

Technical Memorandum

Governmental Services
Planning & Urban Design
Environmental Studies
School Facilities Planning

Date: December 8, 2009
To: Bill Jacobs, AICP, City of Irvine
From: Phil Brylski, Ph.D., Senior Scientist
Subject: IBC Area Biological Resources and Impact Analysis
Project No.: COI-21

1580 Metro Drive
Costa Mesa, CA 92626
Phone: 714.966.9220
Fax: 714.966.9221
costamesa@planningcenter.com

This memo evaluates the proposed IBC project's impacts on biological resources. A literature review was carried out to determine the known biological resources within the region of the proposed project. The reports included the 2006 General Plan (City of Irvine 2006), Orange County Central and Coastal Natural Community Conservation Plan (County of Orange 1996), the California Natural Diversity Data Base (California Department of Fish and Game, 2009) and CNPS Rare Plant Inventory (CNPS 2009), as well as published reports on projects in the vicinity of the IBC area (County of Orange 2008, U.S. Army Corps of Engineers 2009). The published reports also included those for the Upper Newport Bay Regional Park and Delhi channel (Marsh 1990, PSBS 1991a and 1991b), Upper Newport Bay (Zedler 1982), San Diego Creek (DeRuff 1995, BonTerra 2008, ICF, Jones and Stokes 2009), and San Joaquin Marsh (Bowler and Elvin 2003). Other studies in the area (Bowler and Bramlet 2002, Riefner and Boyd 2007, Roberts 2008) were used to determine the known distribution of special status plant species in the study area. The Consortium of California Herbarium was reviewed for any voucher collections of these species within the study area. The potential for special status plant and animal species along the San Diego Creek was evaluated using a variety of existing references, following the procedures developed by CDFG (2000) and CNPS (2001). Soils are an important factor in the distribution of special status plant species and soil maps (Watchell 1978), and the wetland delineation of San Diego Creek (RBF 2007) were used to evaluate the known soils in the study area.

This memo also draws from field surveys of the IBC project area and adjoining areas of San Diego Creek. This report provides a program level review of the impacts to biological resources in these areas that contain natural habitats. No focused surveys for sensitive plant and animal species were carried out, although the results of earlier surveys are included in the results. The majority of the IBC project area is already urbanized; and focused surveys would not be required in these areas due to the low potential for sensitive species to occur there. For the natural habitats that adjoin the IBC project area, specifically along the San Diego Creek channel, the IBC Vision Plan calls for development of a recreational path and associated infrastructure. Development proposals in this area would require separate environmental review in the future that would be supported by focused surveys for sensitive species in the appropriate season.

A windshield survey was carried out of the entire IBC project area, and foot surveys were carried out in the business park to characterize the ornamental vegetation found in this area. The tributary flood control channels were examined at various intersections that allowed views of these channels. Field examinations of the business park area was conducted by P. Brylski, zoologist, on December 12 and 14, 2008 and by D. Bramlet, botanist, on November 13, 15, 20, 22, 23, 24, 25, 27, 30, and December 4, 2009.

Field surveys of the San Diego Creek channel consisted of walking the existing trail alongside the channel and, for the plant community description, walking into the channel. Surveys of the creek were conducted by Phil Brylski, zoologist, on December 12 and 14, 2008, and by Dave Bramlet, botanist, on November 13, 20, 23, 24, 27, and 30, 2009 and December 4, 2009 to field map the vegetation along the channel, describe the plant communities and note any plant species.

The taxonomy of the ornamental species observed in the study area follows Brenzel (2007) and Roberts (2008) is used for the nomenclature of the native plant species. Classification of plant communities follows the Orange County Habitat Classification System (Dames and Moore and Bramlet 1992, Jones and Stokes 1993).

1.0 REGULATORY SETTING

Federal, state, regional, and local laws, regulations, plans, or guidelines that are potentially applicable to the proposed project are summarized below.

Federal and State Regulations

Federal Endangered Species Act

FESA, as amended, was promulgated to protect and conserve any species of plant or animal that is endangered or threatened with extinction and the habitats in which these species are found. Section 4(a) of the FESA requires that critical habitat be designated by the US Fish and Wildlife Service (USFWS) “to the maximum extent prudent and determinable, at the time a species is determined to be endangered or threatened.” Critical habitat is formally designated by USFWS to provide guidance for planners/managers and biologists with an indication of where suitable habitat may occur and where high priority of preservation for a particular species should be given. “Take” of endangered species is prohibited under Section 9 of the FESA. Take, as defined under the FESA, means to “harass, harm, pursue, hunt, wound, kill, trap, capture, collect, or attempt to engage in any such conduct.” Section 7 of the FESA requires federal agencies to consult with the USFWS on proposed federal actions that may affect any endangered, threatened or proposed (for listing) species or critical habitat that may support the species. Section 10 of the FESA provides the regulatory mechanism that allows the incidental take of a listed species by private interests and nonfederal government agencies during lawful activities. Habitat conservation plans (HCPs) for the impacted species must be developed in support of incidental take permits for nonfederal projects to minimize impacts to the species and develop viable mitigation measures to offset the unavoidable impacts.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) of 1918 is the domestic law that affirms or implements the United States’ commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. It governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. It prohibits the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations. As with the FESA, the act also authorizes the Secretary of the Interior to issue permits for take. The procedures for securing such permits are found in Title 50 of the Code of Federal Regulations, together with a list of the migratory birds covered by the act. This law is generally protective of migratory birds but does not specify the type of protection required. USFWS administers permits to take migratory birds in accordance with the regulations promulgated by the MBTA. Nesting raptors, such as red-tailed hawks and burrowing owls, are protected under the MBTA. In common practice, USFWS places restrictions on disturbances allowed near active raptor nests.

Clean Water Act, Section 404

The United States Army Corps of Engineers (Corps) regulates discharges of dredged or fill material into “waters of the U.S.”¹ Pursuant to Section 404 of the federal Clean Water Act (CWA), a permit is required for any filling or dredging within waters of the U.S. The permit review process entails an assessment of potential adverse impacts to Corps wetlands and jurisdictional waters, wherein the Corps may require mitigation measures. Where a federally listed species may be affected, a Section 7 consultation with USFWS may be required. If there is potential for cultural resources to be present, Section 106 review may be required. Also, where a Section 404 permit is required, a Section 401 Water Quality Certification would also be required from the Regional Water Quality Control Board (RWQCB).

Clean Water Act, Section 401 and 402

Section 401(a)(1) of the CWA specifies that any applicant for a federal license or permit to conduct any activity that may result in any discharge into navigable waters shall provide the federal permitting agency a certification, issued by the state in which the discharge originates, that any such discharge will comply with the applicable provisions of the CWA. In California, the applicable RWQCB must certify that the project will comply with water quality standards. Permits requiring Section 401 certification include Corps Section 404 permits and National Pollutant Discharge Elimination System (NPDES) permits issued by the Environmental Protection Agency (EPA) under Section 402 of the CWA. NPDES permits are issued by the applicable RWQCB. The City of Irvine is within the jurisdiction of the Santa Ana RWQCB (Region 8).

California Fish and Game Code, Section 1600

Section 1600 series of the California Fish and Game Code requires that a project proponent notify the California Department of Fish and Game (CDFG) of any proposed alteration of streambeds, rivers, and lakes. The intent is to protect habitats that are important to fish and wildlife. CDFG may review a project and place conditions on the project as part of a Streambed Alteration Agreement. The conditions are intended to address potentially significant adverse impacts within CDFG’s jurisdictional limits.

California Endangered Species Act

The California Endangered Species Act (CESA) generally parallels the main provisions of the FESA and is administered by the CDFG. Its intent is to prohibit take and protect state-listed endangered and threatened species of fish, wildlife, and plants. Unlike its federal counterpart, CESA also applies the take prohibitions to species petitioned for listing (state candidates). At the discretion of the Fish and Game Commission, candidate species may be afforded temporary protection as though they were already listed as threatened or endangered. Unlike the FESA, CESA does not include listing provisions for invertebrate species. Under certain conditions, CESA has provisions for take through a 2081 permit or Memorandum of Understanding (MOU). In addition, some sensitive mammals and birds are protected by the state as Fully Protected Species. California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFG’s California Natural Diversity Database (CNDDDB) project, which maintains a database of known and recorded occurrences of sensitive species. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biological resources assessments.

¹ “Waters of the United States,” as it applies to the jurisdictional limits of the authority of the Corps of Engineers under the Clean Water Act, includes: all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; all interstate waters including interstate wetlands; all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; water impoundments; tributaries of waters; territorial seas; wetlands adjacent to waters. The terminology used by Section 404 of the Clean Water Act includes “navigable waters,” which is defined at Section 502(7) of the Act as “waters of the United States including the territorial seas.”

California Coastal Act

Chapter 3 of the California Coastal Act contains policies to protect water quality and the biological productivity of coastal waters; avoid and minimize dredging, diking, and filling sediments; and mitigate wetland impacts. Under the California Coastal Act, environmentally sensitive area means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments. Implementation of Coastal Act policies is accomplished primarily through the preparation of a Local Coastal Program (LCP). The LCP is typically prepared and adopted by a municipality or county, and then it is reviewed and approved by the Coastal Commission. A LCP typically consists of a land use plan and an implementation plan. The land use plan indicates the kinds, location, and intensity of land uses, the applicable resource protection and development policies, and, where necessary, a listing of implementing actions. The implementation plan consists of the zoning ordinances, zoning district maps, and other legal instruments necessary to implement the land use plan.

A 40-acre parcel in the southern part of the IBC area is within the coastal zone. One of the areas is the developed area bounded by Jamboree Road, MacArthur Boulevard, and Fairchild Road, for which a Local Coastal Plan was prepared by the City of Irvine. Two other areas in the coastal zone, outside of the project area, are open space areas owned and managed by UC Irvine: the San Joaquin Marsh area located below Campus Drive together with the area of upland habitat located between the marsh, the San Diego Creek channel, MacArthur Boulevard, and Fairchild Road. UC Irvine's 2007 Long Range Development Plan (LRDP) identifies this area as open space.

Regional

Orange County Central and Coastal Subregion Natural Community Conservation Plan/Habitat Conservation Plan.

The City of Irvine is a signatory of the Central and Coastal Orange County Natural Communities Conservation Plan/Habitat Conservation Plan (NCCP/HCP), which was designed to create a multispecies, multi-habitat reserve system and to implement a long-term management program (County of Orange 1996). It was developed to satisfy the requirements for both the FESA and CESA. The NCCP/HCP focuses on the conservation of a number of species and habitats in a regional context. The 3 main target species are the coastal California gnatcatcher, cactus wren, and orange-throated whiptail. There are 26 other species that are also identified and afforded management protection under the NCCP/HCP. An additional 10 species of plants and animals that are either federally listed or treated as if they were listed according to FESA Section 10(a) are addressed within the NCCP/HCP.

The measures incorporated in the NCCP/HCP are intended to address the federal, state, and local project-specific mitigation requirements for the species and habitats addressed in the NCCP/HCP under FESA, CESA, CEQA, NEPA, and the MBTA. The NCCP/HCP is intended to streamline review of individual projects with respect to the species and habitats addressed in the NCCP/HCP, and to provide for an overall Habitat Reserve System. The Orange County Central and Coastal Conservation Plan serves as an HCP pursuant to Section 10(a)(1)(B) of the FESA of 1973, as well as a Natural Communities Conservation Plan (NCCP) under the NCCP Act of 2001. The NCCP allows the participating jurisdictions to authorize “take” of plant and wildlife species identified within the plan area. The USFWS and CDFG have authority to regulate the take of threatened, endangered, and rare species. Under the NCCP/HCP, the wildlife agencies have granted “take authorization” for otherwise lawful actions—such as public and private development that may incidentally take or harm individual species or their habitat outside of the NCCP/HCP conservation area—in exchange for the assembly and management of a coordinated NCCP/HCP conservation area.

San Diego Creek Watershed Special Area Management Plan

A Special Area Management Plan (SAMP) was prepared for the San Diego Creek watershed by the Army Corps in collaboration with CDFG, and in consultation with various jurisdictions at the federal, state, and local levels (including the City of Irvine). The objectives of the SAMP are to (1) develop and implement a watershed-wide aquatic resource management plan and implementation program, which will include preservation, enhancement, and restoration of aquatic resources while allowing reasonable and responsible economic development and activities within the watershed, and (2) develop a Strategic Mitigation Plan to support long term conservation of aquatic resources, especially riparian ecosystems.

The SAMP for the San Diego Creek watershed identifies San Diego Creek as an Aquatic Resource Integrity Area (ARIA), which has “aquatic resources identified for their higher values related to ecological; integrity, wildlife corridor values, sensitive special habitat, and other factors, as well as the adjacent upland areas of influence that drain into aquatic resources.”

The SAMP has not yet been approved. When it is approved, it will provide a coordinated system for the issuance of permits under the Federal 404 Clean Water Act, CDFG’s Streambed Alteration (1600) Program, and the Regional Water Quality Control Board.

Local

City of Irvine General Plan

The Irvine General Plan includes policies related to the preservation of significant natural resources and open space areas. The General Plan has four broad objectives related to open space:

- Develop conservation and open space areas so that they form large contiguous areas that may be integrated into local and regional conservation and open space areas. The General Plan identifies the San Joaquin Marsh and San Joaquin Hills as important large blocks of land to be integrated into local and regional conservation and open space areas.
- Link conservation and open space areas together through a continuous linear system (open space spines) such as major drainage channels, public utility easements, and other linear features.
- Develop conservation and open space areas which result in the preservation of natural and man-made resources. This part of the General Plan recognizes the importance of preserving the San Diego Creek riparian community and the San Joaquin Marsh wetlands for their valuable biotic resources.
- Designate conservation and open space areas that will minimize the impacts from natural and man-made hazards on development patterns. This policy is intended as a program to compensate development opportunities by consolidating development in appropriate areas, away from conservation and open space areas.

City of Irvine Municipal Code

The City of Irvine's Urban Forestry Ordinance is intended to protect and enhance the existing urban forest resources in the City. Permits are required to remove any significant tree on public or private land. Trees on nonresidential properties are subject to replacement criteria at a one-to-one ratio on-site or off-site, as prescribed in the City's Urban Forestry Ordinance, based on the determination of the City Arborist.

The City's Noise Ordinance sets guidelines for noise compatibility with wildlife habitat, in recognition of the importance of minimizing noise impacts on sensitive biological resources. This ordinance identifies 70 dBA CNEL as “clearly compatible” for wildlife reserves, up to 75 dBA CNEL as “normally compatible,” and over 75 dBA as “normally incompatible.”

2.0 ENVIRONMENTAL SETTING

The project site is located within two of Irvine's four landforms: the central flatlands and the San Joaquin Hills. The central flatlands are the plains area between Interstate 5 and Interstate 405; the San Joaquin Hills are rolling terrain and canyons that form the City's southern boundary near the Pacific Ocean.

The majority of the project area is developed with residential, industrial, and mixed urban land uses. The IBC area contains several small concrete flood control channels that lack vegetative cover. A dominant feature of the IBC project region is the San Diego Creek channel. San Diego Creek itself is not part of the IBC area, but a trail that is part of the IBC project is proposed to be located along its northwestern bank. The area where the trail is proposed consists of a graded and maintained levee bank for the creek.

Plant Communities

The IBC is a highly urbanized area with little remaining native vegetation. It generally consists of urban areas that have some ornamental landscaping. Graded sites are areas under development, or being used for dirt parking lots or other uses. Some ruderal areas containing plants associated with disturbed sites, and a few disturbed areas of annual grassland were found in the study area. The IBC also contains three flood control channels that are tributaries of San Diego Creek.

Eight vegetation communities were mapped in the IBC project area: urban, ornamental plantings and parks, ornamental landscaping/annual grassland, ruderal, annual grassland, graded, concrete flood control channels and earthen flood control channels². The distribution of these habitats is found in Figure 1, *IBC Project Area Plant Communities*; their acreages are summarized in Table 1.

Plant Community	Acres
Urban (15.1)	2,472.3
Ornamental Plantings and Parks (15.5)	139.5
Ornamental Landscaping/Annual grassland (15.5/4/1)	12.8
Ruderal (4.6)	29.3
Annual grassland (4.1)	9.6
Graded (16.1)	47.3
Concrete flood channels (13.4.1) (CFC)	5.1
Earthen flood control channels (13.4.2)	38.5
Total	2,754.4

23 plant communities were mapped in the San Diego Creek area adjoining the IBC project area. The distribution of these is shown in Figures 2a-2c, *San Diego Creek Plant Communities*; their acreages are summarized in Table 2.

² The plant community classification used here is a modified version of the classification scheme developed by Dames and Moore and Bramlet (1992).

Table 2
Plant Community Acreages in the San Diego Creek

Plant Community	Acres
California sagebrush/bush sunflower sage scrub (2.3.6/2.3.13)	0.6
Chenopod scrub (2.7)	4.9
Coastal goldenbush/grassland ecotone (2.8.3)	0.2
Toyon-sumac chaparral (3.12)	0.3
Annual grassland (4.1)	2.0
Ruderal (4.6)	21.0
Salt marsh (Southern coastal salt marsh) (6.1)	0.2
Brackish marsh (Coastal brackish marsh) (6.2)	0.4
Freshwater marsh (Coastal freshwater marsh) (6.4)	3.3
Riparian herb (7.1)	10.8
Willow riparian scrub (7.2)	18.7
Mulefat scrub (7.3)	16.0
Riparian herb/willow riparian scrub (7.1/7.2)	0.5
Riparian herb/mulefat scrub (7.1/7.3)	5.9
Willow riparian forest (Black willow riparian forest) (7.7)	0.5
Open water (12.1)	45.9
Concrete flood channels (13.4.1) (CFC)	1.1
Earthen flood control channels (13.4.2)	7.4
Rip-rap (13.4.2.1)	18.7
Earthen flood control channel/riparian(13.4.2.1/7.1)	1.7
Urban (15.1)	20.9
Ornamental Plantings and Parks (15.5)	2.0
Graded (16.1)	9.2
Total	192.3

Descriptions of the plant communities of the IBC project area and San Diego Creek are as follows:

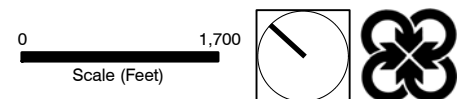
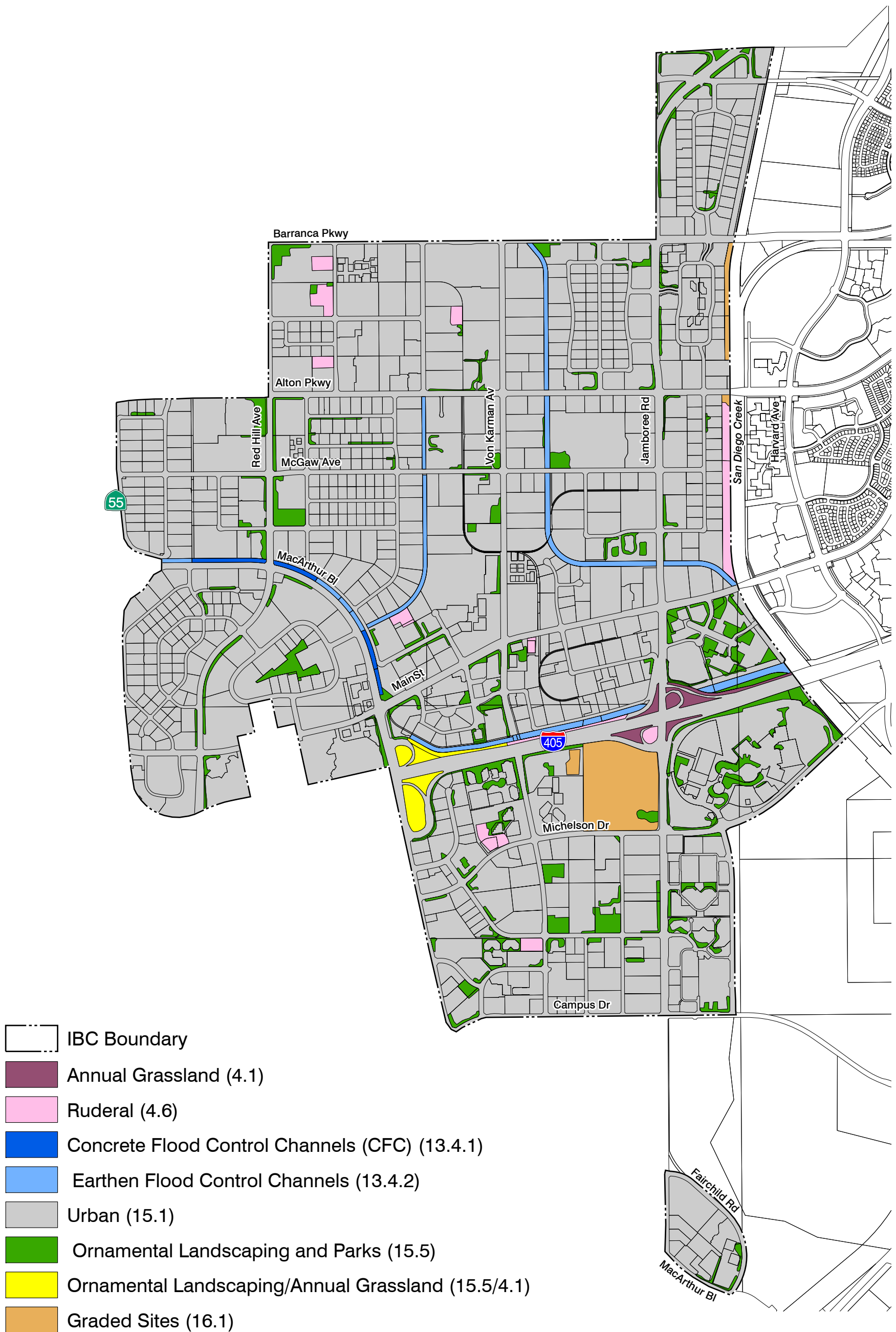
Urban (15.1)

This is the largest mapping unit within the IBC study area and is comprised of existing commercial buildings, industrial buildings, residential areas, along with the associated parking lots and roads.

Ornamental Plantings and Parks (15.5)

Ornamental landscaping is the dominant community found within the IBC. In some areas a narrow band of urban forest is found along the margin of the streets or buildings, while others have mostly turf and some shrubbery. There are also some large areas of lawn, accented with a variety of showy perennial plantings. There is often shrub or perennial plantings along the margins of the buildings in this locality. The mapping of these areas concentrated on large areas of ornamental plantings or park-like areas, and ignored smaller planted areas that are interspersed with buildings or concrete/asphalt.

IBC Project Area Plant Communities



Common trees planted in this commercial/industrial area consist of: eucalyptus (*Eucalyptus spp.*), palms (*Washingtonia robusta*, *Phoenix dactylifera*, *P. canariensis*, *Syagrus romanzoffiana*, etc.), pines (*Pinus spp.*), Liquid ambar (*Liquidambar styraciflua*), carrotwood, Gravelia (*Gravelia robusta*), Jacaranda (*Jacaranda acutifolia*), coral trees (*Erythrina sp.*), figs (*Ficus spp.*), London plane (*Platanus acerifolia*), deodar cedar (*Cedrus deodara*), Lombardy poplar (*Populus nigra*), olive (*Olea europea*), silk floss tree (*Chorisa speciosa*), California pepper tree (*Schinus molle*), melaleuca (*Melaleuca spp.*), Brazilian pepper tree (*Schinus terebinthifolius*), magnolia (*Magnolia grandiflora*), Chinese elm (*Ulmus parviflora*) Prunus cultivars (*Prunus spp*), fern pine (*Podocarpus sp.*), Italian cypress (*Cupressus sempervirens*), Arizonia cypress (*Cupressus arizonica*), coast redwood (*Sequoia sempervirens*), bottle tree (*Brachychiton sp.*), California sycamore (*Platanus racemosa*), silk tree (*Albizia julibrissin*), acacia (*Acacia spp.*), Myoporum (*Myoporum laetum*), and Shamel ash (*Fraxinus udehi*).

Shrubs often consist of several species of acacia (*Acacia spp*) in the more xeric landscaping. Other localities contain India hawthorn (*Raphiolepis indica*), privet (*Ligustrum sp.*), Fraser's photinia (*Photinia fraseri*), pink power puffs (*Callandrinia bottlebrush* (*Callistemon ctrinus*), natal plum (*Carissa macrocarpa*), glossy abelia (*Abelia grandiflora*), rose (*Rosa sp.*), natal plum (*Carissa granidflora*), bougainvillea (*Bougainvillea sp.*), Japanese boxwood (*Buxus japonica*), heavenly bamboo (*Nandana hibiscus* (*Hibiscus rosa-sinensis*), tobria (*Pittosporum tobria*), oleander (*Nerium oldenader*), firethorn (*Pyrycantha coccinea*), and xylosma (*Xylosma floribunda*).

Common herbaceous plantings included Icelandic poppies (*Papaver nudicale*), bird of paradise (*Stelitzia reginae*), fountain grass (*Pennisetum setaceum*), daylily (*Hesperocallis sp.*), swiss cheese plant (*Philodendron sp.*), mountain flax (*Phormium sp*), pampas grass (*Cortaderia sellonana*), and lily of the Nile (*Agapanthus sp.*).

Ground covers included Algerian ivy (*Hedra canariensis*), dwarf myoproum (*Myoporum parvflorum*) junipers (*Juniperus sp.*), rosemary (*Rosmarinius officinalis*), African daisy (*Osteospermum eckloinis*), Japanese honeysuckle (*Lonicera japonica*), baby sun rose (*Aptenia cordifolia*), and blue periwinkle (*Vinca major*).

In some areas there are large areas of lawns, dominated by a number of turf grass species. These lawns also contain kikuyu grass (*Pennisetum clandestinum*), dallis grass (*Paspalum dilitatum*), Bermuda grass (*Cynodon dactylon*), sour grass (*Oxalis pres-capre*), and white clover (*Trifolium repens*) that may escape into adjacent natural areas.

Some plantings represented xeric plantings using species native to the Western U.S. or Mexico. Representative species included deer grass (*Mulhenbergia rigens*), horsetail (*Equisetum sp.*), Mexican feather grass (*Nassella tenuissima*), pink muhly (*Mulhenbergia capillaries*), and other species planted for xeric landscaping.

Ruderal (4.6)

Disturbed areas along the margin of San Diego Creek and the associated flood control channels were placed into this mapping unit. In some areas the vegetation consists of dense stands of summer or black mustard. Other common occurring species include common horse tail, tocalote (*Centaurea melitensis*), poison hemlock (*Conium maculatum*), five-hook bassia (*Bassia hyssopifolia*), sand bur (*Ambrosia acanticarpa*), telegraph weed (*Heterotheca grandiflora*), Spanish sunflower, suberect saltbush, red brome, Russian thistle, artichoke thistle (*Cynara cardunculus*), smilo grass (*Piptatherum miliaceum*), fennel (*Foeniculum vulgare*), sweet alyssum (*Lobularia maritima*), pampas grass, garland chrysanthemum, tree tobacco, castor bean, crystal ice plant (*Mesembryanthemum crystallinum*), and fountain grass.

Annual grassland (4.1)

The annual grassland community was limited to some freeway margins and other non-irrigated/disturbed sites within the study area. The characteristic species are annual grasses including ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* ssp. *rubens*), foxtail barley (*Hordeum murinum* ssp. *leporinum*), littleseed canary grass (*Phalaris minor*), wild oat (*Avena fatua*), Bermuda grass (*Cynodon dactylon*), English ryegrass (*Lolium perenne*), and rat-tail fescue (*Vulpia myuros*). Common forbs consisted of red-stemmed filaree (*Erodium cicutarium*), black and summer mustard, fascicled tarweed (*Deinandra fasciculata*), common horse weed, bur clover (*Medicago polymorpha*), tocalote, common sow thistle (*Sonchus oleraceus*), sand bur, and prickly lettuce (*Lactuca serriola*). In the southern area of the project site alkali weed (*Cressa truxilliensis*), alkali heath (*Frankenia salina*), and garland chrysanthemum (*Chrysanthemum coronarium*), and alkali heliotrope were found in these grasslands.

Moist areas often had stands of castor bean, Brazilian pepper tree seedlings, smilo grass, prickly lettuce, hottentot-fig (*Carprobrotus edulis*), Spanish sunflower, Mediterranean tamarisk seedlings, alkali heliotrope, and garland chrysanthemum.

Graded (16.1)

The graded mapping unit includes area of bare ground that that has been bladed to remove all vegetation. It also included sites currently under construction, but where no structures were evident. Finally, it includes some storage yards and dirt lots that may be covered with gravel and are used for parking, or storage.

Flood control channels (13.4)

Concrete flood channels (13.4.1) (CFC). This mapping unit was used to designate sections of existing flood control channels that had been converted to a concrete box (e.g. Lane channel). This mapping unit was also used to note concrete structures within earthen channels.

Earthen flood control channels (13.4.2). Flood control channels with earthen sides and soft channel bottoms were mapped in this category.

Rip-rap (RR) (13.4.2.1). The sides of the flood control covered with large rock rip-rap, and occasionally areas of channels that have small sections of concrete walls were included in this mapping unit.

Streambed (SB) (13.4.2.2) (SB). This mapping unit includes open areas of streambed. These are areas of sediment in the channel that may consist of silts or gravels accumulating in the channel bottom. In some areas there was a very open cover of seedling grasses or forbs.

Streambed/Open water. In some of the smaller units open water and streambed were combined in a single mapping unit. Generally, this was necessary to the narrow width of the channel and the difficulty in separating these two features within these flood control channels.

Streambed/Open water + Riparian herb

In the flood control channels that are tributaries to San Diego Creek (Lane, Armstrong, and Barranca), the habitats within the flood control channel could not be determined. Therefore, this mapping unit recognizes all of the habitat observed in these soft bottom channels.

San Diego Creek

The following section describes the riparian and other habitats found along San Diego Creek. Some communities, such as ruderal, annual grassland, along with the mapping units for the channel areas are described in the section addressing the IBC study area.

Open water (12.1)

This consists of areas of open water within the channels. The San Diego Creek channel has a series of weirs that impound areas of the flowing water and creating several “basins” within reaches of the creek channel. In other localities much smaller areas were placed in this mapping unit, since the areas of flowing water form an important habitat for a number of species.

Riparian (7.0)

Riparian herb (7.1)

This is the most common community found in the streambed of San Diego Creek above the San Diego freeway (northern reach), and found filling in the areas of removed riparian scrub and along open portions of the streambed in the area south of the San Diego freeway to Upper Newport Bay (southern reach).

In the northern reach the most common species include dense-flowered sprangle top (*Leptochloa uninervia*), rabbit’s foot grass (*Polypogon monspeliensis*), jungle rice grass (*Echinochola colona*), water bent (*Agrostis exarata*), barnyard grass (*Echinochola crus-galli*), Bermuda grass (*Cynodon dactylon*), and dallis grass (*Paspalum dilatatum*). In some areas giant wild rye (*Elymus condensatus*) was noted in this community.

Common forbs consisted of white sweet clover (*Melilotus albus*), black mustard (*Brassica nigra*), common horse weed (*Conyza canadensis*), lamb’s quarters (*Chenopodium album*) prickly sow thistle (*Sonchus asper*), bristly ox tongue (*Picris echioides*), common heliotrope (*Heliotropium curassaicum*), Mexican tea (*Chenopodium ambrosioides*), common celery (*Apium graveolens*), weedy cudweed (*Gnaphalium luetoalbum*), curly dock (*Rumex crispus*), summer mustard (*Brassica geniculata*), and cocklebur (*Xanthium strumarium*). Spanish sunflower (*Pilularia paludosa*), tree tobacco (*Nicotiana glauca*), castor bean (*Ricinus communis*), suberect saltbush (*Atriplex suberecta*), pine spurge (*Euphorbia sepyllifolia*), and Russian thistle (*Salsoa tragus*) are some weedy species found in this drainage.

Along the margins and in the flowing water, water cress (*Nasturtium officinale*), great water speedwell (*Veronica anagallis-aquatica*), green willow herb (*Epilobium ciliatum*), willow smart weed (*Polygonum lapathifolium*), yellow water weed (*Ludwigia peploides*) are found with least duckweed (*Lemna minuta*) found floating on the surface slower moving portions of the creek.

Marsh-like areas are found in some areas of the creek and usually contain narrow-leaved cat-tail (*Typha domingensis*) with some broad-leaved cat-tail (*Typha latifolia*). Other species found in these marshy sites include alkali bulrush (*Bolboschoenus maritimus*), tall umbrella sedge (*Cyperus eragrostis*), Oleny’s three-square bulrush (*Schoenoplectus americanus*), and California bulrush (*Schoenoplectus californicus*).

A few scattered shrubs or tree seedlings are occasionally found in this community. These are generally comprised of small clumps of mulefat (*Baccharis salicifolia*), black willow (*Salix gooddingii*), Brazilian pepper (*Schinus terebenthifolius*), Mexican fan palm (*Washingtonia robusta*), or Mediterranean tamarisk (*Tamarix ramosissima*) seedlings.

Riparian herb/mulefat scrub (7.1/7.3)

Riparian herb/willow riparian scrub (7.1/7.2)

A community dominated by herbaceous riparian species, but with some arroyo and black willow seedlings, along with mulefat seedlings, scattered throughout the community.

Riparian vegetation was removed from the San Diego Creek channel, to increase the flood control capacity of the creek. Vegetation is currently invading into these open areas, and generally consists of an herbaceous riparian community. However, in some areas seedling mulefat were very evident and this mapping unit was developed to note the importance of mulefat at these localities.

Willow riparian scrub (7.2)

In the southern reach of San Diego Creek, a willow riparian scrub was commonly found along the sides of the creek. Large areas of this community were removed in 2007 to provide increased flood capacity along the channel.

This community is generally composed of arroyo willow (*Salix lasiolepis*) and mulefat, with sapling black willow intermixed in this scrub. The tree forming red willow (*Salix laeviagta*), the scrubby sandbar willow (*Salix exigua*) and saplings of Fremont cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*) and Mexican elderberry (*Sambucus mexicana*) were uncommonly found in this community.

Mulefat is the principal understory shrub, especially on the margins of this community. Other species found beneath this tall shrub layer are comprised of seedling Brazilian pepper tree, coyote brush, mugwort (*Artemisia douglasiana*), summer mustard, bristly ox tongue, white sweet clover, marsh fleabane, Emory's baccharis (*Baccharis emoryi*), quail bush, western ragweed (*Ambrosia psilostachya*), Spanish sunflower, and slender aster (*Aster subulatus*).

Mulefat scrub (7.3)

This community consists of dense stands of mulefat, along with a few scattered arroyo willows and in some localities, coyote bush.

Willow riparian forest (Black willow riparian forest) (7.7)

This community has a similar composition to the willow riparian scrub, however, the black willow are more mature and create an additional canopy layer in this community. Beneath the tree willows are tall arroyo willows, mulefat, Emory's baccharis, and coyote brush. Understory species generally consisted of mugwort, western ragweed, slender aster, Spanish sunflower, marsh fleabane, and fennel. Giant reed (*Arundo donax*) is a problematic species in these forest habitats, and seedlings of Brazilian pepper, Mediterranean tamarisk, Mexican fan palm and myoporum were also common in these areas.

Freshwater marsh (Coastal freshwater marsh) (6.4)

Freshwater marshes were found in some of the ponded areas of San Diego Creek and along the margins of the creek in other localities. The marshes consists of dense stands of broad-leaved cat-tail and California bulrush. Less common species consisted of narrow-leaved cat-tail, alkali bulrush, Oleny's three-square bulrush, tall umbrella sedge, marsh fleabane (*Pluchea purpurascens*), willow smartweed, common celery, white sweet-clover, Spanish sunflower, and bristly ox-tongue.

Brackish marsh (Coastal brackish marsh) (6.2)

The brackish marsh was found in the lower areas of San Diego Creek. Generally these areas contained typical marsh species, including California bulrush, marsh fleabane, narrow-leaved cat-tail, and alkali bulrush, along with species more typically found in salt marshes. These species consisted of common woody pickleweed (*Salicornia virginica*), fleshy jaumea (*Jaumea carnosa*), alkali heath, saltgrass (*Distichlis spicata*), spear-scale (*Atriplex prostrata*), American saltwort (*Batis maritima*), and five-hook bassia. This mapping unit included some dense stands of common woody pickleweed that appeared to be above the normal tidal level.

Salt marsh (Southern coastal salt marsh) (6.1)

Small areas of salt marsh were found along the creek, but some of the areas were considered more of a brackish marsh and placed in that category. Characteristic species included common woody pickleweed, fleshy jaumea, saltgrass, American saltwort, and alkali heath.

Open water (12.1)

This mapping unit consists of areas of open water within these channels. The San Diego Creek channel has a series of weirs that impound areas of the flowing water and creating several “basins” within reaches of the creek channel. In other localities much smaller areas were placed in this mapping unit, since the areas of flowing water form an important habitat for a number of species.

Scrub Habitats, Coastal sage scrub (2.0)

Chenopod scrub (2.7)

Chenopod scrub is found in the southern reach of the San Diego Creek channel. BonTerra (2008) mapped these areas as a coastal sage scrub, however, quail bush (*Atriplex lentiformis*) was a dominant species in all areas examined within the study area. Other shrubs in this community consisted of California sagebrush (*Artemisia californica*), California bush sunflower (*Encelia californica*), black sage (*Salvia mellifera*), coyote bush (*Baccharis pilularis*), coastal goldenbush (*Isocoma menziesii*), laurel sumac (*Rhus laurina*), myoporum (*Myoporum laetum*), and coastal prickly pear (*Opuntia littoralis*).

The area between the shrubs was often disturbed and herbaceous species consisted of black mustard, poison hemlock, crystal ice plant, tocalote, summer mustard, and tall wreath plant (*Stephanomeria virgata*).

Coastal goldenbush/grassland ecotone (2.8.3)

A small area of this ecotone was mapped along the creek. This community consisted of a scattered shrub cover consisting of coastal isocoma, along with a few isolated California sagebrush, California buckwheat (*Eriogonum fasciculatum*), quail bush, and lax-flowered bush mallow (*Malacothamnus fasciculatus*). This generally was found in a disturbed annual grassland composed of English wild rye, red brome, alkali heliotrope, garland chrysanthemum, ripgut brome, black mustard, and alkali heath.

California sagebrush/bush sunflower sage scrub (2.3.6/2.3.13)

A small area of coastal sage scrub is located just south of Bonita Creek on the east side of the creek. This scrub is dominated by California sagebrush with quailbush, California bush sunflower, coastal isocoma, and coyote brush. The understory was generally composed of red brome, alkali heath, poison hemlock, and black mustard.

Chaparral (3.0)

Toyon-sumac chaparral (3.12)

A small strip of this coastal chaparral is found beside an existing residential complex, south of Bonita Creek. This is likely a remnant of the vegetation that occurred on this site before the development. This small area of chaparral is composed of lemonadeberry, laurel sumac, toyon (*Heteromeles arbutifolia*), California sagebrush, coyote brush, quailbush, and a single black willow.

Wildlife

The wildlife of the IBC project area is typical of developed urban areas with ornamental landscaping. The bird species observed in the developed IBC area are those commonly found in urban areas, such as the black phoebe, mourning dove, common raven, northern mockingbird, European starling, house sparrow, and lesser goldfinch.

The northern part of the IBC project area borders San Diego Creek and Peters Canyon Wash, and from there San Diego Creek runs approximately 2.2 miles to the southern border of the project area to Upper Newport Bay. The San Diego Creek channel provides freshwater input to Upper Newport Bay. The San Diego Creek area and associated wetland habitats in the San Joaquin Marsh support a highly diverse fauna, including a large number of breeding and migratory bird species. The list of species is lengthy, even when only sensitive species are considered. The section below on sensitive species assesses the potential for occurrence of sensitive wildlife in the IBC project area and adjoining San Diego Creek.

San Joaquin Marsh Reserve and Sanctuary

The San Joaquin Marsh Reserve and San Joaquin Marsh Sanctuary are two separately owned and managed wetland areas that border the IBC area to the northwest in the vicinity of Campus Drive. The Reserve is a 202-acre freshwater marsh south of Campus Drive that is part of the University of California Natural Reserves System. The Sanctuary is a 300-acre freshwater marsh, and part of the Irvine Ranch Water District's Michelson Water Reclamation Plant that is used to remove nutrients and sediment from San Diego Creek.

The Reserve and the Sanctuary support wetland and upland habitats, including willow riparian woodland, freshwater marshlands, shallow ponds, and coastal sage scrub on the margins of the reserve. The habitat in these two areas provide important feeding and resting habitat for many migratory birds, particularly ducks, geese, other waterfowl, and shorebirds. They also are used by a number of migratory and resident passerine birds, both common and sensitive species. The lower reach of San Diego Creek and the San Joaquin Marsh provides foraging and/or nesting habitat for a number of sensitive species, including five species of birds listed as threatened or endangered under the state or federal Endangered Species Acts, occur in the San Joaquin marshes. These are the light-footed clapper rail, California brown pelican, California least tern, Belding's savannah sparrow, and least Bell's vireo.

NCCP Reserves

The IBC area is within the plan area of the Orange County's Central and Coastal NCCP/HCP. A small area in the southern end of the IBC area is a proposed NCCP Reserve area. This is the upland area located between the marsh, the San Diego Creek channel, MacArthur Boulevard, and Fairchild Road, which is owned and managed by UC Irvine. The San Joaquin Marsh Reserve, which adjoins this upland area, is designated by the NCCP as nonreserve open space.

Special Status Species/Communities

Special status plant and animal species include those species listed by the state or federal governments as endangered, threatened, or rare, and species that are candidates for future listing. These include species

listed as California Species of Special Concern by the CDFG, species on the CDFG special plants list (CDFG 2009), plants on the California Native Plant Society Rare Plant Inventory (CNPS 2009), and species considered to be special status by USFWS and CDFG.

Special Status Species

Tables 3 and 4 list the special status plant species known from the project region. Table 3 lists the species that may occur there and assesses their potential to occur on the project site and in the adjoining areas of the San Joaquin Reserve and Sanctuary and San Diego Creek and Table 4 lists the species known from the project region that not expected to occur there. Table 5 assesses the potential of special status animal species to occur on the project site and in the adjoining areas of the San Joaquin Reserve and Sanctuary and San Diego Creek.

On-Site

The residential, industrial, mixed use, and other developed parts of the IBC project area would not be expected to support any special status plant or animal species. The IBC project area is largely developed with urban uses, and does not contain habitat for any special status plant or animal species. The proposed trail area along San Diego Creek is predominantly disturbed soils on and adjoining the levee bank of the channel. There is potential for sensitive plant and animal species to occur within the proposed trail area, and therefore biological surveys would need to be carried out as part of the project-level environmental review for the proposed trail.

Adjoining Areas

San Diego Creek and the San Joaquin Marsh provide foraging and/or nesting habitat for many sensitive species. The majority of the sensitive species that are known from the IBC project region would not be expected to regularly use the disturbed habitat that exists along the proposed trail. However, some of the sensitive species could make regular or irregular use of the adjoining habitats in the San Joaquin Marsh and San Diego Creek areas.

Table 3
Plant Species of Special Concern Potentially Occurring in the Study Area
and San Diego Creek Channel

Species	Status: ¹		Preferred habitat/Known Localities	Potential for Occurrence in the IBC Study area and San Diego Creek
	Federal/State	CNPS/Local		
<i>Aphanisma blitoides</i> Aphanisma		List 1B.2	Coastal bluffs. Upper Newport Bay	Very low. No bluff habitat within the study area.
<i>Atriplex coulteri</i> Coulter's saltbush		List 1B.2	Grassland, Sage Scrub, Eroded coastal terrace. Newport Beach (north of existing library), San Joaquin Hills, Laguna Beach	Moderate to Low. Little suitable habitat remaining in study area. Reports of this species from the San Joaquin marsh have not been verified.
<i>Camissonia lewisii</i> Lewis' primrose		List 3.0	Sand bars within salt marsh. Upper Newport Bay	Low. Suitable sandy habitat does not appear to occur within the study area.
<i>Convolvulus simulans</i> Small-flowered morning glory		List 4.2	Clay soil grassland. SDC at the San Joaquin Marsh, UCI campus, Rancho Mission Viejo	Occurs. However, suitable habitat is very limited in the study area. Reported from a 2006 collection from San Joaquin Marsh.
<i>Cordylanthus maritimus</i> ssp. <i>maritimus</i> Salt marsh bird's beak	FE, SE	List 1B.2	Salt marsh (Upper marsh areas), Upper Newport Bay Anaheim Bay	Low. Study area is north of the known of the known populations in Upper Newport Bay. Salt marsh areas along SDC, do not represent suitable habitat for this species.
<i>Dudleya multicaulis</i> Many-stemmed dudleya		List 1.B.2	Coastal sage scrub. UCI Ecological Reserve, Bonita Cyn.	Very low to none. Suitable habitat is not present within the IBC or along San Diego Creek
<i>Echinodorus berteroi</i> Upright burhead		LC	Fresh Water marsh. Delhi Channel-Upper Newport Bay Wintersburg Channel -Bolsa Chica, Laguna, Irvine lake	High. Potential for occurrence in the San Diego Creek & associated flood control channels.
<i>Eleocharis parvula</i> Little spike-rush		List 4.3	Stream channel, riparian herb. San Diego Creek Channel, Delhi channel	Occurs. Observed in Basin 1 during the 2008 field surveys..
<i>Centromadia parryi</i> ssp. <i>australis</i> Southern tarplant		List 1B.1	Alkali meadows, grasslands. San Diego Creek, Peters Cyn. Channel, Upper Newport Bay, San Joaquin Marsh, UC Irvine, Mason Park, Costa Mesa, Fairview Park.	Occurs. Generally limited to San Diego Creek, but high potential to occur in vacant lands within the IBC study area. Two localities of this species were documented in Basin 1 and just east of riparian way ² .

Table 3
Plant Species of Special Concern Potentially Occurring in the Study Area
and San Diego Creek Channel

Species	Status: ¹		Preferred habitat/Known Localities	Potential for Occurrence in the IBC Study area and San Diego Creek
	Federal/State	CNPS/Local		
<i>Hordeum intercedens</i> Vernal barley		List 3.2	Moist grasslands and alkali meadows. Newport Beach (north of existing library), UCI Ecological Reserve. Fairview Park	Moderate to low. Little if any suitable habitat in the study area. In the region, the species appears to be more associated within clay soil grasslands.
<i>Juncus acutus</i> <i>ssp. leopoldii</i> Southwestern spiny rush		List 4.2	Salt marsh, brackish marsh. Upper Newport Bay, Anaheim Bay, Bolsa Chica	Occurs. Observed in a least two localities during the 2008 and 2009 field surveys along San Diego Creek.
<i>Lasthenia glabrata ssp. coulteri</i> Coulter's goldfields		List 1B.1	Alkali meadows. Los Alamitos, Hellman Ranch, Garden Grove Crystal Cove (Historic)	Low. No known extant populations in the study region. Hellman Ranch in the nearest extant locality of this species in Orange County.
<i>Lycium californicum</i> California boxthorn		List 4.2	Coastal sage scrub (Bluffs). Upper Newport Bay, Crystal Cove	Low. No bluff habitat within study area.
<i>Nama stenocarpum</i> Mud nama		List 2.2	Vernal pools, drying lake beds. Basin adjacent to Peters Cyn. Channel, Laguna Lakes.	Very low. Suitable basins within potential habitat not present along the area of San Diego Creek. Included in the study area.
<i>Nemacaulis denudata</i> var. <i>denudata</i> Coast woolly-heads		List 2.2	Coastal dunes, margins of salt marshes on fine sands. Upper Newport Bay (Shellmaker Island), Bolsa Chica	Low to very Low Suitable sandy habitat not generally present along San Diego Creek.
<i>Suaeda esteroa</i> Estuary seablite		List 1B.2	Salt marsh. Upper Newport Bay, Bolsa Chica, Seal Beach NWS	Low to very low. Suitable habitat is not present at south end of San Diego Creek.
FED: Federal Classifications FE Listed by the Federal government as an endangered species. FT Listed by the Federal government as a threatened species. STATE: State Classifications CT Listed by the State of California as a threatened species Other LC Local concern (Roberts 2008, Dames & Moore and Bramlet 1994) Other NCCP Species covered by the Central and Coastal NCCP.			California Native Plant Society (CNPS) CNPS 1A Plants presumed extinct in California. CNPS 1B Plants considered rare, threatened, or endangered in California and elsewhere. CNPS 2 Plants rare, threatened, or endangered in California but more common elsewhere CNPS 3 Plants about which we need more information - A review list. CNPS 4 Plants of limited distribution - A watch list. CNPS Threat Extensions 0.1 Seriously endangered in California 0.2 Fairly endangered in California 0.3 Not very endangered in California	

Table 4
Plant Species of Special Concern Known From the Region
But Not Expected to Occur in the IBC Study Area and San Diego Creek Channel

Species	Status:¹		Preferred Habitat / Known localities	Potential for occurrence in the IBC study area and San Diego Creek.
	Federal/ State	CNPS/ Local		
<i>Aster defoliatus</i> San Bernardino aster		List 1B.2	Riparian herb, meadows. Historically known from Tustin, Anaheim marsh, Bryant Ranch	Very low to none. Species appears to have been extirpated from coastal low lands & is now known from the Santa Ana Mtns..
<i>Atriplex pacifica</i> South coast saltbush		List 1B.2	Grassland, Sage scrub, Alkali meadow. Upper Newport Bay, Laguna Beach San Clemente	None. Historically known from coastal Orange County, and Upper Newport Bay, currently known only from the San Clemente area
<i>Atriplex davidsonii</i> Davidson's saltscale		List 1B.2	Alkali grassland, meadow. Upper Newport Bay, Santa Ana River mouth	None. Historically known from the Newport area, appears to have been extirpated.
<i>Calandrinia maritima</i> Seaside calandrina		List 4.2	Coastal bluff scrub. Dana Point	None. Not known from the study area.
<i>Calochortus catalinae</i> Catalina mariposa lily		List 4.2, NCCP	Perennial grassland, Coastal sage scrub. San Joaquin Hills, Lomas de Santiago	Low to Very low. Very little suitable habitat in the study area.
<i>Deinandra paniculata</i> Paniculata tarplant		List 4.2	Grassland. Laguna Cyn., Aliso Cyn., Dana Pt.	None. Project area is out of the range of this species.
<i>Dichondra occidentalis</i> Western dichondra		List 4.2	Coastal sage scrub, grassland. Pelican Hill, Dana Point, Laguna Beach, San Joaquin Hills	None. Project area is out of the range of this species.
<i>Euphorbia misera</i> Cliff spurge		List 2.2	Coastal bluff scrub. Dana Point	None. Not within the range of this species & bluff habitat is not present in the study area.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i> Los Angeles sunflower		List 1A	Freshwater or brackish marshes. Historically reported from Newport Lagoon & Wintersburg.	None. Considered to be extinct.
<i>Malacothrix saxatilis</i> var. <i>saxatilis</i> Cliff malacothrix		List 4.2	Coastal bluff scrub. Dana Point, Salt Creek Beach	Very low to none. Not reported from the study region & bluff habitat is not present in the study area.
<i>Microseris douglasii</i> ssp. <i>platycarpha</i> Small-flowered microseris		List 4.2	Clay soil grasslands. Newport Beach, Fairview Park	Very low. No suitable habitat within the study area.
<i>Navarretia prostrata</i> Prostrate navarretia		List 1B.1	Vernal pools. Fairview Park	None. Vernal pool habitat is not present in the study area.

Table 4
Plant Species of Special Concern Known From the Region
But Not Expected to Occur in the IBC Study Area and San Diego Creek Channel

Species	Status: ¹		Preferred Habitat / Known localities	Potential for occurrence in the IBC study area and San Diego Creek.
	Federal/ State	CNPS/ Local		
<i>Pentachaeta aurea ssp. alleni</i> Allen's daisy		List 1B.1	Perennial grasslands, coastal sage scrub. San Joaquin Hills, Dana Point, Lomas de Santiago	Very low. Suitable habitat generally not present in the study area.
<i>Petunia parviflora</i> Small-flowered wild petunia		LC	Riparian scrub, alkali meadow, drying lake beds. Laguna, Santa Ana River, San Juan Capistrano, possibly Fairview Park	Very low. Not known from the study region.
<i>Romneya coulteri</i> Coulter's matilija poppy		List 4.2, NCCP	Alluvial scrub. Foothills of the Santa Ana Mtns. Lomas de Santiago.	Planted occurrences are found at the San Joaquin Wildlife Sanctuary, no known native populations in the study area.
<i>Senecio aphanactis</i> Rayless ragwort		List 2.2	Coastal sage scrub. UCI Ecological Reserve	Very low to None. Suitable habitat not present in the study area.
<i>Sibara virginica</i> Virginia rock-cress		LC	Margins of vernal pools. Fairview Park	None. Suitable habitat is not present in the study area.
<i>Sidalcea neomexicana</i> Salt spring checker bloom		List 1B.2	Alkali marshes. Santa Ana, Tustin, Los Alamitos wetlands	None. Species appears to have been extirpated from the County.

FED: Federal Classifications
FE Listed by the Federal government as an endangered species.
FT Listed by the Federal government as a threatened species.
STATE: State Classifications
CT Listed by the State of California as a threatened species
Other
LC Local concern (Roberts 2008, Dames & Moore and Bramlet 1994)
Other
NCCP Species covered by the Central and Coastal NCCP.

California Native Plant Society (CNPS)
CNPS 1A Plants presumed extinct in California.
CNPS 1B Plants considered rare, threatened, or endangered in California and elsewhere.
CNPS 2 Plants rare, threatened, or endangered in California but more common elsewhere
CNPS 3 Plants about which we need more information - A review list.
CNPS 4 Plants of limited distribution - A watch list.
CNPS Threat Extensions
0.1 Seriously endangered in California
0.2 Fairly endangered in California
0.3 Not very endangered in California

Table 5
Special Status Animal Species Occurring in the Project Region

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Invertebrates			
San Diego fairy shrimp <i>Branchinecta sandiegonensis</i>	FE NCCP	Restricted to vernal pools in coastal southern California south to extreme northwestern Baja California, Mexico.	None, due to absence of vernal pools (confirmed by BonTerra 2008).
Riverside fairy shrimp <i>Streptocephalus woottoni</i>	FE NCCP	Restricted to a few vernal pools in southwestern Riverside, Orange, and San Diego counties.	None, due to absence of vernal pools (confirmed by BonTerra 2008).
Vertebrates			
Fish			
Tidewater goby <i>Eucyclogobius newberryi</i>	FE SSC	Shallow brackish lagoons and lower stream reaches.	Low. Not detected during previous protocol surveys in San Diego Creek channel and Upper Newport Bay.
Amphibians			
Arboreal salamander <i>Aneides lugubris</i>	NCCP	Moist places in a variety of habitats from coastal dunes to woodlands.	Moderate.
Black-bellied slender salamander <i>Batrachoseps nigriventris</i>	NCCP	Moist places, mainly in woodlands, but also found in grasslands and riparian habitats.	Moderate.
Arroyo toad <i>Bufo californicus</i>	FE CSC NCCP	Breeds in stream channels and use stream terraces and surrounding uplands for foraging and wintering. Favors shallow pools and open sand and gravel flood terraces of medium- to large-sized intermittent or perennial streams that are flooded regularly.	None. There is not suitable habitat for this species.
Western spadefoot <i>Spea hammondi</i>	CSC	Open areas with sandy or gravelly soils, in a variety of habitats including grasslands, chaparral, and sandy washes. Shallow pools in these habitats are necessary for reproduction. Breeds in ponds, streams, and rain pools that do not contain bullfrogs and fish, which prey on tadpoles.	Low. The urbanized IBC areas lacks suitable habitat entirely. BonTerra (2008) concluded that the San Diego Creek channel lacks suitable habitat, but the species may breed in the San Joaquin Marsh, which adjoins the IBC in the southern part of the study area.
Reptiles			
Southwestern pond turtle <i>Actinemys marmorata pallida</i>	CSC	Slow-water aquatic habitats with available basking sites (e.g., submerged logs, open mud banks).	High. The species has been recorded from San Diego Creek and Upper Newport Bay, and suitable habitat still occurs there. Absent from the urbanized IBC project area.
Silvery legless lizard <i>Anniella pulchra pulchra</i>	CSC	Moist loose soils and leaf litter in diverse plant communities, including chaparral, pine-oak and riparian woodlands, desert scrub, and sandy washes.	Low.

Table 5
Special Status Animal Species Occurring in the Project Region

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Belding's orange-throated whiptail <i>Aspidoscelis hyperythra beldingi</i>	CSC NCCP	Prefers coastal sage scrub and woodland habitats with sandy openings.	Moderate
Coastal western whiptail <i>Aspidoscelis tigris stejnegeri</i>	SA NCCP	Occurs in coastal sage scrub, chaparral and wash habitats.	Low
Northern red-diamond rattlesnake <i>Crotalus ruber ruber</i>	CSC NCCP	Arid scrub (including coastal sage scrub), chaparral, woodlands, and cultivated areas, often with large rocks or boulders.	Moderate
San Diego ringneck snake <i>Diadophis punctatus similis</i>	SA NCCP	Prefers semiarid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Low.
San Diego ringneck snake <i>Diadophis punctatus similis</i>	NCCP	Prefers semiarid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Low.
Coronado skink <i>Eumeces skiltonianus interparietalis</i>	CSC NCCP	Occurs in variety of habitats including coastal sage, chaparral, oak woodlands, pinon-juniper, and riparian woodlands to pine forests. Within these, prefers more mesic (moist) associations.	Moderate.
Coastal rosy boa <i>Lichanura trivirgata roseofusca</i>	FSC NCCP	Rocky areas in coastal sage scrub and chaparral.	Low.
San Diego horned lizard <i>Phrynosoma coronatum blainvillei</i>	CSC NCCP	Occurs in variety of habitats including coastal sage, grassland, chaparral, oak woodland, and riparian woodland with loose sandy soils and abundant native ants or other insects.	Low. The species occurs in the neighboring San Joaquin Hills, but it's potential for occurrence in the San Diego Creek area is low (BonTerra 2008). Absent from the urbanized IBC project area.
Coast patch-nosed snake <i>Salvadora hexalepis virgultea</i>	CSC	Semiarid brushy areas and chaparral in canyons, rocky hillsides, and plains.	Low.
Two-striped garter snake <i>Thamnophis hammondi</i>	CSC	Rarely found far from water. Found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest.	Moderate to high in the San Diego Creek area. Absent from the urbanized IBC area.
Birds			
Cooper's hawk (nesting) <i>Accipiter cooperii</i>	WL	Occurs in various woodland habitats, including riparian.	High. Expected to nest in the natural habitats along San Diego Creek, and may nest in ornamental vegetation of the urbanized IBC area.
Sharp-shinned hawk (nesting) <i>Accipiter striatus</i>	WL NCCP	Occurs in various woodland habitats, including riparian.	Low. Seasonal or occasional visitor to San Diego Creek area, outside of nesting range.

Table 5
Special Status Animal Species Occurring in the Project Region

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	WL NCCP	Sparsely vegetated scrubland on hillsides and canyons, preferring coastal sage scrub dominated by California sagebrush and grassy successional growth.	Low. Known from the San Joaquin Hills, but there is limited habitat in the San Diego Creek area for the species.
Golden eagle <i>Aquila chrysaetos</i>	CSC, CFP BCC NCCP	Occurs in a variety of habitats, including woodlands, grasslands and fields.	Moderate as occasional visitor (foraging) to San Diego Creek area.
Burrowing owl <i>Athene cunicularia</i>	CSC	Open grassland, fallow fields, sparsely vegetated desert scrub, and edges of disturbed lands, where soil is friable for nesting burrows.	Moderate. No burrowing owls were observed during 2007 protocol surveys in San Diego Creek area (BonTerra 2008), but they could occur there.
Red-shouldered hawk <i>Buteo lineatus</i>	NCCP	Variety of woodland and open habitats.	Moderate.
Swainson hawk <i>Buteo regalis</i>	ST	Open, dry habitats such as grasslands, shrublands, rangelands, and plowed agricultural fields. Winter resident in California	Moderate in San Diego Creek area as occasional visitor (foraging). Absent from urbanized IBC project area.
Coastal cactus wren <i>Campylorhynchus brunneicapillus cousei</i>	CSC NCCP	Coastal sage scrub and chaparral plant communities with substantial cacti (<i>Opuntia</i> sp.) stands.	None, due to the absence of suitable habitat.
Western snowy plover (nesting) <i>Charadrius alexandrinus nivosus</i>	FT CSC	Sandy or gravelly beaches along the coast, estuarine salt ponds, alkali lakes, and at the Salton Sea.	Occurs as a seasonal migrant in San Joaquin Marsh, and may forage in the San Diego Creek. Absent from urbanized IBC project area.
Northern harrier (nesting) <i>Circus cyaneus</i>	CSC NCCP	Occurs in a variety of habitats, including open wetlands, grasslands, wet pasture, old fields, dry uplands, and croplands.	Low potential for breeding. May occasionally forage in the project area. Absent from urbanized IBC project area.
Yellow-billed Cuckoo <i>Coccyzus americanus</i>	SE BCC	Breeds in large blocks of dense riparian habitats (particularly woodlands with cottonwoods (<i>Populus fremontii</i>) and willows (<i>Salix</i> sp.).	None, due to the absence of suitable habitat.
Western yellow warbler (nesting) <i>Dendroica petechia brewsteri</i>	CSC	Occurs in a range of woodland habitats but breeds in riparian woodlands.	High potential for occurrence in riparian habitat along San Diego Creek.
White-tailed kite <i>Elanus leucurus</i>	CFP	Variety of woodland and open habitats.	Moderate. Occurs in San Joaquin Marsh where it may nest, and forages along the San Diego Creek and adjoining habitats.

Table 5
Special Status Animal Species Occurring in the Project Region

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Southwestern willow flycatcher <i>Empidonax traillii extimus</i> (nesting)	FE SE NCCP	Breeds in dense riparian habitats dominated by dense willows (<i>Salix</i> sp.), mulefat (<i>Baccharis</i> sp.), or other shrubs and medium-sized trees, and is known from the project region. Although some riparian habitats in the project study area are suitable habitat for this species, breeding attempts in Orange County have been exceedingly scarce in recent years	Low. Focused surveys carried out in riparian habitats along San Diego Creek, and no individuals were sighted (BonTerra 2008). Absent from urbanized IBC project area.
California horned lark <i>Eremophila alpestris actia</i>	WL	Occurs in a variety of open habitats, and in southern California breeds mainly in open fields, grasslands, and rangelands.	High. Suitable habitat occurs along the San Diego Creek, and the species has been observed there (BonTerra 2008).
Peregrine falcon <i>Falco peregrinus</i>	SE CFP BCC NCCP	Occurs in a variety of habitats, including coastal areas, wetlands, grasslands, fields, and other open areas.	Moderate as occasional visitor (foraging).
Yellow-breasted chat (nesting) <i>Icteria virens</i>	CSC	Dense riparian woodlands, willows thickets, and dense brush along flowing streams.	High (only San Joaquin Marsh area)
Least bittern (nesting) <i>Ixobrychus exilis</i>	CSC	Freshwater marsh habitats.	Known from the San Joaquin Marsh, and probably forages in San Diego Creek. Absent from the urbanized IBC area.
Loggerhead shrike <i>Lanius ludovicianus</i>	CSC	Occurs in grassland, open sage scrub, chaparral, and desert scrub. Species apparently has declined dramatically in coastal southern California in recent years.	Moderate to high
California black rail <i>Laterallus jamaicensis coturniculus</i>	ST	Coastal spartina marshes, inland in dense, shortgrass, shallow marshes.	Low potential at San Joaquin marsh area, and no potential elsewhere.
Belding's savannah sparrow <i>Passerculus sandwichensis beldingi</i>	SE	Nests in the mid- to upper-littoral zones in tidal salt marshes and pickleweed flats of nontidal salt marshes.	Low. Absent from urbanized IBC project area.
Coastal California gnatcatcher <i>Polioptila californica californica</i>	FT CSC NCCP	Primarily in coastal sage scrub habitat, but also use chaparral, grassland, and riparian habitats where they occur in proximity to sage scrub.	Focused surveys in 2007 yielded two territories along San Diego Creek (BonTerra 2008). Absent from urbanized IBC area.
American white pelican <i>Pelecanus erythrorhynchos</i>	CSC	Ponds, lakes, and estuaries. Winter visitor in Orange County.	Moderate wintering use in San Joaquin Marsh and lower San Diego Creek/UpperNewport Bay.

Table 5
Special Status Animal Species Occurring in the Project Region

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Brown pelican <i>Pelecanus occidentalis californicus</i>	FE SE	Estuarine, marine subtidal, and marine pelagic waters along the California coast	Occurs in Upper Newport Bay. May forage in southern reach of San Diego Creek, but does not nest there.
Double-crested cormorant <i>Phalacrocorax auritus</i>	CSC	Occurs year-round in salt, fresh, and estuarine waters of coastal California.	Forages in the San Diego Creek, but no rookeries present there.
White-faced ibis <i>Plegadis chihi</i>	CSC	Feeds in emergent wetland, shallow ponds and lakes, and meadows, irrigated pastures and croplands. Nests in dense marshes	Nests in San Joaquin Marsh, and forages around San Diego Creek. Absent from urbanized IBC area.
Light-footed clapper rail <i>Rallus longirostris levipes</i>	FE SE	Marsh vegetation of coastal wetlands. Largely confined to saltwater marshes, rarely in freshwater marshes.	Low. Known to occur in Upper Newport Bay but not expected to occur in IBC project area.
Black Skimmer <i>Rynchops niger</i>	CSC	Nests on gravel bars, low islets and on dikes, including in Upper Newport Bay. Forages in estuaries and other shallow waters.	Forages along the lower reach of San Diego Creek, but does not nest there.
California least tern <i>Sterna antillarum browni</i>	FE SE	Largest concentrations of breeding pairs found on the coast in Los Angeles, Orange, and San Diego counties. Sometimes seen around Salton Sea. Migrates to the Pacific coast of Central America in the winter. Feeds in shallow estuaries and lagoons, coastal freshwater ponds, channels, and lakes.	Occasional occurrence in the San Joaquin marsh area, but no potential for nesting. Absent from urbanized IBC project area.
Least Bell's vireo <i>Vireo bellii pusillus</i>	FE SE NCCP	Occurs in cottonwood-willow forest, but may also occur in oak woodland, shrubby thickets, and dry washes with willow thickets at the edges.	High. Known to occur along San Diego Creek and in the San Joaquin marsh. Focused surveys in 2007 yielded 12 territories along San Diego Creek (BonTerra 2008). Absent from urbanized IBC project area.
Mammals			
Southern California saltmarsh shrew <i>Sorex ornatus salicornicus</i>	CSC	Brackish or saline marshes. Historical records from the Newport lagoon area.	Low to moderate (lower San Diego Creek and San Joaquin Marsh areas only)
San Diego black-tailed jackrabbit <i>Lepus californicus bennetti</i>	CSC	Occurs in a variety of habitats, including sage scrubs, chaparral, agricultural lands and other disturbed habitats, but prefers open grassland.	Low. Absent from urbanized IBC project area.
American badger <i>Taxidea taxus</i>	CSC	Open, uncultivated ground, in grassland, meadows, creosote bush, juniper, sagebrush.	Low.

**Table 5
Special Status Animal Species Occurring in the Project Region**

Species Name	Status*	Habitat Preference	Potential for Occurrence in IBC Project and Adjoining Areas
Pallid bat <i>Antrozous pallidus</i>	CSC	Occurs in a variety of habitats, including woodlands, scrub, rocky canyons, farm land, and desert. Roosts in rock crevices, old buildings, bridges, caves, mines, and tree cavities. In the region this species is generally associated with sycamore and oak woodlands.	Moderate (foraging).
Western mastiff bat <i>Eumops perotis californicus</i>	CSC	Variety of habitats, from desert scrub and chaparral to oak woodland and ponderosa pine, but only where there are significant rock features for roosting. Natural roosts are often found under large exfoliating slabs of granite, sandstone slabs, or in columnar basalt, on cliff faces, or in large boulders. Some roosts have been found in buildings.	High. Known from San Joaquin Preserve.
Pacific pocket mouse <i>Perognathus longimembris pacificus</i>	FE CSC NCCP	Coastal sage scrub and other habitats on the coasts of Orange and San Diego counties, on sandy soils.	Low potential in southern reach of San Diego Creek. Absent from urbanized IBC project area.
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	CSC	Mainly in sage scrub, chaparral, and grassland habitats.	Moderate. Suitable habitat exists in San Diego Creek area. Absent from urbanized IBC project area.
San Diego desert woodrat <i>Neotoma bryanti intermedia</i>	CSC NCCP	Scrub and desert habitats, usually in association with rock outcroppings, boulders, cacti, or areas of dense undergrowth.	Moderate. Suitable habitat exists in San Diego Creek area. Absent from urbanized IBC project area.
Federal	State		State Department of Fish and Game (CDFG)
FE Federally Endangered	SE State Endangered		CSC California Species of Concern
FT Federally Threatened	ST State Threatened		WL Watch List
			<u>Other</u>
			NCCP Species covered by the Central and Coastal NCCP.

Communities of Special Interest/Regulated Habitats

On-Site

The IBC project area is mainly urbanized and lacks any sensitive habitats.

Adjoining Areas

Several habitats considered to be sensitive habitats by the CDFG and the Orange County Central and Coastal Subregion NCCP adjoin the IBC area. All of the wetland and riparian habitats within the San Joaquin Reserve and Sanctuary areas, and in the San Diego Creek, would be considered regionally sensitive habitats. There are also small areas of coastal sage scrub in the areas that adjoin the IBC project area, which are known to support nesting territories of the coastal California gnatcatcher.

Wildlife Movement Corridors

Wildlife corridors link areas of natural habitats separated by rugged terrain, changes in vegetation, or human disturbance. Wildlife corridors accommodate animal movement so that genetic interchange and recolonization can occur, and provide buffers for populations to use in response to environmental changes and natural disasters. Large corridors (often referred to as habitat or landscape linkages) can provide both transitory and resident habitat for a variety of species.

The majority of the IBC area is developed with urban land uses and does not function as a wildlife movement corridor. San Diego Creek serves as a local movement corridor for wildlife species, and it provides aquatic connectivity between the Santa Ana Mountains and Upper Newport Bay. However, the creek has been channelized to function for flood control purposes, and riparian vegetation is largely found below the southern reach of the IBC area, south of Campus Drive. The Orange County NCCP/HCP does not designate San Diego Creek as a corridor or Special Linkage area. Special Linkages are areas that contain target species of the NCCP or biological habitat that could enhance connectivity between elements of the Reserve System. The principal corridor connection between the Santa Ana Mountains and the San Joaquin Hills is proposed to occur through the Agua Chion Wash area within the proposed Great Park, well outside of the IBC area.

Jurisdictional Waters and Wetlands

The majority of the IBC area is developed with urban land uses, and does not contain wetlands or Waters of the United States that would be under the jurisdiction of the Corps or CDFG. San Diego Creek and San Joaquin marsh, which adjoin the IBC area, contain jurisdictional waters and wetlands.

2.10.2 Thresholds of Significance

According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would:

- B-1 Have a substantial 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-2 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.
- B-3 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.
- B-4 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.
- B-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- B-6 Conflict with the provisions of an adopted habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

As discussed in the Initial Study (see Appendix A), biological resources were not identified as being “potentially significant” due to the built-out nature of the proposed project area. However, based on comments received on the Notice of Preparation, the following analysis is provided.

2.10.3 Environmental Impacts

Existing Plans, Programs, and Policies

The following measures are existing plans, programs, or policies (PPPs) that apply to the proposed project and will help to reduce and avoid potential impacts related to biological resources:

- PPP 3-1 Prior to any installation of any new storm drain connections to and/or discharges into the San Diego Creek or San Joaquin Marsh, the City or other project applicants shall 1) obtain a permit or other authorization from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act; 2) obtain a Section 401 Water Quality Certification from the California Regional Water Quality Control Board, Santa Ana Region, pursuant to Section 401 of the federal Clean Water Act, which requires any applicant for a federal permit, such as a Clean Water Act Section 404 permit, to provide the licensing agency a certification from the California Regional Water Quality Control Board that the project will comply with adopted water quality standards; and 3) provide notification to the California Department of Fish and Game (CDFG) of the project pursuant to Section 16-2 of the Fish and Game Code and comply with any further actions required by CDFG.
- PPP 3-2 If any trees are removed, the Applicant shall carry out a tree survey and obtain a permit for their removal in accordance with the City's tree preservation ordinance (including 1:1 replacement).

Project Design Features

- PDF-1 Prior to approval of the design for the San Diego Creek Trail improvements/extension, the City shall examine alternative locations of the proposed trail and methods that could be used to minimize potential impacts (e.g., fencing and buffers). The design shall consider an alternative that excludes a trail segment along the most sensitive part of San Diego Creek (the northwestern side of the creek between Campus Drive and MacArthur Boulevard).
- PDF-2 Prior to issuance of grading permits for the San Diego Creek Trail, a note shall be placed on all grading plans that construction activities involving the use of heavy equipment are prohibited during the bird nesting season (March 15 to September 15). If minor construction activities are carried out during the bird nesting season, a qualified biologist shall conduct a preconstruction survey in the off-site habitat to determine the location of any active bird nests in the area, including but not limited to raptors and least Bell's vireo. The survey should begin not more than three days prior to the beginning of construction activities. The wildlife agencies shall be notified if any nesting least Bell's vireo are found. During construction, active nesting sites shall be monitored to ensure that construction levels do not exceed 60 dBA L_{eq} . Should these noise levels be exceeded, the City shall implement noise attenuation measures, potentially including the erection of temporary noise curtains sufficient to reduce noise levels at occupied nesting sites to acceptable levels. Nest monitoring should continue until fledglings have dispersed or the nest has been determined to be a failure, as approved by the wildlife agencies.
- PDF-3 Prior to issuance of building permits for high-rise buildings within 100 feet of the San Joaquin Marsh or San Diego Creek, the project applicant shall demonstrate that architectural plans prohibit the use of highly reflective glass windows, and utilize angles that are not highly reflective

in order to reduce light and glare impacts on the marsh and creek environment and to reduce the incidence of bird collisions, to the satisfaction of the Community Development Director.

PDF-4 Prior to approval of final landscape plans for areas located within 100 feet of the San Joaquin Marsh or San Diego Creek, the project applicant shall ensure that development landscaping does not include exotic plant species that may be invasive to native habitats. Exotic plant species not to be used include those species listed on Lists A and B of the California Invasive Plant Council's (Cal-IPC) list of "Exotic Pest Plants of Greatest Ecological Concern in California as of October 1999." A copy of the complete list can be obtained from Cal-IPC's web site at <http://www.cal-ipc.org>.

The following impact analysis addresses all thresholds of significance for biology included in Appendix G of the CEQA Guidelines; even though they were eliminated as being less than significant in the Initial Study. The applicable thresholds, as identified above, are identified in brackets after the impact statement.

IMPACT 5.3-1: THE PROJECT WOULD NOT HAVE A DIRECT SUBSTANTIAL ADVERSE EFFECT ON ANY SPECIES IDENTIFIED AS A 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. [THRESHOLD B-1]

Impact Analysis: The majority of the IBC area is developed with urban uses and lacks potential habitat for any sensitive plant or animal species. However, several parts of the project area adjoin areas that are known to support sensitive species: (1) the San Joaquin Marsh Reserve and Sanctuary, and (2) along the San Diego Creek channel. Also, in the southern part of the IBC area, Fairchild Road borders the San Joaquin Marsh Reserve area and an area of upland habitat that is a proposed NCCP Reserve area where habitat restoration plans are under implementation.

The precise location of the proposed trail along San Diego Creek has not been identified, but the narrow space between the creek and adjoining land uses appears to be the only possible location for the proposed trail extension (see previous Figure 3-4). This area serves as the levee bank of the creek, and has been disturbed as a result of previous construction. It is occupied by a road that serves as an access road/easement for the levee and the electrical power lines.

The proposed project would not be expected to directly impact the habitat of any sensitive species. However, construction and use of the trail could adversely impact a number of sensitive species that occur in the San Diego Creek and San Joaquin marsh areas. Many sensitive species occur in these areas, including federally listed species such as the least Bell's vireo as well as a number of California Species of Special Concern.

There are several sources of potential impacts to sensitive species:

- Construction noise. Birds and other wildlife are sensitive to noise, especially during the nesting season. Indirect impacts from construction-related noise could occur to sensitive wildlife if construction occurs during the breeding season (i.e., February 15 through August 31 for most bird species, and January 1 through August 31 for raptors).
- Increased recreational uses near to the San Joaquin Marsh and San Diego Creek areas. The unpaved access road along the northwestern side of San Diego Creek is currently fenced, which prevents recreational and other unauthorized uses of this area. The introduction of recreational use of this area could disturb wildlife that occupies the habitats along the proposed trail and species that move between San Diego Creek and the San Joaquin marsh areas. Bicycle traffic also has the

potential to result in injury and mortality to ground-dwelling species such as amphibians and reptiles. Human intrusion into sensitive habitats adjacent to the proposed trail habitats could degrade habitat quality through trampling of plants and increase the incidence of fires. To address these concerns, the City should carry out a design analysis of the proposed trail along San Diego Creek that examines alternatives for the location of the proposed trail and methods that could be used to minimize the impact of disturbance (e.g., fencing).

- Invasive nonnative species. The proposed project has the potential to introduce invasive nonnative plant species into the San Joaquin Marsh areas that could displace native species in natural communities. This could be addressed by avoiding the use of nonnative plants in any planned landscape planting and implementing a monitoring/management plan for nonnative species that controls their spread in the San Joaquin Marsh areas.

The construction of new buildings in the developed part of the IBC area that adjoins the San Joaquin Marsh could lead to injury or mortality of birds flying into or away from the marsh. Large numbers of birds, including ducks, geese, and waterbirds, use the marsh seasonally as they migrate along the Pacific Flyway. Buildings that are designed with "green" certification objectives and make extensive use of glass to increase natural light can also lead to frequent bird collisions that result in injury and mortality. At night, the lights inside and outside of buildings can confuse and draw birds, resulting in collisions. During the daytime, birds often collide with clear or reflective glass because they fail to see it as a barrier. Birds are most likely to collide with windows that reflect habitat and sky, or buildings that are designed with "see through" corridors.

This analysis of biological impacts is program level because the detailed plans for the IBC project, including the trail, have not been developed. Further study of the biological issues and the design alternatives for the proposed trail would be required. The design analysis of the proposed trail would examine the buffer needs and opportunities of the proposed trail and consider an alternative that excludes a trail segment along the most sensitive part of San Diego Creek (the northwestern side of the creek between Campus Drive and MacArthur Boulevard). Therefore, compliance with PDF-1 through PDF-4 would prevent the occurrence of any significant impacts.

IMPACT 5.3-2: THE PROJECT WOULD NOT HAVE A SUBSTANTIAL ADVERSE EFFECT ON ANY RIPARIAN HABITAT OR OTHER SENSITIVE NATURAL COMMUNITY IDENTIFIED IN LOCAL OR REGIONAL PLANS, POLICIES, OR REGULATIONS, OR BY THE CALIFORNIA DEPARTMENT OF FISH AND GAME OR U.S. FISH AND WILDLIFE SERVICE. [THRESHOLD B-2]

Impact Analysis: The urbanized IBC area does not contain any riparian or other sensitive natural habitats. However, these habitats occur in the adjoining areas along San Diego Creek and San Joaquin marsh. Construction in areas that adjoin these riparian habitats could have indirect impacts on riparian habitats as a result of increased erosion. However, compliance with PPP 3-2 would prevent the occurrence of any significant impacts.

IMPACT 5.3-3: THE PROJECT WOULD NOT 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. [THRESHOLD B-3]

Impact Analysis: The urbanized IBC area does not contain any wetlands. However, the proposed trail would adjoin San Diego Creek and the San Joaquin Marsh. The open water and riparian habitats of the creek and marsh would be considered jurisdictional wetlands by the Corps and CDFG. In addition, the IBC area

contributes urban runoff into the San Diego Creek channel. To the extent that urban land uses are intensified in the IBC area, urban runoff may be increased.

The proposed project would not directly impact any wetlands. However, there is the potential for indirect impacts as a result of urban runoff from the developed areas to San Diego Creek. There is also a potential for adverse impacts of erosion and surface runoff during construction and operation of the proposed trail on the wetlands of San Diego Creek and San Joaquin marsh. However, compliance with PPP 3-2 would prevent the occurrence of any significant impacts.

IMPACT 5.3-4: THE PROJECT WOULD NOT 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. [THRESHOLD B-4]

Impact Analysis: The majority of the IBC area is developed with urban land uses and does not function as a wildlife movement corridor. The proposed project would intensify urban land uses within already developed areas, which would have no effect on wildlife movement.

San Diego Creek has been channelized for flood control purposes, and riparian vegetation is concentrated in the southern reach of the IBC area below Campus Drive. The Creek serves as a local movement corridor for wildlife species, and it provides aquatic connectivity between the Santa Ana Mountains and Upper Newport Bay. No studies have been carried out on this local movement corridor, but the area probably supports movements of a variety of birds, mammals, and herptiles. Its usefulness for sensitive bird species such as the California gnatcatcher and least Bell's vireo is probably lower than for common species, but they are nonetheless expected to utilize the San Diego Creek area for dispersal movement. However, it is not designated by the Orange County NCCP as a corridor or special linkage area. The principal corridor connection between the Santa Ana Mountains and the San Joaquin Hills is proposed to occur through the Agua Chinon Wash area within the proposed Great Park.

The proposed trail along the San Diego Creek would not include any night-lighting, and limited fencing may be used to prevent unauthorized access into sensitive habitats. A barbed wire fence now marks the boundary of the San Joaquin Marsh area along the existing maintenance road along San Diego Creek. Therefore, the project would not result in the introduction of substantial new fencing. The proposed trail would introduce recreational uses into an area that currently lacks them, which would increase indirect disturbance to wildlife, including a number of sensitive species. The project would not construct substantial new fencing or convert existing habitat, and therefore would not adversely affect habitat connectivity. The nonmotorized recreational uses of the proposed trail would not be expected to have a significant impact on wildlife movement.

IMPACT 5.3-5: THE PROPOSED PROJECT WOULD NOT CONFLICT WITH ANY LOCAL POLICIES OR ORDINANCES PROTECTING BIOLOGICAL RESOURCES, SUCH AS A TREE PRESERVATION POLICY OR ORDINANCE [THRESHOLD B-5]

Impact Analysis:

General Plan

The Open Space and Natural Resource element identifies the importance of preserving the biological resources of the San Joaquin Marsh wetlands and the San Diego Creek riparian habitat, and integrating these into local and regional conservation and open space areas. The proposed project would not degrade these areas, and would not interfere with their linkage to other open space areas. The IBC project would not conflict with these or other open space and conservation policies of the Irvine General Plan.

Tree Preservation

The proposed project would be implemented mainly in an urbanized area that contains many ornamental trees, some of which may be removed during project implementation. There are trees in the general area of the proposed trail along San Diego Creek, but the project design is not sufficiently specific to determine whether or how many trees would be impacted. The City of Irvine's Urban Forestry Ordinance requires that a permit be obtained to remove any significant tree on public or private land. Trees on nonresidential properties are subject to replacement criteria at a one-to-one ratio on-site or off-site, as prescribed in the City's Urban Forestry Ordinance, based on the determination of the City Arborist.

Noise Ordinance

Two areas of the proposed IBC project are located adjacent to the San Joaquin Marsh Reserve and Sanctuary areas, which are considered important wildlife habitat areas. The City of Irvine's Noise Ordinance sets guidelines for noise compatibility with wildlife habitat, in recognition of the importance of minimizing noise impacts on sensitive biological resources. This ordinance identifies 70 dBA CNEL as "clearly compatible" for wildlife reserves, up to 75 dBA CNEL as "normally compatible," and over 75 dBA as "normally incompatible." Activities within the IBC areas adjacent to these habitats would need to be evaluated for their compliance with the City's noise ordinance, as discussed further in Section 5.9.

Although nonmotorized recreational uses of the proposed trail would not exceed the noise standards, the noise threshold could be exceeded during trail construction. The City's ordinance recognizes that the control of construction noise is difficult and therefore provides exemption for this type of disturbance. Specifically, Municipal Code Section 6-8-205 exempts noise sources associated with construction activities, provided said activities do not take place outside the hours of 7:00 AM and 7:00 PM, Monday through Friday, and 9:00 AM to 6:00 PM on Saturday.

IMPACT 5.3-6: *THE PROPOSED PROJECT WOULD NOT CONFLICT WITH THE PROVISIONS OF AN ADOPTED HABITAT CONSERVATION PLAN, NATURAL COMMUNITY CONSERVATION PLAN, OR OTHER APPROVED LOCAL, REGIONAL, OR STATE HABITAT CONSERVATION PLAN. [THRESHOLD B-6]*

Impact Analysis: The IBC area is within the Orange County Central/Coastal NCCP, which serves as a Habitat Conservation Plan for the "take" of state- and federally threatened species. The majority of the IBC area is developed with urban land uses and lacks important open space. However, a section of the proposed trail along San Diego Creek would be located next to an NCCP reserve area (the upland area located between the San Joaquin Marsh, the San Diego Creek channel, MacArthur Boulevard, and Fairchild Road) and a nonreserve open space area (the San Joaquin Marsh Reserve). Both areas are owned and managed by UC Irvine.

The proposed project is consistent with the NCCP/HCP based on several criteria. First, only the proposed trail is located near the reserve open space, but would not prevent or interfere with assembly of the Reserve System. Second, Section 5.3.3 of the NCCP Implementation Agreement identifies passive recreation, which includes bicycling (on designated trails), hiking, and nature interpretation as permitted uses within the Reserve System. The NCCP/HCP identifies the areas where public access is prohibited (Figure 26 of the NCCP/HCP), which does not include any locations within the IBC area. The NCCP/HCP prohibits a number of active recreational uses such as motorized recreation vehicle activities and other facilities that would significantly harm sensitive natural habitat resources and identified species. However, motorized recreation vehicles would not be permitted on the proposed trail, and there would be no significant impact to sensitive habitats and species.

The SAMP for the San Diego Creek watershed identifies San Diego Creek as an Aquatic Resource Integrity Area. Because the SAMP has not yet been approved, it is not necessary for the project to comply with its provisions. Nonetheless, the proposed IBC project is consistent with the findings and recommendations of the SAMP for the San Diego Creek watershed. The SAMP identifies six different types of riparian restoration activities and prospective locations within the San Diego Creek watershed. None of these prospective restoration areas are within the IBC project area. The six restoration activities and an assessment of whether the IBC project would impact these are:

- (a) Restore connectivity between aquatic resources located in the NCCP Reserve System. There are no activities proposed in the IBC project area.
- (b) Restore reaches within surrounding upland conservation areas. The SAMP identifies 48 sites within open space areas where riparian areas would be restored. None of these areas proposed for restoration occur within the IBC project area, or in adjoining areas.
- (c) Restore connectivity between high and/or medium integrity resource reaches. The SAMP identifies six areas proposed for restoration activities designed to restore connectivity. There are no activities proposed in the IBC project area. One of these areas adjoins the IBC project area—a segment of Sand Canyon wash that includes the point of where it connects to San Diego Creek. This area is on the opposite side of San Diego Creek from where the trail is proposed. The proposed trail would not impact the feasibility of this SAMP objective from being achieved.
- (d) Restore reaches within the headwaters. There are no activities proposed in the IBC project area.
- (e) Restore reaches with sensitive species. The SAMP proposes to enhance habitat quality for sensitive species in 22 reaches, one of which is the same identified in restoration objective (c) above. For this area, the SAMP proposes to enhance habitat quality for the least Bell's vireo, southwestern flycatcher, and one or more plant species. The proposed trail would not impact the feasibility of this SAMP objective.
- (f) Restore reaches, prioritizing with the greatest amount of functional lift per level of effort. The SAMP proposes to maximize integrity scores in 15 reaches. There are no activities proposed in the IBC project area, or in adjoining areas.

2.10.4 Cumulative Impacts

The geographic scope for biological resources includes the NCCP/HCP Planning Area in conjunction with growth projections for Orange County. Past projects in surrounding Orange County cities and unincorporated areas have converted undeveloped and agricultural land to urban uses, resulting in area residential and employment population increases and associated impacts to biological resources. The contribution of these past projects to area growth is also reflected in the 2006 Orange County Projections (OCP-2006). The NCCP/HCP is intended and designed to address biological resources impacts on a larger, regional basis. The City of Irvine and jurisdictions within the NCCP Planning Area will continue to develop in accordance with the adopted General Plans of the respective jurisdictions. The primary cumulative impact on biological resources is the fragmentation of ecosystems resulting from the incremental loss of native habitats. As development continues, the remaining ecosystems will become more isolated and fragmented. The result will be that connectivity between patches of habitat and the wildlife populations they support will be lost. The proposed project is within the area designated for development under the NCCP/HCP and is consistent with provisions of the NCCP/HCP.

The establishment of the Nature Reserve of Orange County, a 37,000-acre reserve that was approved on July 17, 1996, provides regional biological benefits that would be unlikely to occur with a piecemeal conservation

strategy. The Nature Reserve was designed to prevent the incremental loss of native habitat and the fragmentation of ecosystems, as well as to compensate for impacts of individual projects. Establishment of the Reserve System will protect approximately 40 identified species, including three target species (gnatcatcher, cactus wren, and orange-throated whiptail lizard), which are the focus of the NCCP planning, and use the CSS and related habitat. The implementation of the NCCP, dedication of lands, and endowment by the participating landowners mitigate impacts of proposed and future development on covered habitats and identified species. The City of Irvine participates in this and the NCCP program, and requires development to be in accordance with the NCCP. The NCCP addresses the issues discussed above, such as fragmentation of ecosystems. As a result, cumulative biological impacts are mitigated to a level less than significant and would not be cumulatively considerable.

2.10.5 Level of Significance Before Mitigation

Upon implementation of PPPs and PDFs, the following impacts would be less than significant: 5.3-1, 5.3-2, 5.3-3, 5.3-4, 5.3-5 and 5.3-6.

2.10.6 Mitigation Measures

No mitigation measures are necessary.

2.10.7 Level of Significance After Mitigation

No significant impacts have been identified and no mitigation measures are required.

3.0 REFERENCES

- Brenzel, K.N. (ed.). 2007. *Sunset, Western garden book*. Sunset Publishing Company, Menlo Park, California.
- BonTerra Consulting. 2008. San Diego Creek programmatic operations and maintenance project: Biological technical report. Prepared for the County of Orange RDMD.
- Bowler, P.A, and D.E. Bramlet. 2002. Vascular plants of the University of California, Irvine ecological reserve. *Crossosoma* 28(2): 27-46.
- Bowler, P. and M. Elvin. 2003. The vascular plant checklist for the University of California Natural Reserve System's San Joaquin Freshwater Marsh Reserve. *Crossosoma* 29: 45-66.
- California Department of Fish and Game (CDFG) Natural Diversity Database. 2009. California Natural Diversity (RareFind) Database, Element report for the Tustin and Newport Beach 7.5' quadrangles. California Department of Fish and Game, Natural Heritage Division, Sacramento, California
- . 2000. Guidelines for assessing effects of proposed developments on rare and endangered plants and plant communities.
- California Native Plant Society (CNPS). 2009. Online Inventory of Rare and Endangered Plants in California. California Native Plant Society, Sacramento, California.
- . 2001. Botanical survey guidelines. California Native Plant Society, Sacramento, California.
- Consortium of California Herbaria. 2009. Online database of allied California herbaria

<http://ucjeps.berkeley.edu/consortium>, Jepson Herbarium, and University of California, Berkeley, California.

- County of Orange. 1996. Orange County Central and Coastal Natural Community Conservation Plan/Habitat Conservation Plan.
- Dames and Moore and Bramlet, D.E. 1994. Species of special interest. Orange County Natural Resources GIS Project. Prepared for County of Orange EMA. (Revised)
- . 1992. Habitat classification system. Orange County Natural Resources GIS Project. Prepared for County of Orange EMA.
- DeRuff, R. 1995. Plants of Upper Newport Bay.
- ICF, Jones & Stokes. 2009. DEIR for the San Diego Creek Flood Control Channel, Upper Newport Bay to I-405, Programmatic operations and operations manual. Prepared for County of Orange, SCH # 2007061076.
- Jones and Stokes. 1993. Methods used to survey the vegetation of Orange County parks and open space areas and Irvine Company property. Prepared for County of Orange, Environmental Management Agency
- Marsh, K.G. 1990. Upper Newport Bay regional park, Existing biological resources. Prepared for EDAW.
- Pacific Southwest Biological Services (PSBS) 1991a. Report of a biological assessment of the Upper Newport Bay regional Park. Prepared for Culbertson, Adams and Associates, Aliso Viejo, California. PSBS Report No. B97.
- Pacific Southwest Biological Services (PSBS) 1991b. Biological assessment of the Delhi Channel. Prepared for Culbertson, Adams and Associates, Aliso Viejo, California. PSBS Report No. A28.
- RBF. 2007. San Diego Creek programmatic operations and maintenance project: Delineation of State and Federal Jurisdictional Waters.
- Riefner, R.E. and S. Boyd. 2007. New records of wetland and riparian plants in southern California with recommendations and additions to the National List of plant species that occur in wetlands. J.Bot. Res. Inst. Texas 1(1): 719-740.
- Roberts, F..M. 2008. The vascular plants of Orange County, California: An annotated checklist. FM Roberts Publications, San Luis Rey, California.
- United States Army Corps of Engineers (USACE). 2009. A Special Area Management Plan (SAMP) for the San Diego Creek Watershed Special Area Watershed, Orange County, California.
- Wachtell, J.K. 1978. Soil survey of Orange County and western part of Riverside County, California. U.S. Dept. Agriculture., Soil Conservation Service.
- Zedler, J.B. 1982. The ecology of southern California coastal salt marshes: A community profile. U.S. Fish and Wildlife Service Report No. FWS/OBS-81/54.

Appendix A

Site Photos



Photo 1. San Diego Creek in northern part of IBC area, south of Barranca Parkway, showing lack of vegetation along the channel and ornamental landscaping along the eastern edge of the access road (view looking south).



Photo 2. The San Joaquin Marsh Reserve, viewed from the access road along the San Diego Creek in southern part of IBC area, south of Campus Drive.



Photo 3. San Diego Creek in southern part of IBC area, north of MacArthur Boulevard, showing riparian vegetation along the channel. The area to the right of the access road is part of a proposed NCCP Reserve area (view looking south).