000 (1×10^{-4}) may also be acceptable depending on other risk management factors.[2]

Health-based screening levels established by the regulatory agencies, discussed under "Regulatory Framework" below, can also be used to provide a conservative estimate of exposure risks. These levels are established by governmental agencies using conservative exposure assumptions and using the noncancer and cancer risk thresholds discussed above.

Particulate matter, also considered in risk evaluations related to inhalation, 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: PM_{10}, for particulate matter less than 10 microns in diameter, and $PM_{2.5}$, for particulate matter less than 2.5 microns in diameter. Fine particulates small enough to be inhaled into the deepest parts of the human lung can cause adverse health effects, and studies have 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.[3]

As noted above, carbon black is a component of the SBR material, composed of nanoparticles that are much smaller than PM_{10} and $PM_{2.5}$. Note that several of the studies refer to styrene butadiene rubber material as "crumb rubber" or "tire crumb." Laboratory research indicates that there can be health risks associated with the inhalation of these particles. However, the limited available research does not address the potential for the generation of nanoparticles from actual use of tires or from SBR infill as a result of play on synthetic turf fields. Given the low potential for generation of PM_{10} and $PM_{2.5}$ (discussed below) and because the turf installations are generally outside where wind will easily disperse particulate matter, it is expected that exposures to nanoparticles as a result of play on synthetic turf fields that use SBR infill would be minimal, if any at all.

2007 Integrated Waste Management Board Study

In 2007, the California Integrated Waste Management Board published a report prepared under contract by the state's Office of Environmental Health Hazard Assessment (OEHHA) assessing potential risks to children using outdoor playground and track surfaces constructed from recycled waste tires.[4] The report, titled *Evaluation of Health Effects of Recycled Waste Tires in Playground and Track Products*, evaluated health risk associated with children's exposure to chemicals in the play surfaces via 1) ingestion of the loose rubber tire shreds using existing

2 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *A Guide to Health Risk Assessment*, 2006.

3 Bay Area Air Quality Management District, *BAAQMD CEQA Guidelines, Assessing the* Air Quality Impacts of Projects and Plans, updated, June 2010. available online at http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_December%202010.ashx, accessed on March 28, 2011.

4 Integrated Waste Management Board, 2007.

literature and through a gastric digestion simulation conducted as part of the study, 2) ingestion as a result of hand-to-surface contact followed by hand to mouth exposure, and 3) skin sensitization as a result of dermal contact. The following summarizes the risk associated with each exposure pathway:

- **Ingestion of loose tire shreds based on review of existing literature.** Based on review of 46 studies of chemicals released from tire shreds in laboratory settings and field studies, 49 chemicals were identified. The study used the highest concentration of each chemical identified to evaluate noncancer and cancer health risks to a typical 3-year-old child resulting from the one-time ingestion of 10 grams of tire shreds. For noncancer risks, the study found that only exposure to zinc exceeded its health-based risk screening level. The hazard index based on all chemicals identified except zinc is 1.8, while that involving zinc is 6.9. However, OEHHA concluded that it is unlikely that one-time ingestion of 10 grams of tire shreds would produce adverse health effects, because symptoms related to zinc ingestion develop over a period of weeks when zinc is ingested daily. In addition, the ingested dose of zinc would be less than the Recommended Dietary Allowance of 3 milligrams per day (mg/day) and the Tolerable Upper Intake Level of 7 mg/day for a 3-year-old child. At most, some gastrointestinal distress would be expected as a result of ingestion of such levels of zinc. Further, the amount of zinc leaching from ingested rubber could be substantially less than what was used in the calculations based on the gastric digestion simulation, described below. OEHHA concluded that since the hazard index based on all chemicals except zinc is close to 1, the first tier screening level assessment does not indicate that ingestion of 10 grams of tire shreds would represent a serious noncancer health risk. Seven of the chemicals identified in the tire shreds would contribute to cancer risks, and the increased cancer risk to children less than 2 years in age, resulting from ingestion of 10 grams of tire shreds, would be 1.2 in 10 million, which is less than the *de minimis* level of 1 in 1,000,000.

- **Ingestion of loose tire shreds based on gastric digestion simulation.** A gastric simulation conducted by OEHHA detected 22 chemicals released from tire shreds after they were incubated for 21 hours at 37 degrees Celsius in a solution mimicking the gastric environment. Similar to the above assessment, the study used the concentration of each chemical detected to evaluate noncancer and cancer risks to a typical 3-year-old child resulting from the one-time ingestion of 10 grams of tire shreds. For noncancer risks, the study found that none of the chemical concentrations exceeded the health-based screening level. The hazard index for the mixture was 2.2, and OEHHA concluded that since the hazard index is close to one and risk assessment has conservatism built into the process, the first-tier screening level assessment does not indicate that ingestion of 10 grams of tire shreds would represent a serious noncancer health risk, suggesting a low risk of noncancer acute health effects. Five of the chemicals detected in the extract would contribute to cancer risks, and the cancer risk resulting from ingestion of 10 grams of tire shreds would be 3.7 in 100 million, which is considerably less than the *de minimis* level of 1 in 1,000,000.

- **Ingestion through hand-to-surface-to-mouth activity.** To evaluate health risks associated with ingestion of chemicals picked up on the hands and subsequently ingested, OEHHA performed wipe sampling of three in-use playground surfaces containing recycled tire rubber. Of the chemicals analyzed, only zinc and four polycyclic aromatic hydrocarbons (PAHs) (chrysene, fluoranthene, phenanthrene, and pyrene) were identified at levels that were at least three times background, and all concentrations were below chronic screening values, suggesting a low risk of adverse noncancer health effects. Only one of the PAHs

(chrysene) is a carcinogen. Assuming that youths, age 1 to 12, would use the playgrounds, the increased cancer risk resulting from chrysene would be 2.9 in a million. While this increased cancer risk level is slightly higher than the *de minimis* level of 1 in 1,000,000, the cancer risk is considered acceptable by OEHHA because this small magnitude of increased risk is within the often acceptable range of range of 1 in 1,000,000 to 100 in 1,000,000.

- **Skin sensitization to surfaces made of recycled tire.** Natural rubber contains latex, a proven skin sensitizer. OEHHA contracted with a laboratory to perform skin sensitization testing of tire-derived surfacing, and found that these surfaces would not cause skin sensitization in children, nor would they be expected to elicit skin reactions in children already sensitized to latex.

In addition, the OEHHA study reviewed soil and air quality data obtained after a fire in a playground surface made of chipped tires at the Yulupa Elementary School in Sonoma County. Although soil sampling showed detectable levels of metals, VOCs, PAHs, dioxins, and furans, the concentrations were at or below background levels, indicating a low risk to the environment. The air above the burn site was judged by USEPA to pose no health risks to cleanup workers, and the soil/rubber mixture removed from the site was judged to be a nonhazardous waste suitable for disposal in a designated Class III disposal facility. SFDPH reviewed this report and did not find evidence of bias in the report methods, findings, or conclusions, and concluded that the report is reliable and can be used as a primary basis for decision making.[5] SFDPH further stated that the conclusions of the report are supported by several other local, State, and international government agencies that have carefully considered the evidence and potential health risks associated with synthetic turf athletic fields, including the Connecticut Department of Public Health and the New York City Department of Health and Mental Hygiene.

See Section IV.G, Hydrology and Water Quality, for a summary of findings related to water quality found in this study.

Synthetic Playfields Task Force Findings and SFRPD Recommendations

In March 2008, the San Francisco Recreation and Parks Commission (Commission) established the Task Force to review, discuss, and vet existing research on synthetic playfields.[6] The key objectives of the Task Force were to:

- Identify primary environmental and health concerns related to synthetic turf materials;
- Synthesize the scientific research available and discuss the relevance to San Francisco playfields; and

[5] City and County of San Francisco Department of Public Health, Environmental Health Section, *Memo to Dawn Kamalanathan, Planning Director, San Francisco Department of Recreation and Parks re Artificial Turf Products.* February 6, 2008. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

[6] San Francisco Recreation and Park Department, *Draft Synthetic Playfields Task Force Findings and Department Recommendations, Report to San Francisco Recreation and Parks Commission.* July 28, 2010, available online at: http://sf-recpark.org/ftp/uploadedfiles/wcm_recpark/SPTF/SPTFDR072508.pdf accessed on March 28, 2011.

- Provide feedback to inform SFRPD recommendations and a course of action to the Commission.

The Task Force identified 11 environmental and health issues related to synthetic turf products that are of public concern, and for which there would be readily available research. A study team comprised of subject matter experts and park users was established for each issue and reviewed existing research (including the 2007 OEHHA study described above), synthesized the findings, discussed the strengths and weaknesses of the research, assessed the relevance of the research to San Francisco playfields implementation, and identified suggestions and recommendations for SFRPD staff to make to the Commission on how to improve the synthetic turf implementation process. The five issues summarized below are related to the analysis of hazards and hazardous materials impacts. Many studies reviewed by the Task Force are discussed in the summaries below, and the Task Force report includes a complete listing of all literature reviewed.

While the Task Force recommended that the SFRPD continue to review literature and new studies as they become available, the primary conclusions and recommendations of each study group are discussed below, followed by a summary of additional research reviewed since completion of the Task Force recommendations. The Commission approved the recommendations of the Task Force on October 2, 2008.

Material Composition—Overall Chemical Composition and Flammability

The study group for the analysis of synthetic turf composition reviewed two 2007 studies commissioned by the SFE, titled "Synthetic Turf Versus Natural Turf for Playing Fields" and "Occurrence of Bromine, Lead, and Zinc in Synthetic Turf Components," by Philip Dickey, Staff Scientist for the Washington Toxics Coalition. The study group also researched relevant scientific literature and public reports, and made requests for information from various manufacturers of 22 synthetic turf products (12 manufacturers). In addition, they referred to the 2007 OEHHA study evaluating the health effects of recycled waste tires in playground and track products. A summary of the findings and recommendations of this study group is as follows:

- Testing by the Washington Toxics Coalition showed substantial lead levels in two products, especially in the nylon thread that is encapsulated inside the polyethylene yarn. Although the presence of lead in padding or other layers below the turf may not present a risk to users of the turf, because it would not be accessible to the users, the study group recommended that SFPRD avoid purchasing turf products containing lead (i.e., nylon products). The study group for the analysis of the lead content of synthetic turf products came to this same conclusion.

- Testing by the Washington Toxics Coalition showed that zinc was present in infill materials and the Task Force recommended that SFRPD minimize the potential for zinc hazards by selecting manufacturers that use infill materials not containing zinc, when feasible.

- Testing by the Washington Toxics Coalition showed that brominated flame retardants are not present in the synthetic turf brands tested except for a limited amount in the shock pad for one product.

- Known fires have occurred on two playgrounds with synthetic turf with loose-fill crumb rubber. Both fires were intentionally started by juveniles who used matches, paper, and wood to ignite the crumb rubber. The spread of flames was slow, and no one was injured. The flash point (the temperature at which the material will ignite) and auto-ignition data suggest that the flammability hazard associated with synthetic turf is minimal, and most manufacturers claim that their synthetic turf product is nonflammable based on the ASTM D 2859 Flammability Test. However, this test relies on a point ignition source, which would understate flammability hazards from arsonists. Given the incidents of arson fires in playgrounds using synthetic turf fields with rubber infill, the Task Force report states that synthetic turf fields should be considered potentially flammable[7] and recommended that SFRPD request Material Safety Data Sheets from turf providers include information with regard to the flammability of the turf materials and obtain an opinion or review of the flammability of synthetic turf from the San Francisco Fire Department.

- When purchasing new synthetic turf products, SFRPD should request full material composition disclosures and share them with SFDPH and SFE for feedback.

Material Composition—Off-Gassing

The study group for the analysis of off-gassing from synthetic turf products reviewed the following:

- The 2001 to 2003 Building Materials Emissions Study conducted by the California Department of Health Services

- Air measurements above outdoor synthetic football fields in two high schools in New York State by J.C. Broderick & Associates

- The Moretto study performed for the synthetic turf industry

- The study of air quality over four outdoor soccer pitches made from synthetic turf by the National Institute for Public Health and the Environment (Netherlands)

Based on their review, the study group concluded that there have been few studies that have analyzed the air above synthetic turf fields for VOCs and particulates. Based on the largest available study at the time, which was conducted in Norway, the measured levels of chemicals and particulates above the fields would not result in adverse health effects in the players using the fields. However, there are substantial uncertainties in the study because not all of the chemicals present in synthetic turf were analyzed, and not all of the identified chemicals have health-based screening levels. Based on this, the study group recommended further study to evaluate whether recycled tire infill is a pollution source and if off-gassing from these materials could result in adverse health effects to field users in outdoor applications.

[7] SFRPD staff indicate that the two known incidents of fires in playgrounds using synthetic turf fields with rubber infill have been arson fires with burnt/melted areas limited to the point source location.

Material Composition—Ingestion—Inhalation of Turf Product Materials

The study group for the analysis of ingestion and inhalation of chemicals in synthetic turf products reviewed three studies by OEHHA for the California Integrated Waste Management Board. These studies included a literature search, an experiment to mimic ingestion by a young child, and an experiment to mimic chronic hand-to-surface-to-mouth activity. A summary of the findings and recommendations of this study group is as follows:

- Data are not available for many of the chemicals that would be released in an outdoor setting. Based on one study from the Netherlands, concentrations of nitrosamine (a carcinogen) measured over four outdoor soccer pitches would not pose an inhalation health hazard to users of the synthetic turf pitches.

- Tire shreds used as playground safety surfaces emitted 13 metals and 11 organic chemicals in an indoor setting, but exposure modeling indicated that the concentrations emitted would not result in adverse health effects via inhalation in an outdoor setting. However, not all of the low-level chemicals were identified, and chemical releases from crumb rubber would likely be greater than those from tire shreds because the ratio of surface area to weight is greater for crumb rubber.

- Increased risk levels associated with a one-time ingestion of 10 grams of tire shreds by a child were within acceptable levels in the 2007 OEHHA study, as discussed above.

- Available literature at the time that the Task Force report was published did not address risks associated with particulate inhalation. Accurate measurements of particulate matter over synthetic turf applications are necessary to more fully and accurately assess potential health risks to field users resulting from particulate emissions.

Turf Products: Alternative Field Products

The study group for the analysis of alternative field products considered interviews and product information from numerous turf manufacturers over a period of 2 years, searched the internet for alternative products and manufacturers, and contacted other municipalities and schools to inquire about field types and experiences. The study group found that at the time, approximately 45 companies were selling turf products or individual components, all with similar product types exhibiting minor variations. The variations included differences in fiber design and profile, length, or combination of materials (polyethylene or nylon); backing design; infill type; sub-turf pads; and drainage systems. The study group discovered the following, related to various turf components:

- **Fiber material:** All fiber material is made of polyethylene or nylon or a combination of the two.

- **Infill:** Most companies use all rubber (typically a polymer rubber called styrene-butadiene rubber, or SBR, and in some cases, recycled tires) or a combination of rubber and sand as their primary infill product. Although there are alternative infill products available, most companies believe that rubber is the best infill product on the market because it has been field tested and proven for performance.

- **Backing material:** Backing material is made of various layers of geotextile fabric layers with various binding and gluing styles. Some turf companies that use no infill or alternative infill products require a resilient backing material to prevent compaction, as well as to meet fall-attenuation requirements. At the time of the Task Force report, there appeared to be only one company that indicated that they had an active recycling component/program associated with their turf product, and the study group recommended that further evaluation was required.

The study group for alternative field products also noted that the turf industry is an extremely volatile market, with many companies emerging and failing on a regular basis. Because of this, the group recommended that in addition to selecting the most appropriate product for the intended use, the choice of vendor for the product should consider the fiscal status, experience, location, continued customer service, warranty, and recycling program of the vendor. Feedback should be requested from others using new products, instead of relying on manufacturers' information regarding quality and performance of synthetic turf products, including New York and New Jersey.

Turf Products: Recyclability

The study group for recyclability conducted interviews with synthetic turf manufacturers and distributors to evaluate the recyclability of synthetic turf products. The group noted that synthetic turf fields are expected to have a lifetime of 12 years or more, and once worn down, they would require replacement. Replacement of an 80,000-square-foot field would produce approximately 400 tons of debris. Unless an alternative solution was identified, the material would need to be landfilled, using up valuable landfill space and resulting in substantial disposal costs. At the time of the Task Force report, only one company recycled synthetic turf products, although several companies were developing programs both to reclaim synthetic turf products at the end of their useful life and use materials containing post-consumer recycled content in their new products. All of the synthetic turf vendors contacted expressed a willingness to commit their companies to end-of-life recycling for their products. The study group recommended that SFRPD choose vendors willing to guarantee that their synthetic turf materials will be recycled to the highest and best use at the end of their useful life, and that the purchased turf materials contain post-consumer recycled content when possible, consistent with CCSF Ordinance 53-07—Use of Recycled Materials. The study group also recommended that SFRPD work with the SFE to continue encouraging synthetic turf manufacturers to initiate and implement recycling programs for used turf.

Recommendations of the Task Force

Based on extensive review and analysis of available literature, the Task Force emphasized the following recommendations to SFRPD:

- Explore synthetic turf infill alternatives to SBR rubber,
- Meet with the California Environmental Protection Agency (CalEPA) and SFDPH to determine the feasibility of conducting further studies on ingestion exposure,
- Use a criteria-driven site selection process, and

- Do not purchase synthetic turf products with lead.

2009 Office of Environmental Health Hazard Assessment Study

In 2009, OEHHA published a report assessing the health effects associated with chemicals measured in the air above synthetic turf fields.[8] The report, titled *Chemicals and Particulates in the Air above the New Generation of Artificial Turf Playing Fields, and Artificial Turf as a Risk Factor for Infection by Methicillin-Resistant Staphylococcus Aureus (MRSA), Literature Review and Data Gap Identification,* discussed the results of five studies that measured chemical and/or particulate concentrations above synthetic turf fields and three studies that analyzed gaseous emissions from tire-derived crumb rubber in a laboratory setting. The study included a human health risk evaluation to assess the increased lifetime cancer risk and risk of developmental/reproductive toxicity resulting from inhalation of VOCs and PAHs by soccer players, ages 5 to 55 years, playing on synthetic turf with tire-derived infill.

The most complete data set was from a study of indoor stadiums conducted in 2006. Using the highest concentrations detected, OEHHA calculated the increased lifetime cancer risk from inhalation for the eight potential carcinogens identified in that study. The risk evaluation concluded that five of the eight chemicals were associated with an increased cancer risk above the *de minimis* level of 1 in 1,000,000: benzene, formaldehyde, naphthalene, nitro methane, and styrene. The increased cancer risk associated with these compounds ranged from 1.6 in 1,000,000 for formaldehyde to 8.7 in 1,000,000 for nitromethane. The risk evaluation also states that two of the chemicals identified in the 2006 Norway study are known to cause developmental/reproductive toxicity: benzene and toluene. However, the chemical intake of these compounds via field air was well below the maximum allowable dose level for each chemical.

The measured chemical concentrations of the 2006 study may be higher than would occur outdoors because the samples were obtained from indoor fields where air dispersion would not be as great. Further, the height of the sampling was not documented, and no background samples were collected to demonstrate whether the observed chemical concentrations resulted from the synthetic turf, or could be representative of background conditions. Regardless, the OEHHA study concluded that further studies of the chemicals present above synthetic turf fields is warranted.

2010 California Department of Resources Recycling and Recovery Study

In 2010, the California Department of Resources Recycling and Recovery (CalRecycle) published a report assessing the human health risks posed by VOCs and particulates in the air above outdoor synthetic turf fields containing recycled crumb rubber infill. The report documenting this study is titled *Safety Study of Artificial Turf Containing Crumb Rubber Infill Made from Recycled Tires:*

[8] Office of Environmental Health Hazard Assessment, *Chemicals and Particulates in the Air above the New Generation of Artificial Turf Playing Fields, and Artificial Turf as a Risk Factor for Infection by Methicillin-Resistant Staphylococcus Aureus (MRSA), Literature Review and Data Gap Identification,* July 2009, available online at: http://www.calrecycle.ca.gov/Tires/Products/BizAssist/Health/TurfStudy/LitReview.doc, accessed on March 28, 2011.

Measurements of Chemicals and Particulates in the Air, Bacteria in the Turf, and Skin Abrasions Caused by Contact with the Surface.[9] The report was produced under contract by OEHHA.

For the evaluation of VOCs, OEHHA conducted air sampling at a height of 4 feet above four synthetic turf athletic fields in California's Central Valley (one of which was actually in San Francisco), as well as at nearby grass turf fields for comparison purposes. The fields were sampled on multiple summer days, at times ranging from the cool early morning to the heat of the day in the afternoon. The age of the synthetic fields sampled ranged from 8 months to 5 years. Sampling for VOCs above the outdoor synthetic turf fields identified few VOCs, and none were consistently identified in all of the eight air samples collected per field. Further, none of the concentrations were consistent between the four fields sampled. However, comparison of the sampling results for the synthetic turf to the results for the grass turf suggests that seven VOCs originated from the synthetic turf, including 2-propanol, cyclohexane, toluene, m,p,o-xylenes, isopropylbenzene, 4-ethyltoluene, and 1,2,4-trimethylbenzene.[10] A human health risk evaluation was conducted for these seven VOCs, and concluded that all exposures were below noncancer, health-based screening levels. None of the seven VOCs are known to cause cancer, and therefore cancer risks were not evaluated. Although synthetic turf field temperatures increased from 34 to 55 degrees Fahrenheit over the course of the day, there was no correlation between the surface temperature and the VOCs detected above the synthetic turf fields.

For the evaluation of particulates, OEHHA sampled the air above three San Francisco Bay Area synthetic turf fields for 3 hours during active field use (soccer practice); and for comparison purposes, ambient air was sampled upwind of each field during a consecutive 3-hour period. Each field and upwind location were sampled on two consecutive days, yielding two field samples and two upwind samples per field. $PM_{2.5}$ concentrations and associated metals concentrations were determined for each sample. For two of the fields, the weight of $PM_{2.5}$ was less than detection limits and for the third field, the weight of $PM_{2.5}$ was similar in the sample from above the field and from upwind of the field. Samples from two fields that were analyzed for elements contained sodium, calcium, potassium, chlorine, and sulfur, and the concentrations were similar in the samples collected from above the field and upwind of the field. Other elements, including heavy metals, were not detected in any of the air samples. On the basis of these results, there is no public health concern related to particulate matter or heavy metals associated with particulate matter at the synthetic fields. The oldest field sampled was 26 months at the time of sampling.

Although the risk evaluation did not identify health risks associated with VOC and particulates above the synthetic turf fields, the risk evaluation did not consider certain variables that could

[9] California Department of Resources Recycling and Recovery, *Safety Study of Artificial Turf Containing Crumb Rubber Infill Made from Recycled Tires: Measurements of Chemicals and Particulates in the Air, Bacteria in the Turf, and Skin Abrasions Caused by Contact with the Surface.* October 2010, available online at: http://sfrecpark.org/documents/item12PlayfieldsInitiativeUpdateAttachmentOEHHAStudy022011.pdf, accessed on March 28, 2011.

[10] The criteria that suggest a VOC could result from synthetic turf include: 1) detection in at least two of the eight air samples collected from above a synthetic turf field, and 2) detection at a higher average concentration above that synthetic turf field compared with a nearby natural turf field.

affect the generation of VOCs and particulates at synthetic fields, including field age, method of processing the tire rubber, and the source of the tire stocks.

New York State Studies

The New York State Department of Environmental Conservation conducted a series of studies to assess potential impacts from crumb rubber infill material in synthetic turf fields, including the potential for release of pollutants into the air. The studies included laboratory analysis of crumb rubber material, and sampling of air at two turf fields in New York City. The New York State Department of Health assessed the air quality monitoring survey data for public health effects. The report, released in 2009, is titled *An Assessment of Chemical Leaching, Releases to Air and Temperature at Crumb-Rubber Infilled Synthetic Turf Fields*.

Laboratory analysis for the presence of VOCs and SVOCs caused by off-gassing of crumb rubber samples proved difficult to conduct quantitatively but did provide information regarding additional chemicals to be analyzed in the ambient-air field investigation. Air sampling at the two turf fields during active play detected low concentrations of chemicals anticipated to be found based on previous sampling; however, most of these chemicals were also detected in the upwind, background locations and could not conclusively be associated with emissions from the turf field. Regarding particulate matter, data from this study did not indicate a meaningful difference between upwind and downwind measurements.

Even though the chemical concentrations above the field were similar to upwind concentrations, the ambient-air sampling results were used to evaluate the public health risks of volatile air contaminants and particulate matter. Potential noncancer risks from target chemicals were below hazard quotients for all chemicals and generally well below a value of 1 (i.e., did not exceed the reference concentrations used to evaluate noncancer health risks). Potential cancer risks exceeded the target of 1 in 1,000,000 for four chemicals: benzene and three forms of pentadiene. However, the estimated risks of the on-field samples were similar to those for the upwind, background samples and could not be attributed to turf emissions. One analyte not detected in upwind samples, 2-methyl-1,3-butadiene, was reported in one of the eight downwind samples at a concentration exceeding the 1-in-1,000,000 cancer risk value. The New York State Department of Health concluded that because there was no consistent pattern in the measurements of the chemicals at either field and exposures would not be continuous, there was not a public health concern regarding cancer effects.

See Section IV.G, Hydrology and Water Quality, for a summary of findings from this study related to water quality.

Connecticut Studies

In 2010, five Connecticut agencies under a joint agreement completed a study of synthetic turf fields to assess health and environmental risks from off-gassing and leaching of chemicals in crumb rubber materials. The components of the study included the following:

- Measurement of air concentrations of approximately 200 chemicals at 5 fields during active play,[11]
- Performance of a human health risk assessment based on measured air concentrations,[12]
- Measurements of off-gassing and leaching of chemicals under defined laboratory conditions,[13]
- Measurements of leaching of metals in stormwater runoff from turf fields,[14] and
- Peer review by an expert panel.[15]

The findings related to human health risks are discussed below, and the findings related to leaching are discussed in Section IV.G, Hydrology and Water Quality.

Ambient air sampling was performed at four outdoor turf fields, one indoor turf field, and at upwind background locations near each field in July 2009. In addition, bulk samples of crumb rubber from each field were collected. The samples were analyzed for VOCs, SVOCs, rubber-related chemicals (e.g., benzothiazole), and PM_{10}. To identify which chemicals were attributable to the turf rather than background sources of air pollution, results were screened to include only those chemicals identified in the crumb rubber samples and those with concentrations 2 times greater than the background samples (VOCs and SVOCs were present in all background samples). Based on these criteria, four VOCs were identified as associated with turf emissions. Elevated PM_{10} concentrations were not identified. VOC concentrations varied among the fields. The air concentration of methyl isobutyl ketone (35.98 micrograms per cubic meter of air [$\mu g/m^3$]) was the highest VOC detected in samples collected on the turf, followed by acetone (23.71 $\mu g/m^3$), toluene (2.3 $\mu g/m^3$), and ethylbenzene (1.04 $\mu g/m^3$). Of the five targeted SVOCs in air, benzothiazole and butylated hydroxytoluene (BHT) were the only chemicals detected above background. Most concentrations of benzothiazole and BHT were an order of magnitude lower among the outdoor turf fields (ranging from less than 80–130 nanograms per cubic meter of air [ng/m^3]) than the indoor turf field, where benzothiazole concentrations up to 14,000 ng/m^3 were detected.

The Connecticut Department of Public Health reviewed the air sampling data to identify chemicals coming from the turf field and included a wider range of chemicals for its study. It analyzed those constituents found to be 25 percent higher on the field than upwind, for a total of

11 University of Connecticut Health Center, *Artificial Turf Field Investigation in Connecticut, Final Report*, July 27, 2010, available online at: http://www.ct.gov/dep/lib/dep/artificialturf/uchc_artificial_turf_report.pdf, accessed on March 30, 2011.

12 Connecticut Department of Public Health, *Human Health Risk Assessment of Artificial Turf Fields Based Upon Results from Five Fields in Connecticut*, July 28, 2010, available online at: http://www.ct.gov/dep/lib/dep/artificialturf/dph_artificial_turf_report.pdf, accessed on March, 30, 2011.

13 Connecticut Agricultural Experimental Station, 2009 Study of Crumb Rubber Derived From Recycled Tires, Final Report, revised May 4, 2010, available online at: http://www.ct.gov/dep/lib/dep/artificialturf/caes_artificial_turf_report.pdf, accessed on March 30, 2011.

14 Connecticut Department of Environmental Protection, Artificial Turf Study, Leachate and Stormwater Characteristics Final Report, July 2010, available online at: http://www.ct.gov/dep/lib/dep/artificialturf/dep_artificial_turf_report.pdf, accessed on March 30, 2011.

15 Connecticut Academy of Science and Engineering, *Committee Report: Peer Review of an Evaluation of the Health and Environmental Impacts Associated with Synthetic Turf Playing Fields*, June 15, 2010, available online at: http://www.ct.gov/dep/lib/dep/artificialturf/case_artificial_turf_review_report.pdf, accessed on March 30, 2011.

27 chemicals. The health risk assessment analyzed exposure scenarios for children ages 6 to 18 and for adults under indoor and outdoor field types. The assessment assumed exposure to turf fields 3 hours per day, 4 days per week, for 8 months per year at the maximum concentrations detected in the field air sampling results. Toxicity values were taken from national databases or derived by staff. The study concluded that the cancer risks were only slightly above *de minimis* levels of 1 in 1,000,000 for all scenarios evaluated, including children playing at the indoor facility, the scenario with the highest exposure. The calculated risks were reported to be within typical risk levels from ambient pollution sources and below target risks associated with many air toxics regulatory programs. Chronic noncancer risks were not elevated above a hazard index of 1; for acute risk, the hazard index was close to 1 for children playing at the indoor field. The main contributor to this hazard index was benzothiazole, a rubber-related SVOC, which creates uncertainty regarding the potential for benzothiazole and other volatile irritants to create an irritation response in sensitive individuals playing indoors. The study concluded that outdoor and indoor synthetic turf fields are not associated with elevated health risks, but recommended that adequate ventilation be provided at indoor field facilities to prevent accumulation of VOCs and SVOCs in indoor air.

See Section IV.G, Hydrology and Water Quality, for a summary of findings from this study related to water quality.

Bainbridge Island Evaluation

An evaluation conducted on behalf of the Bainbridge Island Metro Parks and Recreation District and the Bainbridge Island School District in Washington State used available scientific literature to provide an assessment of potential human health risks associated with use of synthetic turf containing tire crumb.[16] The risk assessment used the highest concentrations of chemicals identified in tire crumb material to assess potential risks to children, age 8 to 10, and teenagers, age 11 to 18 years. For both age groups, the assessment addressed health risks via dermal contact with tire crumb leachate, inhalation of VOCs, and ingestion of whole tire particles as a result of 3 hours of play per day for 261 days per year (year-round play). None of the estimated cancer risks exceeded *de minimis* excess cancer risk of 1 in 1,000,000, and the combined noncancer hazard index for each chemical was a maximum of 0.05, far below the threshold of 1.

San Francisco Synthetic Turf Standards

In accordance with the findings of the Task Force discussed above, SFRPD developed synthetic turf standards in 2009 to address the required composition of synthetic turf products used in San Francisco, as well as the post-consumer recycled content of the new turf products purchased and recyclability of used turf products at the end of their useful life.[17] In accordance with these

[16] Winward Envionmental LLC. Initial Evaluation of Potential Human Health Risks Associated with Playing on Synthetic Turf Fields on Bainbridge Island, available online at: http://sf-recpark.org/ftp/uploadedfiles/wcm_recpark/SPTF/Binder/6_Study_Synthetic_Turf_on_Bainbridge_Island.pdf, accessed on March 30, 2011.

[17] City and County of San Francisco Recreation and Park Department, *Synthetic Turf Standards Information Only*. July 8, 2009, available online at: http://www.scparks.com/pdfs/Synthetic%20Turf%20Standards.pdf, accessed on March 30, 2011.

standards, the SFRPD requires potential vendors to provide the information discussed below when submitting project bids, and any bids with incomplete information or insufficient data are rejected. These standards were used to purchase synthetic turf for the Kimbell Playground in 2010 and Mission Playground field renovations in 2011.

Turf Composition

The SFRPD requires potential vendors to submit a product analysis with their project bids, quantifying the metals and SVOC content of their product. These analyses must be provided for the turf fiber, infill material, backing, and underlayment. All samples must be analyzed for SVOCs and the list of metals specified in Title 22 of the California Code of Regulations (CCR) for which waste classification criteria have been established (see "Waste Classification Criteria," below, for a discussion of regulations regarding the classification of wastes). In addition, infill samples must be analyzed for leachable concentrations of lead, zinc, total chromium, and any metals for which the total concentration is equal to or greater than 10 times the Soluble Limit Threshold Concentration (STLC).[18] Analytical methods for SVOCs and metals are specified in the synthetic turf standards, and submittals from the vendor must include certified laboratory reports documenting the analytical methods and results.

The synthetic turf standards specify maximum levels for total chromium, lead, and zinc in SBR infill materials and non-SBR infill materials. Maximum levels for total chromium and lead are also specified for fibers, backing, and underlayment. The maximum allowable levels of these metals are summarized in **Table IV.H-1**, along with the corresponding Total Threshold Limit Concentration (TTLC), which is used to classify a hazardous waste; the corresponding Residential Environmental Screening Level (ESL) and California Human Health Screening Level (CHHSL), which are used by the Regional Water Quality Control Board (RWQCB) and CalEPA for screening contaminant levels in soil (see "Environmental Screening Levels" and "California Human Health Screening Levels," below, for a discussion of these screening levels).

As indicated in Table IV.H-1, the maximum total chromium concentration in SBR and non-SBR infill materials is 750 milligrams per kilogram (mg/kg), the maximum lead concentration is 50 mg/kg, and the maximum zinc concentration is 23,000 mg/kg. For fibers, backing, and underlayment, the maximum total chromium concentration is 25 mg/kg, and the maximum lead concentration is 50 mg/kg.

For total chromium and lead, these maximum concentrations are all equal to or less than the TTLC and the residential ESL and CHHSL. While zinc standard is higher than the residential ESL established by the RWQCB, it is equal to the equivalent CHHSL established by CalEPA, and exposure to this level of zinc in the SBR material should not cause adverse health effects because the zinc is tightly bound in the recycled tire material. Further, the residential exposures

[18] The California Waste Extraction Test, used to determine the soluble concentration of a substance under state regulations, involves a 10-to-1 dilution of the sample. Therefore, the total concentration of a substance would need to exceed 10 times the STLC for the soluble concentration to possibly exceed the STLC in the extract

TABLE IV.H-1
SYNTHETIC TURF STANDARDS, SCREENING LEVELS, AND HAZARDOUS WASTE CRITERIA—TOTAL CONCENTRATIONS

	Synthetic Turf Standard			Screening Level		Hazardous Waste Criteria
Parameter	Maximum Concentration in SBR Infill Materials[a] (mg/kg)[b]	Maximum Concentration in Non-SBR Infill Materials[a] (mg/kg)	Maximum Concentration in Fibers, Underlayment, and Backing[a] (mg/kg)	Residential Environmental Screening Level[c] (mg/kg)	Residential Human Health Screening Level[d] (mg/kg)	Total Threshold Limit Concentration (mg/kg)
Chromium[e]	750	750	25	750	100,000	2,500
Lead	50	50	50	200	80	1,000
Zinc	23,000	23,000	–[f]	600	23,000	5,000

NOTES:
[a] Source is CCSF, 2009
[b] mg/kg = milligram per kilogram
[c] Source is RWQCB, 2008
[d] Source is CalEPA, 2005; CalEPA, 2009
[e] There are no screening criteria or hazardous waste criteria for total chromium, so values for trivalent chromium are used.
[f] – = criterion has not been established for this parameter

considered in the development of the ESL and CHHSL are based on a much longer exposure period than would occur due to regular play on a synthetic playfield. Although the zinc criteria is higher than the TTLC, disposal requirements for the synthetic turf would be similar to disposal requirements for used tires, and disposal as a hazardous waste should not be required.

The synthetic turf standards also specify maximum levels for soluble chromium, lead, and zinc in SBR infill materials and non-SBR infill materials. For both categories of infill materials, the maximum soluble concentration of chromium is 0.05 milligrams per liter (mg/L) and the maximum soluble concentration of lead is 0.0025 mg/L. The maximum concentration of soluble zinc in SBR infill is 250 mg/L and the maximum concentration in non-SBR infill materials is 0.081 mg/L. These maximum levels are summarized in **Table IV.H-2**, along with ESLs for groundwater that is a current or potential drinking water source, drinking water maximum contaminant levels for each metal, and the STLC and federal regulatory levels for classification of hazardous wastes based on soluble metals concentrations (see "Environmental Screening Levels," "Drinking Water Standards," and "Waste Classification Criteria," below, for a discussion of these criteria). For chromium and lead, these maximum concentrations are all equal to or less than the criteria identified. In addition, the turf standards require that none of the total metals concentrations can exceed the TTLC, and none of the soluble metals concentrations can exceed the federal regulatory level or the State STLC. Although the zinc standard for SBR infill is higher than the drinking water MCL, the Waste Extraction Test used to determine the soluble concentration for waste disposal purposes uses an acidic solution which is more aggressive at dissolving constituents from a material than water, and is not necessarily representative of the zinc concentration that could dissolve into water as a result of stormwater runoff or leachate through the field.

TABLE IV.H-2
SYNTHETIC TURF STANDARDS, SCREENING LEVELS, AND HAZARDOUS WASTE CRITERIA—SOLUBLE CONCENTRATIONS

	Synthetic Turf Standard		Screening Level	California Drinking Water Standard	Hazardous Waste Criteria	
Parameter	Maximum Concentration in SBR Infill Leachate[a] (mg/L)[b]	Maximum Concentration in Non-SBR Infill Leachate[a] (mg/L)	Environmental Screening Level for Groundwater that is a Current or Potential Drinking Water Source[c] (mg/L)	Drinking Water Standard (mg/L)	Regulatory Level by Toxic Characteristic Leaching Procedure (mg/L)	Soluble Threshold Limit Concentration (mg/L)
Chromium[d]	0.05	0.05	0.18	5.0[e]	5.0	5
Lead	0.0025	0.0025	0.0025	0.015[e]	5.0	5
Zinc	250	0.081	0.081	5.0[f]	–[g]	250

NOTES:
[a] Source is CCSF, 2009
[b] mg/L = milligram per liter
[c] Source is RWQCB, 2008
[d] There are no screening criteria or hazardous waste criteria for total chromium, so values for trivalent chromium are used.
[e] Primary drinking water standard
[f] Secondary drinking water standard
[g] – = criterion has not been established for this parameter

Although the synthetic turf standards require analysis of the turf materials for SVOCs, they are required for reference only, and the turf standards do not require comparison to any specific criteria. The minimum semi-volatile constituents to be reported are aniline, phenol, and benzothiazole.

Potential vendors are also required to submit verification that brominated flame retardants have not been added during the manufacture of the turf fiber, infill, backing, or underlayment materials. Verification can take the form of a signed letter from the manufacturer or appropriate analysis of the product, demonstrating that elemental bromine levels are less than 1 percent by weight.

Post-Consumer Recycled Content

The synthetic turf standards require that synthetic turf purchased by CCSF will include recycled content to the maximum extent feasible. To demonstrate compliance with this requirement, vendors must provide the type and amount of recycled content in their turf product. Vendors that do not use recycled content must provide an explanation of why and must describe plans for inclusion of recycled content in the future.

End-of-Life Recycling Plans

The synthetic turf standards require that vendors provide detailed plans for the management of all turf components at the end of their useful life. These plans must include:

- The manner of reuse/recycling for each turf component,
- Identification of parties responsible for the removal and disposal of field products,
- A description of the reuse or recycling process, and
- A signed commitment guaranteeing implementation of the plan within 7 years of contract ratification.

In addition, the synthetic turf standards specify that incineration, or any other type of high-temperature conversion technology, cannot be used for disposition of the used turf products, and that these products may not be used as Alternate Daily Cover at a permitted landfill facility.

Evaluation of San Francisco Synthetic Turf Installations

In August 2009, samples were collected from four synthetic fields with SBR material infill in San Francisco, including the Franklin Square Playground, Garfield Square Park, South Sunset Playground, and Youngblood-Coleman Playground.[19] Sampling at each field included collection of two wipe samples each from green and white turf materials; one turf fiber sample each from green and white striped turf; and one sample of infill material. Because turf fibers are not expected to be directly ingested by field users, wipe samples were used to evaluate the amount of lead in dislodgeable dust that could be picked up by children's hands and inadvertently digested. A discussion of the sampling is as follows:

- Wipe samples were collected from green and white turf materials using a methodology that the Consumer Products Safety Commission used to evaluate potential lead exposure from synthetic turf fields.[20] The samples were analyzed for lead and the detected concentration ranged from 0.73 μg/wipe to 4.0 μg/wipe. There was no substantial variation between the concentration of lead detected in wipe samples from the two colors of turf. The Consumer Products Safety Commission uses a level of 10 micrograms per deciliter (μg/dL) of lead as a level of concern with respect to lead poisoning. Based on this level, the Commission suggests that as a guideline, the chronic ingestion of lead from consumer products should not exceed 15 μg/day. When adjusted for the amount of lead that could be ingested, the daily intake of lead at the four San Francisco fields would range from 0.078 μg/day to 0.40 μg/day, which is well below the 15 μg/day limit recommended by the Consumer Products Safety Commission.

- Samples of green and white turf fiber materials were collected by clipping the turf blades, and the samples were analyzed for 23 metals. With the exception of cobalt and zinc in one sample of green fiber, none of the detected metals concentrations exceeded hazardous

[19] Conestoga-Rovers & Associates. Results of Laboratory Analytical Testing Artificial Turf Field City Fields Foundation. August 26, 2009.
[20] Consumer Products Safety Commission. CPSC Staff Analysis and Assessment of Synthetic Turf "Grass Blades". July, 2008.

waste criteria or the ESL or CHHSL. In one green fiber sample from the Franklin Square Playground, the cobalt concentration was 49 mg/kg which slightly exceeds the residential ESL of 40 mg/kg. The zinc concentration in this sample was 7,400 mg/kg which exceeds the TTLC of 5,000 mg/kg and the ESL of 600 mg/kg. None of the other metals concentrations in this sample exceeded hazardous waste criteria or ESLs or CHHSLs. Chromium concentrations in the samples from all fields ranged from not detected to 4.3 mg/kg; lead concentrations ranged from not detected to 8.7 mg/kg; and zinc concentrations ranged from 50 to 7,400 mg/kg. All of these concentrations are below the limits specified for fiber materials in the CCSF synthetic turf standards described above.

- Infill samples were analyzed for 23 metals. With the exception of cobalt and zinc, none of the detected metals concentrations exceeded hazardous waste criteria or the ESL or CHHSL. The cobalt concentrations in the infill samples ranged from 83 mg/kg to 160 mg/kg, all of which exceed the residential ESL of 40 mg/kg. The zinc concentration in the infill samples ranged from 11,000 mg/kg to 16,000 mg/kg, and all values exceed the TTLC of 5,000 mg/kg and the ESL of 600 mg/kg. Chromium concentrations in the samples from all fields ranged from not detected to 1.2 mg/kg; lead concentrations ranged from 8 mg/kg to 14 mg/kg. All of the chromium, lead, and zinc concentrations are below the limits specified for SBR infill materials in the CCSF synthetic turf standards described above.

In July 2009, wipe samples were also collected from two synthetic fields with SBR infill in San Francisco, including the field at Crocker Amazon Playground and the Silver Terrace Playground using the methodology described above.[21, 22] Based on the analytical results (when adjusted for the amount of lead that could be ingested), the daily intake of lead at the two San Francisco fields would be 0.10 μg/day to 0.74 μg/day at the Crocker Amazon Playground and 0.21μg/day to 0.24μg/day at the Silver Terrace Playground, all of which are well below the 15 μg/day limit recommended by the Consumer Products Safety Commission.

Soil Testing at Beach Chalet Athletic Fields

In January 2010, the SFRPD conducted sampling to evaluate lead levels in the shallow soil at the Beach Chalet Athletic Fields.[23] The sampling program included the collection of eight soil samples from a depth of 0- to 6-inches from each of the four existing fields. These samples were composited in the laboratory into two samples from each field, and the composited soil samples were analyzed for lead. The concentration of lead detected in the composited soil samples ranged from 21 mg/kg to 51 mg/kg, which is below the residential ESL of 200 mg/kg and proposed CHHSL of 80 mg/kg. The maximum concentration of lead in the soil is roughly equal to the lead level of 50 mg/kg specified in the synthetic turf standards for SBR infill materials; non-SBR infill materials; and fiber, underlayment, and backing. Two of the composited soil samples contained lead at a concentration of 50 mg/kg or greater.

[21] Conestoga-Rovers & Associates. Results for Laboratory Analytical Testing Artificial Turf Fields, Silver Terrace Field, San Francisco, CA. July 10, 2009.
[22] Conestoga-Rovers & Associates. Results for Laboratory Analytical Testing Artificial Turf Fields, Crocker Amazon Field, San Francisco, CA. July 10, 2009.
[23] Northgate. RE: Soil Test Results, Beach Chalet Soccer Fields, San Francisco, California. January 8, 2010.

Overview of Hazardous Building Materials

Hazardous building materials are included in this discussion because future development may involve the demolition or renovation of existing structures that may contain hazardous building materials. Some building materials commonly used in older buildings could present a public health risk if disturbed during an accident or during demolition or renovation of an existing building. Hazardous building materials include asbestos-containing materials; electrical equipment, such as transformers and fluorescent light ballasts that contain polychlorinated biphenyls (PCBs) or (2-ethylhexyl) phthalate (DEHP); fluorescent lights containing mercury vapors; and lead-based paints. Asbestos and lead-based paint may also present a health risk to existing building occupants if they are in a deteriorated condition. If removed during demolition of a building, these materials would also require special disposal procedures.

Asbestos is a common name for a group of naturally occurring fibrous silicate minerals made up of thin but strong durable fibers. Because of its physical properties, asbestos was commonly used until the 1970s as a building material, including use as insulation materials, shingles and siding, roofing felt, floor tiles, and acoustical ceiling material. Although banned from further manufacture at that time, the existing stocks of asbestos-containing materials were allowed to be sold and used after that time until those supplies were used up. Asbestos is a known carcinogen and presents a public health respiratory hazard if it is present in friable (easily crumbled) form. Long-term, chronic inhalation of high levels of asbestos can cause lung diseases, such as asbestosis, mesothelioma, and/or lung cancer.[24] Friable, finely divided and powdered waste containing greater than 1 percent asbestos is classified in the CCR as a hazardous waste that requires disposal at a licensed landfill (22 CCR 66261.24). Wastes containing non-friable asbestos are not considered hazardous and are not subject to regulation under 22 CCR 66001, et seq.

PCBs are mixtures of synthetic organic chemicals with physical properties ranging from oily liquids to waxy solids. Because of their nonflammability, chemical stability, high boiling point, and electrical insulating properties, PCBs were used historically in hundreds of industrial and commercial applications, including in electrical, heat transfer, and hydraulic equipment; as plasticizers in paints, plastic, and rubber compounds; in pigments, dyes, and carbonless copy paper; and many other applications. PCBs are a known human carcinogen; they are highly toxic substances that remain persistent in the environment, accumulate in biological systems, interfere with the reproductive system, and act as immuno-suppressants. Under Section 6(e) of the Toxic Substance Control Act (TSCA) (15 United States Code 2601, et seq.), Congress began regulating the use and manufacturing of PCBs in 1976, legislating "cradle to grave" (i.e., from manufacture to disposal) management of PCBs in the United States. Under the TSCA, USEPA began to impose bans on PCB manufacturing and sales and on most PCB uses in 1978. TSCA requires incineration or an alternative destruction method for oils containing PCB concentrations greater than 50 parts per million (ppm) and requires that free liquids be drained from electrical equipment before disposal, and that the liquids are appropriately disposed of. In California, PCB wastes are

[24] Agency for Toxic Substances and Disease Registry, Asbestos, available online at: www.atsdr.cdc.gov/asbestos/asbestos/health_effects/ accessed on December 12, 2010.

regulated as hazardous waste if the PCB concentration exceeds 50 ppm or the soluble concentration exceeds 5 ppm as oily liquid (22 CCR 66261.24).

Most fluorescent light ballasts manufactured before 1978 contain PCBs in their capacitor and potting material. Ballasts manufactured after January 1, 1978, do not contain PCBs and should be labeled as such on the ballast. Approved disposal methods for PCB-containing ballasts depend on the condition of the ballast and the PCB content of the potting material and capacitor oil. If the PCB concentration of the potting material is less than 50 ppm and the ballast contains a small, intact, nonleaking capacitor, the ballast may be disposed of at a municipal landfill. In general, all leaking ballasts and ballasts containing potting material with PCB concentrations greater than or equal to 50 ppm must be incinerated or destroyed by alternative methods, disposed of in a hazardous waste landfill, or decontaminated using approved methods.

Between 1979 and the early 1990s, DEHP was used in place of PCB as a dielectric fluid in some fluorescent light ballasts and other electrical equipment.[25] DEHP is classified as a probable human carcinogen by the U.S. Department of Health and Human Services and as a hazardous substance by the USEPA. Because of this, ballasts containing DEHP must be legally disposed of; ballast incineration or a combination of ballast recycling and incineration are recommended for complete destruction of DEHP.

Spent fluorescent lamps and tubes commonly contain mercury vapors and are considered a hazardous waste in California (22 CCR 66261.50). In 2004, new regulations classified all fluorescent lamps and tubes in California as a hazardous waste because they contain mercury. When these lamps or tubes are placed in the trash and collected for disposal, they can be broken and release mercury to the environment. The mercury can be absorbed through the lungs into the bloodstream of people nearby and can be washed by rain into waterways. The mercury in urban stormwater sediment results in part from improperly discarded fluorescent lamps and tubes.[26] Approximately 370 pounds of mercury were released in California in 2000 as a result of electric lamps and tubes breaking during storage and transportation. It is estimated that nearly 75 million waste fluorescent lamps and tubes are generated annually in California, and these lamps and tubes contain more than half a ton of mercury. Because they are considered a hazardous waste, all fluorescent lamps and tubes must be recycled or taken to a so-called "universal waste" handler.

Lead-based paint was commonly used before 1960 and is likely present in buildings constructed before 1960. Although banned from use in the manufacture of paints at that time, existing supplies of lead-based paint continued to be used for some years after the ban until the stocks were used up. Lead is toxic to humans, particularly young children, and can cause a range of human health effects, depending on the level of exposure. When adhered to the surface of the material on which it is painted, lead-based paint poses little health risk. Where the paint is

[25] Green Lights Recycling, Inc., Ballasts Facts, available online at: www.greenlightsrecycling.com/ballast%20Facts.htm, accessed on December 12, 2010.

[26] California Integrated Waste Management Board, *Waste Prevention Information Exchange: Fluorescent Lamps and Tubes*, available online at: http://www.calrecycle.ca.gov/ReduceWaste/FluoresLamps/, accessed on December 12, 2010.

delaminated or chipping, the paint can cause a potential threat to the health of young children or other building occupants who may ingest the paint. Lead dust could also present public health risks during demolition of a structure with lead-based paint. Lead-based paint that has separated from a structure may also contaminate nearby soil. Lead-based paint is defined by 17 CCR 35033 as paint containing lead at a concentration of 5,000 mg/kg (0.5 percent) or greater. Separated paint would be considered a hazardous waste if the lead concentration exceeds the total threshold limit of 1,000 mg/kg, or if the soluble lead concentration exceeds the soluble threshold limit concentration of 5 mg/L or the federal toxicity regulatory level of 5 mg/L (22 CCR 66261.24).

Hazardous Building Materials at Beach Chalet Athletic Fields Facilities

The San Francisco Department of Public Works conducted a lead-based paint and asbestos-containing materials survey of the Beach Chalet Soccer Field Restroom in 2010.[27] The restroom building is a one-story wood/concrete structure on an approximately 1,500-square-foot concrete foundation. In addition to men's and women's restrooms, the building includes two janitor closets, two large storage rooms, a pipe chase crawl space, and a mechanical room (office).

As part of the survey, 16 bulk samples of suspect asbestos-containing materials were collected from the interior and exterior of the building, including plaster from the interior walls, exterior walls, and shower and restroom stalls; concrete kickboard and associated glue mastic; cement floor covering; cement flooring material; plaster ceiling cover; and roof shingles with felt and tar. Chrysotile asbestos was identified in one sample of kickboard at less than 1 percent and was not detected in any of the other samples. The analytical results for the kickboard sample are suspect because neither of the other two kickboard samples contained detectable levels of asbestos.

The survey noted that the paint on the interior walls, ceiling, and wood doors was generally intact and in fair condition, except in the office where the paint was cracking and showed signs of physical damage. A total of 23 paint chip samples were collected from the interior and exterior painted surfaces of the facility, many of which contained more than one layer of paint. Lead was detected in all but one of these samples, and the concentration equaled or exceeded the criteria for the definition of lead-based paint (0.5 percent) in 16 of the samples.

Regulatory Framework

Hazardous materials and wastes can result in public health hazards if released to soil, groundwater, or air. Hazardous materials, as defined in Section 25501(o) of the California Health and Safety Code, are materials that, because of their "quantity, concentration, or physical or chemical characteristics, pose a significant present or potential hazard to human health and safety or to the environment if released to the workplace or environment." Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications, as well as to a limited extent in residential areas.

[27] Envirosurvey, Inc., *Lead and Asbestos Survey, Beach Chalet Soccer Field Restroom*, May 11, 2010. This document is available for review at the Planning Department, 1650 Mission Street, Suite 400, in Case File No. 2010.0016E.

A waste is any material that is relinquished, recycled, or inherently waste-like. Title 22 of the CCR (22 CCR 66261.1, et seq.) contains regulations for the classification of hazardous wastes. Article 3 criteria classify waste as hazardous if it is toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases). Article 4 also lists specific hazardous wastes, while Article 5 identifies specific waste categories, including Resource Conservation and Recovery Act (RCRA) hazardous wastes, non-RCRA hazardous wastes, extremely hazardous wastes, and special wastes. If improperly handled and released to soil, groundwater, or air (in the form of vapors, fumes, or dust), hazardous materials and wastes can result in public health hazards.

Environmental Screening Levels

RWQCB ESLs are guidelines used to evaluate the potential risk associated with chemicals found in soil or groundwater where a release of hazardous materials has occurred.[28] The specified levels incorporate conservative assumptions regarding the long-term, frequent exposure of children and adults to contaminated soils in a residential setting. In general, residential screening levels can be applied to a site where unrestricted land use is desired, and adverse health effects should not occur if the concentrations are below the residential screening level.

In addition, RWQCB ESLs have been established for groundwater that is an existing or potential drinking water source. For the purposes of developing the screening levels, RWQCB assumed that all groundwater could discharge to a surface water body either through natural processes or human activities. Accordingly, the ESL reflects the lowest screening level of drinking water toxicity, aquatic habitat protection, indoor-air impacts, and a ceiling level for tastes, odors, or other nuisance concerns.

California Human Health Screening Levels

Residential CHHSLs are used by CalEPA to screen chemical levels in soil at contaminated sites.[29] The specified levels incorporate conservative assumptions regarding the long-term, frequent exposure of children and adults to contaminated soils in a residential setting. In general, residential screening levels can be applied to site where unrestricted land use is desired, and adverse health effects should not occur if the concentrations are below the residential screening level. The CalEPA published a draft revision to the CHHSL for lead in 2009 based on a 1 ug/dL benchmark for a source-specific incremental change in blood levels for the protection of school children and fetuses.[30]

[28] California Regional Water Quality Control Board, San Francisco Bay Region, *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater.* Interim Final – November 2007 (Revised May 2008), available online at: http://www.swrcb.ca.gov/rwqcb2/water_issues/available_documents/ESL_May_2008.pdf, accessed on March 28, 2011.

[29] California Environmental Protection Agency, *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*. January 2005, available online at: http://www.partneresi.com/Resources/CalEPA_CHHSLs_Guide.pdf, accessed on March 28, 2011.

[30] California Environmental Protection Agency. Revised California Human Health Screening Level for Lead (Review Draft). May 14, 2009.

Drinking Water Standards

Maximum contaminant levels (MCLs) are health protective drinking water standards that must be met by public water systems. California's MCLs are specified in Title 22 of the CCR, Chapter 15, and include primary and secondary MCLs. The primary MCL is the highest level of a contaminant that is allowed in drinking water. The MCL is set as close to the maximum contaminant level goal (MCLG, the level below which there is no known or expected risk to human health) as is economically or technically feasible. While the MCL is higher than the MCLG, it is considered protective of human health. Secondary MCLs are established to protect the esthetic quality of drinking water and are based on effects such as taste and odor.

Waste Classification Criteria

In accordance with 22 CCR 66261.20 et seq., excavated soil would be classified as a hazardous waste if it exhibits the characteristics of ignitability, corrosivity, reactivity, or toxicity. A waste is considered toxic in accordance with 22 CCR 66261.24 if it contains:

- Total concentrations of certain substances at concentrations greater than the TTLC,
- Soluble concentrations greater than the STLC,
- Soluble concentrations of certain substances greater than federal toxicity regulatory levels using the Toxicity Characteristic Leaching Procedure (TCLP), or
- Specified carcinogenic substances at a single or combined concentration of 0.001 percent.

A waste is considered hazardous by State and federal regulations if the soluble concentration exceeds the federal regulatory level as determined by the TCLP. Because the TCLP involves a 20-to-1 dilution of the sample, the total concentration of a substance in the soil would need to exceed 20 times the regulatory level for the soluble concentration to exceed the regulatory level in the extract. A waste is also considered hazardous under State regulations if the soluble contaminant concentration exceeds the STLC as determined by the California Waste Extraction Test (WET) method. Because the WET is performed using a 10-to-1 dilution of the sample, the total concentration of a substance would need to exceed 10 times the STLC for the soluble concentration to possibly exceed the STLC in the extract. A waste may also be classified as toxic if testing indicates toxicity greater than the specified criteria.

Consent Judgments

In 2008, the California Attorney General's office and the Center for Environmental Health initiated legal action against two synthetic turf companies under California Proposition 65. The action called for turf manufacturers to reformulate their products to eliminate the lead risk to children. In 2010, the Attorney General and the turf companies reached a final settlement on the lawsuits, and the settlements limit the lead content of any synthetic turf product to be installed in California to 50 mg/kg. These settlements follow settlements with another synthetic turf

manufacturer from the previous year and are the nation's first enforceable standards applicable to lead in synthetic turf.[31]

Recycling and Disposal of Used Tires

The Tire Recycling Act of 1989 authorizes the state agency CalRecycle to award grants and loans to businesses and public entities for activities that could expand markets for used tires. The act specifically lists several types of projects, including polymer treatment, SBR material production, retreading, shredding, and the manufacture of such products as rubber asphalt, playground equipment, crash barriers, erosion control, floor and track surfacing, oil spill recovery, roofing, and other environmentally safe applications. CalRecycle staff estimates that of the approximately 41.3 million reusable and waste tires generated in 2009, approximately 30 million of the tires (72.7 percent) were diverted through various alternatives, including reuse, retreading, and combustion. Currently, the recycling markets in California do not consume all of the waste tires generated. Division 30, Chapter 16 of the California Public Resources Code, created a regulatory program for the disposal of waste tires that are not recycled. In accordance with these regulations, persons intending to store or stockpile 500 or more waste tires in California are required to obtain a major or minor waste tire facility permit and comply with waste tire storage standards. By definition, a major waste tire facility stores, stockpiles, accumulates, or discards 5,000 or more waste tires, and a minor waste tire facility stores, stockpiles, accumulates, or discards from 500 to 4,999 waste tires.

San Francisco Ordinance 53-07—Use of Recycled Materials

San Francisco Ordinance 53-07, Use of Recycled Materials, requires that building materials used on public works projects shall be constructed of recycled materials to the maximum extent feasible. For the purposes of this ordinance, recycled materials are defined as a building material that is either reclaimed for reuse from a prior structure or assembly, or a building material that is manufactured in part from waste materials and/or by-products recovered or diverted from solid waste. CCSF departments that award building contracts must include information on recycled-content material used on public works projects in annual reports to SFE.

San Francisco Building Code

Construction, demolition, or renovation work that results in disturbance of lead-based paint must comply with Section 3423 of the San Francisco Building Code (Work Practices for Lead-Based Paint on Pre-1979 Buildings and Steel Structures). In accordance with these requirements, Section 3423 implements specific notification and standards for any work that may disturb or remove lead paint on the exterior of any building built before December 31, 1978. Certain work methods are prohibited and penalties for noncompliance are specified. (Notices are commonly placed on residential and other buildings in San Francisco that are undergoing re-painting.

[31] Artificial Grass Market News, California AG's Prop 65-Artificial Turf Grass Settlements Final. July 16, 2010, available online at: http://www.asgi.us/1932/prop-65-artificial-turf-grass.html, accessed on March 28, 2011.

Generally affixed to a drape that covers all or portions of a building, these notices are a required part of the Section 3423 notification procedure.)

Section 3423 applies to the exterior of all buildings or steel structures on which original construction was completed before 1979 (which are assumed to have lead-based paint on their surfaces, unless demonstrated otherwise through laboratory analysis), and to the interior of residential buildings, hotels, and childcare centers. The ordinance contains performance standards, including establishment of containment barriers, at least as effective at protecting human health and the environment as those in the U.S. Department of Housing and Urban Development (HUD) Guidelines (the most recent guidelines for Evaluation and Control of Lead-Based Paint Hazards) and identifies prohibited practices that may not be used in disturbances or removal of lead-based paint. Any person performing work subject to the ordinance shall, to the maximum extent possible, protect the ground from contamination during exterior work, protect floors and other horizontal surfaces from work debris during interior work, and make all reasonable efforts to prevent migration of lead paint contaminants beyond containment barriers during the course of the work. Clean-up standards require the removal of visible work debris, including the use of a High Efficiency Particulate Air Filter (HEPA) vacuum following interior work.

The ordinance also includes notification requirements and requirements for signs. Before commencement of work, the responsible party must provide written notice, to the director of the San Francisco Department of Building Inspection (DBI), of the address and location of the project; the scope of work, including specific location; methods and tools to be used; the approximate age of the structure; anticipated job start and completion dates for the work; whether the building is residential or nonresidential, owner-occupied or rental property; the dates by which the responsible party has fulfilled or will fulfill any tenant or adjacent property notification requirements; and the name, address, telephone number, and pager number of the party who will perform the work. (Further notice requirements include a sign when containment is required, requirements for the sign when containment is required, notification of occupants, availability of a pamphlet related to protection from lead in the home, and early commencement of work [requested by tenant]). The ordinance contains provisions regarding inspection and sampling for compliance by DBI, as well as enforcement, and describes penalties for noncompliance with the requirements of the ordinance.

Impacts and Mitigation Measures

Significance Criteria

The CCSF has not formally adopted significance standards for impacts related to hazards and hazardous materials, but generally considers that implementation of the proposed project would have a significant impact if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials; or

- 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.

Approach to Analysis

The impact analysis below assesses hazards and hazardous materials impacts associated with use of synthetic turf on the Beach Chalet athletic fields and renovation of the existing restroom building. For potential health impacts associated with inhalation of vapors and particulate matter from the synthetic turf, ingestion of synthetic turf, and dermal contact with synthetic turf materials, the analysis relies on the studies cited under "Setting," above, to assess potential health risks. For impacts related to disposal of the synthetic turf after its useful life, the analysis relies on CCSF's synthetic turf standards, which require that the successful vendor of the synthetic turf product provide a detailed end-of-life recycling plan for the ultimate disposition of the turf at the end of its useful life. For exposure to hazardous building materials in the existing restroom building, the impact analysis relies on the San Francisco Building Code requirements for the renovation of buildings with lead-based paint, and identifies mitigation for the identification and disposal of other hazardous building materials for which the existing regulations are not as explicit.

Impact Analysis

Impact HZ-1: The proposed project would not create a significant hazard to the public or the environment through routine use, disposal, handling, or emissions of hazardous materials. (Less than Significant)

As described in Chapter II, Project Description, the synthetic turf would consist of four components: fiber, infill, backing, and underlayment. The fiber, which would consist of polyethylene, would be grass-like in appearance. The infill, which would be used to provide stability, would be comprised of about 70 percent styrene butadiene rubber (SBR) and 30 percent sand. The SBR infill is recovered from scrap tires and from the tire re-treading process. The fiber and infill would be supported by a backing made up of a combination of permeable woven and un-woven polypropylene fabrics that provide strength and vertical drainage. Underlayment would consist of drainage tile or an aggregate rock base. As discussed under "Setting," above, SBR is known to contain a number of VOCs, SVOCs (including benzothiazoles, aniline, and phenols), and metals (including barium, chromium, lead, manganese, and zinc).

Impacts related to the routine use of the synthetic turf would be significant if the use resulted in adverse health effects due to inhalation of vapors and particulates from the synthetic turf, ingestion of the synthetic turf, dermal contact with the synthetic turf materials, or inappropriate use of detergents and disinfectants to maintain the field. Impacts related to routine disposal of hazardous materials could occur because the turf requires disposal or recycling at the end of its useful life. Each of these potential impacts is discussed below.

Inhalation of Vapors and Particulates

Several studies, described under "Setting," above, evaluated health risks associated with inhalation of vapors above synthetic turf containing SBR. The 2009 OEHHA study concluded, based on data from an indoor field, that the increased cancer risk would be 1.6 in 1,000,000 for formaldehyde and 8.7 in 1,000,000 for nitromethane. However, these risk numbers could be higher than would occur for an outdoor application, such as the Beach Chalet athletic fields, because the measured chemical concentrations of the 2006 study were obtained from indoor fields where air dispersion would not be as great. Further, the height of the sampling was not documented, and no background samples were collected to demonstrate whether the observed chemical concentrations resulted from the synthetic turf or could be representative of background conditions.

The 2009 New York State study of two turf fields in New York City did not detect an increase of volatile organic vapors above background levels, with the exception of 2-methyl, butadiene in one of the eight samples. The increased cancer risk level would be 8 in 1,000,000 for this chemical. The New York State Department of Health noted that, because it was not consistently detected in the air samples and exposures were not continuous, there was no public health risk resulting from exposures to turf materials.

The 2010 study by the Connecticut identified six volatile or semi-volatile chemicals as associated with turf emissions: methyl isobutyl ketone, acetone, toluene, ethylbenzene, benzothiazole, and BHT. The Connecticut Department of Public Health performed a risk assessment for a total of 27 chemicals and concluded that the cancer risks were only slightly above *de minimis* levels for all scenarios evaluated, including children playing at the indoor facility, the scenario with the highest exposure. The calculated cancer risks were reported to be within typical risk levels from ambient pollution sources. The hazard index for acute risk was close to 1 for children playing at the indoor field, primarily due to benzothiazole. The presence of benzothiole and other VOCs could create an irritation response in sensitive individuals playing indoors. The study concluded that outdoor and indoor synthetic turf fields are not associated with elevated health risks, but recommended that adequate ventilation be provided at indoor field facilities to prevent accumulation of VOCs and SVOCs in indoor air.

The 2010 study by CalRecycle concluded that inhalation exposures to the seven VOCs that could be attributable to the synthetic turf were less than health-based screening levels, and no correlation existed between the field temperature and the VOCs detected in the air space above the field. The 2010 study by CalRecycle also evaluated the risks associated with particulates in the air space above three fields during active play. The risk assessment found that $PM_{2.5}$ was not detected in the air space above two of the fields. At the third, the weight of the $PM_{2.5}$ in the sample from above the synthetic turf field was the same as the weight in the upwind sample, indicating no contribution from the field. In addition, heavy metals were not detected in any of the samples. Neither the 2009 New York nor the 2010 Connecticut study identified an increase in PM_{10} particulates in the air space above turf fields. PM_{10} concentrations were typical of background levels.

The Bainbridge Island evaluation concluded that none of the estimated cancer risks for inhalation exceeded *de minimis* excess cancer risk of 1 in 1,000,000 and noncancer risks did not exceed the hazard index of 1.

On the basis of the above results, impacts related to the inhalation of vapors and particulates in the air space above a synthetic turf field would be less than significant because evidence does not support a conclusion of increased health risk.

Ingestion of Synthetic Turf Products

The 2007 OEHHA study, described under "Setting," above, assessed the health risks resulting from ingestion of shredded tires, which are similar to tire-derived SBR material. The study found that the noncancer hazard index associated with a one-time ingestion of a 10-gram piece of shredded tire would be 6.9 when all metals considered in the risk analysis are accounted for, but would be reduced to 1.8 when zinc is excluded. The study stated that at most, gastrointestinal distress would occur resulting from ingestion of zinc at the calculated level. The increased cancer risk was 1.2 in 10,000,000, considerably less than the *de minimis* level of 1 in 1,000,000.

OEHHA concluded that under the gastric simulation (considered more representative of actual conditions), the hazard index was 2.2, sufficiently close to a hazard index of 1 that the risk was deemed not to represent a serious non-cancer hazard, and the increased cancer risk was 3.7 in 100,000,000, considerably less than the *de minimis* level of 1 in 1,000,000. Regarding ingestion via hand-to-surface-to-mouth activity, OEHHA concluded that all of the chemicals identified were below chronic screening values, and the increased cancer risk was 2.9 in 1,000,000, which, while higher than the *de minimis* level of one in 1,000,000, was determined by OEHHA to be acceptable because of the small magnitude of increased risk.

The Bainbridge Island evaluation concluded that none of the estimated cancer risks for ingestion exceeded *de minimis* excess cancer risk of 1 in 1,000,000, and noncancer risks did not exceed the hazard index of 1.

On the basis of the above results, impacts related to ingestion of synthetic turf would be less than significant.

Dermal Contact with Synthetic Turf Products

The 2007 OEHHA study, described under "Setting," above, found that dermal contact with surfaces comprised of recycled tires would not cause skin sensitization in children, nor would contact with these surfaces be expected to elicit skin reactions in children already sensitized to latex. The Bainbridge Island evaluation concluded that none of the estimated cancer risks for dermal contact exceeded *de minimis* excess cancer risk of 1 in 1,000,000, and noncancer risks did not exceed the hazard index of 1. Based on this, impacts related to dermal contact would be less than significant.

Use of Hazardous Materials for Field Maintenance

As discussed in Chapter II, "Project Description," the athletic fields would be periodically cleaned with a solution of soap and water, but no disinfectants would be used. Although small amounts of solvents and adhesives could be required to make minor repairs, they would not be used in large quantities but only in spot applications at the specific repair location. On the basis of this, impacts related to the use of hazardous materials for field maintenance would be less than significant.

Disposal of Synthetic Turf

Synthetic turf has a life span of approximately 10 to 15 years, and must be replaced at the end of its useful life. However, in accordance with CCSF's synthetic turf standards described under "Synthetic Turf Standards," above, SFRPD would require the vendor for the synthetic turf to provide a detailed end-of-life recycling plan for the ultimate disposition of the turf at the end of its useful life. At a minimum, the plan would specify:

- The manner of reuse or recycling for each turf component and the reuse or recycling process;
- Parties responsible for the removal and disposition of the turf; and
- A signed commitment guaranteeing implementation of the plan within 7 years of contract ratification.

Use of the used synthetic turf for alternative daily cover at a landfill, and use of incineration or other high-temperature conversion technologies to destroy the turf materials, would not be allowed.

The used turf would not be considered a hazardous waste because, in accordance with the synthetic turf standards, the vendor would be required to analyze all of the turf components (fibers, infill, underlayment, and backing) for Title 22 metals. The vendor also would have to demonstrate that none of the total metals concentrations exceed the California TTLC (with the exception of zinc) and analyze the infill materials for soluble metals using the WET procedure, as well as demonstrate that none of the soluble metals concentrations materials exceed the STLC. Although zinc levels could exceed the TTLC, the turf should be able to be disposed of consistently with the management of used tires. The metals to be included in the soluble analysis include lead, zinc, and total chromium, as well as any metal in which the total metals concentration is equal to or exceeds by 10 times the STLC. Although waste classification criteria have not been established for specific SVOC compounds, the synthetic turf standards also require analysis of these compounds for reference purposes. In addition, the vendor would be required to provide verification that brominated flame retardants have not been intentionally added during the manufacture of the turf fiber, infill, underlayment, or backing. The verification would be in the form of a signed letter from the manufacturer or appropriate laboratory analysis of the product, demonstrating that the levels of bromine are less than 1 percent by weight.

Recycling options for used turf materials are currently under development, and continue to evolve as more synthetic turf applications reach the end of their useful life. Currently, spent turf can be recycled for uses such as manufacture of school bags, batting cages, barn mats, top dressing for natural grass, lining for highway barrels and backing for road bases, tote bags, t-shirts, coasters, and park benches.[32,33]

Because SFRPD would implement the synthetic turf standards, requiring implementation of an end-of-life recycling plan, and would restrict the metals and SVOC concentrations in the turf components, impacts related to the disposal of the used synthetic turf would be less than significant.

Impact HZ-2: The proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous building materials in structures that would be demolished. (Less than Significant with Mitigation)

As discussed under "Setting," above, the hazardous building materials survey conducted in 2010 for the restroom bathroom demonstrated that there is no asbestos-containing material in the building that would require abatement before renovation of the restroom building. However, the survey identified lead-based paint throughout much of the building. In addition, the building could also include fluorescent light ballasts containing PCBs or DEHP, and fluorescent light tubes containing mercury vapors. During renovation of the restroom building, workers and the public could be exposed to hazardous building materials if the materials are not abated before renovation, and lead-based paint could contaminate the surrounding soil. However, as discussed below, there is a well-established regulatory framework for the abatement of lead-based paint, and impacts related to exposure to lead-based paint would be less than significant if abatement procedures were in compliance with regulatory requirements. Impacts related to exposure to other hazardous building materials would be potentially significant, and mitigation to reduce this impact to a less-than-significant level is identified below.

Lead-based Paint

Work that could result in disturbance of lead paint must comply with Section 3423 of the San Francisco Building Code, Work Practices for Lead-Based Paint on Pre-1979 Buildings and Steel Structures (described under "San Francisco Building Code," above). SFRPD would be required to comply with the notification requirements and work standards specified in the Building Code, as well as with the specified performance standards, including establishment of containment barriers at least as effective at protecting human health and the environment as those in the HUD Guidelines (the most recent Guidelines for Evaluation and Control of Lead-Based Paint Hazards). In addition, SFRPD would be required to protect the ground from

[32] FieldTurf. FieldTurf Recycling from Cradle to Cradle.
[33] FieldTurf. Recycling.

contamination during exterior work, protect floors and other horizontal surfaces from work debris during interior work, make all reasonable efforts to prevent migration of lead-based paint contaminants beyond containment barriers during the course of the work, comply with clean-up standards requiring the removal of visible work debris, and use a HEPA vacuum following interior work. Compliance with these regulations and procedures of the San Francisco Building Code would ensure that potential impacts of demolition or renovation of structures with lead-based paint would be less than significant.

Other Hazardous Building Materials

Other hazardous building materials that could be present within the restroom building include electrical transformers that could contain PCBs, fluorescent light ballasts that could contain PCBs or DEHP, and fluorescent light tubes that could contain mercury vapors. Disruption of these materials could pose health threats to construction workers if not properly disposed of, a potentially significant impact. However, implementation of **Mitigation Measure M-HZ-2**, **Hazardous Building Materials**, would require that the presence of such materials be evaluated before demolition or renovation and, if such materials were present, they be properly handled during removal and building demolition or renovation. This would reduce the potential impacts of exposure to these hazardous building materials to a less-than-significant level. Therefore, this impact is less than significant with mitigation.

> **Mitigation Measure M-HZ-2: Hazardous Building Materials.** The project sponsor shall ensure that, before renovation, the restroom building is surveyed for hazardous building materials, including PCB-containing electrical equipment, fluorescent light ballasts containing PCBs or DEHP, and fluorescent light tubes containing mercury vapors. These materials shall be removed and properly disposed of before commencement of demolition or renovation. Old light ballasts that will be removed during renovation shall be evaluated for the presence of PCBs, and in the case where the presence of PCBs in the light ballast could not be verified, they will be assumed to contain PCBs, and handled and disposed of as such, according to applicable laws and regulations.

Cumulative Impacts

Impact C-HZ: The proposed project in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would not have a cumulatively considerable contribution to impacts related to hazards and hazardous materials. (Less than Significant)

The projects identified on the cumulative projects list in Table IV-1 include various utility projects in the site vicinity. These projects are dissimilar in nature from the proposed turf replacement project and would not result in contributions to a cumulative impact related to inhalation, ingestion, dermal contact, or disposal of hazardous materials potentially present in synthetic turf fields. To evaluate the potential for cumulative impacts related to exposure to hazardous

materials in synthetic turf fields, this cumulative analysis looks at the broader context of exposure to synthetic turf fields citywide.

None of the studies discussed under "Setting," above, identified public health risks resulting from exposure to hazardous materials at outdoor synthetic turf fields. The human health risk assessment process typically utilizes worst-case scenarios, such as using the highest concentrations of contaminants detected and long exposure durations, and adds a safety factor. For example, the Connecticut study modeled potential exposures based on playing soccer on synthetic turf fields 3 hours per day, 4 days per week for 8 months per year. Under these scenarios, a soccer player could play solely on synthetic turf fields and would still have only a *de minimis* increased health risk.

Because no health risks have been identified, the conversion of four grass fields to synthetic turf in San Francisco would not have a cumulatively considerable contribution to public health risks associated with exposure to hazardous materials in synthetic turf.

The proposed project would involve renovation of the existing restroom building that include lead-based paint and could include other hazardous building materials. Some of the potentially cumulative projects listed in Table IV-1, including the South Windmill Deepwell station building approximately 190 feet to the south of the project site, could also require demolition or renovation of buildings that include hazardous building materials, resulting in a potentially significant cumulative impact. However, as discussed above, renovation of the restroom building would comply with existing regulations for abatement of lead-based paint and would implement Mitigation Measure M-HZ-2, Hazardous Building Materials, which requires a pre-construction survey for other hazardous building materials, as well as removal and disposal of these materials in accordance with applicable laws. With implementation of these legal requirements and Mitigation Measure M-HZ-2, the proposed project's contribution to this impact would not be cumulatively considerable (less than significant).

CHAPTER V
Other CEQA Considerations

A. Growth Inducement

Growth inducement under CEQA considers the ways in which proposed and foreseeable project activities could encourage and facilitate other activities that would induce economic or population growth in the surrounding environment, either directly or indirectly. The Initial Study concluded that the proposed project would not induce substantial population growth, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure), or displace a large number of people, or create a substantial demand for additional housing.

The proposed project is a renovation of an established, city-serving recreational facility. It would be located in an area already designated for such uses and would not substantially alter the existing development patterns in the Golden Gate Park, the neighboring Outer Richmond or Outer Sunset Districts, or in San Francisco as a whole, so as to induce population growth. The project would also not necessitate or induce the extension of municipal infrastructure because it would be served by existing utilities.

As stated in Chapter II, Project Description, the implementation of the proposed project is anticipated to add approximately 9,582 play hours per year to the facility, an increase of more than 200 percent over existing conditions. While it may introduce relatively large (in percentage terms) numbers of additional visitors and vehicles to the project site, most would be city residents. Furthermore, an increase in play hours is one of the objectives of the proposed project, as it is one of the three major public soccer facilities in the city. The project would also be consistent with the goals of the *Golden Gate Park Master Plan,* which seek to increase visitors to the west end of the park. Thus, while an increase in the facility's use could be noticeable to persons in the immediately adjacent areas, including the Outer Richmond and Outer Sunset Districts, an increase in facility visitors would not result in a substantial impact on the residential or employee populations in San Francisco, absent some adverse physical change (e.g., degradation of intersection level of service or of recreational facilities). Because no such adverse impacts are identified in this EIR, the increase in visitors would not be considered a significant, adverse impact of the project. Also, as stated in Chapter II, no change in facility staffing is expected as a result of the project, and thus the project would not generate demand for new housing for park employees.

Therefore, the proposed project would not result in a substantial population increase or induce a substantial amount of growth.

B. Significant Environmental Effects that Cannot Be Avoided if the Proposed Project Is Implemented

In accordance with Section 21067 of the CEQA, and with Sections 15040, 15081, and 15082 of the CEQA Guidelines, potential impacts that could not be eliminated or reduced to an insignificant level are:

- The proposed project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section 15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco Planning Code.

C. Areas of Known Controversy and Issues to Be Resolved

On February 2, 2011, the San Francisco Planning Department issued a notice of preparation (NOP) of an EIR (see Appendix A, Notice of Preparation). Individuals, groups, and agencies that received these notices included owners of properties within 300 feet of the project site and other potentially interested parties, including various regional, State, and local agencies. In addition, the Planning Department and the San Francisco Recreation and Parks Department held a public scoping meeting at the Golden Gate Park Senior Center, located at 6101 Fulton Street in San Francisco, on February 23, 2011, to solicit public comments on the environmental issues of interest for the proposed project.

A summarized list of concerns that were noted in the public comments on the NOP and at the public scoping meeting is provided in Chapter I, Introduction. Based on the number of comments received on each of the topics listed, the most controversial issues for the proposed project, as expressed by community members, are the following: potential impacts resulting from installation and eventual disposal of the synthetic turf field, particularly as it relates to human exposure to hazardous materials and their effects on air quality, water quality, and biological resources (discussed in Sections IV.F, Biological Resources, IV.G, Hydrology and Water Quality, and IV.H, Hazards and Hazardous Materials and Air Quality); potential impacts to visual quality and character resulting from the proposed use of nighttime lighting (discussed in Section IV.B, Aesthetics); potential conflicts with existing plans and policies, particularly the *Golden Gate Park Master Plan* (discussed in Chapter III, Plans and Policies); and potential loss of historic resources or substantial changes to the character of historic resources (discussed in Section IV.C, Cultural Resources).

CHAPTER VI
Alternatives

A. Introduction

The California Environmental Quality Act (CEQA) Guideline Section 15126.6(a) states that an environmental impact report (EIR) must describe and evaluate a reasonable range of alternatives to the proposed project that would feasibly attain most of the project's basic objectives, but that would avoid or substantially lessen any identified significant adverse environmental effects of the project. An EIR is not required to consider every conceivable alternative to a proposed project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

CEQA Guidelines Section 15126.6(e)(1) states that, "The specific alternative of 'no project' shall also be evaluated along with its impact." The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project. Specifically, the CEQA Guidelines set forth the following criteria for selecting and evaluating alternatives:

- [T]he discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly. (Section 15126.6[b])

- The range of potential alternatives 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. (Section 15126.6[c])

- The alternatives shall be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the Lead Agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives shall be selected and discussed in a manner to foster meaningful public participation and informed decision-making. (Section 15126.6[f])

This chapter presents the CEQA alternatives analysis for the Beach Chalet Athletic Fields Renovation Project (proposed project). It presents the project objectives and impacts, discusses the methodology used to identify and screen alternatives, and presents the detailed analysis and comparison of selected alternatives. The project alternatives identified in this chapter include the potentially feasible alternatives that were selected for detailed analysis as well as those that were considered but rejected from further analysis. For the selected alternatives, this

analysis evaluates the alternatives' impacts against existing environmental conditions and compares the potential impacts of the alternatives against those of the proposed project. This chapter also identifies the environmentally superior alternative.

Following this introduction, the subsection entitled "Beach Chalet Athletic Fields Renovation Project Alternatives Analysis" presents the approach and methodology of the project alternatives analysis as well as a detailed evaluation of the selected alternatives, and Section C identifies the environmentally superior alternative. Section D discusses specific alternatives that were considered but rejected from further consideration.

B. Beach Chalet Athletic Fields Renovation Project Alternatives Analysis

In accordance with the CEQA Guidelines, an alternatives analysis must meet the following three criteria: (1) the alternative would attain *most* of a project's basic objectives; (2) the alternative would *avoid or substantially lessen* one or more of the significant environmental impacts of the proposed project; and (3) the alternative must be potentially *feasible*. An EIR need not consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative. Furthermore, an EIR need not consider every conceivable alternative, but must consider a reasonable range of alternatives that will foster informed decision-making and public participation.

In an effort to develop a reasonable range of alternatives, this section first presents the project objectives (from Chapter III, Project Description) and then summarizes the significant environmental impacts of the proposed project that were identified in Chapter IV, Environmental Setting and Impacts. The alternative approaches and strategies that would substantially lessen or avoid significant impacts are described, and then the feasibility of an alternative's strategies and its ability to meet project objectives are discussed.

Project Sponsor's Objectives

The objectives of the proposed project include the following:

- Increase the amount of athletic play time on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas.
- Improve public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks.
- Increase ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco.
- Provide a safe, optimal recreation facility and amenities for athletes, spectators, and park users by renovating the existing Beach Chalet Athletic Fields and the existing restroom building, adding bleachers, and installing a new plaza area with visitor amenities.

- Reduce ongoing maintenance and resource needs.
- Comply with current Americans with Disabilities Act (ADA) requirements.
- Improve safety and increase nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area.
- Remain consistent with the *Golden Gate Park Master Plan.*

Significant Environmental Impacts

As stated in the CEQA Guidelines, alternatives to a project must substantially lessen or avoid any of the significant environmental impacts associated with the project. The following section summarizes the significant impacts of the proposed project; these significant project impacts provided the basis for the development of alternatives to the proposed project. There are two groups of significant impacts: (1) significant and unavoidable [SU] impacts and (2) significant impacts that can be mitigated to less-than-significant [LSM].

Significant and Unavoidable Impacts

- **Historic Resources.** As discussed on pages IV.C-20 to IV.C-28, the proposed project would result in significant and unavoidable impacts to historic resources associated with overall effects on the character-defining features of the Beach Chalet Athletic Fields cultural landscape from the proposed alterations to the Beach Chalet Athletic Fields, including the addition of synthetic turf, spectator seating, field lights, and new pathways. (Impact CP-1, SU). Implementation of Mitigation Measure M-CP-1, which includes redesigning the circulation paths to include a more naturalistic and compatible surface material (i.e., decomposed granite), would reduce the effects of concrete pathways and help maintain the integrity of the Field; however, this measure alone would not reduce the overall impacts on historic resources to a less than significant level. Further, it can not be stated with certainty that decomposed granite would meet all applicable accessible requirements, and therefore, may not be feasible for use in the project.

Significant Impacts That Can be Mitigated to Less than Significant

- **Biological Resources.** As discussed on pages IV.F-23 to IV.F-24, the proposed project would remove turf grass and trees/shrubs to accommodate the proposed synthetic turf, playfield expansion, spectator seating, pathways, and other structures. If special-status bats are present during vegetation removal and/or building construction and renovation activities, and are disturbed during project construction, a significant impact on special-status bats would occur (Impact BI-1, LSM). Implementation of pre-construction bat surveys (Mitigation Measure M-BI-1), and avoidance measures (if any are present) would reduce this impact to a less-than-significant level.

  As discussed on page IV.F-33, the Golden Gate Park Master Plan states that individual large trees should be replaced in kind with similar species. While Chapter II, Project Description, includes tree replacement, the species of trees has not been identified. If tree replacement does not include similar species as the trees removed under the proposed

project, the project would conflict with the Golden Gate Master Plan. Consequently, this analysis considers removal of trees within SFRPD-managed lands to result in a significant impact related to conflict with applicable local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Implementation of the tree replacement, with requirements regarding type of trees appropriate for replacement (Mitigation Measure M-BI-3), would reduce impacts to less-than-significant levels.

- **Hazards and Hazardous Materials.** As discussed on pages IV.H-31 to IV.H-32, during renovation of the restroom building, workers and the public could be exposed to hazardous building materials including electrical transformers that could contain polychlorinated biphenyls (PCBs), fluorescent light ballasts that could contain PCBs or (2-ethylhexyl) phthalate (DEHP), and fluorescent light tubes that could contain mercury vapors (Impact HZ-2, LSM). Implementation of a pre-construction survey and removing any hazardous building materials found at the restroom building in accordance with applicable laws and regulations (Mitigation Measure M-HZ-2) would reduce this impact to a less-than-significant level.

Selected CEQA Alternatives

This section describes the project-specific alternatives that were selected and analyzed in detail. The first alternative, the No Project Alternative, is required under the CEQA Guidelines. Three additional alternatives were developed following identification of significant impacts associated with the proposed project, as well as input provided by the public and resource agencies during the EIR scoping process. The alternatives selected for detailed analysis in this EIR are as follows:

- Alternative 1: No Project Alternative (required by CEQA)
- Alternative 2: Off-Site Alternative
- Alternative 3: Grass Turf with Reduced Lights Alternative
- Alternative 4: Synthetic Turf Without Lights Alternative

Table VI-1 presents a comparative summary of the impacts associated with the alternatives. With the exception of the No Project Alternative, all of the project alternatives would result in significant adverse environmental impacts that could be mitigated to a less than significant level in the areas of biological resources and hazards and hazardous materials.

No Project Alternative

As required by CEQA Guidelines Section 15126.6(e), the No Project Alternative must be evaluated along with its impacts to allow decision-makers to compare the impacts of approving the proposed project with the impacts of not approving it. The No Project Alternative represents what would be reasonably expected to occur in the foreseeable future if the project were not approved.

TABLE VI-1
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Category of Significant Environmental Impact	Proposed Project	No Project Alternative	Alternative 2: Off-Site Alternative	Alternative 3: Grass Turf with Reduced Lights Alternative	Alternative 4: Synthetic Turf without Lights Alternative
Cultural Resources	• Significant and unavoidable impact on historic resources due to installation of synthetic turf, field lighting, spectator seating, and new pathways.	Impacts avoided	**Decreased** Installation of synthetic turf and lighting at West Sunset Playground would result in a less than significant impact since this playground is not considered a potential historic resource.	**Decreased** Installation of grass turf, reduced number of lights; small-scale and removable seating; and a pathway consisting of decomposed granite, would reduce the impact on historic resources to less than significant.	**Decreased** Removal of field lighting, installation of small-scale and removable seating, and installation of a pathway consisting of decomposed granite would reduce the impact on historic resources to less than significant.
Biological Resources	• Less than Significant with Mitigation impact: on special-status bats and potential conflict with tree ordinance or other requirements during construction due to vegetation and tree removal activities.	Impacts avoided	**Similar** It is unknown if construction at the off-site location would entail vegetation and tree removal activities, and/or restroom renovation work.	**Similar** It is assumed that tree and vegetation removal would occur and the impact on special-status bats would be similar to the proposed project.	**Similar** It is assumed that tree and vegetation removal would occur and the impact special-status bats would be similar to the proposed project.
Hazards and Hazardous Materials	• Less than Significant with Mitigation impact: impact due to exposure of hazardous building materials to workers and the public during restroom renovation work.	Impacts avoided	**Similar** It is unknown, but assumed that any renovation work of existing buildings would be similar to the proposed project.	**Same** It is assumed that restroom renovation work would occur, impact would be similar to the proposed project.	**Same** It is assumed that restroom renovation work would occur, impact would be similar to the proposed project.

Description of the No Project Alternative

Under the No Project Alternative, the existing Beach Chalet Athletic Fields would remain in use and the fields and restroom building would not be renovated. The No Project Alternative includes those activities that would reasonably be expected to occur in the foreseeable future if the proposed project were not approved. The existing Athletic Fields comprise approximately 9.4 acres and include four grass turf athletic fields surrounded by an 8-foot-tall metal chain link fence, an approximately 25,320-square-foot, 50-space asphalt parking lot (including one accessible space), a restroom building, and a cargo container being used as a maintenance shed. The athletic fields and parking lot are surrounded by trees and scattered shrubs, with existing trail routes.

As described in Chapter III, Project Description, one of the four existing athletic fields is always out of use for rest and re-growth, leaving three fields available for athletic activities. In addition, the fields are closed to the public every Monday throughout the year plus an additional 3-4 month period out of the year, to allow for rest, re-growth, and maintenance. The fields are open until dark Tuesday through Friday and on weekends and are closed during and following rain events. When the fields are open and available to the public the fields are used primarily through reservation by youth and adult soccer leagues, via either an advanced reservation system or a first-come, first-served occasional reservation system. Refer to Chapter III for additional information regarding the field reservation system and existing use of the Athletic Fields. Currently, SFRPD has staffing capacity for one 1/3 full-time equivalent (FTE) employee for maintenance of the fields on a continual basis.

Ability of the No Project Alternative to Meet Project Objectives

The No Project Alternative would fail to meet most of the project objectives. While the No Project Alternative would be consistent with the *Golden Gate Master Plan*, the No Project Alternative would not meet any other objectives, which include increasing the amount of athletic play on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas; improving public access by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks; increasing ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco; reducing ongoing maintenance and resource needs; complying with current ADA requirements; and improving safety and increasing nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area.

Impacts of the No Project Alternative Compared to Those of the Proposed Project

The No Project Alternative would eliminate the need for construction activities in the project area, thereby avoiding all construction impacts identified for the proposed project, including the significant and unavoidable impact on historic resources, and the significant impacts associated with biological resources and hazards and hazardous materials. In addition, although not considered a significant impact, impacts on views of the project area and nighttime lighting would be completely avoided under the No Project Alternative. Other less than significant

impacts associated with construction noise, traffic, and air quality would also be avoided under the No Project Alternative. Other proposed future projects in the site vicinity may still be implemented, including the San Francisco Westside Recycled Water project and the San Francisco Groundwater Supply Project, and so cumulative construction impacts could still occur, but there would be no contribution to these impacts from the proposed project.

Under the No Project Alternative, the continued use of the existing Athletic Fields would continue to require limiting public access to preserve grass field condition and a considerable amount of maintenance, and possibly occasional replacement of facilities, as the fields and facility would continue to deteriorate over time and would remain non-code compliant under the ADA.

No Project Alternative – Conclusions

The No Project Alternative would meet only one of the project objectives, as the character of the project site would remain consistent with the *Golden Gate Park Master Plan*. The No Project Alternative would avoid all impacts that would occur under the proposed project.

Alternative 2: Off-Site Alternative

Description of the Off-Site Project Alternative

Under the Off-Site Alternative, the SFRPD would construct similar renovations to athletic fields but at the West Sunset Playground instead of the Beach Chalet Athletic Fields. The West Sunset Playground encompasses approximately 17.6 acres and is located on Ortega Street in the Outer Sunset neighborhood. This park has a large soccer field, three baseball diamonds, two tennis courts, a full basketball court, a playground for kids, restrooms, and a small recreation center (SFRPD, 2011). The West Sunset Playground is open to the public between 6:00 a.m. and 10:00 p.m. The intent of this alternative is to avoid impacts to historic resources at the project site.

Under this alternative, it is assumed that all of the project components would be similar to those identified for the proposed project. The Off-Site Alternative would consist of replacing turf grass athletic fields at the West Sunset Playground with synthetic turf and installing field lighting and spectator seating. Renovation of restroom buildings may or may not be needed. It is assumed that the field configuration would be more multi-use than that proposed at the Beach Chalet Athletic Fields, to allow for continuation of baseball play at this facility. Although the acreage and area of disturbance would vary, it is assumed that the construction scenario would be generally the same as that for the proposed project, with an approximately 10-month schedule for completion of all construction. It is assumed that the same construction activities, workforce, and equipment would be required as described in Chapter III for the proposed project. Haul routes and locations of staging areas would be different.

Under the Off-Site Alternative, the maintenance and operating assumptions would be similar to those of the proposed project. Similar to the proposed project, under the Off-Site Alternative, the athletic fields would be open year-round between 9:00 a.m. and 10:00 p.m. and would be available for use by reservation. Although it is assumed that long-term maintenance of these

athletic fields would be similar to the level of maintenance under the proposed project, it is unknown how operations and maintenance would change relative to existing conditions. When the fields are not reserved, the fields would be available for open play and other recreational activities.

Ability of the Off-Site Alternative to Meet Project Objectives

This alternative would not be inconsistent with the Golden Gate Master Plan.

This alternative would not increase the amount of athletic play time on the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas, although it would partially meet this objective by providing increase play time for SFRPD overall, the alternative would fail to meet the objective of improving safety and increasing nighttime use of the west end of Golden Gate Park by installing new lighting and bringing more recreation facility users to the area. This alternative would also fail to meet the objectives of improving public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, and increasing ground-sports athletic opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco.

The Off-Site Alternative would partially achieve the objectives to: provide a safe, optimal recreational facility and amenities for athletes, spectators, and park users; reduce ongoing maintenance and resource needs; and result in facility compliance with current ADA requirements.

Impacts of the Off-Site Alternative Compared to Those of the Proposed Project

Construction-related impacts of the Off-Site Alternative would be similar to or greater than the proposed project because the fields are more proximate to sensitive receptors such as schools and residences than the project site. This alternative would be compatible with existing zoning and land use designations since the West Sunset Playground is already used for recreational purposes. Because the Off-Site Alternative would entail similar construction activities as the proposed project, hydrology and water quality impacts are anticipated to be comparable to those of the proposed project.

Although the West Sunset Playground is associated with the adjacent Sunset Elementary School and A.P. Giannini Middle School, both of which were constructed in 1952, the playground is not considered a potential historic resource. Therefore, it is assumed that the installation of synthetic turf and field lighting at this playground would not result in adverse impacts to historic resources.

Under the Off-Site Alternative, it is also assumed that impacts to visual resources could occur. Due to the West Sunset Playground's proximity to residential uses, nighttime lighting effects would likely be greater than that of the proposed project (though it is noted that impacts to aesthetic resources are less than significant under the proposed project). However, the West

Sunset Playground is adjacent to residential areas that have existing street lighting; thus, light and glare impacts may not be substantial.

Because no engineering designs have been developed for this alternative, the extent of impacts related to biological resources and hazards and hazardous materials is unknown at this time. This analysis conservatively assumes that impacts on biological resources and hazards and hazardous materials would be similar to the proposed project. Thus, the same or substantially similar mitigation measures identified for the proposed project would be required for any biological resources and hazards and hazardous materials impacts, which, like the proposed project, would reduce these impacts to less than significant.

It is assumed that with implementation of the Off-Site Alternative, the field improvements would generate greater recreational use at the selected off-site location as installation of synthetic turf would allow for use in wet weather conditions and installation of lighting would allow for longer evening use of the fields. Meanwhile, with continued use the Beach Chalet Athletic Fields would continue to degrade and may provide for fewer annual play hours over time. Thus, under this alternative, impacts to recreational resources are anticipated to be equal to or greater than those identified for the proposed project.

It is also assumed that impacts associated with increased traffic, transit, parking, and pedestrian access would be similar to or greater than those of the proposed project. It is unknown whether mitigation would be required to reduce this potential traffic impact. With the proximity of two schools and residential uses at the alternative site, there would be greater potential for increased congestion at one or more intersections than with the proposed project.

Off-Site Alternative – Conclusions

The Off-Site Alternative would achieve some but not all of the project objectives and would partially meet some of the project objectives. As described above, the West Sunset Playground is not considered a potential historic resource. Therefore, it is assumed that athletic field renovation would not result in adverse impacts to historic resources. Although it is unknown whether this alternative would reduce biological resources impacts and/or hazards and hazardous materials, this analysis conservatively assumes that similar impacts to these topics could occur. All of the same mitigation measures would be required.

Alternative 3: Grass Turf with Reduced Lights Alternative

Description of the Grass Turf with Reduced Lights Alternative

Under the Grass Turf with Reduced Lights Alternative, the SFRPD would construct most of the improvements that are included under the proposed project with the exception that new grass turf fields would be installed instead of synthetic turf fields. It is assumed that the new grass turf fields would encompass the same area as the proposed fields (i.e., 314,000 square feet or 7.2 acres). Each field would be 64,350 square feet. The intent of this alternative would be to reduce impacts to historic resources.

Similar to the proposed project, the Grass Turf with Reduced Lights Alternative would entail expansion of the existing parking lot, installation of new lighting, renovation of the restroom facilities, and other related improvements. Modifications to some of the proposed project components included in this alternative include installation of fewer field lights; small-scale, removable seating (i.e., benches or low-profile bleachers); and linear circulation paths using decomposed granite with a 'soft' planted edge. In comparison to the proposed project, the SFRPD would install six new field lights instead of ten, which would provide lighting for the two center fields.

Under this alternative, it is assumed that the construction scenario would be similar as that for the proposed project, with a 10-month schedule for this alternative. With the exception of construction activities associated with synthetic turf installation, it is assumed that all other construction activities would be the same as those for the proposed project. Construction activities associated with grass turf installation would likely entail prepping the soil, laying the sod or seeds, and irrigation improvements. Staging, haul routes, workforce, and equipment would be required as described in Chapter III for the proposed project. Under this alternative, some vegetation and tree removal would be required since the area of disturbance would be similar to that of the proposed project.

Under the Grass Turf with Reduced Lights Alternative, it is assumed that public access, maintenance, and operations would be similar to existing conditions. To allow the grass to rest and re-grow, only three of the facility's four athletic fields would be open at any one time and all the fields would be closed to the public for 3–4 months each fall and/or winter. The fields would likely continue to be closed on Mondays for maintenance activities. With the installation of new lighting, the two center fields would be open longer hours Tuesday through Fridays, and on weekends (i.e., until 10:00 p.m.) but the evening play time would have to be restricted for the two other fields without lights. The fields would be closed during and following rain events.

Ability of the Grass Turf with Reduced Lights Project Alternative to Meet Project Objectives

The Grass Turf with Reduced Lights Alternative would meet most of the project objectives, partially meet some of the objectives, and would fail to meet one of the project objectives. Similar to other alternatives, the Grass Turf with Reduced Lights Alternative would remain consistent with the Golden Gate Master Plan as these improvements would occur within the area of the existing Beach Chalet Athletic Fields. This alternative would also meet the objectives of improving public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, and increasing ground-sports opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco.

The alternative would fail to meet the objective of reducing ongoing maintenance and resource needs; instead, it would require a greater level of maintenance work to preserve field conditions. A greater level of maintenance would be needed because the new grass fields would be larger than the existing fields under this alternative and would be used at a greater level with the

inclusion of nighttime play hours. Decomposed granite may not be considered acceptable under applicable disability access requirements and therefore might not be a feasible alternative material. While there would be some increase in play time at the facility, it would be substantially less than the proposed project due to 1) a 50% reduction in the number of lit fields; 2) maintenance and rest and re-growth closures; and 3) rain closures.

The Grass Turf with Reduced Lights Alternative would only partially achieve the objective to provide for a safe, optimal recreation facility and amenities for athletes, spectators and park users by renovating the existing Beach Chalet Athletic Fields and the existing restroom building, adding bleachers, and installing a new plaza area with visitor amenities. While installation of new lighting would accommodate additional evening playtime, some of the deficiencies at the existing facility would likely persist, reoccur or worsen unless public access was restricted during existing permitted play times.

Impacts of the Grass Turf with Reduced Lights Alternative Compared to Those of the Proposed Project

Because the Grass Turf with Reduced Lights Alternative and the proposed project share several components, this alternative would result in similar impacts as the proposed project. Like the proposed project, this alternative would be compatible with existing zoning and land use designations because the location of this alternative is the same as the proposed project. The installation of the reduced number of lights would result in reduced visual impacts compared to the proposed project (though it is noted that aesthetic impacts are less than significant under the proposed project). In addition, because the Grass Turf with Reduced Lights Alternative would entail similar restroom renovations as the proposed project, hazards and hazardous materials impacts are anticipated to be comparable to those identified for the proposed project.

Under this alternative, impacts to historic resources would be less in comparison to the proposed project for several reasons. The replacement of grass turf; reduced number of field lights; installation of small-scale, removable seating instead of spectator seating; and installation of a pathway system using decomposed granite with a 'soft' planted edge would collectively reduce impacts to historic resources. These alterations would not materially impair in an adverse manner the character defining features of the Beach Chalet Athletic Fields, a contributor to the Golden Gate Park National Historic District. The Fields would not lose historic integrity to the degree that its significance would no longer be apparent, and would not result in a significant adverse impact to a historical resource per CEQA Section 15064.5. These alterations also would not conflict with the recommendations provided in the Secretary of the Interior's Standards for the Treatment of Cultural Landscapes. Therefore the overall impact to historic resources would be less than significant.

Installation of new grass turf fields would eliminate the potential for less than significant water quality impacts related to the installation of synthetic turf (i.e., potential for contaminants in runoff from the synthetic fields and groundwater quality degradation). Therefore, in light of the discussion above, impacts to traffic, recreation, and hydrology and water quality would be less than those identified for the proposed project (which are less than significant).

In comparison to the proposed project, construction-related impacts to biological resources would be similar to the proposed project because some vegetation and tree removal would be required under this alternative. Thus, construction-related impacts to special-status bats would be similar to the proposed project under this alternative. Implementation of pre-construction surveys for special-status bats (Mitigation Measure M-BI-1) would be required under this alternative and would likely reduce this impact to less than significant, as it does for the proposed project.

Grass Turf With Reduced Lights Alternative – Conclusions

The Grass Turf With Reduced Lights Alternative would achieve most of the project objectives, partially meet some of the objectives, and would fail to meet one of the project objectives. This alternative would reduce the overall impact on historic resources by installing grass turf instead of synthetic turf; fewer lights on the fields; small-scale, removable seating instead of permanent spectator seating; and linear circulation paths composed of decomposed granite material and a 'soft' planted edge instead of concrete. Installation of such components would allow the site to remain a contributing resource to the Golden Gate Park National Historic District; therefore the impact to historic resources would be less than significant. Because this alternative would require vegetation and tree removal, impacts associated with tree removal and to special-status species would be similar to those identified for the proposed project. Because construction impacts associated with renovation of the restroom facilities would be the same as the proposed project, impacts associated with exposure of hazardous building materials to construction workers and the public would be the same as those identified for the proposed project. All of the same mitigation measures as the proposed project would be required.

Alternative 4: Synthetic Turf without Lights Alternative

Description of the Synthetic Turf without Lights Alternative

Under the Synthetic Turf without Lights Alternative, the SFRPD would construct most of the improvements that are included under the proposed project except for the installation of field lighting. The intent of this alternative would be to reduce impacts to historic resources.

Similar to the proposed project, the Synthetic Turf without Lights Alternative would entail construction of a new synthetic turf field; expansion of the existing parking lot; renovation of the restroom facilities, and other related improvements. Modifications to some of the proposed project components that are considered under this alternative include installation of small-scale, removable seating such as benches or low-profile bleachers and installation of linear circulation paths using decomposed granite with a 'soft' planted edge.

Under this alternative, it is assumed that construction would be similar to the proposed project, with a 10-month schedule for this alternative. With the exception of construction activities associated with field lighting installation, it is assumed that all other construction activities would be the same as those for the proposed project. Staging, haul routes, workforce, and equipment would be required as described in Chapter III for the proposed project.

Under this alternative, the athletic fields would be open year-round from 8:00 a.m. until dark and would be available for use on a reservation basis. This alternative would eliminate the need for the SFRPD's rest and re-growth program. The Athletic Fields would remain open during and following rain events but, unlike the proposed project, would not be open during nighttime hours. When the fields are not reserved, it is assumed that the fields would be available for open play and other recreational activities. The level of staffing and maintenance needs at the athletic fields would be equivalent to the level described for the proposed project (refer to Chapter III).

Ability of the Synthetic Turf without Lights Alternative to Meet Project Objectives

The Synthetic Turf without Lights Alternative would meet most of the project objectives, partially meet one of the objectives, and would fail to meet two of the project objectives. Given that the location of this alternative is the same as the existing Beach Chalet Athletic Fields, this alternative would remain consistent with the Golden Gate Master Plan. As most of the components under this alternative are the same as the proposed project, this alternative would meet the objectives related to improved public access to the Beach Chalet Athletic Fields by adding new pathways, increasing the size of the existing parking lot, providing a formal drop-off area, and providing bicycle racks, increased ground-sports opportunities on the north side of San Francisco commensurate with improvements elsewhere in San Francisco, reduction of ongoing maintenance and resource needs, and increasing the amount of athletic play time at the Beach Chalet Athletic Fields by renovating the existing athletic fields and adjacent warm-up areas.

The alternative would fail to meet the objective pertaining to improved safety and increased nighttime use of the west end of Golden Gate Park. The Synthetic Turf without Lights Alternative would only partially achieve the objective to provide a safe, optimal recreation facility and amenities for athletes, spectators, and park users. The absence of field lighting would restrict use of the fields to daytime hours only and therefore the increase in play hours would be less than with the proposed project. This alternative would not meet current accessibility requirements because it can not be stated with certainty that decomposed granite would meet all applicable accessible requirements, and therefore, may not be feasible for use in the project.

Impacts of the Synthetic Turf without Lights Project Alternative Compared to Those of the Proposed Project

The Synthetic Turf without Lights Alternative would have similar but slightly reduced construction-related impacts as compared to the proposed project. Similar to the proposed project, this alternative would be compatible with existing zoning and land use designations because the location of this alternative is the same as the proposed project. As this alternative would involve similar construction activities as the proposed project, including renovation of the restroom facilities and installation of new synthetic turf fields, hazards and hazardous material impacts and hydrology and water quality impacts are anticipated to be the same as those determined under the proposed project.

Under this alternative, impacts to aesthetic resources would be less than those of the proposed project because this alternative would not introduce any new lighting and would not result in

any changes to nighttime views, or result in changes that would be visible outside the boundaries of the project site (though it is noted that impacts to aesthetic resources are less than significant under the proposed project).

Impacts to historic resources would be less in comparison to the proposed project due to the elimination of field lighting, the installation of small-scale, removable seating (i.e., benches or low-profile bleachers), and a pathway system comprised of decomposed granite, and a 'soft' planted edge, which, combined, would allow the site to remain a contributing resource to the Golden Gate Park National Historic District.

It is anticipated that traffic levels would be less than that of the proposed project since the use of the Athletic Fields would be restricted to daytime hours and overall use levels would be lower.

Under this alternative, the installation of synthetic turf would still result in vegetation and tree removal. Thus, construction-related impacts on trees and special-status bats would be the same as the proposed project and mitigation measures would be required to lessen this impact. However, unlike the proposed project, less than significant adverse nighttime lighting effects on migratory birds would be eliminated.

Synthetic Turf without Lights Project Alternative – Conclusions

The Synthetic Turf without Lights Alternative would achieve most of the project objectives, although it would only partially meet one of the objectives, and would fail to meet two of the project objectives. This alternative would reduce impacts on historic resources by not installing new lighting; installing small-scale, removable seating instead of spectator seating; and constructing linear circulation paths with decomposed granite instead of concrete. These components would result in a less than significant impact to historic resources because the site would remain a contributing resource to the Golden Gate Park National Historic District. Because construction impacts associated with renovation of the restroom facilities would be the same as the proposed project, impacts associated with exposure of hazardous building materials to construction workers and the public would be the same as those identified for the proposed project.

C. Environmentally Superior Alternative

The CEQA Guidelines require the identification of an environmentally superior alternative (Section 15126.6[e]). If it is determined that the "no project" alternative would be the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other project alternatives (Section 15126.6[3]).

The No Project Alternative would be the environmentally superior alternative. Of the remaining alternatives, the Off-Site Alternative would also qualify as the environmentally superior alternative because it is not located within the Golden Gate Park National Register Historic District. Selection of the Off-Site Alternative would avoid significant unavoidable historic

resources impacts to the character defining features of the Beach Chalet Athletic Fields cultural landscape due to the addition of synthetic turf, lights, spectator seating, and new pathways. The Off-site Alternative could require tree removal or disturbance, and could require renovation to existing facilities. Therefore, biological resources impacts (bats and tree resources) and hazardous building material exposure impacts would likely be similar to the proposed project.

D. Alternatives Considered but Rejected from Further Consideration

As part of the background and project development, the following alternative concepts were considered but rejected for the reasons indicated below.

Synthetic Turf with Reduced Lights

Under this alternative, the SFRPD would install a new synthetic turf field and new field lighting but at a lesser extent than the proposed project. Instead of installing ten 60-foot-tall light standards within the field area, this alternative would consist of a reduced number of light standards. All of the other improvements, including construction of spectator seating, parking improvements, and renovation of restroom facilities would occur under this alternative. Similar to the proposed project, this alternative would result in significant and unavoidable impacts on historic resources due to the installation of both a new synthetic turf field and field lighting. This alternative could also still result in construction-related impacts to special-status bats due to the tree removal that would be required to accommodate the new synthetic turf field. Because this alternative concept would not reduce any significant impacts and because all other impacts would be the same as those identified for the proposed project, this alternative did not warrant detailed analysis in the EIR.

Polo Fields Off-Site Alternative

Under the Polo Fields Off-Site Alternative, the SFRPD would construct similar renovations to athletic fields (i.e., installation of new synthetic turf, new field lighting, spectator seating, etc.) at the Polo Fields instead of the Beach Chalet Athletic Fields. The Polo Fields are located at the west end of Golden Gate Park and are generally bordered by John F. Kennedy Drive to the north and Middle Drive West to the south. The Polo Fields consist of seven fields and are commonly used for soccer, rugby, and lacrosse and is a contributor to the Golden Gate Park National Historic District.

Similar to the proposed project, this alternative would result in significant and unavoidable impacts on historic resources due to the installation of both a new synthetic turf field and field lighting. This alternative could also still result in construction-related impacts to special-status bats due to the tree removal that would be required to accommodate the new synthetic turf field. Because this alternative concept would not reduce any of the significant effects identified for the proposed project, this alternative did not warrant detailed analysis in the EIR.

Big Rec Fields Off-Site Alternative

Under the Big Rec Off-Site Alternative, the SFRPD would construct similar renovations (i.e., installation of new synthetic turf, new field lighting, spectator seating, etc.) to athletic fields at the Big Rec Fields instead of the Beach Chalet Athletic Fields. The Big Rec fields, a contributor to the Golden Gate Park National Historic District, is located on the east end of Golden Gate Park, are bordered by Martin Luther King Jr. Drive to the south and west and Middle Drive East to the north. These fields consist of two grass turf baseball fields, primarily operate during daytime hours, and are also open to the public on a reservation basis.

Similar to the proposed project, this alternative would result in significant and unavoidable impacts on historic resources due to the installation of both a new synthetic turf field and field lighting. This alternative could also still result in construction-related impacts to special-status bats due to the tree removal that would be required to accommodate the new synthetic turf field. Because this alternative concept would not reduce any of the significant effects identified for the proposed project, this alternative did not warrant detailed analysis in the EIR.

E. References

San Francisco Recreation and Parks Department (SFRPD), West Sunset Playground website: http://sfrecpark.org/ParksMapPage.aspx, accessed on August 3, 2011.

CHAPTER VII

EIR Preparers and Persons and Organizations Contacted

A. EIR Authors

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C. Project Sponsors and Consultants

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San Francisco, CA 94133

APPENDIX A

Notice of Preparation and Initial Study

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SAN FRANCISCO
PLANNING DEPARTMENT

Notice of Preparation of an Environmental Impact Report

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

Reception:
415.558.6378

Fax:
415.558.6409

Planning
Information:
415.558.6377

Date:	February 2, 2011
Case No.:	**2010.0016E**
Project Title:	**Beach Chalet Athletic Fields Renovation**
BPA Nos.:	N/A
Zoning:	Public Use District Open Space Height and Bulk District Coastal Special Use District
Block/Lot:	1700/001
Lot Size:	4,195,976 square feet
Project Sponsor	Dan Mauer, Recreation and Park Department (415) 581-2542
Lead Agency:	San Francisco Planning Department
Staff Contact:	Don Lewis – (415) 575-9095 don.lewis@sfgov.org

PROJECT DESCRIPTION

The Beach Chalet Athletic Facility is approximately 10.9 acres in size and is located at the western end of the 1,017 acre Golden Gate Park, close to the Great Highway and the Beach Chalet Restaurant. The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of the four existing grass soccer fields to synthetic turf. The proposed project also includes the installation of ten 60-foot-tall athletic field light standards to allow for evening use. The new light standards would be placed within the perimeter of the field area and are anticipated to be turned on until 10 p.m. on a daily basis. In addition to the turf conversion and lights, the project would include the following: installation of pedestrian and spectator amenities throughout the facility and adjacent parking lot; the installation of black vinyl fencing around the fields; the installation of a play structure, picnic tables and barbeque pits; the construction of a new maintenance shed; the renovation of the existing restroom building involving modification of existing openings and construction of a concrete paved entry plaza; irrigation and storm drainage improvements; and, re-configuration and expansion of the existing 50-space parking lot to accommodate approximately 20 additional stalls. The project would also involve the removal of 14 trees and 44 shrubs. Golden Gate Park is listed on the National and California Registers of Historic Places as a historic district containing 133 contributing resources, including the soccer fields and the restroom building.

FINDING

This project may have a significant effect on the environment and an Environmental Impact Report is required. This determination is based upon the criteria of the State CEQA Guidelines, Sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance), and for the reasons documented in the Environmental Evaluation (Initial Study) for the project, which is attached.

PUBLIC SCOPING PROCESS

Pursuant to the State of California Public Resources Code Section 21083.9 and California Environmental Quality Act Guidelines Section 15206, a public scoping meeting will be held to receive oral comments concerning the scope of the EIR. The meeting will be held on **February 23rd at 6:30 p.m. at the Golden Gate Park Senior Center, 6101 Fulton Street at 36th Avenue.** Written comments will also be accepted at this meeting and until 5:00 p.m. on **March 4th, 2011**. Written comments should be sent to Bill Wycko, San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103.

If you work for a responsible State agency, we need to know the views of your agency regarding the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR when considering a permit or other approval for this project. Please include the name of a contact person in your agency.

January 31, 2011
Date

Bill Wycko
Environmental Review Officer

SAN FRANCISCO
PLANNING DEPARTMENT

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

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To Responsible Agencies, Trustee Agencies, and Interested Parties: February 2, 2011

RE: CASE NO 2010.0016E: Beach Chalet Athletic Fields Renovation
NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT

A Notice of Preparation (NOP) of an Environmental Impact Report (EIR) for the above-referenced project, described below, has been issued by the Planning Department. The NOP/Notice of Public Scoping Meeting is either attached or is available upon request from **Don Lewis**, whom you may reach at **(415) 575-9095** or at the above address. It is also available online at http://www.sfgov.org/site/planning_index.asp?id=80504. This notice is being sent to you because you have been identified as potentially having an interest in the project or the project area.

Project Description: The Beach Chalet Athletic Facility is approximately 10.9 acres in size and is located at the western end of the 1,017 acre Golden Gate Park, close to the Great Highway and the Beach Chalet Restaurant. The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of the four existing grass soccer fields to synthetic turf. The proposed project also includes the installation of ten 60-foot-tall athletic field light standards to allow for evening use. The new light standards would be placed within the perimeter of the field area and are anticipated to be turned on until 10 p.m. on a daily basis. In addition to the turf conversion and lights, the project would include the following: installation of pedestrian and spectator amenities throughout the facility and adjacent parking lot; the installation of black vinyl fencing around the fields; the installation of a play structure, picnic tables and barbeque pits; the construction of a new maintenance shed; the renovation of the existing restroom building involving modification of existing openings and construction of a concrete paved entry plaza; irrigation and storm drainage improvements; and, re-configuration and expansion of the existing 50-space parking lot to accommodate approximately 20 additional stalls. The project would also involve the removal of 14 trees and 44 shrubs. Golden Gate Park is listed on the National and California Registers of Historic Places as a historic district containing 133 contributing resources, including the soccer fields and the restroom building.

The Planning Department has determined that an EIR must be prepared for the proposed project prior to any final decision regarding whether to approve the project. The purpose of the EIR is to provide information about potential significant physical environmental effects of the proposed project, to identify possible ways to minimize the significant effects, and to describe and analyze possible alternatives to the proposed project. Preparation of an NOP or EIR does not indicate a decision by the City to approve or to disapprove the project. However, prior to making any such decision, the decision makers must review and consider the information contained in the EIR.

The Planning Department will hold a **PUBLIC SCOPING MEETING** on **February 23rd at 6:30 p.m. at the Golden Gate Park Senior Center, 6101 Fulton Street at 36th Avenue**. The purpose of this meeting is to receive oral comments to assist the Planning Department in reviewing the scope and content of the environmental impact analysis and information to be contained in the EIR for the project. Written comments will also be accepted until 5:00 p.m. on **March 4th, 2011**. Written comments should be sent to Bill Wycko, San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA 94103.

If you work for an agency that is a Responsible or a Trustee Agency, we need to know the views of your agency as to the scope and content of the environmental information that is relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR when considering a permit or other approval for this project. We will also need the name of the contact person for your agency. If you have questions concerning environmental review of the proposed project, please contact **Don Lewis** at **(415) 575-9095**.

INITIAL STUDY

Case No. 2010.0016E
Beach Chalet Athletic Fields Renovation

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INITIAL STUDY
2010.0016E – Beach Chalet Athletic Fields Renovation

A. PROJECT DESCRIPTION

Project Location and Site Characteristics

The project site is located at the western end of the 1,017 acre Golden Gate Park, close to the Great Highway and the Beach Chalet Restaurant, and. is approximately 473,300 square feet or 10.9 acres in size (see Figure 1, Project Location, p. 2). The site currently contains four natural turf soccer fields surrounded by an eight-foot-tall metal chain link fence, an approximately 50-space asphalt parking lot accessed from John F. Kennedy Drive, a restroom building, and a maintenance shed. Surrounding the fenced-in fields are trees and shrubs with pathways. The site slopes slightly downward toward the west. The project site would remain in its current use as a soccer field complex within an urban park.

Golden Gate Park is listed on the National and California Registers of Historic Places as a historic district containing 133 contributing resources. Both the soccer fields and the restroom building at the Beach Chalet Athletic Fields are listed as contributing features of the park. Golden Gate Park contains several Article 10 Landmark buildings and structures, including Landmark No. 179: The Beach Chalet (also listed on the National Register as an individual resource) and Landmark No. 210: The Millwright Cottage and Murphy Windmill, which are located within approximately 300 feet of the project site. Nearby neighborhoods include the Outer Sunset district located to the south of Golden Gate Park and the Outer Richmond, which lies to the north of the park.

Proposed Project

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of the four existing grass soccer fields to synthetic turf. The proposed project also includes the installation of ten 60-foot-tall athletic field light standards to allow for evening use. The new light standards would be placed within the perimeter of the field area and are anticipated to be turned on until 10 p.m. on a daily basis. In addition to the turf conversion and lights, the project would include the following: installation of pedestrian lighting at the pedestrian paths north of the site, the parking

Figure 1 – Project Location Map
Beach Chalet Athletic Fields Renovation
Source: Planning Department GIS, January 2011

lot, and the proposed picnic area; the installation of black vinyl fencing around the fields; the installation of player benches and bleachers at all fields; the installation of picnic tables and barbeque pits at the southeastern corner of the fields; the construction of a new maintenance shed; the construction of three new pedestrian pathways paved in a crushed stone aggregate; the renovation of the existing restroom building involving modification of existing openings; the construction of a concrete paved entry plaza surrounding the restroom building with metal railings, seating, and planters; the construction of a concrete raised platform designed to accommodate pedestrian traffic across the fields and spectator seating; the installation of a new play area and structure; the installation of new bicycle racks, drinking fountains, and trash/recycling receptacles; irrigation and storm drainage improvements; and, re-configuration and expansion of the existing 50-space parking lot to accommodate approximately 20 additional stalls. The project would also involve the removal of 14 trees and 44 shrubs. Figure 2 on page 4 shows the site plan of the proposed facility.

The Beach Chalet Athletic Fields were built more than 75 years ago and were last renovated in 1998. As part of the Recreation and Park Department's (RPD) rest and re-growth program, one of the four existing fields is always out of use, leaving just three fields for play. Due to the heavy use, abundant gopher holes, and year-round wet conditions, these fields are in poor condition and require a considerable amount of maintenance. The renovation of Beach Chalet Athletic Fields with lights and synthetic turf would increase the amount of playable times on these fields. Currently, the four fields together can host 4,738 hours of annual play while the proposed project would add 9,582 hours of new play each year, for a total of 14,320 hours.

Project construction would span approximately 10 months and would require standard earth moving equipment for grading, large trucks for hauling, and a small crane to lift the proposed light standards. The project would cost approximately 9.8 million dollars.

Each component of the proposed project is described in detail below.

Field Area

The total area of the four fields would be approximately 314,000 square feet (7.2 acres) in size. The project would slightly enlarge the space dedicated to the soccer fields compared to existing conditions (by approximately 6% or 19,300 square feet) to accommodate modern field dimensions and safety zones. The surfacing proposed is an all weather synthetic turf. The new surfacing would allow for all

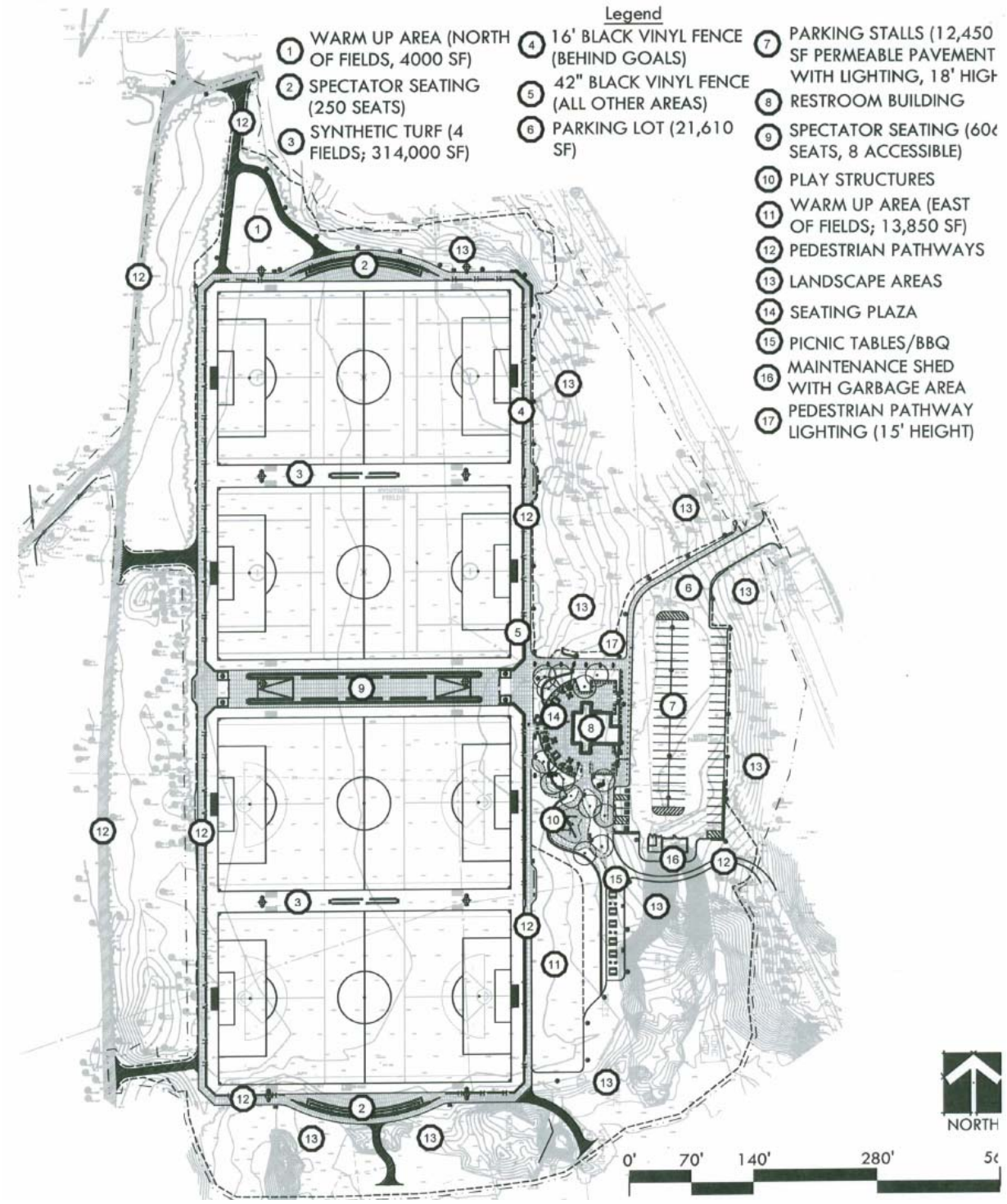

Figure 2 – Project Site Plan
Beach Chalet Athletic Fields Renovation
Source: Verde Design

four fields to be used at once and for much longer durations due to the elimination of rest periods required by natural lawn, and can be used in wet weather conditions.

The synthetic turf is comprised of three components: fiber, infill and backing. The fiber, which consists of polyethylene, is intended to be grass-like in appearance and is soft and extremely durable. The playing surface would use an infill between the turf fibers to provide stability. The infill would be comprised of about 70% styrene butadiene rubber (SBR) and 30% sand. The SBR infill, commonly called "tire crumb", is recovered from scrap tires and from the tire re-treading process. The fiber and infill are supported by a backing that is made up of a combination of permeable woven and un-woven polypropylene fabrics that provide strength and vertical drainage. The product would meet or exceed all parameters established by the San Francisco Recreation and Park Department: Synthetic Task Force – Findings and Department Recommendations and the newly developed turf specification developed in coordination with the Department of the Environment.[1]

In addition, the project proposes to renovate two existing natural grass warm-up areas. One warm-up area would be east of the soccer fields and would be approximately 13,850 square feet in size while the other warm-up area would be north of the soccer fields and would be approximately 4,000 square feet in size. These warm-up areas would be located on existing grassy turf areas surrounding the fields.

Lighting and Fencing

Proposed with the field renovations are ten 60-foot-tall light standards made of galvanized steel. Four poles that would be located at the north and south ends of the facility would have light fixtures oriented at the two end fields, while the six poles that would be located within the fields would have back-to-back light fixtures oriented to illuminate the two interior fields that they separate. The light standards would use shielded lamps. Each pole would have 40 luminares, and each luminare would be 1500W MZ.

In addition to the light standards, the project proposes new 15-foot-tall pedestrian pathway light standards and 18-foot-tall parking lot light standards. All lighting would be controlled by an on-line automated control system which would allow staff to turn all the lights off upon park closure or at an appropriate time following field closure.

[1] The Synthetic Task Force met for five months in 2008 from June through October. The Task Force was comprised of 16 members from various city agencies including other experts such as a representative from California Environmental Protection Agency and a doctor from UCSF.

New black vinyl chain-link fencing 42 inches in height would line the perimeter of the field except in the areas behind the soccer goals where 16-foot-tall, black vinyl fencing would be provided to ensure that soccer balls remain on the fields, replacing the existing 8-foot-tall metal chain link fencing around the fields. The fence would be intended to allow spectators to have an open view to the fields while reducing the visibility of the fence against the park's landscaped backdrop.

Parking Lot

The existing 25,320-square-foot parking lot with approximately 50 stalls on the eastern side of the project site would be renovated, reorganized, and reconstructed. The parking lot would have a drop-off area and would be expanded by 8,740 square feet, or approximately 35%, to allow for approximately twenty additional stalls, for a total of approximately 70 spaces in an area approximately 34,060 square feet in size of which 12,450 square feet would be permeable pavement. The location of the existing vehicular ingress and egress from John F. Kennedy Drive would remain the same. The existing maintenance shed located between the parking area and the fields would be removed and replaced with a new 13-foot-tall maintenance shed that would be located at the south end of the parking lot and would include a garbage collection area. Bicycle racks are proposed along with drinking fountains and trash/recycling receptacles adjacent to the multiple field entrances.

Plaza Area and Restroom Building

The existing restroom building, located between the parking area and the fields, would be renovated and a new "plaza" area with seating would be created on the west side of the building. The 2004 National Register nomination lists the Beach Chalet Soccer Fields restroom building as a contributing feature of the Golden Gate Park National Register Historic District, along with ten other restroom buildings constructed during the park's period of significance of 1871 to 1943.[2] The project would modify the building's hipped roof by extending the existing slope of the roof by approximately four feet at the perimeter of the building to create a peak where it is now flat in the center. The restroom renovations would also include expanded fixture counts, new partitions, sinks, and fixtures. Accessibility upgrades, baby changing stations, and registration and concession windows would also be part of the design.

[2] Nelson, Douglas. NPS Form 10-900, Golden Gate Park. July 2003, revised June 2004. On file for review at the San Francisco Planning Department, National Register Historic District Files, 1650 Mission Street, Suite 400, San Francisco, CA 94103.

Additional amenities proposed for the plaza area include a small playground to the south of the restroom and plaza and picnic tables and permanent barbeque pits. The playground area footprint would be approximately 775 feet square feet in size and surrounded by landscaping. The proposed project also incorporates new vegetation into the plaza and the slope between the plaza and the athletic fields.

An access path would lead from the parking stalls down a sloped walk to the plaza and playground areas before continuing down to the field level roughly five feet below the park lot/plaza elevation. A stairwell would also serve the plaza area as a means of egress to the fields.

Field Circulation and Viewing

Proposed circulation at the field level includes a new concrete pathway that would circle the fields to provide a means of access to the four fields for players and spectators, and for RPD maintenance staff. Spectator seating for approximately 250 visitors is proposed at the north and south ends of the facility, in addition to a 606-seat seating area on a walkway bisecting the field area at grade level (approximately 30" above fields) from east to west between the two center fields. There would also be approximately 190 spectator seats in the plaza area off of the field.

B. PROJECT SETTING

Golden Gate Park is the third most visited park in the country.[3] The Beach Chalet Athletic Fields are located at the western end of the park, close to the Great Highway and the Beach Chalet Restaurant. Figure 1 illustrates the location of the proposed project. The park is approximately 1,017 acres in size while the Beach Chalet Athletic Facility is approximately 10.9 acres in size. The Beach Chalet Athletic fields are accessible by vehicle from the north, south, east and west by connectors to JFK Drive. Access by foot or bicycle is possible in all major directions through existing pathways and roadways surrounding and through the park.

The project site is located in the western end of the park (west of Crossover Drive), which is less intensely developed than the eastern end of the park yet contains several active recreational areas among the woodland, including the Golf Course, the Archery field, the Bercut Equitation Field, and the

[3] Center for City Park Excellance, Trust for Public Land. "The Most Visited City Parks," 2007.

46th Avenue playground. The recreational features in the western end of the park are generally located in the lowland meadows while the hills are reserved for woodland. The western end of the park contains eight lakes and there are natural open grassy areas at the Golf Course, Speedway Meadow, Elk Glen Meadow, Lindley Meadow, Polo Fields, Bison Paddock, Disc Golf Course, and the Archery field.

To the south of the project site, the nearest residential areas are located on the south side of Lincoln Way in the Outer Sunset neighborhood, while to the north, the nearest residential area is located on the north side of Fulton Street in the Outer Richmond neighborhood. Both residential areas are located approximately 1,000 feet from the project site. To the west of the project site is the Great Highway and Ocean Beach, while to the east is the Golden Gate Park Golf Course.

The project site consists of four natural turf fields set within a three-sided earthen bowl facing the ocean to the west. The site is bounded by the Great Highway to the west and JFK Drive to the northeast, and includes a bathroom facility, a parking lot, and a maintenance shed to the east of the four fields. The project site is surrounded by landscaped and cultivated trees and shrub, consisting of Monterey cypress, mirror tree, and turf grasses. The project area encompasses landscaped natural turf soccer fields surrounded by landscaped forests and developed driveway/pathways, a parking lot, a restroom and other related facilities.

Other projects proposed or under construction in the vicinity of the project site, which would be considered in the analysis of potential cumulative impacts, include:

(1) The Millwright Cottage and Murphy Windmill Renovation which includes the historic restoration of the windmill, as well as the seismic stabilization of the adjacent cottage. These projects have been in design and construction over the last eight years and are anticipated to be completed by the end of 2011;

(2) The Polo Fields Resod project included the removal and replacement of the existing turf and irrigation system with new sod and irrigation equipment. Construction activities were started in September 2010 and concluded in December 2010;

(3) The Golden Gate Park Stables were scheduled to be renovated several years ago but the private funding for this project did not materialize. The project included new stables to house the horses, a

new main office and reception building and improvements to various stable amenities. In order to make the area safe in the interim, deteriorated bleachers/stables were removed. There is no formal schedule for the remaining work; and

(4) The San Francisco Public Utilities Commission (SFPUC) Water Treatment Facility is a proposal initiated by the SFPUC to install a water treatment facility above grade in the east end of the Richmond/Sunset Treatment Area. This project is intended to take secondary effluent water and treat it so that it can be used to irrigate Golden Gate Park, Lincoln Park/Golf Course and the Presidio Golf Course. This project is currently in the planning stage and will require approval from all appropriate city agencies.

(5) San Francisco Planning + Urban Research (SPUR) is currently working with the National Park Service, California State Coastal Conservancy, and SF Public Utilities Commission on a new long-range planning effort for Ocean Beach. The plan is intended to consider issues such as public access, environmental resources, coastal management, infrastructure planning, and interagency coordination.[4] SPUR has conducted public workshops on the process. The project is not currently in the process of environmental review.

Project Objectives

The project sponsor's objectives for the Beach Chalet Soccer Fields renovation project are as follows:

- Increase the amount of athletic play time on the Beach Chalet Soccer Fields.
- Improve public access to the Beach Chalet Soccer Fields.
- Increase ground-sports athletic opportunities on the north side of San Francisco.
- Provide a safe, optimal recreation facility and amenities for athletes, spectators, and park users.
- Reduce ongoing maintenance and resource needs.
- Improve safety and increase nighttime use of the west end of Golden Gate Park.
- Remain consistent with Golden Gate Park Master Plan.

[4] http://www.spur.org/ocean-beach, accessed on January 25, 2011.

C. COMPATIBILITY WITH EXISTING ZONING AND PLANS

	Applicable	*Not Applicable*
Discuss any variances, special authorizations, or changes proposed to the *Planning Code* or Zoning Map, if applicable.	☐	☒
Discuss any conflicts with any adopted plans and goals of the City or Region, if applicable.	☐	☒
Discuss any approvals and/or permits from City departments other than the Planning Department or the Department of Building Inspection, or from Regional, State, or Federal Agencies.	☐	☒

San Francisco General Plan

The San Francisco General Plan, which provides general policies and objectives to guide land use decisions, contains some policies that relate to physical environmental issues. In 2007, the Planning Department reviewed the renovation of athletic playfield complexes at six locations across the city, which included conversion of the fields from grass to synthetic turf, the installation of field lighting, fencing, irrigation, and other landscape and building improvements. The proposed project at Beach Chalet was included in this review. On May 17, 2007, the Department determined that the projects were consistent with the Eight Priority Policies of Section 101.1 of the Planning Code, that there would be no adverse effect on parks and open space or their access to sunlight vistas, and is in conformity with the General Plan.[5] The proposed project would not obviously or substantially conflict with any such policy, and would be consistent with the San Francisco General Plan and with applicable zoning designations. Since the proposed project is undergoing further environmental review, a General Plan Referral is required.

The General Plan includes a Recreation and Open Space Element, which frames the City's policies regarding parks, recreation facilities, and open spaces. The Recreation and Open Space Element (ROSE) was adopted in 1986, and an update to the ROSE was completed in 2009 and is currently undergoing environmental review. The ROSE addresses use of existing facilities and identifies parameters for planning and development of additional facilities as opportunities arise. Both the 1986 and the 2009 ROSE contain policies that specifically address Golden Gate Park, as well as general policies that are applicable to Golden Gate Park. The proposed project does not obviously or substantially conflict with any policies in either the ROSE or the 2009 draft ROSE Update.

[5] Memorandum from Dean Macris, Director of Planning, to Yomi Agunbiade, General Manager of San Francisco Recreation and Park Department, May 17, 2007.

Plans and Policies

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added Section 101.1 to the Planning Code to establish eight Priority Policies. These policies, and the sections of this Environmental Evaluation 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); (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,f and g, 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); (6) maximization of earthquake preparedness (Questions 13a-d, Geology, Soils, and Seismicity); (7) landmark and historic building preservation (Question 4a, Cultural 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 and Initial Study under the California Environmental Quality Act (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 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 the Evaluation of Environmental Effects, 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 Department's comprehensive project analysis and findings regarding consistency of the proposed project with the Priority Policies.

Golden Gate Park Master Plan

The Golden Gate Park Master Plan was adopted by the Recreation and Park Commission in October of 1998.[6] The Park Master Plan is a comprehensive planning document that includes general objectives and policies for the Park, management strategies, and specific objectives and policies relating to Park landscape, circulation, recreation facilities, visitor facilities, buildings and monuments, utilities and infrastructure, Park maintenance and operations and special area plans. As discussed in the Master

[6] Golden Gate Park Master Plan Final Environmental Impact Report, File No. 95.243E. This document is available for review at 1650 Mission Street, Suite 400, San Francisco, CA.

Plan, the western portion of the Park contains most of its larger meadows, lakes, and relatively natural areas, as well as facilities for activities and sports, and is more pastoral and sylvan than the eastern part.

The Park Master Plan included a proposal for an additional soccer field on the site of the former Richmond Sunset Water Treatment Plan, which is immediately south of the proposed project. Because the use of synthetic turf was not contemplated at the time of the Master Plan's development, there are no recommendations or policies that address synthetic turf. In addition, lighting of the existing grass soccer fields to extend use hours was also not considered because the fields were already at or beyond their use limits for proper maintenance. The Plan addresses lighting in the park by designating night use areas in the park, and lighting in other areas would generally be limited to a minimal amount of street lighting for safety.

The renovation of the Beach Chalet Athletic Fields facility with synthetic turf and lighting for extended use does not appear to conflict with any adopted plans and goals for the City for the purposes of the California Environmental Quality Act (CEQA). As mentioned above, the proposed project would require a General Plan Referral which would analyze the project's consistency with the General Plan.

D. SUMMARY OF POTENTIAL ENVIRONMENTAL EFFECTS

The proposed project could potentially affect the environmental factor(s) checked below. The following pages present a more detailed checklist and discussion of each environmental factor. Those environmental topic areas for which the proposed project may result in a potentially significant impact (and which will therefore be discussed in the EIR) and/or for which mitigation would be required to reduce a significant impact to a less-than-significant level are indicated below.

☐ Land Use	☒ Air Quality	☐ Geology and Soils
☒ Aesthetics	☐ Wind and Shadow	☒ Hydrology and Water Quality
☐ Population and Housing	☐ Recreation	☒ Hazards/Hazardous Materials
☒ Cultural Resources	☐ Utilities and Service Systems	☐ Mineral/Energy Resources
☒ Transportation and Circulation	☐ Public Services	☐ Agricultural Resources
☐ Noise	☒ Biological Resources	☒ Mandatory Findings of Signif.

E. EVALUATION OF ENVIRONMENTAL EFFECTS

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
1.	**LAND USE AND LAND USE PLANNING— Would the project:**					
a)	Physically divide an established community?	☐	☐	☒	☐	☐
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the *General Plan*, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐
c)	Have a substantial impact upon the existing character of the vicinity?	☐	☐	☒	☐	☐

Impact LU-1: The proposed project would not physically divide an existing community. (Less than Significant)

The project proposes the renovation of four existing grass soccer fields with new synthetic turf and the installation of ten 60-foot-tall athletic field light standards to allow for evening use. Land use impacts are considered significant if they disrupt or divide the physical arrangement of an established community, or if they have a substantial impact on the existing character of the vicinity. The proposed project would increase public recreational use hours, but the project would not cause a significant land use impact as the use of the project site would remain the same. The project would continue the existing athletic use of the site, and the surrounding uses would be expected to continue in operation and to relate to each other as they do presently, without disruption from the proposed project. The proposed project would not disrupt or divide the physical arrangement of existing uses on or adjacent to the project site or impede the passage of persons or vehicles. Therefore, the project would not physically divide an established community and would have a less-than-significant impact. Impacts on the visual character of the site and the historic resources in the area will be discussed in the appropriate sections of the Environmental Impact Report (EIR).

Impact LU-2: The proposed project would be consistent with applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

The proposed project would not conflict with applicable plans, policies, and regulations such that an adverse physical change would result (see Section C. Compatibility with Existing Zoning and Plans). In

addition, environmental plans and policies are those, like the *Bay Area Air Quality Plan,* that directly address environmental issues and/or contain targets or standards, which must be met in order to preserve or improve characteristics of the City's physical environment. The proposed project would not obviously or substantially conflict with any such adopted environmental plan or policy. Therefore, the proposed project would have no effect on existing plans and zoning.

Impact LU-3: The proposed project would not have a substantial impact upon the existing character of the project's vicinity. (Less than Significant)

The project site is currently developed with soccer fields, a parking area, and a restroom building. Although the proposed project would change the appearance of the site, and the amount of use of the site is expected to increase, the project would not result in a significant land use impact as the existing use of the project site would remain the same. The project would be consistent with the character of the area in terms of its proposed use and physical compatibility, and would not substantially alter other public use and enjoyment of the park. Therefore, the project would not have a substantial impact upon the existing land use character of the project's vicinity. The EIR will address the impacts of the proposed project on the visual and historic character of the site.

LU-4: The proposed project, in combination with past, present and reasonably foreseeable future projects in the vicinity of the site, would result in less-than-significant cumulative impacts to land use. (Less than Significant)

Cumulative projects in the project vicinity include the Millright Cottage and Murphy Windmill Renovation, the Polo Fields Resod, Golden Gate Park Stables, the SFPUC Water Treatment Facility, and the Ocean Beach Master Plan. With the exception of the Water Treatment Facility, the other park activities mentioned above are generally not changing use or intensifying development. Any land use impact associated with the Water Treatment Facility would not change the land use and impact of the proposed project.

The project would not result in any significant cumulative land use or planning impacts, since it would not divide an established community or cause a substantial adverse change in land use character in the project vicinity, and thus could not contribute to any overall cumulatively considerable change in land use character. The proposed project would also not conflict with any applicable environmental plans.

For the reasons discussed above, the proposed project's impacts related to land use, both individually and cumulatively, are considered less than significant. However, the EIR will include a discussion of

land use for informational purposes. The EIR will also include a discussion of the applicable planning and zoning as well as an evaluation of the project's consistency with such regulations. The EIR will also discuss the project's relationship to the General Plan.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
2.	**AESTHETICS—Would the project:**					
a)	Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐	☐
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and other features of the built or natural environment which contribute to a scenic public setting?	☒	☐	☐	☐	☐
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?	☒	☐	☐	☐	☐
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area or which would substantially impact other people or properties?	☒	☐	☐	☐	☐

Impact AE-1: The proposed project would have a potentially significant effect on scenic views and vistas. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The project does not propose new buildings or structures. It is not expected that the project would result in a substantial change to a scenic vista, as no sizable structures that might block views are proposed, and the facility is currently in use as an athletic field. However, the EIR will contain an analysis of visual impacts that will consider scenic vistas, including views of the western portion of Golden Gate Park from offsite locations. In the absence of this information, this impact is considered potentially significant.

Impact AE-2: The proposed project would not substantially damage any scenic resources. (Less than Significant)

No scenic resources exist on or adjacent to the project site, and there would be no effect on scenic resources. The project would involve the removal of trees and shrubs; however these trees and shrubs

are not considered scenic resources because they are part of the overall forested landscape surrounding the park, rather than individually scenic trees or shrubs, and the overall visual character of this vegetation would remain.

Impact AE-3: The proposed project would result in a change to the existing character of the project site and could degrade the visual character or quality of the site and its surroundings. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards to allow for evening use. The proposed project includes the addition of artificial light, which has the potential to affect the night-time character of the site and park.

The project proposes new fencing, a new maintenance shed, the renovation of the restroom building, and conversion of the grass fields to artificial turf. In addition, the project would introduce new furnishings (benches and bleachers; picnic tables and barbeque pits; and new bicycle racks, drinking fountains, and trash/recycling receptacles) to the project site.

The proposed project has the potential to adversely affect the existing visual character of the project site. This topic will be further discussed in the EIR.

Impact AE-4: The proposed project would create a new source of light and glare, which could adversely affect day or nighttime views in the area and could substantially impact other people or properties. (Potentially Significant)

The project proposes pedestrian lighting for safety and field lighting for nighttime use of the athletic fields. The proposed pedestrian light standards would add minimal indirect lighting to the project site for several hours in the evening while the new 60-foot-tall field light standards may be visible through the trees or from elevated locations from certain views, in particularly at the edge of the Beach Chalet restaurant site and the historic Millwright Cottage/Murphy Windmill site, and the illumination would be visible at night. For these reasons, the proposed project has the potential to result in a significant effect with regard to substantial light and glare, and this topic will be analyzed and evaluated in the EIR.

Impact AE-5: The proposed project, in combination with past, present, and reasonably foreseeable future development in the vicinity, could result in significant impacts to aesthetic resources. (Potentially Significant)

For the reasons discussed above, the proposed project's impacts related to aesthetics, both individually and cumulatively, could result in significant impacts to aesthetic resources, and this topic will be discussed in the EIR.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
3. POPULATION AND HOUSING— Would the project:					
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐	☐
b) Displace substantial numbers of existing housing units or create demand for additional housing, necessitating the construction of replacement housing?	☐	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒	☐

Impact PH-1: The proposed project would not induce substantial population growth in San Francisco, either directly or indirectly. (Less than Significant)

In general, a project would be considered growth inducing if its implementation would result in substantial population increases and/or new development that might not occur if the project were not implemented. While the proposed project would increase use of the Beach Chalet facility, it is intended to address an existing shortage of fields and would not be expected to enable or encourage other growth. While it is the goal of the project sponsor to increase the use of the existing facility, the project would not directly or indirectly result in a significant increase in population. Project-related effects with respect to population growth would be less than significant.

Impact PH-2: The proposed project would not displace substantial numbers of people or existing housing units or create demand for additional housing, necessitating the construction of replacement housing. (No Impact)

As noted above, the project does not include development of any new housing or commercial uses, and there would be no residents displaced as a result of the project.

Impact PH-3: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, would have a less-than-significant impact on population and housing. (Less than Significant)

As the project proposes the renovation of an athletic facility, there would be no contribution to any cumulative effect on population and housing. It would not contribute to any population and housing impacts associated with the recycled water facility or with any other potential development in the vicinity. For the reasons discussed above, the proposed project's effects related to population and housing, both individually and cumulatively, are considered less than significant.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
4. CULTURAL RESOURCES— Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, including those resources listed in Article 10 or Article 11 of the San Francisco *Planning Code*?	☒	☐	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?	☐	☐	☒	☐	☐
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐	☐

Impact CP-1: The proposed project is considered historically significant for the purposes of CEQA, and the project could therefore result in potentially significant impacts on historic architectural resources. (Potentially Significant)

The Planning Department determined that the project site is a historical resource as defined under CEQA. Under the California Register Criteria of Significance, Golden Gate Park is historically

significant under Criterion 1 (Events) and Criterion 3 (Architecture) in the areas of landscape architecture and social history as "one of the pioneering examples of the large urban park in the United States" and as "the first naturalistic landscape park in the west."[7] The park is also listed on the national and California Register as a historic district containing 133 contributing resources and 56 non-contributing resources. The soccer fields and the restroom building were constructed in the 1930s and fall within the Golden Gate Park's period of significance (1871 to 1943).

The project would remove the existing natural turf at the soccer fields and replace it with synthetic turf. The project would also modify the restroom building and introduce several new features to the site. The proposed project has the potential to cause a substantial adverse change in the Beach Chalet Athletic Fields or the Golden Gate Park such that the significance of the historic district could be materially impaired. This topic will be discussed in the EIR.

Impact CP-2: The proposed project could result in damage to, or destruction of, as-yet unknown archaeological or human remains, should such remains exist beneath the project site. (Less than Significant)

The project would require excavation to a depth of approximately 10 feet below the existing ground surface (bgs) for the installation of ten 60-foot-tall light standards and approximately 1 foot bgs for other project elements. The Planning Department reviewed the project for impacts to archeological resources and determined that no CEQA-significant archeological resources are expected within project-affected soils.[8] No mitigation is required.

Impact CP-3: The proposed project would result in a less-than-significant impact to paleontological resources. (No Impact)

There are no known paleontological resources at the project site, nor would any such resources be expected to be present based on the soil characteristics and the absence of any known paleontological resource in the area. Therefore, the proposed project would not be expected to have impacts on paleontological resources.

7 Nelson, Douglas. NPS Form 10-900, Golden Gate Park. July 2003, revised June 2004. On file for review at the SF Planning Department, National Register Historic District Files, 1650 Mission Street, Suite 400, San Francisco, CA 94103.

8 Archeological Response for Beach Chalet Athletic Fields Renovation, Memorandum from Don Lewis/Randall Dean, Major Environmental Analysis, January 28, 2010. This document is available for public review at the Planning Department, 1650 Mission Street, 4th Floor, as part of Case File No. 2010.0016E.

Impact CP-4: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the vicinity, could result in cumulative impacts to cultural resources. (Potentially Significant)

The proposed project would not have cumulative effects on archaeological or paleontological resources, and therefore, the proposed project would not contribute to potentially significant cumulative effects related to archeological or paleontological resources. However, as stated above, the project has the potential to impact historic resources and this topic will be addressed in the EIR.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
5.	**TRANSPORTATION AND CIRCULATION— Would the project:**					
a)	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	☒	☐	☐	☐	☐
b)	Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways (unless it is practical to achieve the standard through increased use of alternative transportation modes)?	☒	☐	☐	☐	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels, obstructions to flight, or a change in location, that results in substantial safety risks?	☐	☐	☐	☐	☒
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses?	☒	☐	☐	☐	☐
e)	Result in inadequate emergency access?	☒	☐	☐	☐	☐
f)	Result in inadequate parking capacity that could not be accommodated by alternative solutions?	☒	☐	☐	☐	☐
g)	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., conflict with policies promoting bus turnouts, bicycle racks, etc.), or cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity or alternative travel modes?	☒	☐	☐	☐	☐

The proposed project would not result in a change of air traffic patterns, and thus would not result in substantial safety risks related to air traffic. Therefore, topic 5c is not applicable to the proposed project.

Impact TR-1: The proposed project could conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, could conflict with an applicable congestion management program, could result in substantially increased hazards, could result in inadequate emergency access, could conflict with adopted policies, plans, or programs or otherwise decrease the performance or safety of such facilities, or cause a substantial increase in transit demand which cannot be accommodated by existing or proposed transit capacity or alternative travel modes, and could result is significant cumulative impacts. (Potentially Significant)

The proposed project would increase the use of the existing athletic facility, and the trips generated by this intensification would result in increased demand on the local transportation system, including increased transit demand, parking demand, and traffic, which could result in significant transportation impacts.

Project effects on transportation and circulation, including intersection operations, transit demand and impacts on pedestrian and bicycle circulation, and parking, as well as construction impacts, will be analyzed in the EIR.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
6.	**NOISE—Would the project:**					
a)	Result in exposure of persons to or generation of noise levels in excess of standards established in the local *General Plan* or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐	☐
b)	Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒	☐
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐	☐
e)	For a project located within an airport land use plan area, or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☐	☒
f)	For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	☒
g)	Be substantially affected by existing noise levels?	☐	☐	☒	☐	☐

The project site is not within an airport land use plan area, nor is it in the vicinity of a private airstrip. Therefore, topics 6e and 6f are not applicable.

Impact NO-1: The proposed project would not result in a substantial permanent increase in ambient noise levels in the project vicinity, and it would not expose persons to noise levels in excess of standards established in the local general plan or noise ordinance. (Less than Significant)

The Beach Chalet Athletic Fields is not currently affected by elevated noise levels due to proximity to existing high volumes of traffic and commercial or industrial activity.[9]

There would be no impact to ambient noise levels by the project in operation, because the project does not include construction of buildings, or noise from conditioning indoor air, nor program noise-generating recreational uses. The project site would remain an athletic facility and no new noise exposure of the proposed project is anticipated, as the project site is located in an urban park and is not located in an area with elevated noise levels in the existing environment. Therefore, operational noise would not be significant.

Impact NO-2: During construction, the proposed project would not result in a temporary or periodic increase in ambient noise levels and vibration in the project vicinity above levels existing without the project. (Less than Significant)

Project construction would temporarily increase noise in the project vicinity. Construction equipment would generate noise that could be considered an annoyance by occupants of nearby properties and park users. Noise from construction activities, especially impact tools, could result in noise peaks that may temporarily disrupt recreational activities. However, the improvements are not anticipated to generate noise levels in excess of standards established in the San Francisco General Plan or by the San Francisco Noise Ordinance. Construction noise levels would fluctuate depending on construction phase, equipment type and duration of use, and the distance between noise source and listener. According to the project sponsor, project construction would be approximately 10 months and would require standard earth moving equipment for grading, large trucks for hauling, and a small crane to lift the proposed light standards.

Construction noise is regulated by the San Francisco Noise Ordinance (Article 29 of the *Police Code*), amended in November 2008. The ordinance requires that noise levels from individual pieces of construction equipment, other than impact tools, not exceed 80 dBA at a distance of 100 feet from the

[9] Noise map presented on DPH website: http://www.sfdph.org/dph/EH/Noise/default.asp. Assessed on October 19, 2010.

source. Impact tools (jackhammers, hoerammers, impact wrenches) must have both intake and exhaust muffled to the satisfaction of the Director of Public Works. Section 2908 of the Ordinance prohibits construction work between 8:00 p.m. and 7:00 a.m., if noise would exceed the ambient noise level by 5 dBA at the project property line, unless a special permit is authorized by the Director of Public Works. The project must comply with regulations set forth in the Noise Ordinance.

Sensitive receptors are people requiring quiet, for sleep or concentration, such as residences, schools, or hospitals, and people themselves who may be relatively more susceptible to adverse health impacts from their environment, such as immune-compromised individuals, populations with elevated levels of chronic illness, children, and the aged. There are no known sensitive noise receptors surrounding the Beach Chalet Athletic Facility that have the potential to be adversely affected by construction noise. Construction activities other than pile driving typically generate noise levels no greater than 90 dBA (for instance, for excavation) at 50 feet from the activity, while other activities, such as concrete work, are much less noisy. Closed windows typically can reduce daytime interior noise levels to an acceptable level. Although construction noise could be annoying at times, it would not be expected to exceed noise levels commonly experienced in an urban environment, and would not be considered significant. Moreover, no other construction projects are proposed in close enough proximity to the project site such that cumulative effects related to construction noise would be anticipated. The nearest receptors are located in the residential areas approximately 1,000 feet to the north and south of the project site.

Given the above-mentioned City noise regulations and the temporary nature of construction work, construction noise would have a less-than-significant effect on the environment.

Generally, traffic must double in volume to produce a noticeable increase in average noise levels. Traffic volumes are not anticipated to double on area streets as a result of the proposed project; therefore, the proposed project would not cause a noticeable increase in the ambient noise level in the project vicinity, nor would the project contribute to any potential cumulative traffic noise effects.

Impact NO-3: The proposed project would not be substantially affected by existing noise levels. (Less than Significant)

The project site is located in the west end of the Golden Gate Park, and there are no surrounding land uses that generate substantial noise.[10]

Impact NO-4: The proposed project, in combination with past, present, and reasonably foreseeable future projects, would result in less-than-significant cumulative noise impacts. (Less than Significant)

As noted in the "Project Setting", there are several projects proposed in the vicinity of the project site. None of the proposed projects are expected to substantially increase traffic noise levels or generate operational noise in excess of typical urban park noise levels. Each of these projects would require environmental review to determine if mitigation and other noise control measures would be required. Therefore, construction noise would be reduced to the maximum extent feasible. Moreover, for each project, the period of noisiest activity would be much less lengthy than the duration of the entire construction period, substantially reducing the potential for overlap between projects' phases of maximum construction noise. Given this, and given that the proposed Beach Chalet Athletic Fields project would not include pile driving, which is typically the most disruptive activity in terms of construction noise, the proposed project would not contribute considerably to any potential cumulative construction noise impacts.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
7. AIR QUALITY Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☒	☐	☐	☐	☐

[10] Noise map presented on DPH website: http://www.sfdph.org/dph/EH/Noise/default.asp. Assessed on October 19, 2010.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☒	☐	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☐	☒	☐

Impact AQ-1: Implementation of the proposed project could result in conflict or obstruction of the local applicable air quality plan, violate an air quality standard or contribute substantially to an existing or projected air quality violation, result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard, or expose sensitive receptors to substantial pollutant concentrations. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf. Synthetic turf products are known to contain metals and volatile organic compounds (VOCs) that have potential for human health toxicity. Possible routes of exposure to chemicals are inhalation, ingestion, and skin absorption. VOCs are released into the air (called off-gassing) from rubber pellets made from ground-up rubber tires, a fill material used for some synthetic turfs. While there is no demonstrable evidence to date that concludes that synthetic turf results in elevated risks to human health, the EIR would provide further information on the turf. Therefore, the EIR will evaluate the proposed project's air quality impacts.

Impact AQ-2: The proposed project would not create objectionable odors affecting a substantial number of people. (No Impact)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf. The project would not result in a perceptible increase or change in odors on the project site or in the vicinity of the project site, as it would not include uses prone to generation of odors.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
8. GREENHOUSE GAS EMISSIONS— Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
a) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

Environmental Setting

Gases that trap heat in the atmosphere are referred to as greenhouse gases (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 GHG's 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 presence of the primary GHGs in the atmosphere are naturally occurring, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) 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 "carbon dioxide-equivalent" measures (CO_2E).[11]

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.[12]

[11] 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.

[12] California Climate Change Portal. Frequently Asked Questions About Global Climate Change. Available online at: http://www.climatechange.ca.gov/publications/faqs.html. Accessed November 8, 2010.

The Air Resources Board (ARB) estimated that in 2006 California produced about 484 million gross metric tons of CO_2E ($MMTCO_2E$), or about 535 million U.S. tons.[13] The ARB found that transportation is the source of 38 percent of the State's GHG emissions, followed by electricity generation (both in-state and out-of-state) at 22 percent and industrial sources at 20 percent. Commercial and residential fuel use (primarily for heating) accounted for 9 percent of GHG emissions.[14] 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% of the Bay Area's 95.8 $MMTCO_2E$ emitted in 2007.[15] Electricity generation accounts for approximately 16% of the Bay Area's GHG emissions followed by residential fuel usage at 7%, off-road equipment at 3% and agriculture at 1%.[16]

Regulatory Setting

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).

Pursuant to AB 32, ARB adopted a Scoping Plan 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.[17] The Scoping Plan estimates a reduction of 174 million metric tons of CO_2E ($MMTCO_2E$) (about 191 million U.S. tons) from the transportation, energy, agriculture, forestry, and high global warming potential sectors, see Table 1, below. ARB has identified an implementation timeline for the GHG reduction strategies in the Scoping Plan.[18] Some measures may require new legislation to implement, some will require subsidies, some have already been developed, and some will require additional

[13] California Air Resources Board (ARB), "California Greenhouse Gas Inventory for 2000-2006— by Category as Defined in the Scoping Plan." http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_scopingplan_2009-03-13.pdf. Accessed March 2, 2010.

[14] Ibid.

[15] Bay Area Air Quality Management District, Source Inventory of Bay Area Greenhouse Gas Emissions: Base Year 2007, Updated: February 2010. Available online at: http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx. Accessed March 2, 2010.

[16] Ibid.

[17] California Air Resources Board, California's Climate Plan: Fact Sheet. Available online at: http://www.arb.ca.gov/cc/facts/ scoping_plan_fs.pdf. Accessed March 4, 2010.

[18] California Air Resources Board. AB 32 Scoping Plan. Available Online at: http://www.arb.ca.gov/cc/scopingplan/sp_measures_implementation_timeline.pdf. Accessed March 2, 2010.

effort to evaluate and quantify. Additionally, some emissions reductions strategies may require their own environmental review under CEQA or the National Environmental Policy Act (NEPA).

Table 1. GHG Reductions from the AB 32 Scoping Plan Sectors[19]

GHG Reduction Measures By Sector	GHG Reductions (MMT CO_2E)
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
Agriculture- Methane Capture at Large Dairies	1
Methane Capture at Large Dairies	1
Additional GHG Reduction Measures	
Water	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**

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 Senate Bill 375 (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 (MPOs), to incorporate a "sustainable communities strategy" in their regional transportation plans (RTPs) that would achieve GHG emission reduction targets set by ARB. SB 375 also includes provisions for

[19] Ibid.

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 RTP would be its first plan subject to SB 375.

Senate Bill 97 (SB 97) required the Office of Planning and Research (OPR) to amend the state CEQA guidelines to address the feasible mitigation of GHG emissions or the effects of GHGs. In response, OPR 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.

The Bay Area Air Quality Management District (BAAQMD) is the primary agency responsible for air quality regulation in the nine county San Francisco Bay Area Air Basin (SFBAAB). As part of their role in air quality regulation, BAAQMD has prepared the CEQA air quality guidelines to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the SFBAAB. The guidelines provide procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. On June 2, 2010, the BAAQMD adopted new and revised CEQA air quality thresholds of significance and issued revised guidelines that supersede the 1999 air quality guidelines. The *2010 CEQA Air Quality Guidelines* provide for the first time CEQA thresholds of significance for greenhouse gas emissions. OPR's amendments to the CEQA Guidelines as well as BAAQMD's *2010 CEQA Air Quality Guidelines* and thresholds of significance have been incorporated into this analysis accordingly.

Impact GG-1: The proposed project would generate greenhouse gas emissions, but not in levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (Less than Significant)

The most common GHGs resulting from human activity are CO_2, CH_4, and N_2O.[20] State law defines GHGs to also include hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These latter GHG compounds are usually emitted in industrial processes, and therefore not applicable to the proposed project. 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

[20] Governor's Office of Planning and Research. *Technical Advisory- CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*. June 19, 2008. Available at the Office of Planning and Research's website at: http://www.opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf. Accessed March 3, 2010.

emissions include emissions from electricity providers, energy required to pump, treat, and convey water, and emissions associated with landfill operations.

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards to allow for evening use. The proposed project would result in additional vehicle trips and an increase in energy use. The proposed project would not result in an increase in overall water usage when compared to existing conditions but the project would generate indirect emissions from the energy required to pump, treat and convey water. The project would also result in an increase in discarded landfill materials. Therefore, the proposed project would contribute to annual long-term increases in GHGs as a result of operations associated with energy use, water use and wastewater treatment, and solid waste disposal.

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 *2010 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.[21] 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 *2010 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 are identified in the 2008 Greenhouse Gas Reduction Ordinance as follows:

[21] San Francisco Planning Department. *Strategies to Address Greenhouse Gas Emissions in San Francisco*. 2010. The final document is available online at: http://www.sfplanning.org/index.aspx?page=1570.

- By 2008, determine the City's 1990 GHG emissions, the baseline level with reference to which target reductions are set;
- Reduce GHG emissions by 25 percent below 1990 levels by 2017;
- Reduce GHG emissions by 40 percent below 1990 levels by 2025; and
- Reduce GHG emissions by 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 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 greenhouse gas emissions below 1990 levels, meeting statewide AB 32 GHG reduction goals. As reported, San Francisco's 1990 GHG emissions were approximately 8.26 million metric tons (MMT) CO2E and 2005 GHG emissions are estimated at 7.82 MMTCO2E, 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 (2010) 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."[22]

Based on the BAAQMD's 2010 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. As discussed in San Francisco's Strategies to Address Greenhouse Gas Emissions, new development and renovations/alterations for private projects and municipal projects are required to comply with San Francisco's ordinances that reduce greenhouse gas emissions. Applicable requirements for a municipal project are shown below in Table 2.

[22] Letter from Jean Roggenkamp, BAAQMD, to Bill Wycko, San Francisco Planning Department. October 28, 2010. This letter is available online at: http://www.sfplanning.org/index.aspx?page=1570. Accessed November 12, 2010.

Table 2. Regulations Applicable to the Proposed Project

Regulation	Requirement	Project Compliance	Discussion
Transportation Sector			
Commuter Benefits Ordinance (Environment Code, Section 421)	All City employees are offered commuter benefits for transit and vanpool expenses. The City Hall bike room provides secure bicycle parking, showers and lockers for bicycle commuters. City employees are also eligible for telecommuting and alternative work schedules.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Emergency Ride Home Program	All City employees are automatically eligible for the emergency ride home program.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Healthy Air and Smog Ordinance (Environment Code, Chapter 4)	Requires all new purchases or leases of passenger vehicles and light-duty trucks to be the cleanest and most efficient vehicles available on the market. There are also requirements for medium and heavy duty vehicles and for phasing out highly polluting vehicles (diesel MUNI buses).	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Biodeisel for Municipal Fleets (Executive Directive 06-02)	Requires all diesel using City Departments to begin using biodiesel (B20). Sets goals for all diesel equipment to be run on biodiesel by 2007 and goals for increasing biodiesel blends to B100.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Clean Construction Ordinance (Administrative Code, Section 6.25)	Effective March 2009, all contracts for large (20+ day) City projects are required to: • Fuel diesel vehicles with B20 biodiesel, and • Use construction equipment that meet USEPA Tier 2 standards or best available control technologies for equipment over 25 hp.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Bicycle Parking in City-Owned and Leased Buildings (Planning Code, Section 155.1)	Class 1 and 2 Bicycle Parking Spaces Class 1 Requirements: (A) Provide two spaces in buildings with 1-20 employees. (B) Provide four spaces in buildings with 21 to 50 employees. (C) In buildings with 51 to 300 employees, provide bicycle parking equal to at least five percent of the number of	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building.

Regulation	Requirement	Project Compliance	Discussion
	employees at that building, but no fewer than five bicycle spaces. (D) In buildings with more than 300 employees, provide bicycle parking equal to at least three percent of the number of employees at that building, but no fewer than 16 bicycle spaces. In addition to the Class 1 bicycle parking spaces provide Class 2 bicycle parking. Class 2 Requirements: (A) In buildings with one to 40 employees, at least two bicycle parking spaces shall be provided. (B) In buildings with 41 to 50 employees, at least four bicycle parking spaces shall be provided. (C) In buildings with 51 to 100 employees, at least six bicycle parking spaces shall be provided. (D) In buildings with more than 100 employees, at least eight bicycle parking spaces shall be provided. Wherever a responsible City official is required to provide eight or more Class 2 bicycle parking spaces, at least 50 percent of those parking spaces shall be covered.		
Bicycle parking in parking garages (Planning Code, Section 155.2)	(A) Every garage will supply a minimum of six bicycle parking spaces. (B) Garages with between 120 and 500 automobile spaces shall provide one bicycle space for every 20 automobile spaces. (C) Garages with more than 500 automobile spaces shall provide 25 spaces plus one additional space for every 40 automobile spaces over 500 spaces, up to a maximum of 50 bicycle parking spaces.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building or garage.
Transportation Management Programs (Planning Code, Section 163)	Requires new buildings or additions over a specified size (buildings >25,000 sf or 100,000 sf depending on the use and zoning district) within certain zoning districts (including downtown and mixed-use districts in the City's eastern neighborhoods and south of market) to implement a Transportation Management Program and provide on-site transportation management brokerage services for the life of the building.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building or addition.

Regulation	Requirement	Project Compliance	Discussion
Energy Efficiency Sector			
Resource Efficiency and Green Building Ordinance (Environment Code, Chapter 7)	The ordinance specifies requires for all city buildings as well as requirements for construction and demolition debris recycling, and requirement for new construction. All new construction must comply achieve at a minimum the LEED® Silver standard. These buildings are required to perform commissions to ensure achievement of design standards. All other buildings are required to meet the following minimum specifications related to energy efficiency: 1. Toilets must use no more than 1.6 gal/flush 2. Showerheads must use no more than 1.5 gal/ min. 3. All lighting and electrical fixtures must meet specified requirements. 4. All fluorescent lamps must be replaced	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building.
Waste Reduction Sector			
Resource Efficiency and Green Building Ordinance (Environment Code, Chapter 7)	The ordinance requires all demolition (& new construction) projects to prepare a Construction and Demolition Debris Management Plan designed to recycle construction and demolition materials to the maximum extent feasible, with a goal of 75% diversion. The ordinance specifies requires for all city buildings to provide adequate recycling space	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the demolition of an existing building or the construction of a new building.
Resource Conservation Ordinance (Environment Code, Chapter 5)	This ordinance establishes a goal for each City department to (i) maximize purchases of recycled products and (ii) divert from disposal as much solid waste as possible so that the City can meet the state-mandated 50% division requirement. Each City department shall prepare a Waste Assessment. The ordinance also requires the Department of the Environment to prepare a Resource Conservation Plan that facilitates waste reduction and recycling. The ordinance requires janitorial contracts to consolidate recyclable materials for pick up. Lastly, the ordinance specifies purchasing requirements for paper products.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Mandatory Recycling and Composting	The mandatory recycling and composting ordinance requires all persons in San Francisco to separate	☒ Project Complies	The proposed project is a municipal project that would be required to comply with all City ordinances.

Regulation	Requirement	Project Compliance	Discussion
Ordinance (Environment Code, Chapter 19)	their refuse into recyclables, compostables and trash, and place each type of refuse in a separate container designated for disposal of that type of refuse.	☐ Not Applicable ☐ Project Does Not Comply	
Construction Recycled Content Ordinance (Administrative Code, Section 6.4)	Ordinance requires the use of recycled content material in public works projects to the maximum extent feasible and gives preference to local manufacturers and industry.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Environment/Conservation Sector			
Street Tree Planting Requirements for New Construction (Planning Code Section 143)	Planning Code Section 143 requires new construction, significant alterations or relocation of buildings within many of San Francisco's zoning districts to plant on 24-inch box tree for every 20 feet along the property street frontage	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building.
Environmentally Preferable Purchasing Ordinance (Formerly Precautionary Purchasing Ordinance)	Requires City Departments to purchase products on the Approved Green Products List, maintained by the Department of the Environment. The items in the Approved Green Products List has been tested by San Francisco City Depts. and meet standards that are more rigorous than ecolabels in protecting our health and environment.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Tropical Hardwood and Virgin Redwood Ban (Environment Code, Chapter 8)	The ordinance prohibits City departments from procuring, or engaging in contracts that would use the ordinance-listed tropical hardwoods and virgin redwood.	☒ Project Complies ☐ Not Applicable ☐ Project Does Not Comply	The proposed project is a municipal project that would be required to comply with all City ordinances.
Wood Burning Fireplace Ordinance (San Francisco Building Code, Chapter 31, Section 3102.8)	Bans the installation of wood burning fire places except for the following: • Pellet-fueled wood heater • EPA approved wood heater • Wood heater approved by the Northern Sonoma Air Pollution Control District	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project does not involve the construction of a new building.
Regulation of Diesel Backup Generators (San Francisco Health Code, Article 30)	Requires: All diesel generators to be registered with the Department of Public Health All new diesel generators must be equipped with the best available air emissions control technology.	☐ Project Complies ☒ Not Applicable ☐ Project Does Not Comply	The proposed project would not require a diesel backup generator.

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 new construction and renovations of private developments and 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 greenhouse gas reduction measures will continue to reduce a project's contribution to climate change; and (5) San Francisco's Strategies to Address Greenhouse Gas Emissions meet 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.[23] As such, the proposed project would result in a less than significant impact with respect to GHG emissions.

The San Francisco Recreation and Park Department's (RPD) actions to reduce operational greenhouse gas emissions toward the City's goal of an 80 percent reduction by 2050 include the following: (1) Energy Efficiency and Conservation: The RPD is working with the Energy Efficiency Services of the San Francisco Public Utilities Commission (PUC) 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; (2) Renewable Energy Generation: The RPD is working with the PUC to assess its facilities' solar potential and identify potential co-generation sites; (3) Information Technology (IT): IT energy conservation measures include power management tools for all personal computers and monitors. The RPD plan includes full compliance by the third quarter of fiscal year 2010 with the City's adopted policy of the Committee on Information Technology (COIT); (4) Green Building: The RPD plan includes compliance with the City's Environmental Code to achieve Leadership in Energy and Environmental Design (LEED) certification; (5) Fleets and Fuel: The RPD has identified specific plans to retire older vehicles to achieve fuel savings, maintenance cost savings, and lower residual costs for older vehicles. Further, the RPD only purchases clean light-duty passenger cars and trucks; (6) Employee Commute: The RPD plan includes measures

[23] Greenhouse Gas Analysis: Compliance Checklist. January 25, 2011. This document is on file and available for public review in Case File No. 2010.0016E at the Planning Department, 1650 Mission Street, Suite 400.

to reduce vehicle trips traveled by promoting alternative transportation incentives to its employees; (7) Zero Waste: The RPD is close to realizing its goal of 100 percent compliance with the City's recycling initiative; (8) Green Product Purchasing: The RPD uses the City's Approved Catalog to purchase environmentally conscious products; (9) Carbon Sequestration: The RPD promotes the City's urban forestry program through tree planting campaigns and supports other City departments in their participation in the urban forest program; and (10) Community Wide Emissions: The RPD actions include providing community support to reduce greenhouse gas emissions through programs related to recycling, biodiversity, bicycling, and community education.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
9.	**WIND AND SHADOW—Would the project:**					
a)	Alter wind in a manner that substantially affects public areas?	☐	☐	☒	☐	☐
b)	Create new shadow in a manner that substantially affects outdoor recreation facilities or other public areas?	☐	☐	☒	☐	☐

Impact WS-1: The proposed project would not alter wind in a matter that substantially affects public areas. (Less than Significant)

The proposed project would not include buildings or other structures that would alter wind on the newly renovated project site, nor on surrounding development. The proposed light standards would not be of sufficient bulk to create substantial ground-level wind acceleration. Therefore, the project would not result in significant effects related to wind.

Impact WS-2: The proposed project would not create new shadow in a manner that could substantially affect outdoor recreation facilities or other public areas. (Less than Significant)

Section 295 of the *Planning Code* was adopted in response to Proposition K (passed November 1984) in order to protect certain public open spaces from shadowing by new structures during the period between one hour after sunrise and one hour before sunset, year round. Section 295 restricts new shadow upon public spaces under the jurisdiction of the Recreation and Park Department by any structure exceeding 40 feet unless the City Planning Commission finds the impact to be insignificant. The proposed project would not include buildings or other structures that would cast substantial

shadows on the Beach Chalet Athletic Facility, nor on surrounding park property. The proposed light standards would be greater than 40 feet tall but would not be of sufficient bulk to cast substantial shadow. Therefore, no shadow effects would ensue as a result of the proposed project.

Impact WS-3: The proposed project, in combination with other past, present, or reasonably foreseeable future projects, would not result in significant cumulative wind and shadow impacts. (Less than Significant)

The proposed project would not contribute to any cumulative significant wind or shadow impacts.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
10. RECREATION—Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☒	☐	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☒	☐	☐	☐	☐
c) Physically degrade existing recreational resources?	☒	☐	☐	☐	☐

Impact RE-1: The proposed project would increase the use of existing neighborhood parks or other recreational facilities, but not to an extent that substantial physical deterioration of the facilities would occur or be accelerated. (Less than Significant)

The proposed project would renovate the existing athletic facility in order to increase the amount of playable time. The existing grass soccer fields are currently in poor condition and replacing these fields with synthetic turf would be intended to increase the safety, performance, and accessibility of the fields while reducing maintenance costs and water usage. The proposed project would include new pedestrian pathways, a new picnic area with picnic tables and barbeque pits, and a new playground area. Therefore, the proposed project would not result in a substantial physical deterioration of the existing athletic facility. Nonetheless, this topic would be discussed in the EIR for information purposes.

Impact RE-2: The project would require the construction of recreational facilities that may have a significant effect on the environment. (Potentially Significant)

The project site is a recreational facility that would be renovated in order to increase the amount of playable times at this existing facility. The project would include a recreation facility, but would not create an additional indirect need for additional recreation facilities. The impacts of the recreation facility construction are analyzed in this Initial Study and will be further analyzed in the EIR, and the EIR will conclude whether impacts associated with recreational facility construction would be significant.

Impact RE-3: The proposed project could physically degrade existing recreational facilities. (Potentially Significant)

The proposed project would renovate the existing athletic facility by converting the four existing grass soccer fields to synthetic turf. The soccer fields are used by the public for other activities besides soccer although the facility is programmed for soccer use, and the project site is located in an area of the city that provides other recreation opportunities. This issue will be analyzed in the EIR to determine if there would be a substantial loss of recreation opportunities with the proposed project.

Impact RE-4: The proposed project could considerably contribute to recreational impacts in the project site vicinity. (Potentially Significant)

Potential cumulative impacts will be considered in the EIR.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
11.	**UTILITIES AND SERVICE SYSTEMS—Would the project:**					
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐	☐
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒	☐
d)	Have sufficient water supply available to serve the project from existing entitlements and resources, or require new or expanded water supply resources or entitlements?	☐	☐	☒	☐	☐

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
e)	Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	☐
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

Impact UT-1: Implementation of the proposed project would result in no effect on wastewater collection and treatment facilities. (No Impact)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The project would not require substantial expansion of wastewater/stormwater treatment facilities or an extension of a sewer trunk line as the project site is currently served by existing facilities.

Impact UT-2: Implementation of the proposed project would not require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The project sponsor's current plan is to capture storm water and deliver it to the storm water system using Best Management Practices established by the SFPUC. RPD would work closely with SFPUC, and other governing agencies, to determine whether the storm water could be recharged back into the water table. Regardless of the use of storm water recharge, the existing storm water drainage facilities would be adequate to accommodate the site's drainage, and implementation of the proposed project would not require the construction of new storm water drainage facilities or expansion of existing facilities.

Impact UT-3: The SFPUC has sufficient water supply and entitlements to serve the proposed project, and implementation of the proposed project would not require expansion or construction of new water treatment facilities. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility, including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field

light standards. The new synthetic surface requires no irrigation and implementation of the proposed project would reduce water use by up to the 1.5 million gallons of water used per field each year. The existing grass soccer fields are currently irrigated using groundwater. With the installation of synthetic turf, this groundwater (approximately 6 million gallons/annual) would no longer be required and would remain in the aquifer. Any reduction in natural ground water recharge would appear to be offset by the reduction in water use resulting from the discontinuation of soccer field irrigation. Therefore, the proposed improvements would not substantially increase the existing demand for water consumption, and the proposed project would not have a significant effect on water supply.

Impact UT-4: The proposed project would be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. Synthetic turf has a warranty of eight years and the project sponsor anticipates that the expectancy of these fields would be between ten and twelve years based on research at other similar installations. Through the Synthetic Playfields Task Force, an end-of-life recycling program for synthetic turf, which includes stringent purchasing standards and recommends purchasing turf from companies that use recycled content, is in place. San Francisco's solid waste, following the sorting of recyclable materials at the Recology transfer station near Candlestick Park, is disposed of at the Altamont Landfill in Alameda County and is required to meet federal, state and local solid waste regulations. With waste diversion and expansions that have occurred at the Altamont Landfill, there is adequate capacity to accommodate San Francisco's solid waste. Given the nature of the proposed improvements which do not include residential or commercial uses, the proposed project would not substantially increase solid waste volumes and impacts from solid waste generation or impacts on solid waste facilities would be less than significant.

Impact UT-5: The construction and operation of the proposed project would follow all applicable statutes and regulations related to solid waste. (Less than Significant)

Solid waste generated in San Francisco is transported to and disposed of at the Altamont Landfill. The landfill has a permitted peak maximum daily disposal of 11,150 tons per day and is currently operating at approximately 4,000 to 5,000 tons per day. The landfill has an annual solid waste capacity of 2,226,500 tons for the City of San Francisco. However, the City is well below its allowed capacity, generating approximately 550,000 tons of solid waste in 2005.

Recycling, composting, and waste reduction efforts are expected to increasingly divert waste from the landfill. The City Board of Supervisors adopted a plan in 2002 to recycle 75 percent of annual wastes generated by 2010. The project would be expected to participate in the City's recycling and composting programs and other efforts to reduce the solid waste disposal stream. The Altamont Landfill is expected to remain operational for 20 or more years, and has current plans to increase capacity by adding 250 additional acres of fill area. With the City's increase in recycling efforts and the Altamont Landfill expansion, the City's solid waste disposal demand could be met through at least 2026. Given the existing and anticipated increase in solid waste recycling and the proposed landfill expansion in size and capacity, and the fact that no residential or commercial uses are proposed, the impacts on solid waste facilities from the project would be less than significant.

Impact UT-6: In combination with past, present, and reasonably foreseeable future development in the project site vicinity, the proposed project would have a less-than-significant cumulative impact on utilities and service systems. (Less than Significant)

Given that existing service management plans address anticipated growth in the region and the nature of the proposed project which does not include residential or commercial uses, the project would not have a significant cumulative effect on utility service provision or facilities.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
12. PUBLIC SERVICES— Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of, or the need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any public services such as fire protection, police protection, schools, parks, or other services?	☐	☐	☒	☐	☐

Impact PS-1: The proposed project would not increase demand for police service, and would not result in substantial adverse impacts associated with the provision of such service. (Less than Significant)

The proposed project includes additional lighting and promotes nighttime activity in the area. The anticipated increased intensity of use is not expected to either increase the service calls to the San

Francisco Police Department (SFPD) or increase crime prevention activities and additional policing of the project area. The closest police station to the Beach Chalet Athletic Facility is the Richmond Station located at 461 6th Avenue. No new stations are proposed in the project vicinity; however, the proposed project is consistent with planned and expected growth and the SFPD has sufficient resources to accommodate the proposed project. Given the nature of the proposed project, it would not necessitate the construction of a new police station. Overall, the project would not have a significant effect on police protection services.

Impact PS-2: The proposed project would not increase demand for fire protection services, and would not result in substantial adverse impacts associated with the provision of such service. (Less than Significant)

The project site is served by San Francisco Fire Department Station No. 23, located at 1348 45th Avenue at Judah Street, and by Station No. 34, located at 499 41st Avenue at Geary Boulevard. The proposed project is not expected to increase the demand for fire protection services within the project area. By implementation of the proposed project, the number of calls for services from the renovated facility could increase as a result of increased recreational use but would not likely be substantial in light of the existing demand and capacity for fire suppression and emergency medical services in the City. The proposed project would also not create the need for new fire protection facilities that would result in impacts to the physical environment. Overall, the proposed project would result in less-than-significant impacts related to fire protection services.

Impact PS-3: The proposed project would not directly or indirectly generate school students and there would be no impact on existing school facilities. (No Impact)

The proposed project would not contribute to the need for new school facilities, and would result in no impacts to the physical environment.

Impact PS-4: The proposed project would result in an incremental increase in the use of nearby parks, but this increased use would result in a less than significant impact. (Less than Significant)

The renovation of Beach Chalet Athletic Fields with lights and synthetic turf would increase the amount of playable time on these fields in the Golden Gate Park. Currently, the existing fields can host 4,738 hours of annual play while the proposed project would add 9,582 hours of new play each year, for a total of 14,320 hours. Given the nature of the proposed project, which would improve the existing athletic facility with the intent for increased use, the project would not necessitate the need for new or physically altered parks.

The total area of the four fields would be approximately 314,000 square feet in size. Although the soccer fields are used for other purposes, the existing and proposed fields are intended for soccer use. The natural turf on the periphery of the soccer fields would remain at the project site. The loss of the natural turf soccer fields (about 7 acres) would represent a loss of grassy areas. However, there are similar open grassy areas near the project area (e.g. the nearby golf course and the archery range). Additional open areas are present at Lake Merced, Stern Grove/Pine Lake Park, McCoppin Square, Sutro Heights Park, Lincoln Park, and also at scattered lawns and open spaces along the Great Highway, at Fort Funston, and on nearby Golden Gate National Recreation Area (GGNRA) lands.

Impact PS-5: The proposed projects would increase demand for government services, but not to the extent that would result in significant physical impacts. (No Impact)

The proposed project would not increase the demand for libraries, community centers, and other public facilities.

Impact PS-6: The proposed project, combined with past, present, and reasonably foreseeable future projects in the vicinity, would result in less-than-significant cumulative impacts to public services. (Less than Significant)

The proposed project is not expected to incrementally increase demand for public services, especially not beyond levels anticipated and planned for by public service providers. Thus, project-related impacts to public services would not be cumulatively considerable.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
13. BIOLOGICAL RESOURCES— Would the project:					
a) Have a substantial adverse effect, either directly or 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☒	☐	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☐	☒

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact	Not Applicable
d) Interfere substantially 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?	☒	☐	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☒	☐	☐	☐	☐

The project area does not contain any wetlands as defined by Section 404 of the Clean Water Act. Therefore, topic 12c is not applicable to the proposed project.

Impact BI-1: The proposed project could have an (1) impact on species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service, (2) could interfere substantially 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, (3) could conflict with local tree protection regulations, (4) could conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan, and (5) could make a contribution to cumulative biological impacts. (Potentially Significant)

The project site provides suitable forage and shelter for a wide variety of common and uncommon (migratory) wildlife bird species. The non-native landscape trees that line the soccer fields may provide suitable nesting habitat for a variety of common bird species. Construction of the project would eliminate about seven acres of natural turf that is utilized for foraging by a variety of wildlife species. The loss of the natural turf would incrementally reduce foraging habitat for common and migratory birds in the region. The proposed project would require the removal of 44 shrubs and 14 trees located within and immediately adjacent to the project area and could have an effect in nesting birds. In addition, the project proposes the installation of ten 60-foot-tall light standards. The project site is not currently lit at night, and the new lighting could create a new strike hazard for birds and may also disrupt the flight paths of migratory birds. Therefore, the project has the potential to impact biological resources, and this topic will be analyzed and evaluated in the EIR.

Topics:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact	Not Applicable
14. GEOLOGY AND SOILS— Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	☐	☐	☐	☐	☒
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☐	☒
f) Change substantially the topography or any unique geologic or physical features of the site?	☐	☐	☐	☒	☐

The project site is not located on expansive soil and septic tanks and/or alternative waste water disposal systems would not be required. As such, topic 13d and 13e are not discussed in detail below.

Impact GE-1: The proposed project would result in exposure of people and structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, expansive soils, seismic ground-shaking, liquefaction, or lateral spreading, but the impact would be less-than-significant. (Less than Significant)

The San Francisco General Plan Community Safety Element contains maps that show areas of the City subject to geologic hazards. These maps indicate that the project site is located in an area subject to nonstructural damage ground shaking from earthquakes along the San Andreas (Map 2) and Northern Hayward (Map 3) Faults, and other faults in the San Francisco Bay Area. The project site is located in

an area of liquefaction potential (Map 4) and is not located within a tsunami run-up area (Map 6). The project site is not within a mapped area of potential landslide hazard (Map 5) or subject to potential inundation due to reservoir failure (Map 7).

The proposed project would be expected to be subject to nonstructural damage ground shaking, corresponding to a Modified Mercalli Scale shaking intensity of VII,[24] from an earthquake along the San Andreas or Hayward faults. In addition, as previously mentioned, the project is located in areas of liquefaction potential.[25]

A range of effects due to ground shaking could occur in the event of an earthquake on one of the regional faults, including structural damage directly from ground shaking, or from secondary effects, such as differential settlement, lateral spreading, and liquefaction. Such damage could place people at risk of injury, and differential settlement can fracture or sever underground utility conduits.

The final building plans for the proposed fencing, light poles, and restroom building would be reviewed by the Department of Building Inspection (DBI). In reviewing building plans, DBI refers to a variety of information sources to determine existing hazards and assess requirements for mitigation. Sources reviewed include maps of Special Geologic Study Areas and known landslide areas in San Francisco as well as the building inspectors' working knowledge of areas of special geologic concern. Potential geologic hazards would be mitigated during the permit review process through these measures. To ensure compliance with all Building Code provisions regarding structure safety, when DBI reviews the geotechnical report and building plans for a proposed project, they will determine the adequacy of necessary engineering and design features. Past geological and geotechnical investigations would be available for use by DBI during its review of building permits for the site. Also, DBI could require that additional site-specific soils report(s) be prepared in conjunction with permit applications, as needed. Therefore, potential damage to structures from geologic hazards on the project site would be mitigated through DBI's requirement for a geotechnical report and review of the building permit application pursuant to DBI implementation of the Building Code.

The impacts would therefore be less than significant.

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24 The Modified Mercalli (MM) intensity scale is commonly used to measure, and to describe in lay terms, earthquake effects due to ground shaking. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total). Intensities ranging from IV to X could cause moderate to significant structural damage.

25 City and County of San Francisco, Community Safety Element, *General Plan*, April 1997.

Impact GE-2: The proposed project site would not expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. (No Impact).

As shown on the official State of California Seismic Hazards Zone Map for San Francisco prepared under the Seismic Hazards Mapping Act of 1990,[26] the project site does not lie within an area subject to landslide (Map 5 of the Community Safety Element). Therefore, there would be no impact.[27]

Impact GE-3: The proposed projects would not result in substantial loss of topsoil or erosion. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf. Soil would be removed, but not in a manner that increases the potential for erosion or dust generation. This impact would be less than significant.

Impact GE-4: The proposed project would not result in impacts to site topographical features. (No Impact)

The proposed project is located in the western part of San Francisco in close proximity to Ocean Beach and is generally flat with no unique topography. The proposed project would have no impact with respect to topographical features of the site.

Impact GE-5: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in less-than-significant impacts related to geology and soils. (Less than Significant)

Geological impacts are generally site-specific and the proposed project would not have the potential to have cumulative effects with other projects. Cumulative development would be subject to the same design review and safety measures as the proposed project. These measures would render the geologic effects of cumulative project to less-than-significant levels. Thus, the project would not have a significant effect on geological or soil resources, nor would the project contribute to any significant cumulative effects on geology or soils.

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[26] The Seismic Hazards Mapping Act was developed to protect the public from the effects of strong ground shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazards zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones.

[27] City and County of San Francisco, Community Safety Element, *General Plan*, April 1997.

Topics:		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less Than Significant Impact	No Impact	Not Applicable
15.	**HYDROLOGY AND WATER QUALITY— Would the project:**					
a)	Violate any water quality standards or waste discharge requirements?	☒	☐	☐	☐	☐
b)	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 pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion of siltation on- or off-site?	☐	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?	☐	☐	☐	☒	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	☒	☐	☐	☐	☐
f)	Otherwise substantially degrade water quality?	☒	☐	☐	☐	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map?	☐	☐	☐	☒	☐
h)	Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒	☐
i)	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?	☐	☐	☒	☐	☐
j)	Expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow?	☐	☐	☒	☐	☐

Impact HY-1: The proposed project has the potential to violate water quality standards or otherwise substantially degrade water quality. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf. Some of the materials found in synthetic turf contain heavy metals, such as zinc, that have the potential to leach into groundwater and the

environment. Therefore, the proposed project has the potential to have a significant effect on water quality and this topic will be addressed in the EIR.

Impact HY-2: The proposed project would not 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. (No Impact)

Groundwater is not currently used as a drinking water supply in the City and County of San Francisco. Construction of the proposed project would not increase impervious surface coverage on the site nor would the project reduce infiltration and groundwater recharge, unless PUC does not permit RPD to recharge, which would be determined once project details, such as the infill type, is finalized. Nonetheless, RPD would work closely with PUC to determine the appropriate requirements. Therefore, the proposed project would not substantially alter existing groundwater or surface flow conditions.

Impact HY-3: The proposed project would not result in altered drainage patterns that would cause substantial erosion or flooding. (No Impact)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The proposed synthetic turf fields are permeable; however, the PUC may require RPD to capture and treat run-off water depending on project details, such as the type of infill that would be used. Nonetheless, the proposed project would not measurably affect current runoff or groundwater. Therefore, neither groundwater resources nor runoff and drainage would be adversely affected.

Impact HY-4: The proposed project would not contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems but could provide substantial additional sources of polluted runoff. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. Some of the materials found in synthetic turf contain heavy metals that have the potential to leach. Therefore, the proposed project has the potential to have a significant effect on water quality and the topic will be addressed in the EIR.

Impact HY-5: The proposed project would not expose people, housing, or structures, to substantial risk of loss due to flooding. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The project site is not prone to flooding.

Flood risk assessment and some flood protection projects are conducted by federal agencies including the Federal Emergency Management Agency (FEMA) and the U.S. Army Corps of Engineers (Corps). The flood management agencies and cities implement the National Flood Insurance Program (NFIP) under the jurisdiction of FEMA and its Flood Insurance Administration. Currently, the City of San Francisco does not participate in the NFIP and no flood maps are published for the City. However, FEMA is preparing Flood Insurance Rate Maps (FIRMs) for the City and County of San Francisco for the first time. FIRMs identify areas that are subject to inundation during a flood having a 1 percent chance of occurrence in a given year (also known as a "base flood" or "100-year flood").

FEMA refers to the flood plain that is at risk from a flood of this magnitude as a special flood hazard area ("SFHA"). Because FEMA has not previously published a FIRM for the City and County of San Francisco, there are no identified SFHAs within San Francisco's geographic boundaries. FEMA has completed the initial phases of a study of the San Francisco Bay. On September 21, 2007, FEMA issued a preliminary FIRM of San Francisco for review and comment by the City. The City has submitted comments on the preliminary FIRM to FEMA. A final FIRM may be released in 2010, after FEMA completes the more detailed analysis that Port and City staff requested in 2007. Meanwhile, the City published its own interim flood plain maps in 2008.28

FEMA has tentatively identified SFHAs along the City's shoreline in and along the San Francisco Bay consisting of Zone A (in areas subject to inundation by tidal surge) and Zone V (areas of coastal flooding subject to wave hazards).[29] In August 2008, the San Francisco Board of Supervisors passed Ordinations 188-08 to enact a floodplain management program to govern new construction and substantial improvements in flood-prone area of San Francisco, and to authorize the City's participation in NFIP.

28 City and County of San Francisco, 2008. Intermit Floodplain Maps. July.

29 City and County of San Francisco, Office of the City Administrator, National Flood Insurance Program Flood Sheet, http://www.sfgov.org/site/uploadedfiles/risk_management/factsheet.pdf, accessed October 19, 2010.

Specifically, the proposed floodplain management ordinance includes a requirement that any new construction or substantial improvement of structures in a designated flood zone must meet the flood damage minimization requirements in the ordinance. 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. However, the particular projects that are granted variances by the local jurisdiction may be deemed ineligible for federally backed flood insurance by FEMA. The Board of Supervisors will consider the revised Floodplain Management Ordinance, which incorporates the changes requested by FEMA, sometime within this year (2010). According to the preliminary maps, the project site is not located within Zone A or Zone V, and is therefore not expected to be subject to significant flood hazards (and would not expose persons, structures, or housing to such hazards).

Maps published in 2007 by the Bay Conservation and Development Commission (BCDC) indicate that, with a potential sea level rise of 5 feet—generally accepted as the higher bound of the range of anticipated rise in sea level by 2100 due to global warming—areas of San Francisco along the Bay shoreline, which does not include the project site, could be inundated.[30] Continued emissions of greenhouse gases and the associated increase in global warming can be expected to have serious consequences for San Francisco, the Bay Area, California, and beyond.

Impact HY-6: The proposed project would note expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow. (Less than Significant)

The project site is not in an area subject to tsunami run-up, or reservoir inundation hazards (Maps 6 and 7 in the General Plan Community Safety Element). Therefore, the project is not expected to expose people or structures to risk from inundation by seiche, tsunami, or mudflow.

Impact HY-7: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in less-than-significant cumulative impacts to hydrology and water quality. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. Some of the materials found in synthetic turf contain heavy metals and known carcinogens, including zinc, lead, cadmium, and mercury. These compounds are known to

[30] Bay Conservation and Development Commission, "San Francisco Bay Scenarios for Sea Level Rise: San Francisco," 2007. Available on the internet at: http://www.bcdc.ca.gov/index.php?cat=56.

leach into groundwater and the environment. The proposed project could have a significant impact on water quality standards, groundwater, drainage, or runoff, and thus, would have the potential to contribute considerably to cumulative impacts. Therefore, effects related to hydrology and water quality will be analyzed and discussed in the EIR.

Topics:		*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
16.	**HAZARDS AND HAZARDOUS MATERIALS Would the project:**					
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐	☐
b)	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?	☐	☐	☒	☐	☐
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☐	☒
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒	☐
e)	For a project located 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, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☐	☒
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
h)	Expose people or structures to a significant risk of loss, injury or death involving fires?	☐	☐	☐	☒	☐

The project site is not located within an airport land use plan area or in the vicinity of a public or private airstrip nor is it within one-quarter mile of a school. As such, Topics 16c, 16e, and 16f are not discussed in detail below.

Impact HZ-1: The proposed project could create a significant hazard through routine transport, use, disposal, handling or emission of hazardous materials. (Potentially Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf. Some of the materials found in synthetic turf have the potential to leach into groundwater and the environment, and have potential for human health toxicity. There is no evidence that suggests that the presence of such materials in synthetic turf poses any substantial public health or safety hazards resulting from hazardous materials. Nonetheless, this topic will be evaluated and further addressed in the EIR.

Impact HZ-2: Demolition and excavation of the project site would not result in handling and accidental release of contaminated soils and hazardous building materials associated with historic uses. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. The project site is not included on the Department of Toxic Substances Control list of hazardous material sites in San Francisco. Therefore, there are no potential hazards that would result from current or past uses on the site.

Impact HZ-3: The proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (Less than Significant)

The project proposes the renovation of the Beach Chalet Athletic Fields facility including the conversion of four existing grass soccer fields to synthetic turf and the installation of ten 60-foot-tall athletic field light standards. Impacts to emergency response or evacuation plans would be less than significant.

Impact HZ-4: The proposed project would not expose people or structures to a significant risk of loss, injury or death involving fires. (Less than Significant)

San Francisco ensures fire safety and emergency accessibility within new and existing developments through provisions of its Building and Fire Codes. The project would conform to these standards, which may include development of an emergency procedure manual and an exit drill plan for the proposed project. Potential fire hazards (including those associated with hydrant water pressure and blocking of emergency access points) would be addressed during the permit review process. Conformance with these standards would ensure appropriate life safety protections. The impact would be less than significant.

Impact HZ-5: The proposed project, in combination with past, present, and reasonably foreseeable future projects in the site vicinity, would result in less than significant impacts related to hazards and hazardous materials. (Less than Significant)

Impacts from hazards are generally site-specific, and typically do not result in cumulative impacts. Cumulative development projects described in the "Project Setting" would be required to follow applicable regulations for hazardous materials, which would reduce any hazard to less than significant. Overall, the project would not contribute to cumulatively considerable significant effects related to hazards and hazardous materials.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporated*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
17. MINERAL AND ENERGY RESOURCES— Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local *General Plan*, specific plan or other land use plan?	☐	☐	☐	☒	☐
c) Encourage activities which result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner?	☐	☐	☒	☐	☐

Impact ME-1: The proposed project would not result in the loss of availability of a known mineral resource or a locally-important mineral resource recovery site. (No Impact)

All land in San Francisco, including the project site, is designated Mineral Resource Zone 4 (MRZ-4) by the CDMG under the Surface Mining and Reclamation Act of 1975 (CDMG, Open File Report 96-03 and Special Report 146 Parts I and II). This designation indicates that there is not adequate information available for assignment to any other MRZ and thus the site is not a designated area of significant mineral deposits. There are no operational mineral resource recovery sites in the project vicinity whose operations or accessibility would be affected by the construction or operation of the project.

Impact ME-2: Implementation of the proposed project would not encourage activities which would result in the use of large amounts of fuel, water, or energy, or use these in a wasteful manner. (Less than Significant)

The proposed project would not have a substantial effect on the use, extraction, or depletion of a natural resource. In addition, the project would not, in and of itself, generate a significant demand for energy and a major expansion of power facilities. The renovation of Beach Chalet Athletic Fields with synthetic turf would reduce field maintenance and water use.[31] For this reason, the project would not cause a wasteful use of energy and would not have a significant effect on natural resources.

Impact ME-3: The proposed project, in combination with the past, present, and reasonably foreseeable future projects in the site vicinity, would result in a less-than-significant cumulative impacts to energy and minerals. (Less than Significant)

As described above, no known minerals exist at the project site, and therefore the project would not contribute to any cumulative impact on mineral resources. The cumulative development projects described in the "Project Setting" are not located on sites designated as areas of significant mineral deposits. Cumulative impacts to energy and mineral uses would be less than significant.

Topics:	*Sig. Impact Identified in PEIR*	*Project Contributes to Sig. Impact Identified in PEIR*	*Project Has Sig. Peculiar Impact*	*Addressed Below*
18. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
— Would the project				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland of Statewide Importance, to non-agricultural use?	☐	☐	☐	☒

[31] The proposed project could save approximately 1.5 million gallons of water per field each year.

Impact AF-1: The proposed project would not result in the conversion of farmland or forest lands to non-farm or non-forest use, nor would it conflict with existing agricultural or forest use or zoning. (No Impact)

The project site is located in the western end of the Golden Gate Park. The California Department of Conservation's Farmland Mapping and Monitoring Program identify the site as "Urban and Built-up Land" (Department of Conservation, 2002). Because the site does not contain agricultural uses and is not zoned for such uses, the proposed project would not convert any prime farmland, unique farmland, or Farmland of Statewide Importance to non-agricultural use, and it would not conflict with existing zoning for agricultural land use or a Williamson Act contract, nor would it involve any changes to the environment that could result in the conversion of farmland. Accordingly, these criteria are not appropriate to the proposed project. Although the project involves tree removal, it is not considered a major forestry impact.

Topics:	*Potentially Significant Impact*	*Less Than Significant with Mitigation Incorporation*	*Less Than Significant Impact*	*No Impact*	*Not Applicable*
19. MANDATORY FINDINGS OF SIGNIFICANCE—Would the project:					
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐	☐
b) Have impacts that would be individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐	☐
c) Have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐	☐

The EIR will address potential impacts, including cumulative impacts, related to aesthetics, cultural resources, transportation and circulation, air quality, biological resources, hydrology and water quality, and hazards and hazardous materials.

F. DETERMINATION

On the basis of this initial study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☒ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

Bill Wycko
Environmental Review Officer

for

John Rahaim
Director of Planning

DATE 1/3/2011

G. INITIAL STUDY AUTHORS AND PROJECT SPONSOR TEAM

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