

A Special Area Management Plan (SAMP)
for the San Diego Creek Watershed
Orange County, California

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Prepared by:

U.S. Army Corps of Engineers, Los Angeles District, Regulatory Division
Los Angeles, California

In collaboration with:

California Department of Fish and Game, South Coast Region Habitat Conservation Branch
San Diego, California

In coordination with:

The SAMP Participating Applicants:

The Irvine Company
City of Irvine, California
Orange County Flood Control District, California
Irvine Ranch Water District, California

State and Federal Agencies:

California Regional Water Quality Control Board, Santa Ana Region 8
U.S. Environmental Protection Agency, Region IX, Wetlands Regulatory Office
U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office
U.S. Army Corps of Engineers, Los Angeles District, Planning Division, Watershed
Studies Group
U.S. Army Corps of Engineers, South Pacific Division, Regulatory Program
U.S. Army Engineer Research and Development Center, Waterways Experiment Station,
Environmental Laboratory, Vicksburg, Mississippi
U.S. Army Engineer Research and Development Center, Cold Regions Research and
Engineering Laboratory, Hanover, New Hampshire

Consultant for the Program Environmental Impact Statement/Environmental Impact Report:

URS Corporation, Santa Ana, California

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Corice Farrar, SAMP Project Manager, USACE-LAD

Jae Chung, SAMP Program Manager, USACE-LAD

SAMP/WSAA Process Coordination Team

Corice Farrar, USACE-LAD

Jae Chung, USACE-LAD

Erinn Wilson, CDFG-SCR

Dean Kirk, TIC

Greg Heiertz, IRWD

Jim Hyde, IRWD

Nardy Kahn, OCRDMD

Cathy Nowak, OCRDMD

Mark Adelson, SARWQCB

Glen Worthington, Great Park Corp.

Mike Loving, City of Irvine

Jonathan Snyder, USFWS

Other Contributors and Reviewers

Wade Eakle, USACE-SPD

Krista Sloniowski, formerly of USACE-LAD

Mark Cohen, USACE-LAD

Terri Dickerson, CDFG-SCR

Stephen Puccini, CDFG-GC

Morgan Wehjte, for CDFG-SCR

Jennifer Ziv, URS Corp.

John Gray (*In Memoriam*), URS Corp.

Erik Larsen, formerly of URS Corp.

Robert Uram, Sheppard Mullin for TIC

Maria Pracher, Sheppard Mullin for TIC

Former Members of SAMP Coordination Team and Invited Guests from Member Agencies

Fari Tabatabai, USACE-SPN, formerly of LAD

Don Chadwick, formerly of CDFG-SCR

Donna Cobb, CDFG-NR, formerly of CDFG-SCR

Steve Letterly, formerly of TIC

Dick Diamond, formerly of IRWD

Norris Brandt, formerly of IRWD

Sharon Heider, formerly of City of Irvine

Chris Kubasek, OCRDMD

Eileen Takata, OCRDMD

Steven John, EPA Region IX

Wanda Cross, SARWQCB

Adam Fischer, SARWQCB

Kelly Schmoker, formerly of SARWQCB

Kathy Rose, formerly of SARWQCB

Michael Mulligan, formerly of CDFG-SCR

Jodi Clifford, USACE-LAD

Lyn McAfee, NROC

Jessie Powell, III, formerly of SARWQCB

Jim Miller, formerly of OCRDMD

Hualin Hsu Wingard, OCRDMD

Jim Voltz, OCRDMD

Grant Anderson, OCRDMD

Sara Bavan, OCFCD

Suzanne McClanahan, OCIWMD

Jim Pfaff, OCIWMD

Scot Scialpi, TIC

Jim Lawson, UCI

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This SAMP was prepared by:

U.S. Army Corps of Engineers, Los Angeles District
Regulatory Division
915 Wilshire Boulevard
Los Angeles, California 90017
<http://www.spl.usace.army.mil/regulatory>

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LIST OF ACRONYMS AND ABBREVIATIONS

CCC	California Coastal Commission
CCR	California Code of Regulations
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CNLM	Center for Natural Lands Management
Corps	U.S. Army Corps of Engineers
CRREL	Cold Regions Research and Engineering Laboratory (of the U.S. Army Corps of Engineers)
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DAMP	Drainage Area Management Plan
Department	California Department of Fish and Game
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ERDC	Engineering Research and Development Center (of the U.S. Army Corps of Engineers)
ESA	Federal Endangered Species Act
FGC	California Fish and Game Code
GIS	Geographic Information System
HCP	Habitat Conservation Plan
I	Interstate
ILF	In-lieu fee
IRLR	Irvine Ranch Land Reserve
IRWD	Irvine Ranch Water District
IWMD	Integrated Waste Management Department, now known as Orange County Waste and Recycling
LAD	Los Angeles District Corps of Engineers
LLFA	landscape level functional assessment
LOP	Letter of Permission
MCAS	Marine Corps Air Station
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
NCCP	Natural Community Conservation Planning - Orange County Central-Coastal NCCP Subregional Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NROC	Nature Resource of Orange County
NTS	Natural Treatment System

NWPs	Nationwide Permits
OHWM	ordinary high water mark
PA	Planning Area
PAR	Property Analysis Record
PLD	planning level delineation
RGL	Regulatory Guidance Letter
RGP	Regional General Permit
RWQCB	California Regional Water Quality Control Board, Santa Ana Region
SAMP	Special Area Management Plan
SHPO	State Historic Preservation Office
SIP	Standard Individual Permit
SWRCB	State Water Resources Control Board
TIC	The Irvine Company
TMDL	Total Maximum Daily Load
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UTMs	Universal Transverse Mercator Grid
WDRs	Waste Discharge Requirements
WMI	Watershed Management Initiative
WRP	Southern California Wetland Recovery Project
WSAA	Watershed Streambed Alteration Agreement
WoUS	Waters of the United States

EXECUTIVE SUMMARY

The Special Area Management Plan (SAMP) for the San Diego Creek Watershed (Watershed) presents an innovative regulatory tool developed by U.S. Army Corps of Engineers Los Angeles District Regulatory Division (Corps) and the California Department of Fish and Game, South Coast Region Habitat Conservation Branch (Department) to integrate a watershed approach to address anticipated regulated activities and aquatic resource conservation needs.

The San Diego Creek Watershed SAMP formulation process was initiated in 1998 as a coordinated process with local landowners/managers and state and federal agencies to consider known projects and anticipated regulated activities. This SAMP is the result of a collaborative effort involving multiple federal, state, and local agencies addressing multiple issues over multiple spatial and temporal scales together with the participating landowners/managers in the Watershed. This coordinated process resulted in a watershed approach to issuing section 404 permits and Streambed Alteration Agreements (SAA). Specifically, the outcome of the SAMP formulation process is a plan, which includes the following four elements:

- SAMP Analytical Framework
- Watershed-specific regulatory modifications to the Corps' section 404 permitting processes and the addition of the Department's Watershed Streambed Alteration Agreement (WSAA) Process, and a corresponding mitigation framework for the Watershed
- SAMP Strategic Mitigation Plan
- Mitigation Coordination Program

The first component of this SAMP is an Analytical Framework, which is based on technical, environmental information about the aquatic resources, primarily riparian ecosystems, in the Watershed. The Corps, with the Department, developed the Analytical Framework as a decisionmaking tool for evaluating regulated activities that would affect aquatic resources.

The second element of the SAMP entails modifications to permitting procedures in a manner to provide the Corps and the Department with Watershed-based and resource-based permitting protocols. The regulatory component of the SAMP also includes a coordinated mitigation framework specifically for the Watershed.

Related are the third and fourth elements of the SAMP, a Strategic Mitigation Plan, which is based on a Watershed riparian ecosystem restoration plan, and a Mitigation Coordination Program to provide a forum for local landowners/managers and stakeholders to participate in aquatic resource management. Together, the Strategic Mitigation Plan and Mitigation Coordination Program support the implementation of the SAMP mitigation framework and foster a transparent and coordinated approach to aquatic resource management within the Watershed.

A Program Environmental Impact Statement (EIS)/Environmental Impact Report (EIR) was prepared for the San Diego Creek Watershed SAMP/WSAA Process (Draft; URS Corp., 2008) and was available for public review and comment. Comments received on the draft Program EIS/EIR were considered in the finalization of the SAMP and Program EIS/EIR for adoption by the Corps and the Department.

1 Introduction

This report constitutes the final draft Special Area Management Plan (SAMP) for the San Diego Creek Watershed (Watershed) of Orange County, California. The related environmental documentation is provided separately in the *Final Program Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the San Diego Creek Watershed Special Area Management Plan/Watershed Streambed Alteration Agreement Process (SAMP/WSAA Process)* (Corps, 2009). The Regulatory Division of the Los Angeles District of the South Pacific Division of the U.S. Army Corps of Engineers (Corps), a division of the Department of the Army, developed a SAMP in partnership with the California Department of Fish and Game, South Coast Region Habitat Conservation Branch (Department), a department of the California Resources Agency, and the Department's effort to establish a Watershed Streambed Alteration Agreement (WSAA) Process for the San Diego Creek Watershed. The Corps and the Department initiated this long-term regulatory planning process to develop a cohesive, Watershed-specific plan to address anticipated permitting needs and compensatory mitigation to improve the long-term management of aquatic resources within the Watershed.

What is a SAMP?

The Coastal Zone Management Act of 1980 (16 USC 1453(17)) defines a SAMP as a comprehensive plan regulating natural resource protection and reasonable economic growth that contains a detailed and comprehensive statement of policies, standards, and mechanisms to implement a SAMP. The Corps has partnered with the Department to undertake a SAMP for the San Diego Creek Watershed, an area with sensitive riparian ecosystems.

With the distribution of the SAMP and its draft Program EIS/EIR, stakeholders are invited to provide comments on the Plan and environmental documents and attend a public hearing. [Detailed information is provided separately in a Public Notice]. Written comments received during this review period will be taken under consideration and evaluated for the preparation of the Final Program EIS/EIR. With completion of the SAMP, the Corps and the Department shall establish a Watershed-specific permitting process, including a Strategic Mitigation Plan and initiate the implementation of a coordinated mitigation program, which together will improve the agencies capacity to protect the conservation values and functions of the aquatic resource ecosystem in the San Diego Creek Watershed. In these ways, the SAMP promotes the comprehensive management of aquatic resources in the Watershed by proactively applying conservation principles at the watershed level rather than reactively addressing impacts as projects are proposed. To accomplish the SAMP goals, the Corps and Department comprehensively reviewed the existing (baseline) riparian ecosystem and identified the higher value aquatic resources, reviewed the probable development planned in the Watershed, and

created a new framework for considering future permitting applications within the San Diego Creek Watershed.

1.1 Background

Both the Corps and the Department regulate impacts to aquatic resources through their respective regulatory programs. The Corps' mandate under the Clean Water Act (CWA) is to maintain and restore the physical, chemical, and biological integrity of the nation's waters. The Corps regulates the discharge of dredged or fill material into waters of the United States ("waters of the U.S.") through implementation of section 404 of the CWA. The Department is authorized under the California Fish and Game Code (FGC) section 1600 *et seq.* to ensure the protection and conservation of the fish and wildlife resources, which includes the protection of riparian ecosystems through issuance of Lake or Streambed Alteration Agreements (SAAs). Under the conventional regulatory framework, proposed activities that would affect aquatic resources are reviewed on case-by-case, project-by-project basis without a comprehensive view to minimize and avoid cumulative impacts to the aquatic environment.

Recognizing the need for a more comprehensive approach to permitting and aquatic resource conservation in the developed and rapidly urbanizing Watershed, the United States House of Representative's Committee on Public Works adopted a resolution appropriating funds for the Corps to initiate a SAMP within the San Diego Creek Watershed in 1998, in accordance with Corps Headquarters Regulatory Guidance Letter (RGL) 86-10, RGL 92-03, and RGL 05-09 (USACE, 1986, 1992, 2005b). The Department also recognized the benefits of evaluating potential impacts on a Watershed level and began a corresponding WSAA Process (formerly a Master Streambed Alteration Agreement (MSAA)) to address their regulatory issues within the context of the SAMP.

The Corps and the Department led the SAMP formulation process, which was coordinated with other state and federal resource agencies, including the California Regional Water Quality Control Board, Santa Ana Region 8 (RWQCB), United States Fish and Wildlife Service, Region I (USFWS), and United States Environmental Protection Agency, Region IX (EPA) on matters concerning their various related authorities. Participation by RWQCB, USFWS, or EPA staff in meetings for the SAMP/WSAA Process shall not be construed to mean that these agencies share the opinions or accept the conclusions represented in the SAMP/WSAA Process document.

In addition to the state and federal agencies, local Participating Applicants were involved in an extensive pre-application procedure for a suite of anticipated activities and projects. The following local Participating Applicants have been involved in this process for several years: Orange County Flood Control District, a political subdivision of the County of Orange; the City of Irvine, a political subdivision of the State of California; the Irvine Ranch Water District, a political subdivision of the State of California; and The Irvine Company, a Delaware corporation.

Additionally, in the course of formulating the SAMP, the Corps and the Department met and coordinated with staff from the County of Orange's Resources Development and Management Department and Integrated Waste Management Department, Nature Reserve of Orange County, University of California, Irvine (UCI), and University of California Agriculture and Natural Resources Southern California Extension Center on Watershed planning issues related to the SAMP.

The SAMP formulation process was described in a previous Public Notice and was the subject of public scoping meeting on August 14, 2001 and public workshop on July 17, 2002. A multi-year effort, the SAMP formulation process has involved substantial, extended reviews of the conditions of the Watershed and evaluation of potential environmental impacts. The Corps performed a series of studies to assess the functional integrity of the Watershed's aquatic resources. Based on a set of scientifically based selection criteria, the agencies identified aquatic resources that were—or had reasonable potential to become—high value resources in the Watershed. These resources became the basis for developing an alternative permitting program, including a Strategic Mitigation Plan. The Corps and the Department provided an interim progress report and held an informational meeting in January 2005; public comments were received and considered in the preparation of the Program EIS/EIR.

Public participation, an important component of the SAMP formulation process, has been facilitated through the scoping process with a review and comment period, a public workshop, an informational meeting, and an interim progress report with review and comment period. The Corps and Department staff also kept the Newport Bay Watershed Management Committee informed of the SAMP progress during the SAMP formulation process.

1.2 Need

Under the conventional regulatory framework, activities with impacts to aquatic resources have been reviewed project by project, and without strategic assessment of the overall aquatic environment within the Watershed. This case-by-case approach does not facilitate comprehensive conservation of aquatic resources and complicates the evaluation and mitigation of cumulative impacts. In contrast, the SAMP has provided a way to address long-term aquatic resource conservation and cumulative impact assessment more effectively than the traditional project-by-project review process.

Furthermore, the SAMP responds to the needs of potential applicants for increased transparency and predictability in the Corps and Department's evaluations of regulated activities for authorization. Since the SAMP is customized for the Watershed, it provides the Corps and Department with a common Analytical Framework and regulatory approach specific for evaluating activities that would affect aquatic resources within the Watershed.

1.3 Purpose

The primary purpose of the SAMP is to improve the Corps and Department's capacity for making regulatory decisions in the Watershed using an approach that balances aquatic resource protection with reasonable¹ economic development and infrastructure needs. The underlying goal of the SAMP is to support riparian ecosystem conservation and management by comprehensively assessing the Watershed's aquatic resources and developing a strategic and coordinated regulatory approach (permitting and mitigation). This approach prioritizes avoidance of impacts to higher integrity aquatic resources and envisions targeted enhancement and restoration activities related to regulatory actions that will maintain and improve the Watershed's aquatic resource functions and values over the long term. We believe these goals can be achieved through the cooperative efforts on the part of the Corps, the Department, local government, state and federal resource agencies, local landowners, and other stakeholders, including the interested public.

1.4 Objectives

The purpose of the SAMP is furthered by the following dual objectives:

- To establish a Watershed-specific permitting framework to allow the agencies to more appropriately evaluate potential impacts associated with reasonable economic development and infrastructure maintenance; and
- To develop a Strategic Mitigation Plan and coordinated mitigation program to support long-term conservation, i.e., protection and restoration, of the functions and integrity of identified aquatic resources, particularly riparian ecosystems, located within the Watershed.

The tasks identified and performed in furtherance of these SAMP objectives are examined below:

- To identify and characterize aquatic resources, in particular riparian ecosystems, located in the Watershed;
- To identify aquatic resources possessing high resource value at the watershed scale, whereby such resources are of high to medium integrity for water quality, habitat, or hydrology and they provide a suite of ecosystem functions and values such that

¹ The term "reasonable," as applied to economic development, may be partly informed by consideration of local goals for jobs, housing, circulation, traffic, natural open space, recreation, flood management, and the like. Although the Corps is not compelled to accept these local goals as what constitutes reasonable economic activities, the Corps must acknowledge these elements when determining what is reasonable. Thus, the Corps regards the local goals in determining what reasonable economic development is. Defining the SAMP purpose and need does not preclude the Corps' responsibility to identify basic and overall project purpose and need for impacts to Corps jurisdiction as part of a given individual permit evaluation process; the 404(b)(1) analysis, and the NEPA and public interest review processes take precedence for the Corps.

- permanent impacts to these aquatic resources may result in substantial degradation to aquatic resources in the Watershed;
- To establish an Analytical Framework for informing the Corps and the Department's decisionmaking process for evaluating potential regulated activities and projects that would affect aquatic resources in the Watershed;
 - To inform the regulated community about the geographic location and characterization of the areas in the Watershed with aquatic resources of moderate to high integrity and to provide context for the Corps and the Department's Analytical Framework and resulting regulatory procedures;
 - To establish an alternate permitting process that reflects the Watershed-based and resource-based Analytical Framework;
 - To develop scientifically based criteria for riparian ecosystem restoration efforts and prepare a Strategic Mitigation Plan for prioritizing permit-related compensatory mitigation projects that can inform other riparian ecosystem restoration efforts; and
 - To prepare and recommend an implementation plan for establishing a coordinated mitigation program for aquatic resources in the key Watershed integrity areas that involves management practices, conservation polices, and considers ongoing Watershed-wide efforts to incorporate stewardship, advocacy, and stakeholder coordination.

1.5 Existing (Baseline) Conditions

The San Diego Creek Watershed encompasses 32,000 hectares (122 square miles or 78,000 acres) in central Orange County, California (see Figure 1-1). Predominant land uses in the area include commercial, residential, industrial, and institutional uses with scattered agricultural and open space areas including parks, undeveloped areas, and the San Joaquin Freshwater Marsh. Urban areas within the Watershed include portions of the cities of Santa Ana, Orange, Tustin, Laguna Hills, Newport Beach, Irvine, Lake Forest, Laguna Woods, and unincorporated areas of Orange County. Also located within the western and eastern portions of the Watershed are former Marine Corps Air Station (MCAS) Tustin, (encompassing 1,673 acres), and former MCAS El Toro, (encompassing 4,738 acres), respectively. UCI is located in the southwestern portion of the Watershed and encompasses 1,500 acres. The entire western portion of the Watershed is developed, and urbanization continues to the east and south.

The increased demand for housing and employment in Orange County has resulted in substantial land use changes from agriculture to urban development within the Watershed, especially over the last several decades. Agricultural uses, which began in the 19th Century, had previously altered the Watershed's natural conditions and hydrology, including increased runoff in Newport Bay and channelization of San Diego Creek.

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The Watershed is drained by San Diego Creek, generally from the north and east. San Diego Creek flows westerly where it discharges into Upper Newport Bay in the city of Newport Beach. Major tributary drainages of the Watershed include:

Agua Chinon Wash	Peters Canyon Wash
Bee Canyon Wash	Rattlesnake Canyon Wash
Bommer Canyon Creek	Round Canyon Wash
Bonita Canyon Wash	Sand Canyon Wash
Borrego Canyon Wash	Serrano Creek
Central Irvine Channel	Shady Canyon Creek
Hicks Canyon Wash	

The Watershed has over 2,500 acres of aquatic resources such as wetlands, open water areas, and riparian ecosystems and over 380 linear miles of ephemeral, intermittent, and perennial streambed, all of which provide ecosystem functions related to hydrology, water quality, and habitat. Many of the tributaries are characterized as natural ephemeral drainages in the upper undeveloped portions of Watershed, and are channelized in the lower more developed portions. The local drainage basins of the main tributaries are shown in Figure 1-2.

The Watershed is comprised of three general topographic relief zones, including a mountainous zone in the northeastern portion of the Watershed (Santiago Hills), a central flat zone in the central and western portions of the Watershed, and the coastal foothill zone (San Joaquin Hills) in the southern portions.

The Watershed climate is Mediterranean, consisting of long, dry summers and mild winters, with annual rainfall averaging approximately 15 inches. Coastal sage scrub and chaparral plant communities are the dominant vegetation types. The topography, soils, and climate that characterize the Watershed support ephemeral and intermittent streams that in turn support other aquatic, wetland, and riparian habitat types. Streams around and within urbanized areas are now primarily fed by irrigation and urban runoff.

The undeveloped areas within the Watershed support both upland and aquatic habitats. The undeveloped areas generally exist along the north and northeastern mountainous zone and southern coastal foothill zone. The aquatic habitat types found in the undeveloped areas can be classified into one of four different major habitat classifications, including marsh, riparian, lakes/reservoirs, and unvegetated watercourses. Of these major habitat types, riparian areas are the most dominant in terms of coverage. These areas are typically located along streams and water bodies in the foothill areas. Riparian coverage is estimated at approximately 1,666 acres, or two percent of the entire Watershed. The larger water bodies including lakes and reservoirs

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comprise less than one percent of the Watershed and are generally located in the northern and southern foothill areas.

Common riparian habitats include willow forests and mulefat scrub, along with freshwater marshes in channels containing perennialized (year-round) flow. Several special-status plant and wildlife species occur within and adjacent to riparian habitat in the Watershed and include least Bell's vireo (*Vireo bellii pusillus*) (riparian area), coastal California gnatcatcher (*Poliophtila californica californica*) (upland area), and southwestern pond turtle (*Clemmys marmorata pallida*) (freshwater wetlands and ponds).

1.6 Organization of SAMP Document

Section 1 provides an introduction and background of the SAMP. The SAMP is a plan, which is comprised of the following elements: an Analytical Framework for Corps and Department decisionmaking; a modified, Watershed-specific regulatory program, including the Corps and the Department's Watershed-based and resource-based permitting protocol and mitigation framework; a Strategic Mitigation Plan based upon a riparian ecosystem restoration plan; a Mitigation Coordination Program to achieve implementation of the Strategic Mitigation Plan and foster a coordinated approach to aquatic resource management in the Watershed; and an implementation plan for the SAMP.

Components of this SAMP

- Analytical Framework
- Permitting Processes, including Mitigation Framework
- Strategic Mitigation Plan
- Mitigation Coordination Program

Section 2 provides a detailed description of the Analytical Framework for the SAMP, including a summary of the technical analysis and resource identification used to identify aquatic resources integrity areas. Sections 3 and 4 address the Corps and Department's implementation of their regulatory programs within the Watershed, as modified by the SAMP. Specifically, Section 3 presents the Corps and Department's modified permitting processes for the regulated activities within the Watershed, including a mitigation framework, and Section 4 is a Strategic Mitigation Plan. The implementation of the Strategic Mitigation Plan is covered in Section 5 as a Mitigation Coordination Program. Finally, Section 6 presents an implementation plan for completing the SAMP. The remaining sections include a glossary of terms and a list of references.

The environmental analysis for the SAMP was prepared in a separate document, the *Final Program Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the San Diego Creek Watershed Special Area Management Plan/Watershed Streambed Alteration Agreement Process (SAMP/WSAA Process)* (Corps, 2009).

1.7 Applicability of the SAMP and the Program EIS/EIR

After the public review and comment period and the public meeting or hearing, the Corps and the Department will consider the comments received on SAMP document and the Program EIS/EIR. Then, the documents will be finalized and published. The Corps and Department would proceed with implementation of the SAMP in accordance with their procedures and regulations.

The SAMP is the plan that the Corps and the Department will adopt for implementation in the Watershed to inform their future decisionmaking processes related to their regulatory authorities pursuant to CWA section 404 and FGC section 1600 *et seq.*, respectively. The Program EIS/EIR prepared in conjunction with the SAMP will operate as a "program" EIS and EIR pursuant to applicable provisions of the Council on Environmental Quality National Environmental Policy Act (NEPA) regulations (40 CFR Part 1500 *et seq.*), and the California Environmental Quality Act (CEQA) Guidelines (14 CCR section 15000 *et seq.*). Subsequent activities will be examined by the Corps and the Department in light of the SAMP and the Program EIS/EIR to determine if additional environmental documentation is required. Project proponents and local lead CEQA agencies are encouraged to consult the SAMP and to use the Final Program EIS/EIR in determining whether a specific project would avoid impacts to or mitigate for aquatic resources. Furthermore, the Corps and the Department believe that the Program EIS/EIR for SAMP/WSAA Process and the SAMP document serve as a reference not only for Lead Agencies and other interested parties who evaluate projects under CEQA, but is a transparent tool to be used by project proponents when planning projects, including mitigation of project impacts.

While the San Diego Creek Watershed SAMP was formulated in accordance with the Corps and the Department's regulations and policies, it does not duplicate, but rather derives from and supplements the Corps and the Department's permitting processes within the Watershed.

2 Analytical Framework – A Watershed-wide Analysis of Habitat, Water Quality, and Hydrologic Integrity of Aquatic Resources

Components of this SAMP

- Analytical Framework
- Permitting Processes, including Mitigation Framework
- Strategic Mitigation Plan
- Mitigation Coordination Program

2.1 Overview and Applicability of the SAMP Analytical Framework

The first element of the SAMP formulation is the development of an Analytical Framework that would inform the Corps and the Department in their regulatory decision-making processes. The SAMP Analytical Framework includes the following components: scientifically based methodologies for the identification and characterization of aquatic resources in the Watershed; an evaluation of aquatic resources in consideration of proposed and reasonably foreseeable activities within the Watershed that would affect aquatic resources; and an impact avoidance and minimization plan for sensitive aquatic resources. The SAMP Analytical Framework has been and will continue to be used to inform the Corps and Department's evaluation of potential impacts to the Watershed's aquatic resources from regulated activities, such as infrastructure maintenance projects, Natural Treatment Systems, residential, commercial, and institutional development, recreation projects, and infrastructure improvement projects. Moreover, the SAMP Analytical Framework is the basis for the proposed SAMP regulatory processes (Section 3) and Strategic Mitigation Plan (Sections 3 and 4).

In effect, the Analytical Framework resulting from the compilation of technical and environmental data and analysis obtained during the SAMP formulation process targets the avoidance of impacts associated with regulated activities, primarily development planned in accordance with local general plans, and such activities were avoided in moderate to high integrity areas. Any permitted development activities would be or were subjected to specific permit criteria that ensure further minimization of impacts and compensatory mitigation/restoration requirements to restore functional integrity in the Watershed.

2.2 Aquatic Resource Identification and Assessment

The SAMP formulation process began with a comprehensive landscape-level analysis of existing aquatic resource conditions within the Watershed to identify baseline conditions. As part of the identification and characterization of aquatic resources, the Corps conducted (and the Department adopted) two key technical, environmental studies: a Planning Level Delineation (PLD) and a Landscape Level Functional Assessment (LLFA). The results of the

studies were used to identify the SAMP Tenets, which are the scientifically based conservation principles that guided the Corps and the Department in formulating the SAMP. These reports are summarized below (Sections 2.2.1 and 2.2.2).

2.2.1 Planning Level Delineation

A PLD of aquatic resources, including a geospatial analysis, was conducted throughout the Watershed utilizing expertise from U.S. Army Engineer Research and Development Center's (ERDC) Cold Regions Research and Engineering Laboratory (Lichvar et al., 2000). The PLD involved extensive fieldwork and use of aerial photography to identify aquatic resources (probable jurisdictional areas, including lakes, streams, and wetlands) at the landscape level (not at site-specific level). The PLD is applicable for watershed-based planning and evaluation purposes, but is not intended to replace the need for, or role of, a site-specific delineation. (The full report may be found in Appendix B-1 of the Program EIS/EIR).

2.2.2 Landscape Level Functional Assessment

A LLFA was conducted utilizing expertise from ERDC's Environmental Laboratory to characterize the functional integrity of the Watershed's aquatic resources (Smith, 2000). For the SAMP, the Corps and the Department focused primarily on riparian ecosystems. Since water is the primary limiting ecological factor in the southwestern United States, riparian corridors are important resources in the landscape. Therefore, by their very nature, riparian systems are capable of supporting a diverse number of species within the landscape. Riparian corridors provide foraging, cover, and nesting/breeding habitat for fish and wildlife. They are conduits for many aquatic, riparian, and upland species, and are important elements of aquatic resource conservation.

Three metrics were identified to assess riparian ecosystem integrity: hydrology, water quality, and habitat. Based on extensive fieldwork, the various riparian reaches within a drainage basin were characterized in terms of their conformance with ecological indicators of riparian ecosystem integrity. The mainstem reaches of the Watershed were assigned numerical ratings that assisted the Corps in identifying areas (aquatic resources and their contributing drainage basins) in terms of high, medium, or low integrity for hydrology, water quality, and habitat. The first order tributaries were incorporated as part of mainstem subwatersheds and were not characterized separately within the drainage area.

The LLFA is a relatively new multi-scale-based method of evaluating the condition of a watershed. The landscape-level nature of the characterization of resources performed for the SAMP baseline and represents a snapshot of the Watershed at the time the SAMP was initiated. The LLFA does not reflect detailed, site-level information at the Watershed's present condition. The assessment supplements the routine evaluations the Corps and the Department do as part of their standard operating procedures. (The full report may be found in Appendix B-2 of the Program EIS/EIR).

2.2.3 The SAMP Tenets

The SAMP Tenets are overarching, guiding principles for the Watershed based on the knowledge of the Watershed's resources obtained through the baseline assessments. The Corps and Department identified as SAMP Tenets several important scientific elements, which if adhered to would ensure the goals and objectives of the SAMP. The following list of SAMP Tenets contains a discussion of the relationship between the LLFA and the tenets. The SAMP Tenets exceed the standards and criteria expressly contained in the Corps and the Department's standard operating procedures. The SAMP Tenets provide a method of evaluating potential impacts and inform the Corps and the Department in their efforts to achieve the respective goals of the CWA, i.e., of protecting the biological, chemical, and physical integrity of waters of the U.S., and the California FGC section 1600 *et seq.*, i.e., to avoid impacts to fish and wildlife that use the states lakes, streams, and ponds.

(a) *No Net Loss of Acreage and Functions of Waters of the United States*

Federal and state policies call for no net loss of wetlands. Since the SAMP focuses on riparian ecosystems within the Watershed, which encompass both the Corps' and the Department's jurisdictions, the no net loss policies are interpreted here in a manner that is ecologically comprehensive in that it addresses functional riparian ecosystems as well as wetlands. Unique to the SAMP is the consideration given to the correlation between activities and land cover within a riparian reach and its local drainage and drainage basin, and the resulting effects in the riparian portion of the reach and downstream areas. Thus, for the SAMP, the evaluation of no net loss applies to riparian areas (or GIS polygons) within the Watershed, as mapped for the PLD. Riparian areas include, but are not limited to, streams and creeks (per USGS topographical maps) that were mapped as lines in the PLD. The goal of no net loss can be accomplished through the application of a hierarchical process of avoidance and minimization of impacts, and compensatory mitigation, a procedure common to any section 404 action and often referred to as the "mitigation sequence" required by the 404(b)(1) Guidelines (40 CFR 230.10).

(b) *Maintain/Restore Hydrologic, Water Quality, and Habitat Integrity*

Riparian ecosystems with high hydrologic integrity exhibit the range of frequency, magnitude, and temporal distribution of stream discharge, and surface and subsurface interaction between the stream channel, floodplain, and terraces that historically characterized riparian ecosystems in the region (Smith, 2000). Water quality integrity was defined as exhibiting a range of loading in the pollutant categories of nutrients, pesticides, hydrocarbons, and sediments that are similar to those that historically characterized riparian ecosystems in the region. Riparian ecosystems with habitat integrity exhibit the quality and quantity of habitat necessary to support and maintain a balanced, integrated, adaptive biological system having the full range of characteristics, processes, and organisms at the site-specific, landscape, and watershed scales that historically characterized riparian ecosystems in the region. In managing the aquatic

resources in a watershed, the goal is to maintain the integrity of these systems and to restore the integrity of these resources wherever possible. Management of these aquatic resources should strive to conserve and restore riparian corridors with high hydrologic, water quality, and habitat integrity. This tenet strongly correlates with other parameters such as the floodplain connectivity, riparian corridor continuity, and sediment regime because riparian reaches that would rate high for riparian ecosystem integrity would also rate high for these other parameters.

(c) *Protect Headwaters Areas*

The conventional definition of headwaters is the uppermost upstream segments of the main channel of a stream. For the purposes of the SAMP, the Corps and the Department have defined the term more narrowly, whereby headwater areas are local drainages (of a particular reach) with tributaries consisting of first order streams discharging to second order streams.

Although the headwater areas may not contain riparian vegetation (e.g., ephemeral drainages), headwater streams contribute many important functions, as summarized by Meyer et al. (2003), related to biogeochemical processes, including the maintenance of sediment transport and water quality. Protection of the particular tributaries flowing into a riparian reach would allow for the maintenance and/or restoration of riparian ecosystem integrity at the reach, sub-basin, and watershed scales. If left unprotected, impacts to headwater areas that flow into a particular reach of high integrity may lead to the eventual degradation of that reach. In addition, conserving and/or restoring undeveloped drainages that connect core areas of upland habitat would maintain important habitat linkages at the landscape scale.

(d) *Maintain/Protect/Restore Diverse and Continuous Riparian Corridors*

Riparian corridors have greater value if they are continuous, with an unbroken, canopy-covered corridor of trees and associated understory species. Unlike other habitat communities whose diversity is not compromised by natural gaps and patches of habitat, a riparian corridor's continuous nature enhances diversity and ecological functions related to movement corridors.

If established, the following measures would facilitate the protection and/or restoration of corridors:

- Permanent impacts (direct and indirect impacts) to corridors are avoided to the maximum extent feasible.
- Road crossings are sufficiently sized to allow native, riparian vegetation to establish and persist under the structure, and allow for faunal movement along the corridor.
- Biological buffers are established adjacent to all riparian corridors and unvegetated drainages.
- Upstream activities are completed in such a way as not to degrade downstream corridors by compromising habitat, water quality, and hydrologic integrity.

- Areas with corridor breaks are considered for restoration, except in some localized areas where such activities may limit the persistence, recovery, or dispersal of a listed or sensitive species.
- Maintaining continuous riparian corridors also allows for the hydrologic connectivity within a given network of conservation areas, which is important for aquatic organisms and for maintaining the hydrologic and water quality integrity of the Watershed (Pringle, 2001, 2003).

(e) *Maintain or Restore Floodplain Connection*

High integrity riparian reaches have active floodplains that flood on a regular basis. This overbank flooding is vital for maintaining sediment regimes and allowing for native habitat, including the recruitment of riparian plant species. It also allows interchange of biotic materials and nutrients between the active floodplain and the active channel, allowing for transport of detritus and nutrients to downstream areas and maintaining ecosystem processes.

(f) *Maintain and/or Restore Sediment and Transport Equilibrium*

High integrity reaches have functioning sediment regimes that balance erosional and depositional processes appropriate for that particular landscape position. Riparian habitat quality is often proportional to the quality of the sediment regime. Appropriate depositional processes allow the recruitment of new riparian vegetation. Excessive erosional processes remove riparian vegetation and lead to channel instability. There are many places in the subwatersheds with degraded sediment regimes that have the potential to be restored, as identified through the *Watershed Riparian Ecosystem Restoration Plan: Site Selection and General Design Criteria* (restoration plan) (Smith and Klimas, 2004).

(g) *Maintain Adequate Buffer for the Protected Riparian Corridors*

Buffers are necessary to maintain various functions of riparian systems because “edge effects” from adjacent activities may lead to the degradation of a particular riparian area over time. Adequate buffers ensure that the riparian ecosystems would be sustainable over time. The type of adjacent land use is important, as buffer requirements may be different if the adjacent land use is residential versus open space, for example.

The scientific literature has shown the effects of various buffer widths on endpoints such as general water quality, specific water quality parameters such as temperature and sediment, effects to benthic macroinvertebrates, and effects to wildlife, to name a few examples. Ensuring buffers meet the following parameters may facilitate the protection and restoration of riparian areas:

- Kept free of activities and pollutants that reduce the buffer’s ecological functions.
- Established to contain adequate width to reduce the negative interactions between adjacent land uses and ecological functions. Buffers may range from 15m – 100m

total, depending on site-specific situations and targeted functions; buffers are typically measured from the top of the bank landward, unless otherwise stated.

- Included as mitigation, in addition to the area of wetland and/or riparian habitat.
- Considered on a case-by-case basis, focusing on the connections between riparian communities and adjacent upland core resources, in order to maintain the interactions between communities, and to assure long-term conservation of riparian and upland species dependent on riparian areas for foraging or breeding, and/or for riparian species that utilize the transitional and adjacent uplands during their life cycles.

For the SAMP, consideration was given to site constraints and intended function of the buffers. Generally, based on a review of the scientific literature the following three different buffer widths will serve as a guide:

- For general water quality concerns, a 15-meter vegetated buffer should minimize effects from overland flow of sediment and pollutants (Budd et al., 1987; Castelle et al., 1992; Cohen et al., 1987; Jacobs and Gilliam, 1985; Woodward and Rock, 1995).
- For effects to sensitive aquatic species such as benthic macroinvertebrates, a 30-meter vegetated buffer should protect aquatic ecosystem processes (Erman et al., 1977; Hickman and Raleigh, 1982; Jones et al., 1988; Moring, 1982; Newbold et al., 1980; Raleigh, 1982; Raleigh et al., 1984). A 30-meter vegetated buffer would be unnecessary in areas expected to be without sensitive benthic macroinvertebrates, such as ephemeral streams.
- For effects to wildlife, a 100-meter buffer should protect a large number of species from the indirect effects of noise, sound, and pollution. Although less sensitive species may be better adapted to areas without such extensive buffers, certain sensitive and/or larger wildlife species that use riparian corridors may need wider buffers. The wildlife management literature typically uses a 100-meter buffer to protect general wildlife concerns (Jones et al., 1988).

(h) Protect Riparian Areas and Associated Habitats Supporting Federally and State-Listed, Sensitive Species and their Critical Habitat

Impacts to riparian reaches known to support wildlife with special status as federally and state-listed species and species of special concern should be avoided. For example, if a particular sensitive species uses upland habitats for foraging, dispersal, over-wintering, etc., adequate connectivity for the utilization of the upland habitat should be maintained. Occupied and potential occupied habitats of listed and sensitive species should be provided buffers from adjacent land-uses and activities. Upstream and tributary areas should be modified only to avoid adverse effects to the abiotic and biotic factors supporting the species habitat, as well as temporal and stochastic events (e.g., seasonal flooding).

Several species, including the state and federally endangered least Bell's vireo and southwestern willow flycatcher (*Empidonax traillii extimus*), and the State species of special concern, the southwestern pond turtle, are dependent on riparian ecosystems for their survival. Buffer widths may vary according to specific species, activities, and on-site minimization measures. For example, buffers were considered as follows for the following species:

- Least Bell's vireo – maintain a buffer around the riparian vegetation polygons within which point data exist for this species.
- Southwestern willow flycatcher – maintain a buffer around the riparian vegetation polygons for which sufficient point data exist for this species, as well as around areas (polygons) of mature riparian vegetation suitable for this species (e.g., mature riparian woodland) whether sufficient occurrence data exist.
- Southwestern pond turtle – limit the activities to occur in a drainage basin of a reach within which there are occurrence data for this species.

2.2.4 Identification of Aquatic Resource Integrity Areas

This section explains the process by which the Corps and the Department identified aquatic resource integrity areas, which are the focus of the SAMP Analytical Framework that informs the Corps' and the Department's management of aquatic resources in the Watershed. Aquatic resources with moderate to high integrity (water quality, hydrologic, or habitat), and/or those that provide functions important for the sustainability of the Watershed's riparian ecosystem, and their upland areas of influence (or local drainage) are referred to herein as aquatic resource integrity areas.

Parameters

The SAMP evaluates two broad categories of land within the Watershed that are relevant to riparian ecosystems: aquatic resources and upland areas of influence, including vegetated buffers. Distinguishing between different land types allows for an integrated management approach that addresses a gradient of direct and indirect effect to aquatic resources. The terms are defined below.

Aquatic Resources – The SAMP evaluation focuses on the aquatic resources, i.e., waters of the U.S., lakes, rivers and streams, which include, but are not limited to riparian ecosystems, ephemeral drainages, and marshes and other wetland types, identified as being of high resource value to the Watershed and for inclusion in the evaluation.

Upland Areas of Influence – An upland area of influence is represented as a drainage basin or local drainage area, i.e., the subwatershed unit of land that drains to a particular stream reach through surface flows (Figure 1-2); it includes any vegetated buffer to the stream. Both the local drainage area and drainage basin of a riparian reach extend beyond the boundaries of the Corps and the Department's jurisdictions. Yet, the local drainage and drainage basins constitute the

upland areas of influence on the aquatic resources by directly contributing flows over the uplands into the riparian reach, thereby affecting the hydrologic, water quality, and habitat integrity of the receiving aquatic resources.

For purposes of understanding and evaluating the existing and potential stressors upon aquatic resources, the watershed-based methodologies used for the SAMP acknowledged the relationship between the aquatic resources and their upland areas of influence; as such, the Corps assessment methodologies incorporated certain indicators of integrity at the local drainage and drainage basin scales. Due to their indirect contribution to the integrity of the receiving aquatic resources, associated terrestrial habitats within these local drainages and drainage basins were considered an integral part of a whole system. Therefore, aquatic resources and their respective upland areas of influence constitute the aquatic resource integrity areas.

Identification Criteria

The Corps and the Department developed a set of Watershed-specific criteria to help identify the aquatic resource integrity areas. These criteria were based on the goals and objectives of the SAMP for aquatic resource protection identified in the SAMP Tenets. Aquatic resource integrity areas were identified by applying the criteria to different themes in a GIS program. Integrity-based criteria refer to scores given aquatic resources characterized in the LLFA (Smith 2000). Selected criteria (1, 2, 4, 5, and 6) were used to identify areas as having greater conservation value when considered in a watershed context. Other criteria (3, 7, and 8) were used to identify areas where their protection was not expected to improve the overall integrity of aquatic resources, as evaluated in a watershed context.

(a) Criterion 1 – Protect Local Drainages of Riparian Reaches with a Medium to High Level of Hydrologic, Water Quality, and Habitat Integrity

Identification of the areas of high resource value began with the addition of the local drainage areas for riparian reaches with two, or more, integrity indices above the natural break point between moderate and low integrity indices on a graph plotting riparian reaches (x axis) against integrity index (y axis). This criterion selected 160, or 84%, of the 189 riparian reaches in the Watershed. Since the local drainages vary in size, this did not necessarily translate into 84% of the total area of the Watershed.

The local drainage areas of riparian reaches were initially identified to ensure protection to the maximum extent of the area contributing to the integrity of a riparian reach. This area (local drainage basin) was further reduced based on existing adjacent land use.

(b) Criterion 2 – Protect Headwater Local Drainage Basins

Headwater local drainage basins are local drainages with first order streams discharging to second order streams. The remaining headwater local drainage basins in this Watershed are

protected exclusively as part of the existing Orange County Central-Coastal Natural Community Conservation Plan (NCCCP) Subregional Reserve System. Therefore, the headwater local drainage basins were identified as aquatic resource integrity areas.

(c) *Criterion 3 – Remove Areas with a Land Use/Land Cover Designation of “Developed with 15% Impervious Surfaces”*

Developed areas (>15% impervious land use/land cover designation) were not included as aquatic resource integrity areas. The areas generated at this level include areas where the adjacent land use is fully developed. Because change of existing land use/land cover is neither a goal of the SAMP, nor feasible for the purposes of the SAMP avoidance and minimization plan, the areas that had >15% impervious surfaces were removed from further consideration as an aquatic resource integrity area.

Nevertheless, even the lower integrity aquatic resources in the more urbanized reaches of the Watershed may provide habitat values to species of special concern, or may undergo future restoration efforts to alter site conditions and restore any function deficient under baseline conditions. Consequently, it is important to acknowledge upfront that selected areas could be reconsidered on a case-by case basis and could, upon further evaluation, become aquatic resource integrity areas.

(d) *Criterion 4 – Protect Aquatic Resources and Associated Upland Habitat Currently Supporting Federally and State-Listed as Endangered or Threatened and State’s Sensitive Species*

Arc View themes were developed from data supplied by the USFWS that indicated observation points of arroyo toad (*Bufo californicus*) (historical data only), southwestern pond turtle, least Bell’s vireo, yellow-breasted chat (*Icteria virens*), southwestern willow flycatcher, and rare wetland plants. For this analysis, it was assumed that each data point represented a verified observation of an individual animal or plant. The area of habitat included was based on a 50-meter radius buffer, i.e., 7,850 sq ft, created around each observation point. The observation points are located throughout the Watershed and not only in the riparian reaches.

(e) *Criterion 5 – Protect Aquatic Resources Designated As Critical Habitat*

Arc View themes developed for this analysis were based on data supplied by the USFWS indicating currently and formerly designated critical habitat for arroyo toad, Riverside fairy shrimp (*Streptocephalus woottoni*), San Diego fairy shrimp (*Branchinecta sandiegonensis*), and California coastal gnatcatcher. All formerly designated critical habitat areas for these species were included.

(f) *Criterion 6 – Enhance Ecosystem Functions of Currently Protected NCCP Reserve System and other Public Open Spaces*

This criterion was applied by protecting local drainage basins of low integrity riparian reaches and/or non-riparian and undeveloped areas, such as public open spaces and the NCCP Reserve System, with potential for restoration to serve as aquatic corridors connecting existing protected riparian ecosystems. The following types of areas within NCCP Reserve System or other lands designated as public open space were identified as aquatic resource integrity areas:

- Areas providing a low level of riparian ecosystem integrity (baseline conditions) (hydrologic, water quality, and habitat); and
- Areas that currently do not contain any aquatic resources but possess sufficient undeveloped land use where an aquatic feature can be created to serve as a corridor connecting the existing protected natural open spaces.

(g) *Criterion 7 – Designated Buffer in Agricultural Land Use Areas*

The local drainage basins for areas with the designated land use/land cover of “agricultural” were reduced to an approximately 20-meter buffer total width (generally included non-vegetated ephemeral and intermittent drainages), and 60-meter buffer on wetlands (generally included vegetated intermittent and perennial drainages and any adjacent wetlands). Data provided by The Irvine Company were used to update the existing land uses in the Corps’ database.

(h) *Criterion 8 – Exclusion of Disconnected Reaches in Agricultural Areas*

Riparian reaches were removed from consideration as high quality areas if they met all three of the following conditions:

- Located in areas with land use/land cover designations of agriculture;
- Scored in the low range of all integrity indices; and
- Were disconnected upstream and downstream from riparian ecosystems or areas of high resource value by 30 meters or greater.

The purpose of this criterion is to remove riparian reaches from identification as aquatic resource integrity areas that would be unable to provide useful wildlife movement opportunities and would have the potential to become wildlife sinks (see Glossary for further discussion under “Habitat Integrity”). For wetland and riparian species, low integrity and the disconnection by 30 meters were considered impediments. Although separation and low integrity may not be barriers, the active agricultural use taken together with the other two impediments would make these agricultural areas less desirable as priority preservation areas than others.

2.3 Formulation of a SAMP Impact Avoidance and Minimization Plan

By applying the resource identification and assessment methods described above (Section 2.2), and by considering the anticipated needs of the regulated community, the Corps and the Department were able to formulate an impact avoidance and minimization plan. The impact avoidance and minimization plan, which is an element of the SAMP Analytical Framework, endeavors to maximize the avoidance and minimization of impacts to sensitive aquatic resources as required by the 404(b)(1) Guidelines, at the watershed scale. The Corps and the Department targeted the aquatic resource integrity areas as the foundation of the impact avoidance and minimization plan (Figures 2-1 and 2-2).

2.3.1 Coordinated SAMP (Pre-Application) Planning Process

In formulating the SAMP impact and avoidance plan, the Corps and Department convened a series of pre-application meetings beginning in 2001 after the EIS/EIR scoping period with the coordinating resource agencies and the Participating Applicants, who wanted specific projects or activities intensively evaluated in the context of the SAMP. An informal SAMP Coordination Team was formed. The members met regularly over the intervening years to identify the anticipated regulated activities and reconcile planned activities with the need to maintain and restore aquatic ecosystem integrity and function in the Watershed. The Corps and the Department, in coordination with the other resource agencies, evaluated a suite of reasonably foreseeable activities that would be regulated under CWA section 404 and FGC section 1600 *et seq.*, including known projects and activities brought forward by the Participating Applicants.

This multi-year, coordinated planning effort between the resource agencies and the Participating Applicants involved extensive review of proposed projects and resulted in subsequent project modification by the Participating Applicants to demonstrate adherence to the 404(b)(1) Guidelines by incorporating avoidance and minimization measures during the pre-application stage. This coordinated planning process resulted in the impact avoidance and minimization plan for development, whereby aquatic resource integrity areas were avoided and identified as potential areas for conservation management. (Additional information on management is provided in Sections 3 and 4 and appendices.) Other areas were identified as restoration opportunities to increase the functional integrity of a particular riparian reach, which upon restoration and management would be considered aquatic resource integrity areas.

In addition to the specific criteria for identifying aquatic resource integrity areas (Section 2.2.4), other issues were given consideration in the coordinated planning process for identifying an impact avoidance and minimization plan. Selected portions of local drainage basins of aquatic resources associated with previously permitted, but unbuilt development projects were eliminated as aquatic resource integrity areas. Furthermore, based on the iterative pre-application review process and discussions among landowners, local jurisdictions, and the resource agencies, in the cases where medium to higher value aquatic resources and associated

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local drainage basins were located within areas planned for development projects in accordance with local general plans, the resource agencies requested project modifications from the proponent to avoid impacts in specific areas by decreasing the footprint of planned development and to minimize impacts by reducing surface runoff inputs into aquatic resources from the developed area.

2.3.2 Public Participation

The public has an important role in providing input to the SAMP formulation and implementation processes, and towards that end, public participation and outreach has been incorporated to an extent beyond the level defined by CWA and NEPA implementing regulations and the CEQA requirements. For example, in addition to the Public Scoping Meeting (August 2001), the Corps and Department held a public workshop (July 2002) and a public informational meeting (January 2005) to continue to engage the public in the process. Corps and Department representatives have attended the Newport Bay Watershed Management Committee intermittently to keep the known stakeholders apprised of the progress of the SAMP. The public comments received to date were considered during the SAMP formulation process and such ongoing feedback is reflected in this proposed SAMP (refer to the Program EIS/EIR for further discussion).

A formal public review and comment period, including a public meeting on the draft Program EIS/EIR will afford the public another opportunity to provide substantive comments on the SAMP. The Corps will use comments received from the public review in its decision-making process, in accordance with NEPA (40 CFR 1506.6) and CWA regulations. The Department will evaluate comments in accordance with the CEQA requirements and FGC.

2.3.3 Results of the SAMP Formulation Process

The SAMP aquatic resource impact avoidance and minimization plan depicts at a landscape level the aquatic resource integrity areas identified by the Corps, the Department, and through coordinated planning with the Participating Applicants and public participation described in 2.3.1 and 2.3.2 (Figures 2-1 and 2-2). The Corps and the Department caution that the configuration of the aquatic resource integrity areas could change as a result of further public review and the EIS/EIR process. [Note: The data presented in the text, the tables, and as graphically depicted in the figures, represent the results of a landscape-level and reach-level characterization of aquatic resources prepared in 2000, and were subsequently verified. However, the Corps and the Department consider the Watershed to be a dynamic, not static, system. The data presented herein and in related documentation were used for SAMP planning and evaluation purposes and as such were not intended to replace data from site-level biological and physical assessments and jurisdictional delineations.]

The aquatic resource integrity areas encompass the vast majority of aquatic resources within the Watershed. Of the 2,552 acres of aquatic resources, about 1,648 acres (65%), were identified as

aquatic resource integrity areas. In considering riparian habitat only, 1,080 acres (65%) of the total 1,666 acres of riparian habitat delineated in the Watershed are identified within aquatic resource integrity areas (Table 2-1). Of the 570 acres of high quality riparian habitat (rating at least 70% of the maximum score for hydrology, water quality, or habitat integrity as determined by the LLFA), about 511 acres (89%) are within identified aquatic resource integrity areas. Of the 959 acres of high and medium quality riparian habitat (rating at least 40% of the maximum score for hydrology, water quality, or habitat integrity as determined by the LLFA), about 780 acres (81%) are within aquatic resource integrity areas.

The NCCP Reserve System currently provides protection to 639 acres of aquatic resource, including 613 acres of riparian habitat (Table 2-1). Using the SAMP Analytical Framework, the Corps and the Department identified an additional 1,029 acres of aquatic resources, including 484 acres of riparian habitat, as aquatic resource integrity areas (Table 2-1). Although some may argue the additional management considerations provided by identification as aquatic resource integrity areas in the SAMP are mostly within the San Joaquin Marsh area, only 464 acres are within the San Joaquin Marsh Area; the remaining 565 acres occur outside the Marsh.

Table 2-2 provides a comparison between the baseline of all riparian resources of high and medium integrity within each subwatershed, as determined using the LLFA methodology (Smith, 2000), and those riparian resources identified as aquatic resource integrity areas. Table 2-3 gives a broader inventory of various habitat types of aquatic resource and their associated riparian and terrestrial habitats found within the Watershed under baseline conditions.

In addition to the identification of aquatic resource integrity areas, the Corps and the Department consider the major stream systems, including Serrano Creek, Borrego Canyon Wash, San Diego Creek, Peters Canyon Wash, and Hicks Canyon Wash, important aquatic resources in the context of the network of aquatic resources within the Watershed. In light of the types and extent to which these major stream systems provide water quality, hydrologic, and potential habitat and connectivity functions and values within the Watershed, the Corps and the Department believe these major stream systems merit special consideration in the management of the Watershed's aquatic resources. Consequently, the Corps and the Department have incorporated these considerations into the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

The areas shown in Figures 2-1 and 2-2 represent a combination of aquatic habitats and associated terrestrial habitats within the contributing upland areas of influence that the Corps and the Department identified as aquatic resource integrity areas, as well as the five major stream systems, i.e., Serrano Creek, Borrego Canyon Wash, San Diego Creek, Peters Canyon Wash, and Hicks Canyon Wash.

Table 2-1. Comparison of aquatic resources within the aquatic resource integrity areas and the NCCP Reserve System.

	NCCP Reserve System (acres)			Aquatic Resource Integrity Areas (acres)			Watershed (acres)
	Inside aquatic resource integrity areas	Outside aquatic resource integrity areas	Total	Inside NCCP	Outside NCCP	Total	
Total Area	12,408 (95%)	680 (5%)	13,088 (100%)	12,408 (72%)	4,729 (28%)	17,137 (100%)	76,012
	17% of Watershed			23% of Watershed			
Aquatic Resources	619 (97%)	20 (3%)	639 (100%)	619 (38%)	1,029 (62%)	1,648 (100%)	2,552
	25% of Watershed			65% of Watershed			
Ephemeral Streams	39 (98%)	1 (2%)	40 (100%)	39 (85%)	7 (15%)	46 (100%)	68
	59% of Watershed			68% of Watershed			
Riparian Habitat	596 (97%)	19 (3%)	613 (100%)	596 (55%)	484 (45%)	1,080 (100%)	1,666
	37% of Watershed			65% of Watershed			
High¹ Integrity Riparian	442 (99%)	2 (1%)	444 (100%)	442 (86%)	69 (14%)	511 (100%)	570
	78% of Watershed			89% of Watershed			
Medium² and High Integrity Riparian	521 (98%)	11 (2%)	532 (100%)	521 (67%)	259 (33%)	780 (100%)	959
	55% of Watershed			81% of Watershed			
Low³ Integrity Riparian	74 (91%)	7 (9%)	81 (100%)	74 (25%)	226 (75%)	300 (100%)	707
	11% of Watershed			42% of Watershed			

¹ High integrity riparian = Riparian reaches exhibiting at least 70% of the maximum score for hydrologic, water quality, OR habitat integrity.

² Medium integrity riparian = Riparian reaches exhibiting at least 40% of the maximum score for hydrologic, water quality, OR habitat integrity index, but less than 70% of the maximum score for all three of the integrity indices.

³ Low integrity riparian = Riparian reaches exhibiting less than 40% of the maximum score for hydrologic, water quality, AND habitat integrity index.

Table 2-2. Riparian habitat resources within of the Watershed shown according to subwatershed and in descending order for number of acres of baseline high and medium integrity riparian habitat.

	Baseline Riparian ¹					Riparian Habitat in Aquatic Resource Integrity Areas						
	Total		High Integrity		High and Medium Integrity		Total		High Integrity		High and Medium Integrity	
	Acres	Acres	% ²	Acres	% ²	Acres	% ²	Acres	% ³	Acres	% ⁴	
Agua Chinon Wash	183	143	78	183	100	171	93	143	100	171	93	
Borrego Canyon Wash	169	128	76	159	94	142	84	116	90	138	87	
Sand Canyon Wash	171	15	9	143	83	149	87	11	75	125	88	
Serrano Creek	145	129	89	138	95	108	75	105	81	105	76	
Bonita Creek	132	5	3	75	57	101	77	5	100	56	75	
San Diego Creek	404	20	5	74	18	222	55	14	70	44	59	
Bee Canyon Wash	56	28	51	44	79	48	86	28	100	38	88	
Bommer Canyon	44	36	82	39	88	40	89	35	97	37	94	
Hicks Canyon Wash	32	19	59	31	96	19	60	18	98	18	60	
Shady Canyon	29	29	100	29	100	22	75	22	75	22	75	
Laguna Canyon	31	13	42	14	45	16	51	10	74	10	76	
Peters Canyon Wash	69	0	0	9	12	19	28	0	0	5	61	
Little Joaquin Valley	7	0	0	7	100	0	0	0	0	0	0	
Rattlesnake Canyon Wash	32	3	9	7	22	6	19	3	95	4	54	
Univ. of California-Irvine	6	1	26	6	100	4	68	1	96	4	68	
Marshburn Channel	11	0	3	2	19	0	4	0	100	0	23	
San Joaquin Channel	24	1	2	2	8	10	43	1	87	2	79	
Barranca Channel	20	0	0	0	0	0	0	0	0	0	0	
Como Channel	15	0	0	0	0	0	0	0	0	0	0	
El Modena-Irvine Channel	22	0	0	0	0	0	0	0	0	0	0	
Lane Channel	20	0	0	0	0	0	0	0	0	0	0	
San Joaquin Marsh	2	0	0	0	0	1	75	0	0	0	0	
Santa Fe Channel	14	0	0	0	0	0	0	0	0	0	0	
Central Irvine Channel	29	0	0	0	0	4	12	0	0	0	100	
Totals	1666	570	34	959	58	1080	65	511	90	780	81	

¹ Data are based on results of LLFA (Smith, 2000). Acreage and integrity are subject to changes in landscape conditions.

² % of the total baseline riparian habitat (e.g., 183 acres for Agua Chinon and 169 acres for Borrego)

³ % of the total baseline riparian habitat with high integrity (e.g., 143 acres for Agua Chinon and 128 acres for Borrego)

⁴ Percent of the total baseline riparian habitat with high-medium integrity (e.g., 183 acres for Agua Chinon and 159 acres for Borrego)

Table 2-3. Aquatic resources for each subwatershed within the Watershed

Subwatershed	Total Aquatic Resources	Within Aquatic Resource Integrity Areas		Aquatic Resource ¹ Types Common to the Subwatershed
	Acres ²	Acres ²	%	Acres ²
Agua Chinon Wash	191	178	93%	Coast Live Oak Woodland (89.8), Riparian Herb (24.2), Southern Willow Scrub (17.5), Mulefat Scrub (14.3), Intermittent Rivers and Streams (8.3), Coastal Freshwater Marsh (7.4), and Ephemeral Rivers and Streams (6.7)
Barranca Channel	21	0	0%	Flood Control Channels (19.1), Perennial Rivers and Streams (0.8), and Ephemeral Rivers and Streams (0.7)
Bee Canyon Wash	85	49	58%	Spreading Grounds and Detention Basins (18.2), Ephemeral Rivers and Streams (14.1), Riparian Herb (9.6), Coast Live Oak Woodland (9.6), and Southern Coast Live Oak Riparian Forest (9.1)
Bommer Canyon	44	41	93%	Coast Live Oak Woodland (13.5), Southern Sycamore Riparian Woodland (11.4), and Ephemeral Rivers and Streams (10.0)
Bonita Creek	151	96	64%	Spreading Grounds and Detention Basins (29.6), Southern Arroyo Willow Forest (25.1), Coast Live Oak Woodland (24.1), Coastal Freshwater Marsh (18.1), Mulefat Scrub (17.2), Southern Willow Scrub (14.0), Southern Sycamore Riparian Woodland (9.3), and Ephemeral Rivers and Streams (5.4)
Borrego Canyon Wash	175	148	85%	Coast Live Oak Woodland (77.6), Southern Coast Live Oak Riparian Forest (35.7), Ephemeral Rivers and Streams (34.7), Southern Sycamore Riparian Woodland (7.7), and Flood Control Channels (7.6)
Central Irvine Channel	68	27	40%	Flood Control Channels (20.4), Spreading Grounds and Detention Basins (20.3), and Open Water (19.0)
Como Channel	16	0	0%	Flood Control Channels (15.1) and Open Water (1.2)
El Modena-Irvine Channel	23	0	0%	Flood Control Channels (21.9), Ephemeral Rivers and Streams (0.8), and Open Water (0.6)
Hicks Canyon Wash	35	21	60%	Flood Control Channels (9.7), Mulefat Scrub (8.7), Southern Coast Live Oak Riparian Forest (5.8), and Ephemeral Rivers and Streams (5.4)
Laguna Canyon	47	25	54%	Open Water (13.2), Flood Control Channels (9.1), Mulefat Scrub (6.2), Intermittent Rivers and Streams (6.1), and Southern Arroyo Willow Forest (5.0)
Lane Channel	20	0	0%	Flood Control Channels (20.0) and Ephemeral Rivers and Streams (0.2)
Little Joaquin Valley	10	2	20%	Ephemeral Rivers and Streams (5.8), Flood Control Channels (3.3), and Spreading Grounds and Detention Basins (0.5)
Marshburn Channel	12	< 1	1%	Flood Control Channels (8.8), Southern Willow Scrub (1.3), and Ephemeral Rivers and Streams (1.0)

Special Area Management Plan for the San Diego Creek Watershed

Subwatershed	Total Aquatic Resources	Within Aquatic Resource Integrity Areas		Aquatic Resource ¹ Types Common to the Subwatershed
	Acres ²	Acres ²	%	Acres ²
Peters Canyon Wash	79	20	25%	Perennial Rivers and Streams (38.1), Spreading Grounds and Detention Basins (16.4), Open Water (8.3), and Flood Control Channels (7.6)
Rattlesnake Canyon Wash	95	12	13%	Open Water (44.7), Spreading Grounds and Detention Basins (14.2), Mulefat Scrub (9.0), Southern Willow Scrub (8.5), Flood Control Channels (6.2), and Fluctuating Shorelines (5.1)
San Diego Creek	554	222	40%	Perennial Rivers and Streams (171.7), Open Water (130.6), Southern Black Willow Forest (72.8), Riparian Herb (48.3), Southern Willow Scrub (33.4), Mulefat Scrub (31.9), Eucalyptus (19.4), Southern Cottonwood-Willow Riparian Forest (10.7), Southern Arroyo Willow Forest (8.5), and Ephemeral Rivers and Streams (5.7)
San Joaquin Channel	27	16	59%	Flood Control Channels (15.7), Unclassified (5.9), and Ephemeral Rivers and Streams (5.5)
San Joaquin Marsh	487	464	95%	Coastal Freshwater Marsh (264.2), Open Water (110.0), Southern Black Willow Forest (54.6), Annual Grassland (33.9), and Vineyards and Orchards (16.9)
Sand Canyon Wash	214	191	89%	Southern Arroyo Willow Forest (54.7), Ruderal (52.4), Open Water (51.8), Southern Sycamore Riparian Woodland (13.4), Southern Coast Live Oak Riparian Forest (10.9), Mulefat Scrub (6.4), Annual Grassland (6.1), Southern Willow Scrub (6.1), and Ephemeral Rivers and Streams (5.4)
Santa Fe Channel	14	0	0%	Flood Control Channels (13.8), Ephemeral Rivers and Streams (0.5), and Perennial Rivers and Streams (0.1)
Serrano Creek	149	112	75%	Southern Coast Live Oak Riparian Forest (50.0), Coast Live Oak Woodland (39.9), Southern Willow Scrub (31.3), Southern Sycamore Riparian Woodland (6.2), Mulefat Scrub (5.1), and Ephemeral Rivers and Streams (5.0)
Shady Canyon	29	22	75%	Southern Sycamore Riparian Woodland (10.9), Southern Willow Scrub (6.3), and Southern Coast Live Oak Riparian Forest (3.8)
University of California-Irvine	6	3	50%	Mulefat Scrub (4.8), Southern Willow Scrub (1.0), and Ephemeral Rivers and Streams (0.6)
Totals³	2552	1648	64%	

¹ Habitat types represent natural and non-native types comprising at least 5 acres within a subwatershed, or the predominant three habitats within the subwatershed. The types described here are not inclusive of all the types of aquatic resources observed in the subwatershed.

² Data are based on results of LLFA (Smith, 2000). Acreage, integrity, and habitat type are subject to changes in landscape conditions.

³ Due to rounding of significant figures, sum of subwatershed acreages may not equal total acreage.

The baseline condition of each subwatershed listed in Tables 2-2 and 2-3 is described in detail herein. The discussion of subwatershed condition presumes that land uses existing at baseline condition of the Watershed would continue.

Agua Chinon Wash - The Agua Chinon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly non-urbanized, particularly upstream of the Foothill Transportation Corridor. Downstream of the Foothill Transportation Corridor, the subwatershed is moderately urbanized, with most of the area occupied by portions of the former MCAS El Toro. The subwatershed contains approximately 191 acres of riparian and other aquatic resources, including coast live oak woodlands, riparian herb, southern willow scrub, and mulefat scrub. Due to the high integrity of most of the aquatic resources, approximately 178 acres (93%) were identified as aquatic resource integrity areas.

Barranca Channel – The Barranca Channel subwatershed originates near the MCAS in the City of Tustin and drains southeasterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized, with little native vegetation cover remaining. The subwatershed has 21 acres of aquatic resources, including flood control channels, perennial streams, and ephemeral streams. Due to the low integrity of the aquatic resources and urbanized setting within the Watershed, in general aquatic resources of this subwatershed failed to satisfy the criteria for identifying aquatic resource integrity areas. Further, the Corps and the Department do not consider this channel an ecologically important stream system in the Watershed².

Bee Canyon Wash – The Bee Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. Although upstream of the Foothill Transportation Corridor the subwatershed is mostly non-urbanized, the Bowerman Landfill represents a substantial land disturbance. However, the landfill operations, existing habitat mitigation sites, phased nature of the landfill operations and expansion, and the expected future condition after closure, it is expected that near natural areas would be compatible with providing habitat functions and values relevant to the aquatic resources and the upland areas of influence over the long term. Downstream of the Foothill Transportation Corridor, the subwatershed is moderately urbanized, with most of the area occupied by portions of the former MCAS El Toro. Large portions of the middle reaches are within agricultural production. The subwatershed has approximately 85 acres of riparian and other natural and constructed aquatic resources, including spreading grounds and detention basins, ephemeral streams, riparian herb, and coast live oak woodlands. Due to the moderate integrity

² Here, whether a subwatershed is termed “ecologically important” is dependent on the expected effect a discharge would have on functional integrity of the riparian ecosystem (e.g., water quality, hydrology, and habitat) located downstream of the impact. Impacts to an already degraded or highly disconnected reach would have a relatively minor effect on the ecological integrity of the subwatershed as compared to impacts to a natural or near natural stream portion, or one with high connectivity. Thus, the latter reach would be considered more ecologically important than the former.

of most of the aquatic resources within the subwatershed, approximately 49 acres (58%) were identified as aquatic resource integrity areas.

Bommer Canyon – The Bommer Canyon subwatershed originates in the San Joaquin Hills and drains northerly into the Sand Canyon Wash subwatershed. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the Turtle Rock community. The subwatershed has 44 acres of riparian and other aquatic resources, including coast live oak woodlands, southern sycamore riparian woodlands, and ephemeral streams. Due to the high integrity of most of the aquatic resources, approximately 41 acres (93%) were identified as aquatic resource integrity areas.

Bonita Creek – The Bonita Creek subwatershed originates in the San Joaquin Hills and drains northwesterly into the San Diego Creek subwatershed near Upper Newport Bay. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the northern and western areas along the San Joaquin Toll Road. The subwatershed has approximately 151 acres of riparian and other aquatic resources, including spreading grounds and detention basins, southern arroyo willow forest, coast live oak woodlands, coastal freshwater marsh, and mulefat scrub. Due to the moderate integrity of most of the aquatic resources, 96 acres (64%) were identified as aquatic resource integrity areas.

Borrego Canyon Wash – The Borrego Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Agua Chinon Wash subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas within the Lomas de Santiago foothills and within the El Toro Conservation Lands (formerly known as El Toro National Wildlife Refuge). The subwatershed has approximately 175 acres of riparian and other aquatic resource habitats, including coast live oak woodlands, southern coast live oak riparian forests, ephemeral streams, and southern sycamore riparian woodlands. Although the aquatic resources are not pristine, the various ongoing activities and existing land uses on the El Toro Conservation Lands are compatible with providing habitat functions and values to the species observed in the area and do not preclude the opportunity for future riparian ecosystem restoration. Due to the high integrity of most of the aquatic resources, approximately 148 acres (85%) were identified as aquatic resource integrity areas. Although some aquatic resources within this subwatershed may have failed to satisfy the criteria used to identify aquatic resource integrity areas, the Corps and the Department believe this major stream system merits special consideration in the management of the Watershed’s aquatic resources. Consequently, the agencies have incorporated these considerations in developing the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

Central Irvine Channel – The Central Irvine Channel (aka Trabuco Channel) subwatershed originates in the central portion of the Watershed near the Siphon Reservoir and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized with agricultural production in the upstream areas. The subwatershed has approximately

68 acres of aquatic resources, including flood control channels, spreading grounds and detention basins, and open water (Siphon Reservoir). Due to the moderate integrity of the aquatic resources, approximately 27 acres (40%) were identified as aquatic resource integrity areas.

Como Channel – The Como Channel subwatershed originates in central Watershed and drains westerly into the Peters Canyon Wash subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has 16 acres of aquatic resources, including flood control channels and open water. Due to the low integrity of the aquatic resources and urbanized setting within the Watershed, aquatic resources of this subwatershed failed to satisfy the criteria for identifying aquatic resource integrity areas. Further, the Corps and the Department do not consider this channel an ecologically important stream system in the Watershed.

El Modena-Irvine Channel – The El Modena-Irvine Channel subwatershed originates in the northern portion of the Watershed within the City of Tustin and drains southerly into the Peters Canyon Wash subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has approximately 23 acres of aquatic resources, including flood control channels, ephemeral streams, and open water. Due to the low integrity of the aquatic resources and urbanized setting within the Watershed, aquatic resources of this subwatershed failed to satisfy the criteria for identifying aquatic resource integrity areas. Further, the Corps and the Department do not consider this channel an ecologically important stream system in the Watershed.

Hicks Canyon Wash – The Hicks Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwestly into the Peters Canyon Wash subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas within the Lomas de Santiago foothills and some agricultural areas interspersed throughout the subwatershed. The subwatershed has approximately 35 acres of riparian and other aquatic resource habitats, including flood control channels, mulefat scrub, and southern coast live oak riparian forest. Due to the moderate integrity of most of the aquatic resources, approximately 21 acres (60%) were identified as aquatic resource integrity areas. Although some aquatic resources within this subwatershed may have failed to satisfy the criteria used to identify aquatic resource integrity areas, the Corps and the Department believe this major stream system merits special consideration in the management of the Watershed’s aquatic resources. Consequently, the agencies have incorporated these considerations in developing the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

Laguna Canyon – The Laguna Canyon subwatershed originates in the San Joaquin Hills and drains northerly into the San Diego Creek subwatershed. The subwatershed is moderately urbanized, with most of the urbanization concentrated downstream in the northern and western areas. Interspersed across the subwatershed are agricultural lands. The subwatershed

has approximately 47 acres of riparian and other aquatic resource habitat types, including open water, flood control channels, and mulefat scrub. Due to the moderate integrity of the aquatic resources, approximately 25 acres (54%) were identified as aquatic resource integrity areas.

Lane Channel – The Lane Channel subwatershed originates in the western portion of the Watershed within the City of Santa Ana and drains southeasterly into the San Diego Creek subwatershed. The subwatershed is mostly urbanized with little native vegetation cover. The subwatershed has approximately 20 acres of aquatic resources, including flood control channels and ephemeral streams. Due to the low integrity of the aquatic resources and urbanized setting within the Watershed, aquatic resources of this subwatershed failed to satisfy the criteria for identifying aquatic resource integrity areas. Further, the Corps and the Department do not consider this channel an ecologically important stream system in the Watershed.

Little Joaquin Valley – The Little Joaquin Valley subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Peters Canyon Wash subwatershed. The subwatershed is mostly agricultural, with some natural habitat areas remaining within the upper Lomas de Santiago foothills. The subwatershed has approximately 10 acres of riparian and other aquatic resources, including ephemeral streams, flood control channels, and spreading grounds and detention basins. Due to the low integrity of most of the aquatic resources, only 2 acres (20%) were identified as aquatic resource integrity areas.

Marshburn Channel – The Marshburn Channel subwatershed originates in the lower Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is mostly agricultural, with some urban areas. The subwatershed has approximately 12 acres of riparian and other aquatic resources, including flood control channels, southern willow scrub, and ephemeral streams. Due to the low integrity of the aquatic resources and urbanized setting within the Watershed, all but 1% of the aquatic resources of this subwatershed failed to satisfy the criteria for identifying aquatic resource integrity areas. The Corps and the Department do not consider this channel an ecologically important stream system in the Watershed.

Peters Canyon Wash – The Peters Canyon Wash subwatershed originates in Peters Canyon Regional Park and drains southerly into the San Diego Creek subwatershed. This subwatershed is mostly urbanized, with some scattered natural areas within Peters Canyon Regional Park. The subwatershed has approximately 79 acres of riparian and other aquatic resources, including perennial streams, spreading grounds and retention basins, open water, and flood control channels. Due to the low integrity of most of the aquatic resources, only approximately 20 acres (25%) were identified as aquatic resource integrity areas. Although most of the aquatic resources within this subwatershed failed to satisfy the criteria used to identify aquatic resource integrity areas, the Corps and the Department believe this major stream system is ecologically important and merits special consideration in the management of the Watershed's aquatic resources. Consequently, the agencies have incorporated these considerations in developing

the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

Rattlesnake Canyon Wash – The Rattlesnake Canyon Wash subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the Peters Canyon Wash subwatershed. The subwatershed is mostly agricultural, with some natural areas within the upper Lomas de Santiago foothills. The subwatershed has approximately 95 acres of riparian and other aquatic resources, including open water (Rattlesnake Reservoir), spreading grounds and detention basins, mulefat scrub, and southern willow scrub. Due to the low integrity of most of the aquatic resources within the Watershed, only approximately 12 acres (13%) of the aquatic resources of this subwatershed were identified as aquatic resource integrity areas. The remaining aquatic resources failed to satisfy the criteria for identifying aquatic resource integrity areas.

San Diego Creek – The San Diego Creek subwatershed originates in the eastern portion of the Watershed and drains in a generally westerly direction until it empties into Upper Newport Bay. The subwatershed is mostly urbanized, with the only remaining non-urbanized areas located just upstream of the I-405 freeway crossing. This subwatershed includes large residential and commercial areas from the headwaters down to the outlet at Upper Newport Bay. The subwatershed has approximately 554 acres of riparian and other aquatic resources, including perennial streams, open water, southern black willow forest, riparian herb, and southern willow scrub. Due to the moderate integrity and urbanized setting of the aquatic resources, approximately 222 acres (40%) were identified as aquatic resource integrity areas. Although some aquatic resources within this subwatershed may have failed to satisfy the criteria used to identify aquatic resource integrity areas, the Corps and the Department believe this major stream system merits special consideration in the management of the Watershed's aquatic resources. Consequently, the agencies have incorporated these considerations in developing the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

San Joaquin Channel – The San Joaquin Channel subwatershed originates in the San Joaquin Hills and drains westerly into the San Diego Creek subwatershed near Michelson Avenue. The subwatershed is highly urbanized, with most of the urbanization concentrated downstream along the I-405 corridor. Agricultural lands are interspersed within the upper subwatershed. The subwatershed has 27 acres of riparian and other aquatic resource habitats, including open water, flood control channels, and ephemeral streams. Due to the moderate integrity and urbanized setting of most of the aquatic resources, 16 acres (59%) were identified as aquatic resource integrity areas.

San Joaquin Marsh – The San Joaquin Marsh (Marsh) is located in the southwestern portion of the Watershed. Although the Marsh is located next to San Diego Creek, the natural hydrology has been altered such that it is disconnected from any natural creek hydrology and is primarily comprised of non-riverine aquatic resource habitat types. The Marsh itself exists in a non-

urbanized state within an urban context, and as a combination of protected wetlands and constructed water treatment system wetlands. The Marsh is comprised of 487 acres of riparian and other aquatic resource habitats, including coastal freshwater marsh, open water, and southern black willow forest. Due to the moderate integrity of most of the aquatic resources and the regional significance of the wetland habitat, 464 acres (95%) were identified as aquatic resource integrity areas.

Sand Canyon Wash – The Sand Canyon Wash subwatershed originates in the San Joaquin Hills and drains northwesterly into the San Diego Creek subwatershed near Campus Drive. The subwatershed is moderately urbanized, with much of the urbanization concentrated downstream along University Drive. The subwatershed has approximately 214 acres of riparian and other aquatic resource habitats, including southern arroyo willow forest, southern sycamore riparian woodland, and southern coast live oak riparian forest, ruderal, and open water (Sand Canyon Reservoir). Due to the high integrity of most of the aquatic resources, approximately 191 acres (89%) were identified as aquatic resource integrity areas.

Santa Fe Channel – The Santa Fe Channel subwatershed originates in the western portion of the Watershed within the cities of Santa Ana and Tustin and drains southeasterly into the San Diego Creek subwatershed. This subwatershed is mostly urbanized, with little native vegetation cover. The subwatershed has approximately 14 acres of aquatic resource habitats, including flood control channels and ephemeral streams. Due to the low integrity and fragmented nature of the subwatershed’s aquatic resources, they failed to satisfy the criteria for identifying aquatic resource integrity areas. The Corps and the Department do not consider this channel an ecologically important stream system in the Watershed.

Serrano Creek – The Serrano Creek subwatershed originates in the Lomas de Santiago foothills and drains southwesterly into the San Diego Creek subwatershed. The subwatershed is moderately urbanized, with some non-urbanized areas occurring within the Lomas de Santiago foothills and along the middle reaches. The subwatershed has approximately 149 acres of riparian and other aquatic resources or associated terrestrial habitat types, including southern coast live riparian forest, southern coast live oak woodland, southern willow scrub, and southern sycamore riparian woodlands. Due to the high integrity of most of the aquatic resources, 112 acres (75%) were identified as aquatic resource integrity areas. Although some aquatic resources within this subwatershed may have failed to satisfy the criteria used to identify aquatic resource integrity areas, the Corps and the Department believe this major stream system merits special consideration in the management of the Watershed’s aquatic resources. Consequently, the agencies have incorporated these considerations in developing the SAMP Analytical Framework, and in the proposed modifications to implement the respective regulatory programs (Section 3).

Shady Canyon – The Shady Canyon subwatershed originates in the San Joaquin Hills and drains northwesterly into the Sand Canyon Wash subwatershed. The subwatershed is slightly urbanized, with most of the urbanization concentrated just upstream of Sand Canyon Reservoir.

The subwatershed has approximately 29 acres of riparian and other aquatic resources, including southern sycamore riparian woodlands, southern willow scrub, and southern coast live oak riparian forest. Due to the high integrity of most of the aquatic resources, approximately 22 acres (75%) were identified as aquatic resource integrity areas.

University of California, Irvine – The UCI subwatershed encompasses the UCI campus and its surrounding environs. The subwatershed is moderately urbanized with the campus facilities and associated infrastructure. The subwatershed has approximately 6 acres of riparian and other aquatic resource habitats, including mulefat scrub, southern willow scrub, and ephemeral streams. Due to the moderate integrity of most of the aquatic resources, about 3 acres (50%) were identified as aquatic resource integrity areas, while the remaining aquatic resources failed to satisfy the criteria for identifying aquatic resource integrity areas.

Other Parameters - Beyond the subwatershed unit, it is helpful to look at the SAMP aquatic resource integrity areas in terms the NCCP/Habitat Conservation Plan (HCP) Reserve System, the MCAS El Toro, and the City of Irvine. Of the 17,137 acres of aquatic resources and their contributing upland areas of influence identified as aquatic resource integrity areas, 12,408 acres (72%) fall within the boundaries of the NCCP Reserve System. Most of the aquatic resources, including ephemeral streams and riparian habitat found within the NCCP Reserve System are captured as high quality resources within the aquatic resource integrity areas. For instance, 521 acres (67%) of the high and medium integrity riparian habitat identified as part of the aquatic resource integrity areas are located within the NCCP Reserve System (Table 2-3).

Yet, high and medium quality aquatic resources, including riparian habitat, identified as aquatic resource integrity areas extend beyond the boundaries of the NCCP Reserve System. [Note: The NCCP Planning Area extends beyond the boundaries of the aquatic resource integrity areas and the SAMP Watershed]. Overall, the aquatic resource integrity areas encompass 1,029 acres of aquatic resources that are located outside the NCCP Reserve System boundaries; as such, these resources are under various management authorities with variable conservation priorities. The identification of aquatic resource integrity areas target an additional 259 acres of high and medium integrity riparian habitat for improved resource management. Other aquatic resources are located in non-NCCP designated open space areas, including the City of Irvine's Open Space Preserve, and UCI's San Joaquin Freshwater Marsh Preserve. Of the Watershed's aquatic resources that failed to satisfy the criteria for identifying aquatic resource integrity areas, some are within the NCCP Reserve System and other open space areas, and thus, are afforded some level of management already (Figure 2-3).

The decommissioned MCAS El Toro provides important connectivity opportunities within the Watershed. Because of its location at the base of the Loma de Santiago foothills, the development of MCAS El Toro could impede the connection of resources identified in the upstream reaches of the Watershed from those downstream. The SAMP analysis identified 6,820 acres of aquatic resources and their upland areas of influence as aquatic resource integrity areas in the portions of the Watershed north of the MCAS El Toro, including 561 acres of

aquatic resources. South of the MCAS El Toro, there are 10,317 acres identified as aquatic resource integrity areas, including approximately 1,088 acres of aquatic resource habitats. Of the 561 acres of aquatic resources in the north and 1,088 acres in the south, 30 and 16 acres, respectively, are ephemeral streams.

North of the MCAS El Toro, considerable overlap exists between the aquatic resource integrity areas and the NCCP Reserve System, with 467 acres, or 83% of this subset located within the NCCP Reserve System. In contrast, south of MCAS El Toro, less protection by the NCCP Reserve System is afforded aquatic resources, whereby 152 acres or 14% of the aquatic resources overlap with the NCCP Reserve System.

2.3.4 The Corps and the Department's Authorities and SAMP Aquatic Resource Integrity Areas

The identification of selected aquatic resources and their contributing uplands as aquatic resource integrity areas does not have any independent legal effect. Moreover, such identification of resources does not confer upon the Corps or the Department any additional regulatory authority beyond that which the agencies exercise under their respective enabling statutes. Instead, the identification of aquatic resource integrity areas provides a foundation for the permitting framework as well as the mitigation framework, which are both within the agencies' purviews. Management of aquatic resources within the integrity areas through the regulatory process is one of the principal benefits of the SAMP. It allows the agencies to make decisions about aquatic resources within the Watershed in a strategic way, rather than on a project-by-project basis. Apart from the requirements of the Corps and the Department regulatory authorities over jurisdictional areas and activities and requirements for compensatory mitigation projects, the management of aquatic resource integrity areas will rely on voluntary efforts.

As previously described, the San Diego Creek Watershed SAMP represents a comprehensive approach to aquatic resource conservation that integrates both the regulatory and land use planning processes so that they can become mutually beneficial. The SAMP does this by enabling the regulatory process to integrate more broadly with and support preservation, restoration, enhancement, and management of the aquatic resources in the Watershed, and vice versa.

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2.3.5 Alternatives to the SAMP

In addition to developing a SAMP impact avoidance and minimization plan for development activities, the Corps and the Department identified four alternatives based on various permitting scenarios for evaluation in the Program EIS/EIR. The following four alternatives to the SAMP/WSAA Process are described in Section 2.2 of the Program EIS/EIR:

- Alternative 1: No Project Alternative (existing case-by-case permitting);
- Alternative 2: Complete Avoidance (no permits issued);
- Alternative 3: Avoidance except for Bridges and Utility Lines (limited permitting),
- Alternative 4: General Plan Build-out without Avoidance (full permitting)

The application of the concept of Offsite Alternatives to the SAMP differs from how the concept is applied to a conventional project-level permit evaluation. Offsite alternatives for the SAMP would necessitate evaluation of sites outside the Watershed, which is beyond the scope and study area of the SAMP, and in effect would equate with the Complete Avoidance Alternative. Even so, the SAMP has been and will continue to be applied to project-level analyses to inform the evaluation of proposed aquatic resource impact sites within the Watershed. The compilation of data and analyses for the SAMP includes the landscape-level assessment of alternate sites within the Watershed that would avoid and minimize adverse impacts to the aquatic environment.

A complete analysis of the alternatives is provided in the Program EIS/EIR (Section 5.0).

3 SAMP and the Corps and Department's Regulatory Programs – A Coordinated Permitting Process and Mitigation Framework

Components of this SAMP

- Analytical Framework
- **Permitting Processes, including Mitigation Framework**
- Strategic Mitigation Plan
- Mitigation Coordination Program

A major component of the SAMP addresses the way the Corps and Department implement their respective regulatory programs in the Watershed. Using the SAMP Analytical Framework described above (Section 2), the Corps and the Department have identified Watershed-specific changes to their permitting procedures and mitigation policies that will differentiate among aquatic resources based on their water quality, habitat, and hydrologic integrity and functional role in the Watershed context. The SAMP Analytical Framework has been applied to the regulatory process in order to inform the Corps and the Department as they carry out their regulatory duties. As a result, the Corps and Department are proposing changes to the ways in which their programs are implemented under section 404 of the CWA and section 1600 *et seq.* of the FGC, respectively.

The proposed approach consists of a Watershed-specific permitting program, Strategic Mitigation Plan, and Mitigation Coordination Program, which together will enable the Corps and Department to better support widespread efforts to manage the aquatic resources in the entire Newport Bay Watershed, while addressing the anticipated needs of land managers with regards to regulated activities likely to affect aquatic resources in its main tributary subwatershed, the San Diego Creek Watershed. This Section describes the proposed permitting procedures that will modify (in the case of the Corps) and supplement (in the case of the Department) the agencies' existing regulatory programs. Section 4 describes in detail one aspect of the agencies' regulatory programs: a Strategic Mitigation Plan for the Watershed.

3.1 Establishment of Watershed-Specific Permitting Processes

The Corps' and the Department's proposed SAMP permitting procedures represent, to differing extents, a modification to the agencies' existing, conventional regulatory permitting procedures implemented under section 404 of the CWA and section 1600 *et seq.* of the FGC, respectively. Nonetheless, the focus of both the Corps and the Department's new permitting procedures in the Watershed is to provide the appropriate level of review and evaluation of regulated activities affecting aquatic resources in consideration of the Watershed context.

The SAMP Analytical Framework, which has allowed the Corps and Department to identify aquatic resources integrity areas and major stream systems that merit closer consideration, will improve the agencies' capacity to make informed management decisions within the agencies' authorities, i.e., permitting decisions, including mitigation. This approach has been translated to the proposed changes to the regulatory programs permitting procedures described herein.

The proposed regulatory program changes reflect extensive front-end analysis of the Watershed's aquatic resources and consideration of how regulated activities may affect those resources. As a result, the proposed changes to the regulatory program procedures will allow the Corps and the Department to target staff review and evaluation time towards regulated activities and projects with greater potential to result in adverse impacts to the overall integrity of aquatic resources in the Watershed. Conversely, projects and regulated activities with minor impacts that affect low integrity aquatic resources would undergo modified permitting procedures to improve efficiency. Areas that failed to meet the criteria of aquatic resource integrity areas represent aquatic resources with low hydrologic, water quality, and habitat integrity, little habitat value for threatened and/or endangered species, or low wildlife connectivity value. Regardless of their decreased value, under the SAMP mitigation framework even the permanent loss of lower value resources would require compensatory mitigation for unavoidable impacts.

An additional outcome of the SAMP formulation process is agreement between the Corps and the Department to increase coordination with the other resource agencies over their corresponding related regulatory programs when reviewing future permit applications. Mechanisms for increased interagency coordination are included in the proposed permitting procedures.

The proposed Watershed-specific permitting procedures described below (Section 3.3 for the Corps and 3.4 for the Department) are evaluated separately in the Program EIS/EIR. In adopting changes to how the agencies implement their regulatory programs in the Watershed, the Corps and the Department will rely on the evaluation conducted in the Program EIS/EIR and will follow their respective agencies' procedures and regulations for implementing such changes.

Furthermore, in issuing any future permits, agreements, or other regulatory approvals to applicants, to the extent permissible the Corps shall rely on and shall use the Program EIS/EIR, prepared as the NEPA program environmental document for such permits and approvals. Likewise, to the extent permissible, the Department shall rely on the Program EIS/EIR, prepared as the CEQA program documentation for any approvals regarding potential impacts to Department jurisdiction, and any project-specific CEQA documentation.

3.2 Anticipated Regulated Activities

Future actions in the Watershed that are activities regulated by the Corps and the Department under CWA section 404 and FGC section 1600 *et seq.*, i.e., the discharge of dredged or fill material into waters of the U.S., or activities that obstruct or divert the flow, or change the bed, channel, or bank of any river, stream, or lake in the state, respectively, would be subject to the SAMP permitting program/WSAA Process. Based on types of regulated activities previously authorized and the SAMP scoping process, the following categories of activities anticipated to occur in the Watershed were addressed in the proposed modifications to the Corps and Department's permitting processes and were evaluated at a program level in the Program EIS/EIR:

- Utility Lines (construction and/or maintenance of new and existing facilities);
- Flood Control Facilities Maintenance (construction and/or maintenance of new and existing facilities);
- Road Crossings including bridges and culverts (construction and/or maintenance of new and existing crossings);
- Land Development for Residential, Commercial, Industrial, Institutional and Recreational Facilities (construction and/or maintenance of new and existing land development and recreational facilities);
- Storm water Treatment and Management Facilities (construction and/or maintenance of new and existing facilities);
- Habitat Restoration and Enhancement Projects (construction and/or maintenance of new and existing projects); and
- Fire Abatement and Vegetative Fuel Management Activities³.

3.2.1 Participating Applicants' Projected Activities

A subset of anticipated activities was brought forward by the Participating Applicants as planned projects and routine activities that would require future permitting from the Corps and the Department. Since the Participating Applicants were able to provide information at a sufficiently detailed level to bring forward for pre-application planning purposes, the Corps and the Department were able to work with the Participating Applicants to examine projects and activities and help to identify ways to achieve conformance with the SAMP Analytical Framework and the Watershed-wide avoidance and minimization plan. The Participating Applicants brought forward the following planned activities and projects⁴ for pre-application consideration during the SAMP formulation process:

³ This activity may include vegetation removal, thinning of vegetation, as well as temporary access roads and staging areas. In many cases, as the Corps does not regulate removal of vegetation with hand tools, this activity may not be a Corps-jurisdictional activity; the activity would then be solely under the jurisdiction of the Department.

⁴ Other anticipated activities or planned projects were brought to the attention of the Corps and the Department during the SAMP formulation process. These projects included future County of Orange road (e.g., MPAH facilities), park, and landfill capital improvement and

- Development of City of Irvine Planning Areas (PAs) 1, 6, 18 and 39 (The Irvine Company)⁵;
- Extensions of Lake Forest Drive and Bake Parkway⁶ (The Irvine Company);
- Construction and maintenance of the Natural Treatment System (NTS) (Irvine Ranch Water District);
- Maintenance of flood control facilities within the Watershed (Orange County Flood Control District);
- Water and sewer system construction and maintenance within the Watershed (Irvine Ranch Water District); and
- Development of the Orange County Great Park⁷ (City of Irvine).

As a program-level document, the EIS/EIR does not specifically assess impacts of these projects, which would typically be done in subsequent project-specific CEQA and/or NEPA documents by the lead agencies responsible for discretionary approval of the project. Instead, at a program-level, the EIS/EIR evaluated the regulated activities that could be permitted under different processes by the Corps and the Department's in consideration of the SAMP Analytical Framework. Nevertheless, the Program EIS/EIR does evaluate how the SAMP would be applicable to these projects (e.g., how the projects meet the requirements of the SAMP).

3.3 The Corps' Watershed-Specific Permitting Process

In order to conform to the SAMP Analytical Framework, the Corps, in accordance with its operating procedures, is proposing several changes in the permitting procedures for regulated activities within its jurisdiction, pursuant to section 404 of the CWA and other federal laws and regulations governing the Corps' regulatory program. Although separate Special Public Notices (Appendices 1 and 2) will be distributed for public review and comment, the proposed permitting program changes are described herein.

maintenance projects, but either had an insufficient level of detail to initiate the pre-application process, or else the pre-application process had not advanced to a stage for meaningful discussion when the SAMP impact avoidance and minimization plan was being developed.

⁵ PAs 1, 6, and 18 received permit authorizations from the Corps and the Department for the proposed projects (or phases thereof) prior to the finalization of the SAMP and the SAMP permitting processes. PA 39 has an application pending review. The Irvine Company redesigned the three permitted projects to demonstrate conformance with the SAMP Analytical Framework, the SAMP impact avoidance and minimization plan, and in a manner such that the projects would likely have been eligible for permitting under the Corps' LOP procedures and the Department's WSAA Process if such permitting processes had been in place.

⁶ The Corps and Department received applications for a SIP and SAA, respectively, for the Lake Forest Drive Extension Project and Bake Parkway Extension. The Corps conducted a detailed evaluation of the proposed project and alternatives under the context of the SAMP Analytical Framework and permitted the projects.

⁷ In relation to the Great Park, the Heritage Fields Project was subsequently identified as a proposed project and the Corps and the Department participated in pre-application meetings with the proponents subsequent to the SAMP formulation stages. The Corps and the Department conducted detailed evaluations of the proposed projects and alternatives under a SIP and SAA, respectively, and subsequently granted the required permit/agreement.

The Corps is proposing a modified permitting process for the Watershed, based on the SAMP Analytical Framework, to improve the Corps' capacity for aquatic resource management as it fulfills its regulatory responsibilities. As previously mentioned, the permitting process will distinguish between sensitive and non-sensitive aquatic resources. However, as with all Corps permit processing procedures, the advanced identification of activities or areas that will generally be available for permits with shortened processing times should not be deemed as promoting projects or as constituting a permit for any specific project. Further, the identification of sensitive aquatic resource integrity areas within the Watershed or activities viewed by the Corps as generally unsuitable for those sensitive areas and as inconsistent with the SAMP Analytical Framework, should not be construed as prohibiting applications for permits to discharge dredged or fill material in such areas⁸.

The proposed modifications to the Corps permitting process for the Watershed are summarized as follows and described in detail in subsections: change the availability of selected Nationwide Permits (NWP) for use in the Watershed; establish new Letter of Permission (LOP) procedures; and establish a new Regional General Permit (RGP). Effectively, the LOP procedures and RGP would replace some NWP and provide a permitting mechanism with shorten permit processing times, as compared with a Standard Individual Permit (SIP), for eligible regulated activities that are consistent with the SAMP Analytical Framework. Authorizations under LOP procedures would be based on conformity with criteria outlined herein and in the forthcoming Special Public Notice published separately. Qualifying routine maintenance activities would be authorized under a new maintenance RGP. Alternatively, activities regulated by the Corps under section 404 and ineligible for a NWP, an LOP, or RGP, would be required to undergo evaluation through a SIP process.

A summary of the differences between the Corps' existing and proposed permitting processes within the San Diego Creek Watershed is provided in Table 3-1. The Corps' SAMP permitting processes, as outlined in Table 3-1 and represented in Figure 3-1, apply only to the San Diego Creek Watershed.

⁸ It is beyond the Corps and the Department's authority to preclude applications for permits/agreements in the Watershed. Nevertheless, legal mechanisms do exist to restrict certain activities within aquatic resources: local land use authorities could amend general and/or specific plans and enact zone changes to restrict uses in certain areas; and local land use or resource agencies, or private landowners could issue conservation easements or other legal protections to restrict activities in jurisdictional areas. Nevertheless, EPA could invoke their authority under Section 404(c) of the CWA by specifying any defined area(s) as a disposal site, and to deny or restrict the use of any defined area for specification as a disposal site (40 CFR 231).

Table 3-1. Comparisons between current and proposed SAMP permitting processes for Corps' permitting within the San Diego Creek Watershed.

	CURRENT SYSTEM		PROPOSED SYSTEM					
Permit Program	NWPs	SIPs	NWPs	RGP	LOPs			SIPs
Applicable Use Areas	All areas	All areas	All areas	Outside aquatic resource integrity areas	Outside aquatic resource integrity areas	In major stream systems ¹ outside aquatic resource integrity areas	Inside aquatic resource integrity areas	All areas
Eligible Regulated Activities	Specified for each NWP: NWP 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50	All regulated activities ineligible for NWPs.	Specified for each retained NWP: NWP 1, 2, 4, 5, 6, 8, 9, 10, 11, 15, 20, 22, 23, 24, 28, 30, 32, 34, 35, 36, 37, 38, 45, 47, 48	Anticipated maintenance activities ²	Anticipated activities ³	Anticipated activities ³ ; No stream channelization or stream replacement with pipes.	Anticipated activities ³ ; No stream channelization or stream replacement with pipes.	All regulated activities ineligible for other permitting procedures.
Permanent Impacts to WoUS Authorized	Generally ≤ 0.5 acre	No limit ⁴	Generally ≤ 0.5 acre	None	No limit ⁵	No limit ⁵	≤ 0.1 acre	No limit ⁴
Temporary Impacts to WoUS Authorized	No limit	No limit	No limit	≤ 0.5 acre	No limit ⁵	No limit ⁵	No limit ⁵	No limit
Review Time	≤ 45 days	approx. 120 days	≤ 45 days	≤ 15 days	≤ 45 days	≤ 45 days	≤ 45 days	approx. 120 days
Pre-Application Coordination	Preferred	Preferred	Preferred	Preferred	Required ⁶	Required ⁶	Required ⁶	Preferred
Inter-Agency Review	Generally > 0.5 acre	None	None	None	All actions	All actions	All actions	All actions

¹ Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, San Diego Creek, and Serrano Creek

² Anticipated maintenance activities ineligible for NWP may be eligible for RGP: Utility Lines (maintenance of new and existing facilities); Flood Control Facilities (maintenance of new and existing facilities); Road Crossings, including bridges and culverts (maintenance of new and existing crossings); Land Development for Residential, Commercial, Industrial, Institutional and Recreational Facilities (maintenance of new and existing land development and recreational facilities); Storm Water Treatment and Management Facilities (maintenance of new and existing facilities); Habitat Restoration and Enhancement Projects (maintenance of new and existing projects).

³ Anticipated activities ineligible for NWP or RGP may be eligible for LOP procedures: Utility Lines (construction and/or maintenance of new and existing facilities); Flood Control Facilities Maintenance (construction and/or maintenance of new and existing facilities); Road Crossings, including bridges and culverts (construction and/or maintenance of new and existing crossings); Land Development for Residential, Commercial, Industrial, Institutional and Recreational Facilities (construction and/or maintenance of new and existing land development and recreational facilities); Storm Water Treatment and Management Facilities (construction and/or maintenance of new and existing facilities); Habitat Restoration and Enhancement Projects (construction and/or maintenance of new and existing projects); and Fire Abatement and Vegetative Fuel Management Activities.

⁴ In evaluating projects under the SIP process, the Corps would need to assure project compliance with the 404(b)(1) Guidelines. Except as provided for by section 404(b)(2), no discharge of dredged or fill material into waters of the U.S. would be permitted by the Corps if the effects of the discharge, considered either individually or cumulatively, would contribute to the substantial degradation or impairment of waters of the U.S. (40 CFR Part 230).

⁵ Provided the project is in full compliance with LOP procedures.

⁶ For >0.1 acre of permanent impacts to waters of the U.S. or >0.25 acre of temporary impacts to waters of the U.S. with native riparian and/or wetland vegetation.

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3.3.1 Revocation of the Use of Specific Nationwide General Permits

Many NWP's have a threshold of 0.5 acre of permanent impacts. Under the current permitting framework, projects with impacts to greater than 0.5 acre of waters of the U.S. must undergo processing as an SIP. Projects with impacts to 0.5 acre or less of waters of the U.S. would undergo processing as a NWP. The NWP threshold is applied regardless of the type or condition of aquatic resources involved.

In consideration of the SAMP Analytical Framework, the Corps has concluded that indiscriminate application of NWP's may provide an inappropriate level of protection to aquatic resources in the Watershed. For instance, in areas where riparian ecosystems have been identified as strategic for the overall condition of the Watershed, i.e. within aquatic resource integrity areas, the Corps believes the NWP procedures provide an insufficient level of review for those projects proposing to impact higher quality aquatic resources. Within the aquatic resource integrity areas, the aquatic resources possess a moderate to high level of hydrologic, water quality, and habitat integrity with important strategic value in a landscape context with respect to endangered aquatic species habitat and riparian movement corridors. The NWP thresholds do not provide the public the appropriate amount of permit review in light of the condition of the aquatic resources in question. The Corps contends that additional public or agency review and input are needed to ensure the higher quality aquatic resources receive the appropriate amount of review and regulatory attention.

In other areas, where riparian condition is poor, the thresholds required by the NWP program can result in delays and uncertainty for projects proposing impacts to greater than 0.5 acre of these lower quality aquatic resources. Specifically, the Corps believes that aquatic resources with a low level of hydrologic, water quality, and habitat integrity, and with little strategic value in the landscape context, do not warrant a full SIP review. For these types of proposed impacts, the required SIP procedures, i.e., a public notice and environmental assessment tend to elicit little input from the public and other resource agencies, or provide minimal additional insight on aquatic resource condition beyond what was obtained by the formal assessment methods used for the SAMP. In light of the degraded condition of the aquatic resources outside aquatic resource integrity areas, the Corps believes NWP thresholds are unnecessarily restrictive in these areas.

Therefore, the SAMP permitting process involves the revocation of use of certain NWP's within the Watershed followed by the implementation of new permitting procedures for section 404 LOPs. Additionally, an RGP will address the need for maintenance activities affecting aquatic resources outside aquatic resource integrity areas. The Corps believes these steps would strengthen aquatic resource protections in areas of the Watershed of greater integrity and functional value, as well as provide regulatory flexibility for activities affecting lower value resource areas in situations where the impacts are not substantial.

As proposed, the Corps would revoke the use of selected NWP⁹ authorizations within the San Diego Creek Watershed, as consistent with the Corps authority and procedures outlined in 33 CFR 330.5(c) for issuing, modifying, suspending, or revoking nationwide permits and authorizations. Specifically, the Corps Division Engineer, through his discretionary authority proposes to revoke the use of the following 24 NWPs: 03, 07, 12, 13, 14, 16, 17, 18, 19, 21, 25, 27, 29, 31, 33, 39, 40, 41, 42, 43, 44, 46, 49, and 50. The remaining 25 NWPs would be retained for use in the Watershed: 01, 02, 04, 05, 06, 08, 09, 10, 11, 15, 20, 22, 23, 24, 28, 30, 32, 34, 35, 36, 37, 38, 45, 47, and 48 (Table 3-1).

3.3.2 Letter of Permission (LOP) Procedures

Pursuant to its authority under 33 CFR 325.2(e)(1)(ii) and in accordance with procedures outlined in 33 CFR Part 325, the Corps proposes to establish LOP procedures for regulated activities that are consistent with the purposes and goals of the San Diego Creek Watershed SAMP. The LOP procedures would cover several categories of activities identified for the SAMP Analytical Framework and listed below. In developing the LOP procedures, the Corps evaluated several classes of activities for applicability inside and outside the aquatic resource integrity areas and in a manner to comply with the avoidance and minimization requirements of section 404(b)(1) Guidelines.

The LOP procedures outline a process for an individual permit, where a decision to issue any particular permit authorization is made after coordination with federal and state fish and wildlife agencies, a public interest evaluation, and a concise environmental review that tiers from the Program EIS/EIR. A review process involving other resource agencies shall ensure adverse impacts are minimized to the maximum extent practicable. An integrated mitigation framework, supported by the Strategic Mitigation Plan and Mitigation Coordination Program, outlines appropriate compensatory mitigation for permitted activities resulting in unavoidable impacts to jurisdictional areas within the Watershed. The use of LOP procedures for the permanent discharge of dredged or fill material would be based upon the integrity of the aquatic resource proposed for impact, the activity type, and the acreage of impact. Generally, LOP procedures would be restricted for use in authorizing regulated activities affecting the lower value aquatic resource areas, i.e., areas that failed to meet the criteria for identifying aquatic resource integrity areas. In such low integrity areas, no acreage thresholds would apply for LOP usage because the baseline conditions of these aquatic resources are such that further changes in integrity would have a minor effect on the Watershed and would be controlled under a detailed evaluation by the resource agencies. The applicant would have to demonstrate impact avoidance and minimization to the extent practicable. Through the pre-application coordination process, the agencies would assist the applicant with fulfilling these conditions.

⁹ NWPs authorized by the Corps on March 18, 2007 expire on March 18, 2012. The list of NWPs proposed for revocation in the San Diego Creek Watershed described herein reflects the 2007 NWPs.

Regulated activities affecting the aquatic resource integrity areas may also be eligible for LOP procedures on a conditional basis (Figures 3-2 and 3-3). In these sensitive areas, LOPs would authorize temporary impacts for maintaining established structures and permanent impacts up to 0.1 acre of waters of the U.S. Similarly, in the five major stream systems, i.e., Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, San Diego Creek, and Serrano Creek, the LOP procedures would be available for regulated activities that would not result in stream channelization or conversion of stream to storm drain system. Instead, the LOP procedures in the aquatic resource integrity areas would apply only to projects with small overall project impacts to aquatic resources, such as utility substations, small bank protection structures, a single-family home, and recreational trails.

Generally, the Corps would issue an LOP within 45 days of receipt of a complete application for projects that demonstrate conformance with the LOP conditions. LOP procedures would minimize delays for projects with minor impacts to the aquatic environment, while strengthening the review process by providing a framework for increased agency coordination and review than often afforded by the existing permitting programs. The LOP procedures may apply to eligible projects that otherwise do not qualify for a NWP or RGP.

(a) *Eligible Activities*

Outside Aquatic Resource Integrity Areas

Outside the aquatic resource integrity areas, as shown in Figures 3-2 and 3-3, numerous activities would be eligible for LOP¹⁰ procedures. Covered by the LOP procedures is the discharge of dredged or fill material into waters of the U.S. associated with the following activities:

- Public and private utilities, including utility lines and maintenance of utility lines;
- Public and private drainage and flood control facilities, including construction of outfall and intake structures, construction of bank stabilization structures, and maintenance of all flood control facilities;
- Public and private road crossings, including bridges, culverts, lengthening, widening, and maintenance;
- Public and private land development, including residential, commercial, institutional, and recreational uses;

¹⁰ Many of the activities otherwise eligible under the suspended NWPs would also be eligible for LOPs if they are consistent with the SAMP; this determination would be made by the Corps during the pre-application consultation.

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- Storm water treatment and management facilities (construction and/or maintenance of new and existing facilities);
- Habitat restoration and enhancement projects (construction and/or maintenance of new and existing projects); and
- Fire abatement and vegetative fuel management activities¹¹

However, otherwise permissible activities cannot be issued under the LOP procedures if they would substantially alter a compensatory mitigation site, or involve flood-control related conversions of soft-bottom channels to concrete-lined channels or channelization of the major stream systems such as Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, San Diego Creek, and Serrano Creek. Such activities would require a Standard Individual Permit.

Inside Aquatic Resource Integrity Areas

Some activities affecting jurisdictional areas within aquatic resource integrity areas would still be eligible for LOPs (Figures 3-2 and 3-3). Regulated activities with minor, permanent impacts up to 0.1 acre of waters of the U.S., except capital improvement flood control projects excluded above, would be eligible for LOP procedures. In addition, covered under the LOP procedures is the discharge of dredged or fill material into waters of the U.S. associated with the following activities:

- Maintenance and repair of public and private utilities, including utility lines;
- Maintenance and repair of public and private drainage and flood control facilities, including outfall and intake structures, bank stabilization structures, flood control channels (consistent with an established Corps-approved maintenance baseline¹²), flood control basins (consistent with an established Corps-approved maintenance baseline), and landfill concrete channels and sedimentation basins (consistent with an established maintenance baseline);
- Maintenance and repair of public and private road crossings, including bridges and culverts;

¹¹ This activity may include vegetation removal, thinning of vegetation, as well as temporary access roads and staging areas. In many cases, as the Corps does not regulate removal of vegetation with hand tools, this activity may not be a Corps-jurisdictional activity; the activity would then be solely under the jurisdiction of the Department.

¹² The maintenance baseline is a description of the physical characteristics (e.g., depth, width, length, location, configuration, or design flood capacity, etc.) of a flood control project within which maintenance activities are normally authorized by NWP 31, which will no longer be available for use in this Watershed. The definition of baseline maintenance as defined in NWP 31 (72 FR 11186) applies here. The district engineer will approve the maintenance baseline of flood control channels and flood control basins based on the approved or constructed capacity of the flood control facility, whichever is smaller, including any areas where there are no constructed channels, but which are part of the facility. The prospective permittee will provide documentation of the physical characteristics of the flood control facility (which will normally consist of as-built or approved drawings) and documentation of the approved and constructed design capacities of the flood control facility. If no evidence of the constructed capacity exists, the approved capacity will be used. The documentation will also include best management practices to ensure that the impacts to the aquatic environment are minimal, especially in maintenance areas where there are no constructed channels. (The Corps may request maintenance records in areas where there has not been recent maintenance). Once determined, the maintenance baseline will remain valid for any subsequent reissuance of this RGP. This RGP does not authorize maintenance of a flood control facility that has been abandoned. A flood control facility will be considered abandoned if it has operated at a significantly reduced capacity without needed maintenance being accomplished in a timely manner.

- Habitat restoration and enhancement projects, including wetland restoration and creation;
- Maintenance of storm water treatment and management facilities; and
- Fire abatement and vegetative fuel management activities.

Activities that are ineligible for the LOP process may still be evaluated for a permit through the SIP process.

(b) Pre-Application Coordination for LOPs

Participating Applicants have undergone extensive pre-project review by the Corps, the Department, USFWS, EPA, and the Santa Ana RWQCB for several projects and activities to avoid and minimize impacts to the aquatic ecosystem to the maximum extent practicable. These applicants have satisfied some of the proposed requirements for eligibility under the LOP procedures, such as extensive pre-project coordination with the resource agencies and implementation of project modifications to comply with the section 404(b)(1) Guidelines through avoidance and initial minimization measures. Additional pre-application coordination is not required of those Participating Applicants for projects that already have satisfied this requirement through extensive pre-application coordination during the SAMP formulation process. The remaining requirements for eligibility for future permitting under LOPs for Participating Applicants are reviewed in the Program EIS/EIR.

Future projects proposed by other applicants or for other activities will need to undergo a commensurate level of scrutiny and review in order to be eligible for LOPs by undertaking similar procedures. The pre-application coordination procedures and summarized as follows:

1. Pre-application coordination is required for projects with permanent losses of waters of the U.S. greater than 0.1 acre or for projects with temporary impacts greater than 0.25 acre of waters of the U.S. containing native wetland and/or riparian vegetation.
2. For projects permanently impacting 0.1 acre or less of waters of the U.S. and temporarily impacting 0.25 acre or less of waters of the U.S. containing native wetland and/or riparian vegetation, pre-application coordination is not required; the applicant only needs to submit an application directly to the agencies.
3. Pre-application coordination must involve the Corps, the Department, the RWQCB, the USFWS, and the EPA.
4. For the pre-application meetings, the applicant may meet with the agencies separately or in small groups, consult by telephone, or schedule a pre-application meeting to be held at the Corps office. A written record of the proceedings must be provided afterwards to the Corps, documenting substantive issues discussed, agency recommendations, and any pertinent conclusions.
5. In preparation for the pre-application meeting, the following information should be provided to the agencies at least two weeks prior to the meeting:
 - a. A delineation of aquatic resources, including the Corps and Department jurisdictional resources, within the project area;

- b. A site location and plan view of the project areas and acreage to be impacted showing permanent and temporary impacts to waters of the U.S.;
- c. A draft statement addressing the section 404(b)(1) Guidelines;
- d. A draft mitigation plan, if unavoidable impacts occur to riparian habitat and/or wetlands; and
- e. When appropriate, a cultural resources inventory and results from an endangered or threatened species survey for the project area.

The Corps will make an initial determination that the project may qualify for the LOP procedures based on a preliminary determination that the project meets the 404(b)(1) Guidelines, that the project is consistent with the SAMP, and that standard individual permit processing with Public Notice review would not result in a substantive change in the proposed project or compensatory mitigation. If the Corps makes an initial determination that the project may not qualify for the LOP procedures, the Corps will provide recommendations that will enable the project to qualify for the LOP procedures.

(c) Information Needed for LOP Application

The following items are needed for a complete application for the LOP procedures:

1. A completed Department of the Army application form Eng Form 4345, or a Joint Corps/Department application for the Watershed, including the list of names and addresses for adjacent property owners.
2. A complete project description, which includes:
 - a. Pre-project photographs of the project site;
 - b. A site location map and view of the project showing areas and acreage to be impacted on 8.5" x 11" sheets;
 - c. Location coordinates: latitude/longitude or UTM;
 - d. Volume, type and source of material to be placed into waters of the U.S.;
 - e. Total area of waters of the U.S. to be directly and indirectly affected;
 - f. A verified delineation of waters of the U.S. located in the project area including a wetland delineation map on 8.5" x 11" sheets;
 - g. A description of habitat, including plant communities, located in the project area;
 - h. A description of methods to avoid, minimize, and compensate for adverse impacts to water quality or aquatic function at the project site including best management practices used during project implementation to control siltation and erosion;
 - i. Any other information pertinent to the wetlands, stream, or waterbody involved; and
 - j. Proposed project schedule.
3. A record of pre-application coordination with the Corps, the Department, RWQCB, USFWS, and EPA. If coordination was not accomplished with any of the agencies, the applicant must show that a concerted effort was made to meet with the agency

- and explain why such coordination was not achieved. The record must document comments and concerns made by each agency during pre-application consultation. If the applicant participated during the formulation of the SAMP and the activity was reviewed, this requirement does not apply.
4. A discussion of how each agency comment/concern was addressed. If the applicant participated during the development of the SAMP, this requirement does not apply.
 5. A statement addressing the section 404(b)(1) Guidelines alternatives analysis. If the applicant participated during the formulation of the SAMP and the activity was reviewed, this requirement does not apply..
 6. A statement explaining how avoidance and minimization of discharges to jurisdictional waters were achieved on the project site.
 7. A compensatory mitigation plan consistent with the SAMP mitigation framework to address any unavoidable impacts to jurisdictional waters and the program goal of no net loss of wetlands.
 8. Local approvals or other evidence that the project has been reviewed by the appropriate local governmental body and has been found to be consistent with state and local land use plans and policies, particularly state and local wetland policies.
 9. Appropriate surveys, inventories, or reports that will allow the Corps to make a determination of the effect of the proposed project (and if necessary consult) pursuant to the ESA or evidence of incidental take authorizations under ESA.
 10. Evidence of compliance with section 106 of the National Historic Preservation Act (NHPA).

(d) *Processing Procedures*

When the applicant has assembled the information required for a complete application, these following steps would occur:

1. The applicant will provide the Corps and the review agencies complete applications, using a San Diego Creek Watershed Joint Agency Notification/Application form, if available. The Corps will review the applicant's submission and assign an action ID number.
2. Within seven (7) calendar days, the Corps will determine if the application is complete. If an application is incomplete, within seven (7) calendar days the Corps will notify the applicant of the needed information items and the applicant will be required to resubmit.
3. Within 10 calendar days of receiving a complete application, the Corps will submit materials to the agencies (the Department, RWQCB, USFWS, EPA, and State Historic Preservation Office (SHPO)) via FAX or email and request the agencies provide comments. The agencies (except for SHPO) will provide comments to the Corps within 21 calendar days. The SHPO will provide comment within 30 calendar days. "No objection" comments may be provided by phone, but substantive comments should be provided and confirmed by FAX or letter. When the LOP pre-project

notification is transmitted to the other resource agencies, the Corps will consider the following subjects:

- a. Conformity of the proposed project with the SAMP;
 - b. Accuracy of the wetland delineation and the resource assessment;
 - c. Minimization of impacts to the maximum extent practicable;
 - d. Consistency of the proposed project-specific compensatory mitigation with the SAMP mitigation framework and Watershed Coordination Program;
 - e. Whether federally listed species issues have been resolved in a manner consistent with the local NCCP/HCP program;
4. Resolution or status of compliance with the NHPA;
 5. Resolution or status of the 401 certification;
 6. Resolution of ESA Section 7, if applicable.
 7. Resolution or status of compliance with CZMA, if applicable.
 8. The Corps will review the comments received and make a final determination within 45 calendar days of receiving the complete application, unless consultation under Section 7 of ESA is required, which would likely extend the processing time for a final permit decision. After all the comments are received from the resource agencies, the Corps will perform a final evaluation of the project. Any problems identified during the LOP notification process to the resource agencies will be resolved before an LOP is issued. If the project meets the criteria for LOP authorization, an LOP will be issued. If the project fails to meet the criteria for LOP authorization, the Corps will notify the applicant of need for review through a Standard Individual Permit process.

(e) Consistency of Eligible Activities with the SAMP LOP Procedures

Proposed projects or activities not included in the extensive pre-application review process during SAMP formulation will need to undergo the same level of scrutiny and review in order to be eligible for LOPs by undertaking similar procedures outlined herein. Applicants must demonstrate the proposed activity and compensatory mitigation are consistent with the SAMP. The consistency requirements for each of the covered activities are the same, i.e., they meet the terms and conditions of the LOP procedures.

A detailed summary of the procedures, including the conditions of use, is provided in Table 3-2 and Figure 3-1 and the Special Public Notice for LOP procedures (Appendix 1).

Table 3-2. Proposed General Conditions for the San Diego Creek Watershed Letter of Permission Procedures.

Letter of Permission Condition	Description
1. Avoidance and Minimization	The permittee must provide a written statement describing avoidance and minimization measures used to minimize discharges to jurisdictional waters at the project site to the maximum extent practicable.
2. Ineligible Impacts	Projects not eligible for this LOP process include projects that substantially alter a compensatory mitigation site and projects that involve the conversion of a soft-bottom channel to a concrete-lined channel within San Diego Creek, Peters Canyon Wash, Hicks Canyon Wash, Serrano Creek, and Borrego Canyon Wash. Those proposed projects must be evaluated using a SIP.
3. Mitigation Policy	The permit must comply with the SAMP mitigation framework, including the Strategic Mitigation Plan, established in conjunction with the proposed permitting procedures. <u>In accordance with the Final Mitigation Rule (33 CFR Section 332.3(k), for an LOP that requires permittee-responsible mitigation, the special conditions of the LOP shall: (i) Identify the party responsible for providing the compensatory mitigation; (ii) Incorporate, by reference, the final mitigation plan approved by the district engineer; (iii) State the objectives, performance standards, and monitoring required for the compensatory mitigation project, unless they are provided in the approved final mitigation plan; and (iv) Describe any required financial assurances or long-term management provisions for the compensatory mitigation project, unless they are specified in the approved final mitigation plan.</u>
4. Soil Erosion and Siltation Controls	Appropriate erosion and siltation controls, such as siltation or turbidity curtains, sedimentation basins, and/or hay bales or other means designed to minimize turbidity in the watercourse to prevent exceedances of background levels existing at the time of project implementation, shall be used and maintained in effective operating condition during project implementation. Projects are exempted from implementing controls if site conditions are such that the proposed work would not increase turbidity levels above the background level existing at the time of the work. All exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be stabilized at the earliest practicable date to preclude additional damage to the project area through erosion or siltation and no later than November of the year the work is conducted to avoid erosion from storm events.
5. Equipment	If personnel would not be put into any additional potential hazard, heavy equipment working in or crossing wetlands must be placed on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment. Temporary construction mats shall be removed promptly after construction.

Letter of Permission Condition	Description
6. Suitable Material	No discharge of dredged or fill materials in jurisdictional waters may consist of unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts (See Section 307 of the Clean Water Act).
7. Management of Water Flows	To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. To the maximum extent practicable, the activity must provide for the retention of excess flows from the site and for the maintenance of surface flow rates from the site similar to pre-project conditions, while not increasing water flows from the project site, relocating water, or redirecting water flow beyond pre-project conditions unless it benefits the aquatic environment (e.g. stream restoration or relocation activities).
8. Removal of Temporary Fills	Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions, including any native riparian and/or wetland vegetation. If an area impacted by such temporary fill is considered likely to naturally re-establish native riparian and/or wetland vegetation within two years to a level similar to pre-project or pre-event conditions, the permittee will not be required to restore the riparian and/or wetland vegetation. However, Exotic Species Management may be required to prevent the establishment of invasive exotic vegetation. (See Condition #13).
9. Preventive Measures	Measures must be adopted to prevent potential pollutants from entering the watercourse. Within the project area, construction materials and debris, including fuels, oil, and other liquid substances, shall be stored in a manner as to prevent any runoff from entering jurisdictional areas.
10. Staging of Equipment	Staging, storage, fueling, and maintenance of equipment must be located outside of the waters in areas where potential spilled materials will not be able to enter any waterway or other body of water.
11. Fencing of Project Limits	<u>The Permittee shall clearly mark the limits of the workspace with flagging or similar means to ensure mechanized equipment does not enter preserved waters of the U.S. and riparian wetland/habitat areas shown on the attached figure. Adverse impacts to waters of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil, or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.</u>

Letter of Permission Condition	Description
12. Avoidance of Breeding Season	With regard to federally listed avian species, avoidance of breeding season requirements shall be those specified in the Section 7 consultation for the LOP procedures. For all other <u>avian species</u> , initial vegetation clearing in waters of the U.S. must occur between September 15 and March 15, which is outside the breeding season. Work in waters may occur during the breeding season between March 15 and September 15, <u>in accordance with the Department's WSAA Process and a signed agreement with conditions prescribing procedures for grading of mitigation sites or biological surveys and time restrictions.</u>
13. Exotic Species Management	All giant reed (<i>Arundo donax</i>), salt cedar (<i>Tamarix spp.</i>), and castor bean (<i>Ricinus communis</i>) must be removed from the affected areas and ensure that the affected area remains free from these invasive, non-native species for a period of five years from completion of the project.
14. Site Inspections	The Corps shall be allowed to inspect the site at any time during and immediately after project implementation. In addition, compliance inspections of all mitigation sites must be allowed at any time.
15. Posting of Conditions	A copy of the LOP conditions shall be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request.
16. Post-Project Report	Within 60 days of completion of impacts to waters, as-built drawings with an overlay of waters that were impacted and avoided must be submitted to the Corps. Post-project photographs that document compliance with permit conditions, must also be provided.
17. Water Quality	An individual Section 401 water quality certification must be obtained (see 33 CFR 330.4(c)).
18. Coastal Zone Management	An individual California state coastal zone management consistency concurrence must be obtained or waived where the project may affect the Coastal Zone (see 33 CFR 330.4(d)).
19. Endangered Species	(a) No activity is authorized which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the ESA or which will destroy or adversely modify the critical habitat of such species. Non-federal permittee shall not begin work on the activity until notified by the Corps that the requirements of the ESA have been satisfied and that the activity is authorized. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the

Letter of Permission Condition	Description
	<p>district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. (d) As a result of formal or informal consultation with the USFWS or NMFS, the district engineer may add species-specific regional endangered species conditions to the RGP notices to proceed. (e) Authorization of an activity by an RGP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the USFWS or the NMFS, both lethal and non-lethal “takes” of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. USFWS and NMFS or their World Wide Web pages at http://www.fws.gov/carlsbad/ and http://www.noaa.gov/fisheries.html, respectively.</p> <p>Activities authorized under LOP procedures shall comply with the following applicable conservation measures to ensure the activity will not adversely affect federally listed species; however, additional project-specific measures may be required pursuant to a Section 7 consultation for a specific project:</p> <ol style="list-style-type: none"> (1) Removal of gnatcatcher habitat within non-Reserve areas of the Orange County Central/ Coastal NCCP/HCP will follow the Construction and Minimization Measures for the NCCP/HCP; (2) Removal of suitable habitat for the gnatcatcher and construction work within 300 feet of suitable habitat for the gnatcatcher will occur outside the gnatcatcher breeding season between February 15 and August 15. If work is necessary within 300 feet of suitable

Letter of Permission Condition	Description
	<p>gnatcatcher habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting gnatcatchers are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable gnatcatcher habitat or within 300 feet of a nesting gnatcatcher;</p> <p>(3) Removal of suitable habitat for the least Bell's vireo (LBV) and construction work within 300 feet of suitable habitat for the LBV will occur outside the LBV breeding season between March 15 and September 15. If work is necessary within 300 feet of suitable LBV habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting LBVs are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable LBV habitat or within 300 feet of a nesting LBV;</p> <p>(4) Removal of suitable habitat for the southwestern willow flycatcher (flycatcher) and construction work within 300 feet of suitable habitat for the flycatcher will occur outside the flycatcher breeding season between May 15 and July 31. If work is necessary within 300 feet of suitable flycatcher habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting flycatchers are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable flycatcher habitat or within 300 feet of a nesting flycatcher; and</p> <p>(5) If vernal pools are observed within a proposed project site under the LOP procedures, vernal pool/fairy shrimp protocol surveys will be performed and the</p>

Letter of Permission Condition	Description
	<p>permittee shall notify the Corps, the Department, and the Service of the results prior to initiating any ground disturbance.</p>
<p>20. Historic Properties</p>	<p>(a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the NHPA have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees must submit with their application information on historic properties that may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the SHPO or Tribal Historic Preservation Officer (THPO), as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties that the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA Section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. (e) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is</p>

Letter of Permission Condition	Description
	required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.
21. Air Quality	No activity is authorized that causes or contributes to any new violation of national ambient air quality standards, increases the frequency or severity of any existing violation of such standards, or delays timely attainment of any such standard or interim emission reductions, as described in the applicable California State Implementation Plan for the South Coast Air Basin. As part of the Corps application package, the applicant shall submit an air quality emission and impact analysis for the proposed activity if the project would result in long-term or permanent stationary (point or area) source or indirect mobile source emissions, or if the proposed activity would result in area source and direct mobile source emissions that exceed the annual <i>de minimis</i> emissions thresholds for any criteria air pollutant or its precursors.

The use and implementation of the LOP procedures for Corps permit applications is contingent on compliance with the terms and conditions of the LOP procedures. Should a permittee become non-compliant with permit conditions, the Corps may suspend, revoke, or modify the permit and assess administrative penalties. Pursuant to section 309(g) of the CWA and in accordance with 33 CFR 326.6, the Corps is able to levy Class I Administrative Penalties of up to \$11,000 per violation of a permit Special Condition, to a maximum of \$27,000 (69 FR 35515).

3.3.3 Regional General Permit

Pursuant to its authority under 33 CFR 325.2(e)(2) and in accordance with the procedures for processing permits (33 CFR Part 325), the Corps proposes to establish the San Diego Creek Watershed Maintenance RGP to authorize discharges of dredged or fill material resulting in temporary impacts up to 0.5 acre of waters of the U.S., of which only 0.1 acres may be vegetated with native riparian and/or wetland vegetation. Permanent losses of waters of the U.S., including impacts from fills, flooding, excavation (beyond a maintenance baseline), or drainage would not be permitted under this RGP. Areas eligible for the use of this RGP are limited to aquatic resources located outside of the aquatic resource integrity areas.

Temporary impacts from the discharge of dredged or fill material into waters of the U.S. may be authorized under this RGP, including the following activities:

- Repair, rehabilitation, and replacement of currently serviceable outfall structures, utility lines, pump stations, bank stabilization structures, concrete flood control structures, weirs, drop structures, grade stabilizers, at-grade road crossings, culverts, bridges, pilings, and piers;
- Temporary construction activities and installation of temporary cofferdams, water diversion structures, and access roads; and
- Removal of accumulated sediment in flood control channels and basins (debris, retention, and detention) to restore the facility to maintenance baselines and within its design capacity.

This RGP would allow a permittee to commence work in eligible areas 15 days after the Corps receives proper written notification. Upon receipt of a complete notification and within the 15-day notification period, the Corps may verify the activity with a letter and add any special conditions. If a notification is not complete, the Corps would notify the applicant within 7 days of the needed information items and the applicant will be required to resubmit. If the Corps provides no response within 15 days after complete notification, the project proponent may assume Corps approval of the work. A summary of the Corps proposed general conditions for the RGP is provided in Table 3-3. A detailed summary of the RGP is provided in Appendix 2.

Table 3-3. Proposed General Conditions for the San Diego Creek Watershed Regional General Permit for Maintenance Activities.

RGP General Condition	Description
1. Expiration	The RGP will expire five years from the date of its authorization. Further reauthorizations of the RGP will be contingent upon compliance with permit conditions, including the provision of notifications. Failure to comply with these conditions could result in the suspension or revocation of the permit prior to its expiration date, or its non-renewal.
2. Impact Limits	The RGP authorizes up to 0.5 acre of temporary impacts, of which up to 0.1 acre may be vegetated by predominantly native wetland vegetation. Non-native wetland vegetation does not count to the 0.1-acre threshold. For facilities with an established maintenance baseline, vegetation over 0.1 acre of vegetation may be removed only if the work is consistent with the established maintenance baseline.
3. Eligible Areas	The RGP shall be available for use in areas outside of the aquatic resource integrity areas (Figures 2-2 and 2-3).
4. Notification	<p>The permittee must provide the Corps with prior notification for each separate maintenance activity at each site. A complete notification includes the following information:</p> <ol style="list-style-type: none"> 1. Name, address and telephone numbers of the applicant, and appropriate point of contact and their address and phone number; 2. Project description of proposed activities; 3. Pre-project photographs of the project site; 4. A site location map and view of the project showing areas and acreage to be impacted, including any areas with native riparian and/or wetland vegetation; submit on 8.5" x 11" sheets; 5. Location coordinates: latitude/longitude or UTM's; 6. Volume, type and source of material to be temporarily placed into waters of the United States; 7. Total area of waters of the United States to be directly and indirectly affected; and 8. Proposed project schedule.
5. Soil Erosion and Siltation Controls	Appropriate erosion and siltation controls such as siltation or turbidity curtains, sedimentation basins, and/or hay bales or other means designed to minimize turbidity in the watercourse to prevent exceedances background levels existing at the time of project implementation, shall be used and maintained in effective operating condition during project implementation. Projects are exempted from implementing controls if site conditions preclude their use, or if site conditions are such that the proposed work would not increase turbidity levels above the background level existing at the time of the work. All exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be stabilized at the earliest practicable date to preclude additional damage to the project area through erosion or siltation and no later than November of the year the work is conducted to avoid erosion from storm events.
6. Equipment	If personnel would not be subjected to additional, potential hazardous conditions, heavy equipment working in or crossing wetlands must be placed on temporary construction mats (timber, steel, geotextile, rubber, etc.), or other measures must be taken to minimize soil disturbance such as using low pressure equipment. Temporary construction mats shall be removed promptly after construction.

Special Area Management Plan for the San Diego Creek Watershed

RGP General Condition	Description
7. Suitable Material	No discharge of dredged or fill materials into jurisdictional waters may consist of unsuitable materials (e.g., trash, debris, car bodies, asphalt, etc.) and material discharged must be free from toxic pollutants in toxic amounts (per Section 307 of the Clean Water Act).
8. Management of Water Flows	To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. To the maximum extent practicable, the activity must provide for the retention of excess flows from the site and for the maintenance of surface flow rates from the site similar to pre-project conditions, while not increasing water flows from the project site, relocating water, or redirecting water flow beyond pre-project conditions unless it benefits the aquatic environment (e.g., stream restoration or relocation activities).
9. Removal of Temporary Fills	Any temporary fills must be removed in their entirety and the affected areas returned to their pre-existing conditions, including any native riparian and/or wetland vegetation. If an area impacted by such temporary fill is considered likely to naturally reestablish native riparian and/or wetland vegetation within two years to a level similar to pre-project or pre-event conditions, the permittee will not be required to do restore the riparian and/or wetland vegetation. However, Exotic Species Management may be required to prevent the establishment of invasive exotic vegetation. (See Condition #14).
10. Preventive Measures	Measures must be adopted to prevent potential pollutants from entering the watercourse. Within the project area, construction materials and debris, including fuels, oil, and other liquid substances, shall be stored in a manner as to prevent any runoff from entering jurisdictional areas.
11. Staging of Equipment	Staging, storage, fueling, and maintenance of equipment must be located outside of the waters in areas where potential spilled materials will not be able to enter any waterway or other body of water.
12. Fencing of Project Limits	<u>The Permittee shall clearly mark the limits of the workspace with flagging or similar means to ensure mechanized equipment does not enter preserved waters of the U.S. and riparian wetland/habitat areas shown on attached Figure 1. Adverse impacts to waters of the U.S. beyond the Corps-approved construction footprint are not authorized. Such impacts could result in permit suspension and revocation, administrative, civil, or criminal penalties, and/or substantial, additional, compensatory mitigation requirements.</u>
13. Avoidance of Breeding Season	With regard to federally listed avian species, avoidance of breeding season requirements shall be those specified in the Section 7 consultation for the RGP (See RGP Condition 19). For all other avian species, initial vegetation clearing in waters of the U.S. must occur between September 15 and March 15, which is outside the breeding season. Work in waters may occur during the breeding season between March 15 and September 15, in accordance with the Department's WSAA Process and a signed agreement with conditions prescribing procedures for grading of mitigation sites or biological surveys and time restrictions.
14. Exotic Species Management	All giant reed (<i>Arundo donax</i>), salt cedar (<i>Tamarix spp.</i>), and castor bean (<i>Ricinus communis</i>) must be removed from the affected area and ensure that the affected area remains free from these invasive, non-native species for a period of five years from completion of the project.

Special Area Management Plan for the San Diego Creek Watershed

RGP General Condition	Description
15. Site Inspections	The Corps shall be allowed to inspect the site at any time during and immediately after project implementation. In addition, compliance inspections of all mitigation sites shall be allowed at any time.
16. Posting of Conditions	A copy of the RGP general conditions shall be included in all bid packages for the project and be available at the work site at all times during periods of work and must be presented upon request by any Corps or other agency personnel with a reasonable reason for making such a request.
17. Water Quality	An Section 401 water quality certification must be obtained unless general Section 401 certifications are issued or waived for the RGP in the project area (see 33 CFR 330.4(c)).
18. Coastal Zone Management	An individual California state coastal zone management consistency concurrence must be obtained or waived where the project may affect the Coastal Zone (see 33 CFR 330.4(d)).
19. Endangered Species	<p>(a) No activity is authorized which is likely to jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the ESA or which will destroy or adversely modify the critical habitat of such species. Non-federal permittee shall not begin work on the activity until notified by the Corps that the requirements of the ESA have been satisfied and that the activity is authorized. (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees shall notify the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that may be affected by the proposed work or that utilize the designated critical habitat that may be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. (d) As a result of formal or informal consultation with the USFWS or NMFS, the district engineer may add species-specific regional endangered species conditions to the RGP notices to proceed. (e) Authorization of an activity by an RGP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the USFWS or the NMFS, both lethal and non-lethal “takes” of protected species are in violation of the ESA. Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. USFWS and NMFS or their World Wide Web pages at http://www.fws.gov/carlsbad/</p>

RGP General Condition	Description
	<p>and http://www.noaa.gov/fisheries.html respectively.</p> <p>Activities authorized under this RGP shall comply with the following applicable conservation measures resulting from the Corps informal Section 7 consultation to ensure the activity will not adversely affect federally listed species:</p> <ol style="list-style-type: none"> (1) Removal of gnatcatcher habitat within non-Reserve areas of the Orange County Central/ Coastal NCCP/HCP will follow the Construction and Minimization Measures for the NCCP/HCP; (2) Removal of suitable habitat for the gnatcatcher and construction work within 300 feet of suitable habitat for the gnatcatcher will occur outside the gnatcatcher breeding season between February 15 and August 15. If work is necessary within 300 feet of suitable gnatcatcher habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting gnatcatchers are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable gnatcatcher habitat or within 300 feet of a nesting gnatcatcher; (3) Removal of suitable habitat for the least Bell’s vireo (LBV) and construction work within 300 feet of suitable habitat for the LBV will occur outside the LBV breeding season between March 15 and September 15. If work is necessary within 300 feet of suitable LBV habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting LBVs are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable LBV habitat or within 300 feet of a nesting LBV; (4) Removal of suitable habitat for the southwestern willow flycatcher (flycatcher) and construction work within 300 feet of suitable habitat for the flycatcher will occur outside the flycatcher breeding season between May 15 and July 31. If work is necessary within 300 feet of suitable flycatcher habitat during the breeding season, a qualified biologist will perform protocol surveys in the area to determine whether any nesting flycatchers are present. If nests are absent, work will continue. If a nest is present, the permittee shall notify the Corps, the Department, and the Service of the location of the nest, a 300-foot buffer around the nest will be clearly demarcated, and the area avoided until the nest is abandoned. A biological monitor with authority to stop construction will be present onsite during breeding-season construction to ensure the limits of construction do not encroach into suitable flycatcher habitat or within 300 feet of a nesting flycatcher; and (5) If vernal pools are observed within a proposed project site under the

RGP General Condition	Description
	RGP, vernal pool/fairy shrimp protocol surveys will be performed and the permittee shall notify the Corps, the Department, and the Service of the results prior to initiating any ground disturbance.
20. Historic Properties	<p>(a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the NHPA have been satisfied. (b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the NHPA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. (c) Non-federal permittees must submit with their application information on historic properties that may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the SHPO or Tribal Historic Preservation Officer (THPO), as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties that the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed. (d) Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). If NHPA Section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. (e) Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, explaining the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.</p>
21. Mitigation Policy	Compensatory mitigation will not be necessary unless required through RGP general conditions 12, 17, 18, 19 or 20. Should compensatory mitigation be

RGP General Condition	Description
	required, it shall be performed in conformance with the mitigation framework developed for the San Diego Creek SAMP, as described in the Corps SAMP document for this Watershed and the Special Public Notice for the San Diego Creek Watershed RGP.

The use and implementation of the RGP for Corps permit applications is contingent on compliance with the terms and conditions of the RGP. Should a permittee become non-compliant with permit conditions, the Corps may suspend, revoke, or modify the permit and assess administrative penalties. Pursuant to section 309(g) of the CWA and in accordance with 33 CFR 326.6, the Corps is able to levy Class I Administrative Penalties of up to \$11,000 per violation of a permit Special Condition, to a maximum of \$27,000 (69 FR 35515).

3.3.4 Standard Individual Permits

Proposed regulated activities that do not qualify for section 404 authorization under the retained NWP, the RGP, or the LOP procedures shall be required to undergo SIP application review process. Potential applicants that have not gone through the pre-application consultation for the proposed project, regardless of whether or not they participated in the SAMP pre-application process for other projects or activities, shall be held to the same requirements for demonstrating compliance with the 404(b)(1) Guidelines and for an alternatives analysis that projects reviewed during SAMP formulation underwent. Table 3-4 summarizes the percentage of the Watershed’s aquatic resource areas ineligible for the LOP procedures or RGP by subwatershed.

Projects requiring the SIP application review process include those with permanent impacts to greater than 0.1 acre of waters of the U.S. within aquatic resource integrity areas and projects that propose to convert soft-bottom channel reaches to hard-bottom channel reaches in the following mainstem drainages regardless of whether or not the affected reaches are located within aquatic resource integrity areas: Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, San Diego Creek, and Serrano Creek.

Permit special conditions similar to those conditions of LOP procedures may be required for SIPs, as shown in Table 3-3 above.

Table 3-4. Riparian areas in which certain activities may be ineligible for permitting under LOP procedures or the WSAA Process.

Subwatershed	Baseline Riparian Habitat	Riparian Habitat in Aquatic Resource Integrity Areas Ineligible for RGP, LOP Procedures, or WSAA Process		Additional Riparian Habitat Ineligible for RGP, LOP Procedures or WSAA Process for Soft-Bottom Channel Conversion Projects		Total Area of Riparian Habitat Ineligible for RGP, LOP Procedures, or WSAA Process	
	Acres	Acres	%	Acres	%	Acres*	%*
Borrego Canyon Wash	169	142	84	18	10	160	95%
Hicks Canyon Wash	32	19	60	12	38	31	97%
Peters Canyon Wash	69	19	28	44	64	63	91%
San Diego Creek	404	222	55	124	31	345	85%
Serrano Creek	145	108	75	34	23	142	97%
Other subwatersheds	847	571	68	0	0	571	67%
Total	1666	1080	65	232	14	1311	79%

* Numbers do not add up due to rounding.

An extensive level of data on aquatic resources and analysis of potential impacts of activities on the aquatic resources were compiled during the formulation of the SAMP, including the proposed changes to the Corps permitting program, i.e., LOP procedures, RGP, and retained NWP. The Corps will retain its discretionary authority to require proposed regulated activities that are inconsistent with the terms and conditions of the LOP procedures, RGP, and retained NWP to undergo a level of analysis commensurate with proposed impacts and to require applicants demonstrate that the proposed activities would not result in substantial adverse environmental impacts. Furthermore, potential applicants would be expected to implement mitigation per the SAMP Strategic Mitigation Plan and Mitigation Coordination Program. However, the Corps will retain its discretionary authority to determine whether additional special conditions would be required to control adverse impacts to the aquatic environment.

The Corps' evaluation of future SIP applications and its basis for making future permit decisions will be informed by this SAMP document, the Program EIS/EIR, and the Corps' Record of Decision for the SAMP, as well as information contained in any project-specific EIRs. Moreover, the Corps will tier its project-specific environmental review for any SIP from the Program EIS/EIR, in accordance with 40 CFR 1502.20 of CEQ's NEPA regulations. Nevertheless, in evaluating proposed projects under the SIP process, the Corps would still need to assure compliance with the 404(b)(1) Guidelines, which require, except as provided for by section 404(b)(2) that no discharge of dredged or fill material would be permitted by the Corps if the effects of the discharge, considered either individually or cumulatively, would contribute to the substantial degradation or impairment of waters of the U.S. (40 CFR Part 230).

3.4 The Department's Watershed-Specific Permitting Process

The Department's proposed alternate SAA strategy for the Watershed is the WSAA Process. The process consists of three functional habitat quality-based SAA templates (Levels 1, 2 and 3) and a SAA Templates Master Conditions List (provided in Appendix 3). The Level 1 template SAAs apply to proposed activities that would alter aquatic resources outside the aquatic resource integrity areas that were not mainstem streams. The Level 2 template SAAs apply to activities that would alter mainstem stream reaches outside aquatic resource integrity areas. The Level 3 template SAAs apply to certain types of activities within aquatic resource integrity areas. All other regulated activities would require a standard SAA or MSAA. The inclusion of a SAA Templates Master Conditions List allows the Department to modify the three SAA templates for future use according to specific project needs while still maintaining a high degree of efficiency and resource protection. Similar to the Corps' LOP procedures, qualification for one of the three template SAAs (or MSAA tiered from the Program EIS/EIR) would be based on compliance with specified criteria, including consistency with the SAMP. Copies of the three template SAAs and the SAA Templates Master Conditions List are provided in Appendix 3.

Under the Department's normal SAA process, after the Department receives a notification for a particular activity subject to FGC section 1602 and determines that the activity will require a SAA, the Department will issue a draft SAA to the applicant. If the applicant disagrees with any protective measures in the draft SAA, and the Department and applicant cannot resolve the disagreement, the applicant may have an arbitration panel resolve the disagreement. Under the WSAA Process, the measures in a template SAA are not subject to negotiation. Hence, only those project proponents that are willing to accept a template SAA in full may participate in the WSAA Process. If a project proponent is not willing to accept a template SAA in full, the project proponent will need to obtain a SAA from the Department through the normal SAA process described in FGC sections 1602 and 1603.

To implement the SAMP Strategic Mitigation Plan and establish the foundation of a Mitigation Coordination Program for aquatic resource integrity areas among the SAMP Participating Applicants, and to reduce Department staff time associated with preparing and processing agreements, the Department has the option to enter into MSAA's with the City of Irvine, the Irvine Ranch Water District, County of Orange Flood Control District, and The Irvine Company. For applicants who may execute an MSAA (tiered from the Program EIS/EIR) or any of the template SAAs, the following steps would occur under the WSAA Process: the applicant provides notification to the Department; the Department determines the notification application includes adequate conditions to avoid, minimize, and mitigate for project impacts that are consistent with the WSAA Process; the applicant demonstrates all other CEQA requirements have been met; and the Department provides a letter stating that the applicant can proceed with the project subject to the conditions identified within the submitted project-specific notification. The Department would consider entering into a MSAA with other parties, if their project or activity has been adequately analyzed within the Program EIS/EIR, or additional analysis is conducted pursuant to the CEQA, and the project or activity meets the goals of the SAMP.

The following sections describe specific Department procedures for issuing a SAA under the San Diego Creek Watershed WSAA Process. Table 3-5 shows a comparison between the existing SAA and the proposed WSAA Process. A flow diagram that summarizes the Department's WSAA Process is provided in Figure 3-4.

Table 3-5. Comparisons between current SAA/MSAA and proposed WSAA Process elements for Department SAAs within the San Diego Creek Watershed

	Current system-SAA/MSAA¹	Proposed system-Level 1 SAA²	Proposed system-Level 2 SAA²	Proposed system-Level 3 SAA²	MSAA³
Use Area	All areas	Outside aquatic resource integrity areas, not in major streams ⁴	Outside aquatic resource integrity areas, in major streams ⁴	Inside aquatic resource integrity areas	All areas, with restrictions on areas within aquatic resource integrity areas
Permanent Impacts to Streambeds⁵	No limit	≤ 1.0 acre	≤ 0.5 acre	≤ 0.1 acre	Same as template SAAs depending on location
Temporary Impacts to Streambeds⁵	No limit	No limit	No limit	No limit	No limit
Eligible Activities	Any applicable streambed alteration	WSAA activity types ⁶	WSAA activity types ⁶	WSAA activity types ⁶	WSAA activity types ⁶
Review and Processing Time	Up to 90 days ⁷	≤ 60 days	≤ 60 days	≤ 90 days	No Time Limit
Depth of Review / Additional Conditions beyond template	Case-by-case (template does not apply)	Low / None or Few	Medium / None or Few	High / Yes	High / Yes
Pre-application Coordination	Not Required	Preferred	Preferred	Required	Required

Notes:

¹Requires CEQA compliance document.

²Pre-developed templates will allow for greater predictability and faster processing. If project proponent desires a Level 1, 2 or 3 SAA, the arbitration process will be removed. If the project proponent disagrees, then a standard SAA or MSAA will apply. Projects would have to demonstrate compliance with CEQA. The Program EIS/EIR would suffice for CEQA clearance in some cases. Otherwise, local agencies or project proponents would prepare an additional CEQA document (which could be tiered from the Program EIS/EIR) to cover impacts not associated with a SAA. An MSAA tiered from the Program EIS/EIR would be a streamlined process as compared to a standard MSAA.

³ MSAA is an agreement with a term of greater than five years that covers multiple projects that are not exclusively projects to extract gravel, sand, or rock; not exclusively projects that are included in a timber harvesting plan

approved by the California Department of Forestry and Fire Protection; or not exclusively routine maintenance projects that the entity will need to complete separately at different time periods during the term of the agreement; and describes a procedure the entity must follow for construction, maintenance, or other projects the agreement covers.

⁴Borrego Canyon Wash, Hicks Canyon Wash, Peters Canyon Wash, San Diego Creek, and Serrano Creek.

⁵Provided that project is in full compliance with all applicable SAA conditions. The term “streambeds” would include riparian habitat deemed to be in Department jurisdiction on a case-by-case basis. The acreage limits do not necessarily prevent the issuance of a SAA at a particular level, but may require a more in-depth review and the inclusion of additional, project-specific conditions.

⁶Anticipated activities eligible for WSAA Process procedures: Utility Lines (construction and/or maintenance of new and existing facilities); Flood Control Facilities Maintenance (construction and/or maintenance of new and existing facilities); Road Crossings including Bridges and Culverts (construction and/or maintenance of new and existing crossings); Land Development for Residential, Commercial, Industrial, Institutional and Recreational Facilities (construction and/or maintenance of new and existing land development and recreational facilities); Storm Water Treatment and Management Facilities (construction and/or maintenance of new and existing facilities); Habitat Restoration and Enhancement Projects (construction and/or maintenance of new and existing projects); and Fire Abatement and Vegetative Fuel Management Activities.

⁷Standard SAA includes 30 days to determine if notification is complete, and an additional 60 days for completion of draft SAA. The 60-day limit does not apply to long-term agreements (> 5 years in duration) or MSAA; thus, these types of agreements may take longer than 90 days to review and process.

3.4.1 Pre-Application Coordination and Consultation Meeting

The Department intends to be an active participant in the pre-coordination activities required by applicants that are receiving an LOP from the Corps. The Department’s purpose for the pre-application coordination/consultation meeting would be to review a proposed project/activity’s effects to rivers, streams and/or lakes and associated biological resources, and to discuss project avoidance of biological resources, minimization measures, and compensation for impacts to biological resources, when applicable. The meeting would also focus on how the proposed project/activity is in, or would be modified to be in, substantial conformance relative to impacts and mitigation described in the SAMP and the Program EIS/EIR, and what level of additional CEQA review, if any, would be necessary.

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To obtain full benefit of the streamline process built into the WSAA Process, the Department would recommend that applicants not obtaining an LOP from the Corps consult with a Department staff person assigned to implementation of the WSAA Process. Depending on the nature of the proposed project and Department staff's familiarity with the project site, the intricacy of the consultation could widely vary. For example, a consultation for a water pipeline replacement project in a low integrity area that Department staff is already familiar with may consist of a telephone conference call, where the applicant and Department would discuss the area to be impacted, biological resources at the site, timing of work, duration of work, appropriate work conditions to be included in the notification, and elements to be included in a bank stabilization/native vegetation restoration plan to address any temporary loss of vegetation and stabilize the bank to protect aquatic resource values. In contrast, a more complex project such as a public road across a moderate integrity area may require that Department staff and applicant meet at the site, and prior to that meeting, preliminary construction plans, biological survey reports, and hydrology studies be provided so that Department staff is prepared to discuss the site-specific alterations proposed for the project. Discussion topics could include the need for the road, alteration to project design to incorporate minimization measures that reduce impacts to aquatic resources, provisions for improved fish and wildlife movement, and other features to reduce the indirect effects on biological resources, in addition to discussions concerning construction timing, duration, work conditions, mitigation sites, and mitigation plans.

3.4.2 Notification

FGC section 1602 requires any person, state or local governmental agency, or public utility to notify the Department before beginning any activity that would do one of the following:

1. Substantially obstruct or divert the natural flow of a river, stream, or lake;
2. Substantially change the bed, channel, bank of a river, stream or lake;
3. Use any material from the bed, channel, or bank of a river, stream or lake; and/or
4. Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

FGC section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the State of California.

To notify the Department of any of the activities described above, applicants would complete the following steps:

Step 1: Complete the Notification of Lake or Streambed Alteration form (Form FG 2023 (Rev. 7/06)) ("notification form"). The notification form would also include the following supplemental information: a substantial conformance statement (as described below), and a request for an SAA based on the SAA templates (Level 1, 2, or 3). The supplemental information would be considered part of the general notification process (under the WSAA Process), and would not be explicitly described (e.g., Figure 3-4

mentions “notification,” although it is implied that the notification includes the supplemental information).

The supplemental information would include substantial conformance statements that explain in sufficient detail how the proposed project/activity is in substantial conformance with the project/activity discussed in the SAMP and analyzed in the Program EIS/EIR, and that explains in sufficient detail how the proposed mitigation for the project/activity is in substantial conformance with the mitigation framework identified in the SAMP and analyzed in the Program EIS/EIR. Focused site-level delineations and biological assessments would be provided and compared against the Corps’ PLD (Lichvar et al., 2000) (Appendix B-1 of this document). If the project/activity is not in substantial conformance, the project would not qualify for one of the template SAAs or a MSAA tiered from the Program EIS/EIR, and the notification would be processed as a standard SAA.

If a project does not qualify for authorization under either the Corps’ SAMP RGP, LOP procedures, the retained NWP, or SIP, and affects Corps and Department jurisdiction, it would be, by default, not in conformance with the SAMP, and would be processed by the Department as either a standard or a long-term agreement. However, the Department would use the SAMP Analytical Framework, the SAMP Strategic Mitigation Plan, and Mitigation Coordination Program, the analysis in the Program EIS/EIR, and project-specific CEQA documentation when evaluating and authorizing projects by the issuance of a standard or long-term agreement. Depending on the specific project, the Department could require additional conditions of work and compensatory mitigation beyond what is identified in the SAMP and SAA Templates Master Conditions List for a project that does not conform to the SAMP.

Applicants proposing projects that have impacts below the Corps’ identified acreage impact thresholds as stated in the SAMP RGP or LOP, would still be required to notify the Department. If the project is consistent with the SAMP goals, and the project activity was analyzed in the Program EIS/EIR or in a project-specific CEQA document, the Department would process the notification package pursuant to the WSAA Process. If the applicant’s project is not eligible for a template SAA, or if the applicant does not have a MSAA with the Department, the applicant could sign a project-specific SAA.

If a project is authorized by the Corps through the issuance of a SIP, the Department may require conditions in addition to those listed on the SAA Templates Master Conditions List to protect fish and wildlife resources, and the period set forth in the FGC would apply. Additional conditions, including compensatory mitigation may be incorporated into a SAA, and both the applicant and the Department would sign this agreement.

Step 2: The applicant would determine the notification fee that would need to be submitted with the completed notification form.

Step 3: The applicant would submit the completed notification form, supplemental information, and fee to the Department.

3.4.3 Proposed Agreement Conditions

Each template SAA (levels 1, 2, and 3) contains a specific list of conditions that the project applicant would agree to implement to help avoid, minimize, and mitigate any substantial or potentially significant effects that the activity could have on rivers, streams and lakes, and associated fish and wildlife resources. The Department can modify the three SAA templates for specific projects utilizing conditions from the SAA Templates Master Conditions List according to specific project needs. For consistency with the Corps proposed LOP, the Department has established the same mitigation requirements including compensatory mitigation ratios for temporary and permanent impacts, but has additional compensatory mitigation for oak, walnut, and sycamore woodland impacts. When implementing a project/activity's mitigation, it is appropriate to apply conditions to the work activity when biological resources are within or adjacent to the mitigation site. The SAA Templates Master Conditions List, included in Appendix 3, contains full descriptions of the mitigation requirements and conditions. Table 3-6 provides a summary of this list by condition category.

Table 3-6. Summary of San Diego Creek Watershed SAA Templates Master Conditions List*.

WSAA Process - Condition Category	Master Condition Number
Compensatory Mitigation and General Mitigation Ratios for Temporary and Permanent Impacts and Impacts to Oak/Walnut/Sycamore woodlands	1
General Habitat Mitigation and Monitoring Reports	2
General Mitigation Success Criteria	3
Oak, Walnut, and Sycamore Woodland Mitigation and Monitoring Reports	4
Oak, Walnut, and Sycamore Woodland Success Criteria	5
Oak, Walnut and Sycamore Tree Relocation	6
Grading for Mitigation Sites	7
Biological Surveys and Time Restrictions	8–20
Aquatic and Terrestrial Species Specific Protection Conditions	21–22
Predator Control	23
Vegetation Removal	24–34
Routine Channel Maintenance	35–42
Exotic Vegetation Eradication Control – Wildlife and Habitat Protection (associated with mitigation requirement)	43
Safeguards	44–45
Placement of In-stream Structures – Aquatic and Wildlife Migration Protection	46–64
Small Dam and Pond Construction	65–75
Directional Drilling	76
Fill and Spoils	77–86
Turbidity and Siltation	87–94
General Conditions which Apply to All Projects • Equipment Access	95–108

WSAA Process - Condition Category	Master Condition Number
<ul style="list-style-type: none"> • Pollution, Sedimentation and Litter • Other 	109-121 122-129
Additional Mitigation Conditions	130-140
Additional Resource Protection	141-154
Fisheries Species Protection	155-161
Other General Conditions	162-166

* For a description of each condition, see SAA Templates Master Conditions List contained in Appendix 3.

3.4.4 Review of Notification Package and Issuing Authorization

After the Department receives a notification, it would determine whether the notification package was complete. The Department would have 30-days to make its completeness determination, unless the applicant has requested the agreement term for the submitted project to be longer than five years (see also Figure 3-4 and Table 3-6). The 30-day period would not apply to notifications for long term agreements (see FGC section 1605(g)(5)), or when one of the following occurs:

1. The Department and applicant mutually agree to extend the 30-day period.
2. The Department determines that an onsite inspection is required before it can make its completeness determination, but the applicant is unable to schedule a date for the inspection that would reasonably allow the Department to make the determination within the 30-day time period.
3. The Department determines that an onsite inspection is required before it can make its completeness determination, but the applicant or the owner of the property where the project would take place (if different from the applicant) refuses to allow Department personnel to enter the property. In that case, the Department may refuse to process the notification, in which case the 30-day period would no longer apply.

After the Department determines that the notification package is complete, it would evaluate the project and determine whether the project or activity type is covered by the SAMP and WSAA Process. The evaluation would include the following: if the project or activity type is adequately analyzed in the Program EIS/EIR; whether the conditions of work identified in the notification package adequately protect fish, wildlife, and plants; whether the compensatory mitigation plan (when applicable) is in substantial conformance with the mitigation framework identified in the SAMP; and whether the mitigation adequately compensates for effects to biological resources. If the Department did not make a specific determination that the

notification package is complete, the notification would be deemed complete per statute at the end of the 30th day.

After the notification package is deemed complete, for those applicants seeking authorization through the WSAA Process, the Department would have up to 60 days to provide one of the following:

1. A letter stating the project may proceed pursuant to the terms and conditions including mitigation identified in the notification package;
2. A letter stating that the proposed project and conditions appear to meet the goals of the WSAA Process, but that the Department cannot make a determination that the project has satisfied section 1602 of the FGC until the CEQA process has been completed by the lead agency, and the Department determines that the project has not substantially changed from the project described in the notification; or
3. Provide an abbreviated draft SAA with proposed additional conditions. This agreement would be signed by the applicant and the Department prior to the commencement of work.

If number 2 above occurs, the Department would issue the letter identified in number 1 above within 30 days after the applicant provides the Department written documentation that the lead agency has completed the CEQA process, including payment of Department CEQA filing fee per FGC section 711.4.

Depending on staffing and prioritized workload, it is anticipated that for those projects that were the subject of a coordination meeting or consultation with the Department, and where the Department received a complete notification package together with the correct notification fee that the Department's determination of notification completeness and issuing of its "authorization to proceed" would occur in fewer days than indicated above. The Department could issue its authorization to proceed at the same time it makes its notification completeness determination. For example, for a project conforming to one of the template SAAs (Level 1, 2, or 3), the Department's response may include a signed draft SAA.

3.4.5 Long-Term Agreements

The WSAA Process has been proposed to allow an agreement to exceed five years as provided for in section 1605(g) of the FGC. Participating entity(ies) must agree to provide a status report to the Department every four years. The status report would be delivered to the Department no later than 90 days prior to the end of each four-year period, and would need to include all of the following information:

- A copy of the original SAA (or MSAA);
- The status of the activity covered by the SAA (or MSAA);

- An evaluation of the success or failure of the measures in the SAA (or MSAA) to protect the fish and wildlife resources that the activity may substantially adversely affect; and
- A discussion of any factors that could increase the predicted adverse impacts on fish and wildlife resources, and a description of the resources that may be adversely affected.

The Department would review the four-year status report, and conduct an onsite inspection to confirm that the entity complies with the agreement and that the measures in the agreement continue to protect fish and wildlife resources. If the Department determined the measures in the agreement no longer protect fish and wildlife resources that were being substantially adversely affected by the activity, the Department, in consultation with the entity, and within 45 days of receipt of the report, would impose one or more new measures to protect the fish and wildlife resources affected by the activity.

3.5 Coordinating Agencies and Other Regulatory Approvals

Applicants may also be subject to permit requirements of agencies besides those of the Corps and the Department. The following discussion provides additional direction on the typical approvals needed prior to the Corps final permit action.

3.5.1 RWQCB Section 401 Water Quality Certifications and Waste Discharge Requirements

Water quality certification must be obtained from the RWQCB or State Water Resources Control Board (SWRCB) for any project impacts to jurisdictional waters that require authorization from the Corps under the SAMP permitting framework (e.g., LOP, RGP, retained NWP, or SIP). Although the RWQCB has participated as a coordinating agency throughout the SAMP process, it was never the Corps' intention that the SAMP would fully address the numerous issues under the State Porter-Cologne Act or other sections of the CWA. Therefore, Waste Discharge Requirements (WDRs) and 401 certifications are not included directly as part of the SAMP regulatory framework, except insofar as the Corps will request a 401 certification for the RGP from the RWQCB and/or the SWRCB. With certification of the RGP, then qualifying maintenance activities would have their 401 certifications, subject to notification requirements.

According to 33 CFR 320.3, Section 401 of the Clean Water Act (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification from the State in which the discharge originates or would originate, or, if appropriate, from the interstate water pollution control agency having jurisdiction over the affected waters at the point where the discharge originates or would originate, that the discharge will comply with the applicable effluent limitations and water quality standards. A certification obtained for the construction of any facility must also pertain to the subsequent operation of the facility. The issuance of such certifications will be subject to the RWQCB's or SWRCB's relevant processing times and procedures. Any conditions of a section 401 certification will become conditions of a Corps Section 404 permit. Unless a pre-

certification has been obtained (e.g., as with some NWP or RGP), a Corps Section 404 permit will not be issued until the applicant provides the Corps with the following information: a Section 401 water quality certification, a waiver thereof, or evidence that 60 days have passed since a complete application was submitted to the RWQCB for certification. In the case of the Corps' LOP procedures, if a Section 401 certification has not been issued within 45 days after submittal of a complete application and the application complies with the conditions of an LOP, the Corps will issue a provisional LOP. To finalize a Corps provisional LOP, the applicant would contact the Corps when the project receives a Section 401 certification or waiver (or when 60 days have passed since complete application was submitted). [Note: The RWQCB reserves the right to regulate discharges under Porter-Cologne in lieu of or in addition to CWA Section 401 certifications.]

Unless a pre-certification was obtained (e.g., as with some retained NWP or RGP), a Corps section 404 permit will not be issued until the applicant provides the Corps with the following information: a section 401 water quality certification, a waiver thereof, or evidence that 60 days have passed since a complete application was submitted to the RWQCB for certification. In the case of the Corps' LOP procedures, if a section 401 certification has not been issued within 45 days after submittal of a complete application and complies with the conditions of an LOP, the Corps will issue a provisional LOP. To finalize a Corps provisional LOP, the applicant should contact the Corps when the project receives a section 401 certification or waiver (or when 60 days have passed since complete application was submitted). [Note: The RWQCB may opt to regulate discharges under Porter-Cologne in lieu of, or in addition to CWA section 401 certifications.]

3.5.2 State and Federal Endangered Species

Several federally listed species including (and not limited to) the coastal California gnatcatcher and the least Bell's vireo are known to occur within the Watershed. Additionally, previously designated critical habitat within the Watershed for the coastal California gnatcatcher informed the SAMP formulation process. The Department and USFWS developed the NCCP/HCP that provides coverage under section 10 of the ESA, as well as CESA, to those signatory to the NCCP/HCP or their constituents for specific activities that may affect the covered species.

The Corps has informally consulted with the USFWS throughout the SAMP formulation process to ensure any impacts to federally listed species, or their critical habitat, are not adverse. The Corps has determined that some future activities that would be authorized by the RGP and the LOP procedures may affect federally listed endangered species known to utilize habitat in the Watershed. The Corps completed an informal Section 7 consultation with the USFWS for the RGP. The recommended conservation measures were incorporated into the conditions of the RGP to ensure the activities authorized by the RGP will not adversely affect federally listed species. Since the Corps expects to issue subsequent Federal permits under the new SAMP LOP procedures for future activities that may affect federally listed species, the Corps will, on a project-specific basis initiate consultation with USFWS as appropriate. However, the Corps

incorporated the same recommended conservation measures for the RGP into the condition for the LOP procedures. With respect to obligations under the ESA, mitigation and minimization in the LOP procedures and RGP are considered reasonable and prudent measures for all non-jeopardy Section 7 consultations. Nevertheless, for decisions on specific projects authorized under the LOP procedures that may affect federally listed species, the Corps may undergo separate Section 7 consultations with the USFWS. Similarly, future projects would also be subject to the Department's requirements for CESA.

3.5.3 Coastal Zone Management Act

Coastal Zone Management Act (CZMA) consistency determination must be obtained from the California Coastal Commission (CCC) for any project impacts to jurisdictional waters located within the Coastal Zone that require authorization from the Corps under the SAMP permitting framework (e.g., LOP, RGP, retained NWP, or SIP). The Corps may request a federal consistency concurrence from the CCC for the Corps' maintenance RGP.

Within the Coastal Zone, an LOP will not be issued until CZMA consistency concurrence, or a waiver thereof, is obtained. If no consistency determination has been made within 45 days after submittal of a complete application and complies with the conditions of an LOP, the Corps will issue a provisional LOP.

3.6 SAMP Mitigation Framework

A component of the SAMP regulatory program modifications for the Watershed includes an approach to mitigation that is informed by the SAMP Analytical Framework. Mitigation, including avoidance and minimization of impacts and compensation for unavoidable impacts, is within the regulatory purviews of the Corps and the Department. Both agencies have agreed to a set of mitigation policies, as well as to implement the SAMP Strategic Mitigation Plan. Further, the agencies have drafted an implementation plan for establishing a Mitigation Coordination Program to improve the effectiveness and efficiency of mitigation occurring within the Watershed. Details of the Strategic Mitigation Plan and coordinated mitigation program are provided in Sections 4 and 5, respectively.

Proposed and future projects with jurisdictional impacts in the Watershed would be considered in light of the SAMP permitting program and mitigation framework, as consistent with the Corps/EPA's national regulations governing compensatory mitigation for activities authorized by permits issued by the Department of the Army (33 CFR Parts 325 and 332 [40 CFR Part 230]). Compensatory mitigation in the form(s) of preservation, establishment, restoration, and/or enhancement activities would be required to offset permanent and temporary impacts to aquatic resources. However, the Department and the Corps would retain their respective discretionary authorities to augment the mitigation framework requirements for any proposed project that is inconsistent with the SAMP or that fails to meet the terms and conditions of the LOP, RGP, retained NWP, or WSAA Process. To implement the Strategic Mitigation Plan, the

Corps proposes to implement the following mitigation policies (a-h) as part of its authorizations of regulated activities impacting aquatic resources within the Watershed. The Department's WSAA Process includes provisions for mitigation to be performed in accordance with the SAMP mitigation policies and Strategic Mitigation Plan.

(a) *Mitigation Sequencing*

Under the SAMP, the mitigation sequencing required pursuant to the Section 404(b)(1) Guidelines (40 CFR Part 230 and the MOA between EPA and the Department of the Army, dated February 6, 1990), whereby the discharge of dredged or fill materials into aquatic resources within the Corps jurisdiction (i.e., waters of the U.S.) must first be avoided and/or minimized to the maximum extent practicable, is being applied to the watershed scale as well as the site scale. An activity seeking authorization under the SAMP permitting framework and evaluated in this Program EIS/EIR would be deemed to have undertaken the requisite avoidance measures by avoiding aquatic resources identified as part of the aquatic resource integrity areas. Projects directly and permanently impacting substantial amounts of aquatic resources with moderately to well-developed wetland or riparian vegetation located outside of aquatic resource integrity areas could still need to demonstrate avoidance, but without a formal alternatives analysis under the LOP procedures or RGP. Minimization measures would be met by demonstrating consistency with the LOP and RGP conditions. Compensatory mitigation would be required to offset any unavoidable impacts that would occur after avoidance and minimization measures have been implemented to the maximum extent practicable, pursuant to the 404(b)(1) Guidelines.

(b) *No Net Loss in Acreage and Functions*

Consistent with the Corps-EPA MOA and Corps' RGL 02-02 and the Final Mitigation Rule (33 CFR Parts 325 and 332 [40 CFR Part 230]), overall acreage, services, and functions of wetlands should not be reduced within the Watershed on a program level. In consideration of the SAMP/WSAA Process, all permanent impacts to aquatic resources (wetland and non-wetland) will be mitigated within the San Diego Creek Watershed. The amount of required compensatory mitigation must be, to the extent practicable, sufficient to replace lost aquatic resource functions. Appropriate functional or condition assessment methods (e.g., the SAMP Landscape Level Functional Assessment, California Rapid Assessment Method (CRAM), or Hydrogeomorphic Approach (HGM)), or other suitable metrics should be used to evaluate the impact site and to determine suitable compensatory mitigation. If a functional or condition assessment, or other suitable metric is not used, a minimum one-to-one (1:1; acreage created and restored to acreage permanently impacted) or linear foot compensation ratio shall be used.

Compensatory mitigation sites shall be designed and maintained to avoid impacts to any existing wildlife movement corridor. Upland or riparian buffers that provide habitat or corridors necessary to maintain or promote a suite of ecological functions of the aquatic resources may be required as part of a compensatory mitigation site and credit will be provided for such buffers.

(c) Preparation of a Mitigation Plan

All habitat mitigation and monitoring plans shall comply with the requirements of the Corps/EPA Final Mitigation Rule “Compensatory Mitigation for Losses of Aquatic Resources” (33 CFR Parts 325 and 332 [40 CFR Part 230]) and the “Los Angeles District’s Final Mitigation Guidelines and Monitoring Requirements,” (Corps, 2004, or as subsequently revised). Should any differences in requirements arise, the Corps shall defer to Final Mitigation Rule until such time as the Corps (Los Angeles District) revises its local guidelines to conform to the Final Mitigation Rule. A copy of the Final Mitigation Rule is available online at http://www.usace.army.mil/cw/cecwo/reg/news/final_mitig_rule.pdf and the guidelines are available online at <http://www.spl.usace.army.mil/regulatory/>.

(d) Prioritization of Mitigation Sites

To the extent practicable, the selection of compensatory mitigation sites should be prioritized to support implementation of the Strategic Mitigation Plan (Section 2.1.3), which is informed by ERDC’s restoration plan (Smith and Klimas, 2004) (Appendix B-3), and available online at http://www.spl.usace.army.mil/samp/sdc_rest.pdf

(e) Recommended Restoration

The Corps and the Department will evaluate restoration design plans for compensatory mitigation sites in consideration of the SAMP Strategic Mitigation Plan (Section 2.1.3 and site selection and design criteria provided by ERDC in a Watershed restoration plan for riparian ecosystems (Smith and Klimas, 2004). The ERDC restoration plan (Appendix B-3) provides recommended restoration goals in consideration of landscape setting.

(f) Amount of Compensatory Mitigation

The Corps will determine mitigation ratios in consultation with the Department and the applicant in a manner to achieve a no net loss of aquatic resource function and acreage in the Watershed, as discussed above in subsection (b) No Net Loss in Acreage and Functions.

(1) Mitigation Ratios

Compensatory mitigation ratios will be based on area-weighted gain in functions at the compensatory mitigation site to compensate for area-weighted loss of functions at the impact site. Functions will be measured in terms of functional units with respect to hydrology, water quality, and habitat indices. ERDC calculated these three indices for all major reaches in the Watershed based on current conditions and after achievement of restoration goals. The Agencies will consider ratios for each of the three integrity indices as follows:

$$\begin{aligned} \text{AREA}_{\text{MIT}} / \text{AREA}_{\text{IMP}} &= \text{FuLOSS}_{\text{IMP}} / \text{FuGAIN}_{\text{MIT}}, \text{ whereby} \\ \text{AREA}_{\text{MIT}} / \text{AREA}_{\text{IMP}} &= \text{mitigation ratio} \\ \text{AREA}_{\text{MIT}} &= \text{area of mitigation} \end{aligned}$$

$AREA_{IMP}$ = area of impact

$FuLOSS_{IMP}$ = loss in functional index at the impact site

$FuGAIN_{MIT}$ = gain in functional index at the mitigation site

At a minimum, $AREA_{MIT} * FuGAIN_{MIT} = AREA_{IMP} * FuLOSS_{IMP}$.

The applicant will supply the $AREA_{IMP}$ and the Corps will use the data available from ERDC for $FuLOSS_{IMP}$. The applicant will work in consultation with the Corps and the Department to identify an appropriate mitigation site to offset impacts. $AREA_{MIT}$ will depend on the capacity for $FuGAIN_{MIT}$. Final site selection will take into account the available hydrology to support the proposed mitigation, site access, and other relevant parameters. Additionally, the Corps, in consultation with the Department will consider other functional or condition assessments that provides site-specific information about both the impact and mitigation sites in determining the appropriate mitigation ratios. The Corps and the Department recommend the applicant conduct an assessment using generally acceptable methodologies such as the CRAM, approved site-level standardized monitoring protocols, or HGM to evaluate the baseline conditions of the impact and potential mitigation sites

Using the metric developed by the Corps to calculate compensatory mitigation in the Watershed will ensure that losses to any function of the aquatic resources will be offset. Specifically, compensatory mitigation shall ensure against loss of any function as characterized by all three area-weighted indices (i.e., for hydrology, water quality, and habitat). Even if there is a gain in one or two of the indices, the overall mitigation must ensure that there is not a loss in any of the three indices. Losses can be further offset by increasing the mitigation ratio.

For rarer, non-riparian/riverine resources such as estuarine wetlands, the formula does not apply. In such cases, the Corps, in consultation with the Department will use a functional and acreage-based assessment to determine the appropriate mitigation ratios. The Corps and the Department recommend the applicant conduct an assessment using generally acceptable methodologies such as the CRAM, approved site-level standardized monitoring protocols, or HGM to evaluate the baseline conditions of the impact and potential mitigation sites.

As a reminder, when using the integrity indices-based ratios, required mitigation shall always be greater or equal to 1:1 in terms of acreage, even if the actual calculated ratios to achieve functional replacement are less than 1:1, which would most likely to occur when the impacted resources have low functions as compared to the functions of the mitigation site. However, if the calculated ratio is less than 1:1, mitigation at 1:1 replacement of acreage will generate a functional gain that exceeds the calculated ratio and will reduce additional mitigation requirements for any temporal loss.

(2) Offsets for Temporal Loss

Temporary and permanent impacts to riparian habitat authorized by LOPs and standard individual permits shall be compensated through consideration of the time needed to ~~fully~~ recover temporarily impacted functions. Temporal loss will apply when compensatory mitigation does not occur prior to or concurrent with impacts, and only to the habitat index, since the other two indices (i.e., water quality and hydrology) should not have a temporal lag. In general, mitigation ratios for temporal loss will be determined on a functional integrity basis as described above. Additional mitigation above a 1:1 ratio to offset temporal losses of habitat function will adhere to the following guidelines:

- impacts to unvegetated aquatic resources will not require additional compensatory mitigation;
- impacts to herbaceous vegetation will require no more than an additional 0.5:1 ratio of compensatory mitigation;
- impacts to shrubby vegetation will require no more than an additional 1:1 ratio of compensatory mitigation;
- tree vegetation will require no more than an additional 2:1 ratio of compensatory mitigation; and
- tree vegetation with dense understory vegetation will require no more than an additional 3:1 ratio of compensatory mitigation.

Compensatory mitigation required above replacement (1:1) may be satisfied through additional restoration and/or enhancement efforts within the aquatic resource integrity areas of the Watershed, or by contribution of fees equivalent to per acreage costs to a Corps and Department-approved third-party mitigation program or mitigation bank operating within the Watershed.

(g) *Compensatory Mitigation for Temporary Impacts*

The following mitigation measures would be required for projects or activities with temporary impacts to aquatic resources.

(1) Restoration On-Site

Following a temporary impact (e.g. construction impact), an area shall be restored to pre-construction elevations within one month. Re-vegetation shall commence within three months after restoration of pre-construction elevations and be completed within one growing season. If re-vegetation cannot start due to seasonal conflicts (e.g., impacts occurring in late fall/early winter shall not be re-vegetated until seasonal conditions are conducive to re-vegetation), exposed earth surfaces should be stabilized immediately with jute-netting, straw matting, or other applicable best management practice to minimize any erosion from wind or water.

(2) Offsets for Temporal Loss

Temporary impacts to riparian habitat authorized by LOPs and standard individual permits shall be compensated through consideration of the time needed to recover fully the temporarily impacted functions. Temporal loss will apply when compensatory mitigation does not occur prior to or concurrent with impacts, and only to the habitat index, since the other two indices (i.e., water quality and hydrology) should not have a temporal lag. In general, the ratios of compensatory mitigation described above in subsection (f) Amount of Compensatory Mitigation will apply to offset temporal losses of habitat function.

(3) Preparation of a Compensatory Mitigation Plan

All on-site revegetation efforts require preparation of a habitat mitigation and monitoring plan, as described above in subsection (c) Preparation of a Mitigation Plan. The plan must be approved by the Corps and the Department prior to implementation

(h) Compensatory Mitigation for Permanent Impacts

Projects with unavoidable permanent impacts to aquatic resources shall provide compensatory mitigation in conformance with the following requirements.

(1) Mitigation Ratios

The ratios for compensatory mitigation described above in subsection (f) Amount of Compensatory Mitigation will apply to compensatory mitigation for permanent impacts.

(2) No Loss in Any Functional Type

Using the metric developed by the Corps to calculate compensatory mitigation in the Watershed will ensure that losses to any function of the aquatic resources will be offset. Specifically, compensatory mitigation shall ensure against loss of any function as characterized by all three area-weighted indices (i.e., for hydrology, water quality, and habitat). Even if there is a gain in one or two of the indices, the overall mitigation must ensure that there is not a loss in any of the three indices. Losses can be further offset by increasing the mitigation ratio.

(3) Offsets for Temporal Loss

Temporal loss for permanent impacts will apply when compensatory mitigation does not occur prior to or concurrent with impacts and only to the habitat index, since the other two indices (i.e., water quality and hydrology) should not have a temporal lag. In general, the ratios of compensatory mitigation described above in subsection (f) Amount of Compensatory Mitigation will apply to offset temporal losses of habitat function.

(4) Long-term Conservation

Any compensatory mitigation associated with permanent, unavoidable jurisdictional impacts within the Watershed will require legal assurances to ensure the long-term protection of the site's aquatic resources against degradation of integrity at the Watershed scale over time, unless

otherwise approved by the Corps and the Department. Legal assurances include, but are not limited to conservation easements, land dedications, and implementing agreements. The Final Mitigation Rule (33 CFR Section 332.7) and Section 3.6(h)(4) of the SAMP document (Corps, 2008) contain more details on legal assurances as well as requirements for long-term conservation management (including in-perpetuity maintenance, monitoring, identification of conservation manager, estimate of annual costs and long-term funding mechanism).

(5) Third-Party Mitigation Program or Mitigation Bank

An alternative method to satisfy compensatory mitigation requirements is the purchase of credits or payment of fees to a Corps- and Department-approved third-party mitigation program within the Watershed, including a mitigation bank, conservation bank, or for the enhancement, establishment, or restoration of identified offsite aquatic resources. The Department requires that a WSAA (or other SAA) identify the specific location(s) of the compensatory mitigation, so the third-party mitigation program sponsor would be required to link the mitigation actions with the WSAA. Use of an approved third-party mitigation program conducting preservation and enhancement efforts of identified sites would be available to offset temporal loss or instead of contracting with a separate conservation manager or establishing a separate endowment for individual mitigation sites. Additionally, compensatory mitigation requirements for permanent impacts may be offset by contribution to a Corps- and Department-approved third-party mitigation bank that is conducting establishment (creation) and/or restoration efforts in the Watershed. All third-party mitigation programs must comply with the requirements of the Corps/EPA Final Mitigation Rule (33 CFR Section 332.8).

(i) Delays in Implementation of Compensatory Mitigation

Implementation of compensatory mitigation shall begin, to the maximum extent practicable, before or concurrent with the activity causing the authorized impacts to jurisdictional areas, and according to a Corps-approved plan and construction schedule. The Corps and the Department expect the permittee to schedule the installation of mitigation projects to avoid and minimize temporal losses in function, such that offsite mitigation shall be initiated upfront, and onsite mitigation shall be scheduled to account for project site readiness. To offset temporal losses of aquatic functions resulting from the permitted activity, the Corps and the Department may require, on a case-by-case basis, additional compensatory mitigation for delayed implementation of compensatory mitigation beyond the Corps-approved final construction schedule that extends installation into the next year's growing season¹³. Subsections (f) Amount of Compensatory Mitigation, (g) Compensatory Mitigation for Temporary Impacts, and (h) Compensatory Mitigation for Permanent Impacts describe the additional mitigation ratios to offset temporal loss of habitat for mitigation sites with approved construction schedules that plan for delayed installation of mitigation after jurisdictional impacts occur.

¹³ Generally, the growing season for non-tidal wetland and riparian systems not subject to snowfall extends from March through September, although the season may begin earlier at lower latitudes and altitudes.

At such time the permittee anticipates any delays in the schedule for implementing the mitigation, the permittee must notify the Corps and the Department to provide explanations for the delay and the new expected start date. The Corps and the Department will informally consult with the permittee to determine what additional compensatory mitigation or additional monitoring time, if any, will be required to correct any environmental damage due to the temporal lag between functional losses at the impacted habitat and functional gains at the mitigation site not already accounted for in the previously approved mitigation ratio. Factors the Corps and Department will consider include timing of impacts, time to implementation of mitigation, certainty of completion, assessment of functions and services at impacted site, and time to develop targeted functions at the compensatory mitigation site.

The Corps and the Department will give due consideration to special circumstances and may waive the requirement for additional compensatory mitigation in cases where no substantive temporal loss to functions or services occurred, or where delayed compensatory mitigation was a result of natural causes beyond the permittee's control, including without limitation, fire, flood, storm, and earth movement, or as a result of any prudent action taken by the permittee under emergency conditions to prevent, abate, or mitigate significant injury to persons and/or the property resulting from such causes. [Note: Any action undertaken during emergency conditions must receive prior authorization from the Corps and the Department if the action involves a discharge of dredged or fill material into aquatic resources within the Corps jurisdiction or will impact Department jurisdictional streams.]

Accordingly, should any additional mitigation be required, the Corps will modify the terms and/or special conditions of the permit to reflect any changes to the mitigation requirements (33 CFR Section 325.7) to remedy any non-compliance with permit conditions. Similarly, the Department will amend the streambed alteration agreement.

The Corps and the Department shall consider further or protracted delays in implementation, permittee non-responsiveness, or failure to take agreed upon corrective measures as permit non-compliance. The Corps would pursue all available remedies under its authority for supervision of authorized activities (33 CFR Section 326.4), including, but not limited to the following actions: invoking the financial assurances, i.e., calling in part of or the entire performance bond, escrow account, or letter of credit to initiate corrective measures; suspending or revoking the permit (33 CFR Section 325.7); and pursuing Class I administrative penalties (33 CFR Section 326.6). Likewise, the Department would pursue all available remedies for non-compliance specified in the streambed alteration agreement and/or the Fish and Game Code, including, but not limited to, the following actions: invoking financial assurances; suspending or revoking the streambed alteration agreement; and/or pursuing an enforcement action (civil or criminal) through the Office of the District Attorney or Attorney General (Fish and Game Code Sections 1615, 12000).

4 Strategic Mitigation Plan

Components of this SAMP

- Analytical Framework
- Permitting Processes, including Mitigation Framework
- **Strategic Mitigation Plan**
- Mitigation Coordination Program

The Corps and the Department acknowledge the need to avoid and minimize impacts to resources not easily compensated and to compensate for unavoidable impacts by targeting restoration and management of the riparian ecosystem in a manner to achieve the greatest ecological benefit for the restoration dollar. Thus, a principal strategy of the SAMP for maintaining and restoring the functional value of the Watershed's aquatic resources is to develop a focused approach to mitigation and aquatic resource management within the Corps and Department's regulatory purviews that complements the SAMP permitting strategy. In response, the Corps and the Department propose a Strategic Mitigation Plan, a Watershed-based and resource-based approach to mitigation, as part of the SAMP mitigation framework to support efforts to improve the management of aquatic resources.

The Strategic Mitigation Plan, which stems from the SAMP Analytical Framework, is a tool the agencies will use in concert with the coordinated permitting procedures (Section 3) to improve the long-term sustainability of the Watershed's aquatic resources. The fundamental strategy underlying the plan is to guide mitigation efforts, i.e., avoidance, minimization, and compensation of unavoidable impacts, to realize the maximum functional benefit to the aquatic resources within the Watershed. The Strategic Mitigation Plan offers advantages over a more piecemeal approach to mitigation. Under the SAMP, the aquatic resources that provide the greatest function and are often the most difficult to replace in the Watershed would be the focus of avoidance and minimization of impacts. Restoration, creation, and enhancement efforts would be directed to occur in areas with moderate or low integrity resources and in a manner appropriate to the landscape setting. The Strategic Mitigation Plan considers a site's landscape context important, because mitigation sites that provide missing connections between other riparian habitats can increase the overall function of the aquatic resources at the site as well as the function of the adjacent riparian habitats. Additionally, the Strategic Mitigation Plan addresses a need for long-term management of mitigation sites and promotes efforts to increase efficiency.

The Strategic Mitigation Plan builds upon the Corps' and the Department's standard operating procedures, which typically do not seek to identify potential mitigation opportunities at a watershed scale. To date, long-term protection of the conservation values of compensatory mitigation areas beyond the short-term habitat maintenance and monitoring period (usually five years) has been limited to placing legal protections over the land. Yet, it is widely

acknowledged that environmental stressors may persist and over time lead to degradation of such mitigation sites unless some intervention vis-à-vis an adaptive management program is implemented. The SAMP Strategic Mitigation Plan addresses the need for long-term management.

Section 4.1 discusses the existing policies of the Corps and the Department that support the principles of the Strategic Mitigation Plan, i.e., watershed approach and long-term management. Section 4.2 outlines the method used to identify potential compensatory mitigation sites, and presents the results as a prioritization of sites for restoration, creation, or enhancement that would contribute to the overall function and values of the Watershed's riparian ecosystem. Section 4.3 discusses the implications of the SAMP Strategic Mitigation Plan.

4.1 Policy Basis

The Corps has published guidance on mitigation at the District level (Corps, 2004) and at the national Headquarters level (USACE, 2002) that support the Corps statutory and regulatory authorities. Most recently, the Corps Headquarters and EPA published national regulations referred to as the "Final Mitigation Rule" (33 CFR Parts 325 and 332 [40 CFR Part 230]). The SAMP mitigation framework, including the mitigation policies, Strategic Mitigation Plan, and the Mitigation Coordination Program reflect the concepts addressed in the regulations and to the extent applicable, the guidance documents. Both the District and Headquarters policies support a watershed approach to aquatic resource protection and recognize that off-site restoration may be more appropriate than on-site restoration, depending on several factors pertaining to site and regional conditions. The Corps will consider several issues when evaluating proposed compensatory mitigation sites, including but not limited to the following factors: likelihood of success, ecological sustainability, practicability of long-term monitoring and maintenance, and relative costs of mitigation alternatives (USACE, 2002). The guidance documents also address numerous other aspects of mitigation that are relevant to and incorporated in the SAMP such as functional assessments, buffers, long-term maintenance, and legal protections of mitigation sites.

4.2 Identification of Restoration Opportunities in the Watershed

The aquatic resource areas with high and moderate habitat integrity will receive a higher level of regulatory oversight under the proposed SAMP changes to permitting procedures within the Watershed. The SAMP analysis also identifies moderately and substantially degraded aquatic resources that do not necessarily trigger increased regulatory protection in their current state. Nevertheless, it is acknowledged that through restoration, such degraded sites would fulfill specific Watershed resource conservation goals. The methodology for identifying Watershed-appropriate riparian ecosystem restoration opportunities is provided by ERDC's supplemental study to the SAMP, the restoration plan (Smith and Klimas, 2004), and described herein (Section 4.2.1).

4.2.1 Methods

The riparian ecosystem restoration plan for the Watershed (Smith and Klimas, 2004) is based upon an evaluation of factors such as the “restoration potential” of specific riparian reaches, a site’s geomorphic setting, and the “level of effort” necessary to restore specific stream reaches. Together, restoration potential and level of effort provide a mechanism for estimating the effectiveness of various combinations of restorative actions and for prioritizing the restoration of stream reaches where the greatest functional improvement can be attained for a standardized unit of effort required.

By using an ecosystem function-based methodology, the restoration plan identified an array of aquatic resources in various states of cultural alteration as restoration opportunities within the Watershed. In consideration of the reach-specific opportunities and constraints under existing landscape conditions, the restoration plan estimated restoration practicability using units of effort, rather than conducting a traditional cost-benefit analysis. Additionally, the restoration plan established a set of fundamental site selection and design criteria recommended for identifying potential restoration sites and conducting riparian ecosystem restoration activities within the Watershed.

A brief summary of ERDC’s Watershed restoration plan is provided herein, but for greater detail please refer to the full document of the restoration plan. The first step was to classify each riparian reach in the Watershed according to its geomorphic zone and its baseline conditions, using the LLFA (Smith, 2000) and as verified through field investigations. An appropriate restoration template was determined for each riparian reach depending on baseline condition of the reach. Four templates were applied to each category of reach condition, including the Natural, Incised, Constrained, and Engineered conditions (Figures 4-1, 4-2, 4-3, and 4-4). Then, the expected change in hydrologic, water quality, and habitat indices following application of restoration template was simulated. An estimation of the level of effort needed to implement the appropriate restoration template was applied. The ratio of functional lift in resource integrity (as measured by the simulated change of indices scores) per estimated level of effort provided a basic measure for comparing restoration opportunities.

The results of the simulation identified reaches as providing benefits to the Watershed if restored. Then, the suite of potential restoration reaches were overlaid with the SAMP aquatic resource integrity areas. Next, this compilation of restorable reaches contained in aquatic resource integrity areas were subjected to further prioritization by the Corps and the Department through application of six additional Watershed-specific conservation goals. During the SAMP coordination meetings and in the field investigation, state and federal resource agencies and the SAMP Participating Applicants reiterated specific objectives that were applied to produce a nested hierarchy of restoration site opportunities to help prioritize areas for restoration. The agencies developed restoration prioritization criteria, which are consistent with the SAMP Tenets, to identify strategic restoration sites for potential implementation as compensatory mitigation sites to attain the greatest functional improvement

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for a standardized estimation of effort required. The following six criteria described in detail below (Section 4.2.2 (a-f)) provided a mechanism for testing the effectiveness of various combinations of restoration actions at improving the functional integrity of the aquatic resources:

- Restore connectivity between aquatic resources located in the NCCP Reserve System;
- Restore reaches within surrounding upland conservation areas;
- Restore connectivity between high and/or medium integrity resource reaches;
- Restore reaches within the headwaters;
- Restore reaches with federally or state-listed species (endangered, threatened, or species of special concern); and
- Prioritize restoration of reaches with greatest amount of functional lift per level of effort.

4.2.2 Results

The results of the restoration site prioritization process are presented below according to each criterion or objective as applied.

(a) Restore Connectivity of Aquatic Resources Located in the NCCP's Orange County Central-Coastal Reserve System

At baseline condition, aquatic and terrestrial habitat resources within the northern and southern portions of the Central-Coastal NCCP Reserve System are separated by urban development, including major highways, limiting biotic interactions such as seed dispersal, nutrient transport, and wildlife movement. Restoration efforts to provide or enhance blocks of riparian habitat along aquatic resources that traverse the more urbanized areas within the Central-Coastal reserve lands would decrease habitat fragmentation and provide connection between the two reserve sub-areas. Improved connectivity between aquatic resources located within the Central-Coastal reserve sub-areas would allow wildlife (individuals and their genetic material) to disperse, thereby improving the long-term viability of wildlife populations.

Restoring connectivity using riparian ecosystems requires continuous open channels. Between the NCCP reserve sub-areas, all possible linear riparian connections were considered, including Peter's Canyon Wash, Marshburn Channel, Bee Canyon Wash, Agua Chinon Wash, Borrego Wash, and Serrano Creek. However, most of these possible solutions were determined to be infeasible for various reasons particular to each waterway.

In consideration of Peter's Canyon Wash, several factors undermine this aquatic system as a viable corridor. One barrier is the 10-km distance between the San Joaquin Freshwater Marsh Preserve and the confluence of Peters Canyon Wash and Hicks Canyon Wash. The close proximity to urban landscapes renders the full restoration of Peters Canyon Wash a difficult feat to accomplish in a manner that would result in an ecologically successful wildlife corridor. Additionally, the presence of engineering structures such as concrete or riprap side slopes,

absence of vegetative cover, and the substantial network of underground channels upstream of the Peter's Canyon Wash/Hicks Canyon Wash confluence increase the difficulty of restoration.

Similarly, Marshburn Channel presents several impediments to restoration, including a nearly 7-km distance between the Central NCCP Subregion and the San Diego Creek/Marshburn Channel confluence. The channel itself is concrete and the travel distance from the confluence San Diego Creek/Marshburn Channel and substantial vegetated areas on San Diego Creek to the east is at least 1.7 km. Additionally, a 0.7-km underground crossing at I-5 and Eastern Transportation Corridor (State Route 133) existed at the time of this evaluation.

Several factors limit the viability of Bee Canyon Channel as a connection. First is the 7 km distance between the Central NCCP Subregion and the San Diego Creek/Bee Canyon Channel confluence. The absence of an adequate connector between Bee Canyon Wash upstream of the Foothill Transportation Corridor (FTC; State Route 241) and downstream of the FTC as well as the existence of two underground sections of 1 km and 3 km along the alignment and other engineered modifications renders Bee Canyon an unlikely corridor.

The main factor impeding Agua Chinon Wash as a connection includes the nearly 5 km underground section connecting Agua Chinon Wash and San Diego Creek along the former MCAS El Toro. This offsets the substantial crossing under the FTC by Agua Chinon Wash.

For Borrego Canyon Wash, the main constraints include the 2.5 km concrete box section along the eastern edge of the MCAS El Toro and an additional 2 km of underground section at the downstream end, both of which offset the large natural open space connection at the upstream end of the system.

For Serrano Creek, the main limitation is the 2 km stretch of concrete box and underground channels located at the downstream end of the creek. The highly engineered section of the drainage interferes with the connectivity of the remaining natural channels throughout most of the system.

As an alternative, the Corps and the Department identified the City of Irvine's proposed corridors described in the Draft Environmental Impact Report for the Orange County Great Park Plan¹⁴ (City of Irvine, 2003), and the City of Irvine's adoption of a General Plan Amendment and Zone Change, as a potential complementary alternative for connecting the two NCCP reserve sub-areas. Under the City's proposal, a wildlife corridor would be created along the eastern edge of the former MCAS El Toro and would involve re-creating and daylighting

¹⁴ The Corps subsequently issued a section 404 permit for the Orange County Great Park/Heritage Fields Project (200601452-CJF), which included the wildlife corridor, a created (recreational/ornamental) water feature, and a riparian habitat mitigation area, as well as commercial, transportation-related, and residential development.

drainages, planting native vegetation with a width of a minimum of 300 feet, increasing the size of culverts and other wildlife undercrossings, and maintaining some redundancy with contiguous riparian corridors, which would offer secondary wildlife corridor values. Two other drainage corridors would be created, but not for the primary purpose of wildlife movement. These two drainage corridors would involve daylighting drainages and revegetating with riparian species. Restored riparian areas that provide conservation value and continuous riparian habitat would be evaluated for appropriateness and possible identification as aquatic resource integrity areas. Figure 4-5 and Table 4-1 show three prospective restoration sites, two of which could connect aquatic resources of the NCCP.

Table 4-1. Details of Prospective Restoration Sites Connecting Aquatic Resources Located in the Orange County Central-Coastal NCCP Subregional Reserve System

ID	Priority	Subwatershed	Reach	Restoration Template	Length (m)	Notes
1	A	Borrego Canyon Wash/Agua Chinon Wash	BG-01, BG-02, BG-03	Unearthing	~ 4000	Great Park Wildlife Corridor
2	B	Agua Chinon Wash/Bee Canyon Wash	AC-01, AC-02	Unearthing	~ 2500	Great Park Drainage Corridor
3	B	Bee Canyon Wash	BE-02	Unearthing	~ 2500	Great Park Drainage Corridor

(b) Restore Reaches within Surrounding Upland Conservation Areas

The second restoration objective is to restore riparian reaches where the adjacent upland areas of influence and entire subbasins have been already set aside for permanent conservation through a separate, non-SAMP/WSAA Process (e.g., public open space or NCCP Reserve System). Conducting restoration work in areas already preserved would help facilitate the aquatic resource restoration area’s ability to receive long-term protection under existing conservation and management obligations.

Forty-eight reaches within NCCP Reserve System and other open space areas satisfied this restoration objective (Figure 4-6). Restoration typically involves more than enhancement by planting; it would bring degraded systems into a fully functioning state. Some reaches are within natural upland habitat and others are within non-native habitats such as windrows and orchards. Because of the potentially significant impacts to sensitive upland habitats, restoration efforts should focus on restoring riparian reaches within non-sensitive uplands such as windrows and orchards. In addition, restoration should focus on riparian areas that would produce the greatest ecological benefit for the level of effort expended. Status as potential restoration sites would be considered during the review of any application to impact these reaches.

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Table 4-2 prioritizes restoration sites within existing upland conservation areas according to the ratio of the anticipated benefit to aquatic resources to the level of effort required to restore the site. Sites with the greatest functional boost are ranked higher. Sites are grouped into quartiles to show broad groupings. Sites labeled with priority levels of “c” and “d” would experience less functional benefit from any restoration work than would be expected of sites labeled with priority levels of “a” and “b.”

Table 4-2. Details of prospective restoration sites in upland open space areas.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
1	a	Laguna Channel	LG-02-2	Natural	Light	736	Continuous with LG-02-1; adjacent to PA17 development
2	a	Borrego Canyon Wash	BG-12-2	Incised	Light	238	Adjacent to SR-241; continuous with BG-12-1
3	a	Hicks Canyon Wash	HK-03-1	Incised	Light	515	Continuous with HK-03-2
4	a	Hicks Canyon Wash	HK-03-2	Incised	Heavy	235	Continuous with HK-03-1
5	a	Rattlesnake Canyon Wash	RS-09-1	Incised	Light	988	Currently in agricultural production; upstream of PA1; continuous to RS-09-2
6	a	Rattlesnake Canyon Wash	RS-09-2	Incised	Heavy	552	Currently in agricultural production; upstream of PA1; continuous to RS-09-2
7	a	Rattlesnake Canyon Wash	RS-11-1	Incised	Light	343	Currently in agricultural production; upstream of PA1;
8	a	Central Irvine Channel	TB-01-8	Incised	Light	210	Downstream of Siphon Reservoir
9	a	Borrego Canyon Wash	BG-13-2	Natural	Heavy	497	Upstream of SR-241; in alignment of future Portola Parkway extension
10	a	San Joaquin Channel	SJ-03-1	Natural	Light	720	Continuous with SJ-02b-1 and SJ-03-2; adjacent to PA17 development
11	a	San Joaquin Channel	SJ-03-2	Natural	Light	682	Continuous with SJ-03-1; adjacent to PA17 development
12	a	Central Irvine Channel	TB-03-1	Natural	Light	335	Upstream of Siphon Reservoir
14	b	Borrego Canyon Wash	BG-10-2	Incised	Light	773	Continuous with BG-11-1 and BG-12-1; identified as UNBWC ³ restoration site
15	b	Bommer Canyon	BM-04-1	Incised	Light	1129	Upstream end impacted by PA27 development
16	b	Bonita Creek	BO-09-1	Incised	Light	996	Downstream of San Joaquin Reservoir; identified as UNBWC ³ restoration site
17	b	Laguna Channel	LG-02-1	Incised	Light	451	Continuous with LG-02-2; adjacent to PA17 development
18	b	Marshburn Channel	MH-03b-2	Incised	Light	134	Upstream of SR-241; continuous with MH-03b-3
19	b	Rattlesnake Canyon Wash	RS-07-2	Incised	Heavy	606	Currently in agricultural production; upstream of PA1;
20	b	Sand Canyon Wash	SC-11a-2	Incised	Light	225	Continuous with SC-09-1; adjacent to PA22 development

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ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
21	b	Shady Canyon	SH-06-2	Incised	Light	455	Upstream of PA22 development
22	b	Borrego Canyon Wash	BG-14-2	Natural	Heavy	491	Upstream of SR-241; in alignment of future Portola Parkway extension
23	b	Sand Canyon Wash	SC-11b-2	Natural	Light	654	Upstream of SC-11a-2
24	b	San Joaquin Channel	SJ-02b-1	Natural	Light	675	Continuous with SJ-03-1; adjacent to PA17 development
25	c	Agua Chinon Wash	AC-09-2	Incised	Light	512	Upstream of SR-241
26	c	Bommer Canyon	BM-02d-1	Incised	Light	230	Continuous with BM-02c-1 and BM-05-1; between PA22 and PA27
27	c	Hicks Canyon Wash	HK-04a-1	Incised	Light	1641	Continuous with HK-041a-2
28	c	Hicks Canyon Wash	HK-04a-2	Incised	Light	837	Downstream of SR-241; continuous with HK-041a-1
29	c	Marshburn Channel	MH-03b-3	Incised	Light	309	Continuous with MH-03b-2
30	c	Rattlesnake Canyon Wash	RS-05-1	Incised	Light	976	Upstream of Rattlesnake Canyon Reservoir
31	c	Rattlesnake Canyon Wash	RS-08-2	Incised	Light	811	Downstream of SR-241
32	c	Shady Canyon	SH-01-1	Incised	Light	971	Restoration completed because of prior permit requirements
33	c	Shady Canyon	SH-04-1	Incised	Light	357	Upstream of PA22 development
34	c	Borrego Canyon Wash	BG-12-1	Natural	Light	1923	Within El Toro Conservation Lands; continuous with BG-10-2
35	c	Sand Canyon Wash	SC-05-2	Natural	Light	472	Continuous with SC-06-1; just upstream from Sand Canyon Res.
36	c	Sand Canyon Wash	SC-09-1	Natural	Light	245	Continuous with SC-11a-2; adjacent to PA22 development
37	d	Agua Chinon Wash	AC-08-1	Incised	Light	722	Upstream of SR-241; in alignment of future Portola Parkway extension
38	d	Borrego Canyon Wash	BG-04a-1	Incised	Light	808	Affected by alignment of Alton Parkway; identified as UNBWC ³ restoration site
39	d	Borrego Canyon Wash	BG-04b-1	Incised	Light	398	Affected by alignment of Alton Parkway; identified as UNBWC ³ restoration site
40	d	Bommer Canyon	BM-02c-1	Incised	Light	362	Continuous with BM-02d-1; between PA22 and PA27
41	d	Bommer Canyon	BM-05-1	Incised	Light	1184	Continuous with BM-02d-1; between PA22 and PA27
42	d	Bonita Creek	BO-08-1	Incised	Light	638	Upstream of compensatory mitigation site; adjacent to SR-73
43	d	Peters Canyon Wash	PC-04-2	Incised	Light	1050	Within Peter's Canyon Regional Park; identified as UNBWC ³ restoration site
44	d	Sand Canyon Wash	SC-06-1	Incised	Heavy	410	Continuous with SC-05-2 and SC-08a-1; adjacent to PA22 development
45	d	Sand Canyon Wash	SC-08a-1	Incised	Light	829	Continuous with SC-06-1 and SC-08b-1; adjacent to PA22 development

ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
46	d	Sand Canyon Wash	SC-08b-1	Incised	Light	516	Continuous with SC-08a-1 and SC-12-1; adjacent to PA22 development
47	d	Sand Canyon Wash	SC-12-1	Incised	Light	586	Continuous with SC-08b-1; adjacent to PA22 development
48	d	Borrego Canyon Wash	BG-11-1	Natural	Light	2383	Continuous with BG-10-2

¹ Best possible restoration outcome; "natural" templates allows for full restoration and "incised" templates allows for moderately incised conditions after restoration work is completed

² Amount of work needed; "light" earthwork requires less than six feet of excavation and "heavy" earthwork requires greater than six feet of excavation

³ Upper Newport Bay Watershed Committee

(c) Restore Connectivity between High and/or Medium Integrity Resource Reaches

The third restoration objective is to restore local connectivity between high and medium integrity reaches by restoring the interspersed lower integrity reaches, i.e., to fill in the gaps between nearby high and medium integrity reaches. This objective did not apply where the entire reach was engineered or required impracticable restoration template efforts, unless contingencies were applicable (e.g., the Orange County Great Park).

This restoration objective could be achieved at six riparian reaches (Figure 4-7). Restoration of these sites would result in long reaches of riparian habitat with medium to high integrity. One of the identified riparian reaches was also identified as a restoration site under the second restoration objective. Restoration should focus on riparian areas that would produce the greatest ecological benefit for the level of effort expended. Site selection prioritized those areas that involve conventional restoration and not rely solely on enhancement activities.

Table 4-3 lists suits suitable for restoration. The sites are prioritized with lower numbers representing sites expected to achieve the greatest aquatic resource benefits with respect to the level of effort. All reaches are located outside the aquatic resource integrity areas.

Table 4-3. Details of prospective restoration sites connecting high/medium integrity resource reaches.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Notes
1	a	Bee Canyon Wash	BE-03-1	Incised	Light	854	On University of California property; connects to Great Park drainage corridor; identified as UNBWC ³ restoration site
2	a	Borrego Canyon Wash	BG-05b-1	Incised	Light	1193	Directly along alignment of proposed Alton Parkway extension
3	a	Bonita Creek	BO-09-1	Incised	Light	996	Downstream of San Joaquin Reservoir; identified as UNBWC ³ restoration site
4	a	Borrego Canyon Wash	BG-05a-1	Incised	Heavy	1121	Along Baker Ranch proposed development
5	b	Sand Canyon Wash	SC-01-1	Constrained	Light	200	Mason Regional Park; identified as UNBWC ³ restoration site
6	b	Sand Canyon Wash	SC-01-3	Constrained	Light	966	Mason Regional Park; identified as UNBWC ³ restoration site

- ¹ Best possible restoration outcome; the term "incised" templates allows for moderately incised conditions after restoration work is completed, and the term "constrained" templates allow for restoration with constraints on either side of the bank
- ² Amount of work needed; "light" earthwork requires less than six feet of excavation and "heavy" earthwork requires greater than six feet of excavation
- ³ Upper Newport Bay Watershed Committee

(d) Restore Reaches within the Headwaters

The fourth restoration objective is to restore reaches within the headwaters. This objective recognizes the value of headwater streams to the aquatic ecosystem functions of a Watershed, as discussed above. The remaining headwater local drainage basins in the Watershed are protected as part of the existing NCCP Reserve System and require only enhancement activities.

(e) Restore Reaches with Species of Endangered, Threatened, or Special Concern Status

The fifth objective is to restore reaches near areas where federally or state-listed aquatic species have been observed. This objective is to increase the habitat surrounding known locations of sensitive species in order to maintain their existing populations and to increase the habitat quality and size to attract more individuals. Reaches assigned restoration templates of "Engineered Template" or "Impracticable" were excluded from further consideration due to the amount of work that would need to be performed or apparent incompatibility with existing land uses. Site selection favored those projects that involve restoration in the traditional sense and do not rely solely on enhancement.

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Thirty-four drainage basins had at least one observation of sensitive species. Within these drainage basins, 22 reaches were identified as possible restoration sites (Figure 4-8). Some of these sites were also identified under previous objectives. Restoration of these sites should take into account the species present and conduct the work in manner that would not adversely affect the species. Of these 22 reaches, only reach RS-06-1 is located outside aquatic resource integrity areas. The status of the sites as potential restoration sites would be considered during the review of any application to impact these reaches.

Table 4-4 lists sites suitable for restoration as identified by this criterion. In contrast to the other restoration objectives, prioritization is only partially based on achieving gains in functional integrity. The purpose of restoring these sites is to provide habitat for sensitive species, which do not always depend on normal measures of riparian ecosystem integrity for success.

Table 4-4. Details of prospective restoration sites with endangered or threatened species habitat.

ID	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Species of Interest	Notes
1	Bee Canyon Wash	BE-03-1	Incised	Light	681	Mud nama ³	On University of California property; connects to Great Park drainage corridor; identified as UNBWC ⁸ restoration site
2	Bee Canyon Wash	BE-03-3	Incised	Light	335	Mud nama	Downstream of SR-241
3	Rattlesnake Canyon Wash	RS-06-1	Natural	Light	883	LBV/SWFC ⁴	Upstream of Rattlesnake Canyon Reservoir
4	Central Irvine Channel	TB-03-1	Natural	Light	807	LBV/SWFC	Upstream of Siphon Reservoir
5	Bee Canyon Wash	BE-04a-1	Incised	Heavy	516	Mud nama	Downstream of former Lambert Reservoir
6	Bonita Creek	BO-09-1	Incised	Light	410	LBV/SWFC	Downstream of San Joaquin Reservoir; identified as UNBWC ⁸ restoration site
7	Borrego Canyon Wash	BG-03-1	Incised	Light	638	CaGN ⁵	Upstream of Irvine Boulevard; identified as UNBWC ³ restoration site
8	San Diego Creek	SD-12a-1	Natural	Light	254	LBV/SWFC, SPT ⁶	Downstream of Veeh Reservoir
9	University of California	UC-03-1	Incised	Light	889	Southern tarplant ⁷	On UCI property
10	San Diego Creek	SD-11-1	Constrained	Light	996	LBV/SWFC, SPT	Downstream of Veeh Reservoir
11	Sand Canyon Wash	SC-05-2	Natural	Light	1050	LBV/SWFC	Continuous with SC-06-1; just upstream from Sand Canyon Res.
12	Sand Canyon Wash	SC-02-1	Natural	Light	976	LBV/SWFC	Mason Regional Park; within mitigation site
13	Sand Canyon Wash	SC-01-1	Constrained	Light	492	LBV/SWFC	Mason Regional Park; identified as UNBWC ³ restoration site

ID	Subwatershed	Reach	Restoration Template ¹	Level of Effort ²	Length (m)	Species of Interest	Notes
14	Sand Canyon Wash	SC-01-3	Constrained	Light	206	LBV/SWFC	Mason Regional Park; identified as UNBWC ³ restoration site
15	Rattlesnake Canyon Wash	RS-05-1	Incised	Light	2330	LBV/SWFC	Upstream of Rattlesnake Canyon Reservoir
16	Sand Canyon Wash	SC-06-1	Incised	Heavy	854	LBV/SWFC	Continuous with SC-05-2 and SC-08a-1; adjacent to PA22 development
17	Borrego Canyon Wash	BG-04a-1	Incised	Light	200	CaGN	Upstream of Irvine Boulevard; identified as UNBWC ³ restoration site
18	Peters Canyon Wash	PC-04-2	Incised	Light	966	LBV/SWFC	In Peter's Canyon Regional Park; identified as UNBWC ³ restoration site
19	Bonita Creek	BO-08-1	Incised	Light	1322	LBV/SWFC	Upstream of compensatory mitigation site; adjacent to SR-73
20	San Diego Creek	SD-10-1a	Natural	Light	472	LBV/SWFC	Along Needlegrass Creek
21	San Diego Creek	SD-10-1b	Natural	Light	840	LBV/SWFC	Along Needlegrass Creek
22	San Diego Creek	SD-10-2	Incised	Light	333	LBV/SWFC	Along Needlegrass Creek

- ¹ Best possible restoration outcome; the term "incised" templates allows for moderately incised conditions after restoration work is completed, and "constrained" templates allow for restoration with constraints on either side of the bank
- ² Amount of work needed; "light" earthwork requires less than six feet of excavation and "heavy" earthwork requires greater than six feet of excavation
- ³ California Native Plant Society, List 2 species
- ⁴ Least Bell's vireo and southwestern willow flycatcher, both federally and state-listed endangered species
- ⁵ Coastal California gnatcatcher, federally listed threatened species and State of California species of special concern
- ⁶ Southern pond turtle, State of California species of special concern
- ⁷ California Native Plant Society, List 1B species
- ⁸ Upper Newport Bay Watershed Committee

(f) Restore Reaches, Prioritizing with the Greatest Amount of Functional Lift per Level of Effort

The rationale for this restoration objective was to maximize integrity scores needed to realize the functional benefits with respect to effort. Each reach was assigned an aggregate score of functional lift per level of effort across all three integrity indices: water quality, habitat, and hydrology.

Reaches assigned restoration templates of "Engineered Template" or "Impracticable" were excluded from further consideration due to the amount of work that would need to be performed as well as the constraints of existing land uses. In addition, reaches that required no work or involved primarily enhancement activities such as light or heavy planting were excluded since the functional lift value of restoration would be minimal.

Figure 4-9 shows the remaining 15 reaches in terms of the context of the aquatic resource integrity areas, and Table 4-5 and classifies the reaches in quartiles with respect to level of

functional lift per level of effort. The sites are prioritized with lower numbers representing sites expecting to have the most aquatic resource benefits with respect to the level of effort. Among the four classes, reaches within the two highest quartiles should be prioritized for restoration. Reaches within the other two classes should be restored on a case-by-case basis. Many of the potential restoration sites are in aquatic resource integrity areas where impacts to aquatic resources should be avoided. The remaining sites are on private property or in local government control. Any area whose integrity is improved could be re-evaluated for identification as an aquatic resource integrity area. Some of the restoration sites were not given high priority because of their relative low ranking in the overall prioritization system and the various constraints to be addressed before restoration could occur.

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Table 4-5. Details of the Remaining Prospective Restoration Sites

ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
1	a	Bonita Creek	BO-16a-3	Natural	Light	190	Underpass of SR-73
2	a	Hicks Canyon Wash	HK-01-3	Incised	Light	776	Partially underground channel within eucalyptus grove
3	a	Bee Canyon Wash	BE-11b-1	Natural	Heavy	666	North of SR-141
4	a	University of California	UC-01-1	Incised	Light	766	Next to University Research Park
5	b	San Diego Creek	SD-13a-1	Incised	Light	2250	Within a eucalyptus grove
6	b	Bommer Canyon	BM-01-3	Incised	Light	431	Within a City of Irvine local park
7	b	Serrano Creek	SE-07-1	Constrained	Light	476	Surrounded by industrial parks
8	b	Bee Canyon Wash	BE-06-3	Incised	Heavy	234	Round Canyon Wash downstream of SR-241 and upstream of BE-06-2
9	c	Laguna Channel	LG-04-1	Incised	Light	1592	Upstream of former Laguna Reservoir
10	c	Serrano Creek	SE-06-1	Constrained	Light	815	Surrounded by a nursery, upstream of SE-05-1
11	c	San Diego Creek	SD-08-1	Incised	Light	475	Next to Irvine Meadows Amphitheater
12	c	Rattlesnake Canyon Wash	RS-07-1	Incised	Light	600	Adjacent to IRWD property
13	d	Bee Canyon Wash	BE-06-2	Incised	Light	206	Round Canyon Wash downstream of SR-241 and BE-06-3
14	d	Serrano Creek	SE-04-1	Incised	Light	603	Upstream of Trabuco Road
15	d	Serrano Creek	SE-05-1	Constrained	Heavy	965	Surrounded by industrial parks and downstream of SE-06-1

¹ Best possible restoration outcome; the term “incised” templates allows for moderately incised conditions after restoration work is completed, and “constrained” templates allow for restoration with constraints on either side of the bank

² Amount of work needed; “light” earthwork requires less than six feet of excavation and “heavy” earthwork requires greater than six feet of excavation

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(i) *Other Considerations*

In addition to the objectives described above and in the riparian ecosystem restoration plan, four general considerations were important in characterizing restoration activities. First, restoration of aquatic resources should not affect sensitive upland habitats, nor necessitate compensatory mitigation. For example, expanding a riparian reach into coastal sage scrub would constitute a potentially significant impact, making the site selection less preferable than one that did not. Candidate reaches within native coastal sage scrub were identified, but the potential conflicts with sensitive upland habitats were noted.

Second, restoration activities that involved work on degraded reaches were preferred over those needing only enhancement activities. Work that entails only planting was identified as enhancement, not conventional restoration. Work involving light to heavy earthwork to re-establish ecologically functioning channel profiles followed by planting is considered restoration and is preferred over enhancement.

Therefore, opportunities for enhancement were identified separately (Table 4-6). The enhancement sites identified (Figure 4-10) require none to minimal earth moving in order to improve the sites. Lower numbers were assigned to sites expecting to result in the greatest benefits to aquatic resource relative to the level of effort needed to attain the results.

Table 4-6. Details of prospective enhancement sites.

ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
1	a	Serrano Creek	SE-03-1	Incised	Heavy	37	Upstream of Bake Parkway adjacent to off-line basins
2	a	Bonita Creek	BO-16a-2	Natural	Heavy	418	South of Sage Hill High School; extends connection under SR-73
3	a	Agua Chinon	AC-09-1	Natural	Heavy	536	Upstream of SR-241
4	a	San Diego Creek	SD-15a-1	Incised	Heavy	361	Surrounded by mobile homes in Lake Forest; isolated
5	a	San Diego Creek	SD-15b-2	Incised	Heavy	235	Surrounded by mobile homes in Lake Forest; isolated
6	a	Agua Chinon	AC-06-1	Incised	Heavy	567	Immediately downstream of Agua Chinon Basin
7	a	University of California	UC-02-2	Incised	Light	354	Within UCI Open Space
8	a	Bonita Creek	BO-02-1	Natural	Light	574	Upstream of BO-01-1; downstream of BO-06-1
9	a	Borrego Canyon Wash	BG-05c-1	Constrained	Light	509	Downstream of SR-241; adjacent to Baker Ranch
10	b	Agua Chinon	AC-07-1	Natural	Heavy	550	Within Agua Chinon Basin; enhancement may interfere with flood control work
11	b	Sand Canyon Wash	SC-11a-1	Natural	Light	464	Within Shady Canyon open space; downstream of SC-09-2
12	b	San Diego	SD-09a-1	Natural	Light	1252	Upstream of SD-07-2

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ID	Priority Grouping	Subwatershed	Reach	Restoration Template¹	Level of Effort²	Length (m)	Notes
		Creek					
13	b	Shady Canyon	SH-03-1	Natural	Heavy	326	Within Shady Canyon open space; downstream of SH-02-1
14	b	Bommer Canyon	BM-01-1	Natural	Heavy	326	Within Turtle Rock community
15	b	Bonita Creek	BO-01-1	Natural	Light	1208	Adjacent to Bonita Creek Park; upstream of confluence with San Diego Creek
16	b	Agua Chinon	AC-03-1	Incised	Heavy	383	Upstream of Irvine Boulevard
17	b	Bonita Creek	BO-04-1	Incised	Heavy	548	Upstream of Ford Road overpass
18	b	Bee Canyon Wash	BE-11a-2	Incised	Heavy	156	Upstream of SR-241; downstream of Bowerman Landfill
19	b	San Diego Creek	SD-07-2	Incised	Heavy	1903	Upstream of I-405; downstream of SD-09a-1
20	c	Bonita Creek	BO-06-1	Natural	Light	672	Surrounded by Bison Ave., Macarthur Blvd., and SR-73
21	c	Bonita Creek	BO-07-1	Natural	Light	263	Upstream of BO-06-1 and downstream of existing mitigation site
22	c	Agua Chinon	AC-05-1	Incised	Heavy	185	Downstream of Agua Chinon Basin; upstream of military housing
23	c	San Joaquin Channel	SJ-04b-1	Natural	Heavy	551	Within Shady Canyon open space
24	c	Peters Canyon Wash	PC-04-1	Natural	Heavy	1249	Within Peters Canyon Regional Park
25	c	San Diego Creek	SD-12b-1	Natural	Heavy	333	Upstream of Veeh Reservoir and downstream of Laguna Hills Golf Course
26	c	Sand Canyon Wash	SC-04-1	Natural	Heavy	1354	Within Strawberry Farms Golf Course; downstream of SC-04-2
27	c	Serrano Creek	SE-04-2	Natural	Light	1293	Downstream of Dimension Drive
28	c	Borrego Canyon Wash	BG-07-1	Natural	Heavy	1317	Upstream of Portola Parkway; within Limestone Canyon and Whiting Ranch Wilderness Park
29	c	Shady Canyon	SH-02-1	Natural	Heavy	1154	Within Shady Canyon open space; downstream of SH-03-1
30	c	Sand Canyon Wash	SC-04-2	Constrained	Heavy	217	Within Strawberry Farms Golf Course; upstream of SC-04-1
31	c	Sand Canyon Wash	SC-03-1	Natural	Light	766	Within Mason Regional Park mitigation area; downstream of BO-06-1
32	c	Borrego Canyon Wash	BG-15-1	Natural	Light	536	Upstream of SR-241; may be impacted by Portola Parkway Extension
33	c	Borrego Canyon Wash	BG-16-1	Natural	Light	317	Upstream of SR-241; may be impacted by Portola Parkway Extension
34	c	Sand Canyon Wash	SC-09-2	Natural	Light	1801	Within Shady Canyon Open Space; upstream of SC-11a-1
35	c	Serrano Creek	SE-08a-1	Incised	Heavy	1298	Upstream of Portola Parkway; within Limestone Canyon and Whiting Ranch Wilderness Park
36	c	Serrano Creek	SE-03-2	Incised	Heavy	1840	Within Serrano Creek Community Park and undergoing revegetation

- ¹ Best possible restoration outcome; the term “incised” templates allows for moderately incised conditions after restoration work is completed, and “constrained” templates allow for restoration with constraints on either side of the bank
- ² Amount of work needed; “light” earthwork requires less than six feet of excavation and “heavy” earthwork requires greater than six feet of excavation

Third, restoration activities that would conflict with local land use ordinances pertaining to natural resources were excluded as preferred restoration opportunities. For example, within the City of Irvine, some restoration work can only proceed with the removal of eucalyptus trees, an allelopathic species that inhibits the growth of other plant species. However, local ordinances, which reflect the local residents’ preference at the time for eucalyptus windrows over native riparian trees, prohibit the removal of eucalyptus necessary for restoration of certain reaches. Potential restoration areas that are affected by the limitations of local ordinances were noted. Nevertheless, because local preferences may change in the future, the re-establishment of native riparian ecosystems in place of existing, non-native, eucalyptus windrows may become a greater priority.

The combined priority restoration and enhancement opportunities resulting from the analysis described above is represented as Figure 4-11.

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4.3 Restoration Priorities and Compensatory Mitigation

The hierarchy of identified restoration priorities described above (Section 4.2) is intended to inform decision-making processes; it is not proposed as a rigid structure, whereby choices in restoration sites are pre-set with little room for deviation. Although the preference would be to implement restoration sites in order of prioritization, the following factors will influence the final selection of any particular site for restoration: restoration site availability, community acceptability of the restoration work, and the appropriateness of the type of restoration work in relation to the type of impact for which compensatory mitigation may be required. For example, a landowner may not grant access to an identified restoration site, thus necessitating the selection of another site for restoration. In other situations, the local community may prefer that a riparian area remain in its current condition rather than planted with native riparian vegetation, as is the case in some communities planted with eucalyptus windrows. Finally, it may be determined to be an inappropriate expenditure of resources to direct mitigation for large impacts to a small restoration site or mitigation for small impacts to a large restoration site, just because the restoration site in question is “next” in order on the priority list.

The suite of restoration opportunities resulting from the iterative process is comprised of high- to moderate-integrity and low-integrity areas. The distinction is made because unless restored, it is presumed that under baseline conditions low-integrity areas would not provide a level of benefit to the Watershed comparable with the level of benefit existing high- to moderate-integrity resources would be expected to provide. In general, areas assessed as currently having low resource integrity were not included in the aquatic resource integrity areas, and therefore do not necessarily warrant special protection and management in their baseline condition. Yet, given the potential for lower integrity areas outside the more sensitive areas to be restored in a manner that would provide functional lift and help fulfill a conservation goal, it is reasonable to recognize and identify such restoration opportunities.

The identification of potential riparian ecosystem restoration sites will help target ongoing and future restoration and enhancement efforts in the Watershed. ERDC’s riparian ecosystem restoration plan (Smith and Klimas, 2004) outlined general site design criteria that will be used to inform the Corps and the Department in their review of restoration projects, but the plan is not a substitute for site-level planning and restoration design. In order to proceed with restoration of any identified site, detailed planning is needed beyond that which is provided by the prioritization process or by the site design criteria. Among the site-specific parameters that would be determined through additional evaluation are baseline conditions of a potential restoration site, appropriate extent of earthwork, development of planting plans, cost of implementation, and monitoring protocols.

The restoration opportunities identified as part of the Strategic Mitigation Plan are not intended to preclude implementation of potential restoration projects identified by the Corps report on restoration opportunities in the Newport Bay Watershed (2003) and the Corps Watershed Feasibility Study (Corps, 2005a) or any other restoration opportunities identified by other

stakeholders. The selection of potential restoration sites presented herein is based a systematic evaluation of scientific and technical considerations during the SAMP formulation process. The identification of opportunities in the context of the SAMP does not mandate nor guarantee that any particular site will be restored. The public, other agencies, and non-governmental organizations may have other purposes and priorities when identifying potential restoration sites (e.g., for an urban park/greenway) and such goals and objectives are not mutually exclusive. Since the goals and objectives of non-regulatory restoration projects may differ from the SAMP's regulatory goals and objectives, it is reasonable to expect that the results of the identification and prioritization of opportunities would differ.

The identification of all possible restoration opportunities that meet all the varied interests remains outside the purview of the Corps Regulatory Program and the Department's Streambed Program and the SAMP. Nevertheless, full implementation of the SAMP Strategic Mitigation Plan will require the participation of multiple stakeholders within the Watershed. The Corps and the Department will continue to provide guidance while working within the parameters of their authorities. Towards that end, the agencies recommend and support the establishment of a Mitigation Coordination Program, which is described in detail in Section 5.

4.4 Long-Term Conservation of Aquatic Resource Integrity Areas

Properly functioning aquatic resources provide a variety of ecosystem services within the region such as habitat for threatened and endangered species; groundwater recharge; flood flow alteration; nutrient removal, retention, and transformation; aesthetic and cultural values of riparian greenbelts; recreation; and educational, and scientific values. It is widely understood that environmental stressors can adversely influence the health and integrity of a natural ecosystem over time.

The Corps and the Department believe that a strategy with policies for land management practices is needed to prevent substantial degradation of aquatic resource integrity. A concerted effort on the part of all the Watershed's land managers is required to protect the hydrologic, water quality, and habitat integrity, and to prevent degradation of the Watershed's remaining higher value aquatic resources, i.e., aquatic resources located within identified aquatic resource integrity areas).

The SAMP is evidence of the Corps' and the Department's commitments to improved management and stewardship of the Watershed's aquatic resources. The SAMP Strategic Mitigation Plan offers a means for directing conservation efforts to areas in the Watershed in a manner to provide the biggest return for the effort. The Corps and the Department will continue to work within the bounds of their respective authorities, which extend to the regulation certain activities affecting their jurisdictions and to the prohibition of activities adversely affecting the conservation values of legally protected mitigation sites, as well as serve in an advisory capacity.

Consequently, the Corps and the Department have prepared a suite of policies and measures for aquatic resource management (Table 4-7). These measures are generally accepted methods that are informed in part from terrestrial habitat conservation models, which have identified the following key elements to assure long-term conservation: a conservation easement; a long-term management plan; adequate funding and a funding mechanism (e.g., non-wasting endowment) to carry out the long term management (based on a PAR or comparable method to estimate cost); and a land manager. In the case of compensatory mitigation sites, the Corps and the Department would specifically include such measures as requirements in permit special conditions or would require such measures be addressed with legal protections over the land (e.g., a conservation easement). However, beyond the regulatory role, the Corps and the Department offer these as recommendations to the regulated community as additional indication of the parameters by which the Corps and the Department will evaluate future regulated activities within the aquatic resource integrity areas.

Many of the policy recommendations described herein may already be planned or are in operation as a result of existing programs (e.g., state or regional water quality program requirements), while other land management practices would require a greater level of specificity and further analysis prior to implementation. Any latent conflicts with other Watershed resource conservation programs are unintentional. Further coordination and evaluation would be required to address issues as they arise. The following list (Table 4-7) is arranged in alphabetical, not hierarchical order. It represents a comprehensive approach to retain and restore the integrity of aquatic resources and to prevent the further degradation of the higher value aquatic resources. Appendix 4 contains additional information on land uses and their effects on aquatic resources.

Table 4-7. Recommendations for long-term management of compensatory mitigation sites and protection of aquatic resource integrity areas.

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
<p>Adaptive Management Program– The Corps and the Department believe an adaptive management program would be most suitable to address over time the changing needs of the aquatic resources within the integrity areas. Depending on the sites, much of the baseline data would be available for use; however, some biotic surveys may be required. Tasks and costs associated with habitat maintenance, water management, general maintenance, reporting, documentation, operations, and periodic site construction (e.g. fencing and road crossing repair) are anticipated. Any creation or restoration activities would require additional tasks and costs beyond those for general adaptive management, and would likely be conducted by the landowners themselves.</p>	<p>Adaptive management plans for the long-term conservation of mitigation sites should include measures to achieve the following goals: maintain and restore the hydrologic, water quality, and riparian habitat integrity of the Watershed; maintain, restore, and/or enhance native riparian ecosystems and other aquatic resources; protect and support biodiversity; protect and restore sensitive species and their habitats; and allow natural successional stages to occur. Adaptive mitigation plans will be prepared in accordance with the Mitigation Rule (33 CFR 332.4).</p>	<p>Adaptive management of all the aquatic resources in the integrity areas would support the conservation goals of the SAMP. However, to implement such a program would require expenditure of capital costs for initial tasks as well as ongoing tasks and their associated costs. Economy of scale suggests that cost sharing among landowners/ managers for a coordinated program would minimize duplication of efforts and minimize costs to individual landowners/managers. See Mitigation Coordination Program discussion (Section 5).</p>
<p>Agricultural Activities – Unmanaged livestock grazing or other intensive agricultural activities may impair or interfere with the conservation values and the natural condition of aquatic resources.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, grazing or agricultural activities would not be authorized within the aquatic resource or buffer zone, unless approved as part of the conservation management program.</p>	<p>Management strategies to minimize direct and indirect impacts of existing grazing or other agricultural activities on aquatic resources should be evaluated and implemented within the aquatic resource integrity areas.</p>
<p>Buffers – Landscape context of aquatic resource is an important influence on the condition of that resource. Buffers are terrestrial habitats that extend beyond the edge of the wetland and/or riparian habitat.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, buffers should be included to protect the aquatic resources from anthropogenic stressors. Buffers should contain adequate width to reduce the negative interactions between adjacent land</p>	<p>Management strategies to minimize direct and indirect impacts of anthropogenic activities should include buffers vegetated with native species to the extent practicable.</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
	uses and ecological functions; buffers may range from 15m – 100m, depending on site-specific situations; and remain free of activities and pollutants that reduce the buffer’s ecological functions.	
<p>Commercial, Industrial Uses – Commercial and industrial land uses can directly and indirectly affect the natural condition of aquatic resources.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, new commercial or industrial uses would not be authorized.</p>	<p>Undertaking new commercial or industrial uses within the aquatic resource integrity areas may impair or interfere with the conservation values and the natural condition of the aquatic resources. Activities should be planned in a manner to avoid and minimize permanent impacts to aquatic resources.</p>
<p>Construction – Construction activities within or adjacent to aquatic resources can affect, either directly or indirectly, the natural condition of aquatic resources. Best management practices can reduce or eliminate adverse effects.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, construction activities or uses would not be authorized, except as minimally necessary to maintain or repair existing structures.</p>	<p>Construction, reconstruction, or placement of any building or other improvement within the aquatic resource integrity areas may impair or interfere with the conservation values and the natural condition of the aquatic resources. Activities should be planned in a manner to avoid and minimize permanent impacts to aquatic resources.</p>
<p>Flood Management and Erosion Control – Under baseline conditions, some aquatic resources are managed to provide flood management (e.g., flood control facilities) or other functions and require routine maintenance activities.</p>	<p>Maintenance activities to preserve the flood management function or to control erosion of watercourses that are mitigation sites shall be performed in a manner to preserve the conservation values of the site. Any removal of sediment and associated vegetation from the aquatic resources shall be minimized and shall occur only to the extent that these activities have been included in the maintenance baseline for</p>	<p>Maintenance activities to preserve the flood management function or to control erosion of watercourses should be performed in a manner to preserve the conservation values of the aquatic resource integrity areas. Therefore, any removal of sediment and associated vegetation from the aquatic resources should be minimized and should occur only to the extent that these activities have been included in the maintenance</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
	the watercourse to restore the facility to its design capacity.	baseline for the watercourse to restore the facility to its design capacity. Plans to improve flood control facilities should maintain soft-bottom channels where existing. Channel stabilization projects should incorporate recognized bioengineering practices and materials ¹⁵ when available and practicable.
Grading – Grading activities within or adjacent to aquatic resources can affect, either directly or indirectly, the natural condition of aquatic resources. Best management practices can reduce or eliminate any permanent adverse impact.	At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, grading activities, except for ecosystem restoration activities would not be authorized.	Permanent alteration of the general topography through grading activities, including but not limited to building of road crossings and new flood management work, and excepting ecosystem restoration activities, may impair or interfere with the conservation values and the natural condition of the aquatic resources within aquatic resource integrity areas. Activities should be planned to avoid and minimize permanent impacts to aquatic resources.
Habitat Restoration/Enhancement Activities – Aquatic resource restoration, enhancement, and creation activities within the aquatic resource integrity areas should be conducted in a manner consistent with the design criteria established by the Watershed restoration plan (Smith and Klimas, 2004) and as consistent with the SAMP Strategic Mitigation Plan to provide self-sustaining sites for increased integrity and function of aquatic resources.	The permittee shall retain the right to perform the restoration of native plant communities, including the right to plant trees and shrubs of the same type as currently existing on the mitigation site, so long as such activities do not harm the habitat types identified in the permit/agreement. For purposes of	A mitigation coordination program would facilitate these efforts within the aquatic resource integrity areas. See Mitigation Coordination Program discussion (Section 5). Ecosystem restoration projects should incorporate recognized bioengineering practices and materials ¹⁶ and restoration practices when available and practicable.

¹⁵ ERDC publishes technical notes on a range of ecosystem management and restoration topics, including *Stability Thresholds for Stream Restoration Materials* (Fischenich, 2001). In addition, the Corps RGP 70 is available for bank stabilization projects using approved bioengineering techniques.

¹⁶ Id.

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
	<p>preventing erosion and reestablishing native vegetation, the permittee shall retain the right to revegetate areas that may be damaged by the permitted activities, naturally occurring events, or by the acts of persons wrongfully damaging the natural condition of the mitigation site, including preserved areas within the aquatic resource integrity areas.</p>	
<p>Integrated Pest Management (IPM) – IPM combines various techniques for the prevention of pests and pest-related damage in order to minimize the adverse affects to the non-target organisms and the environment as well as to reduce adverse risks to human health. Existing models for IPM are available for various types of land uses, including but not limited to golf courses, open spaces, and campus-type facilities (see <i>Vector Control; Invasive, Exotic Species Control</i>)</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, application of pesticides and herbicides is typically considered a prohibited activity (see <i>Vector Control; Invasive, Exotic Species Control</i>).</p>	<p>Within the aquatic resource integrity areas, pesticide use for the control of pests should be the last option, but would be permissible. Landowners/ managers are encouraged to develop and implement ecosystem-based strategies to prevent pests and pest-related damage. In consideration of an adaptive management framework, it may be prudent for landowners/managers to incorporate IPM into a Mitigation Coordination Program to provide long-term protection of high value aquatic resources (see <i>Vector Control; Invasive, Exotic Species Control</i>).</p>
<p>Invasive, Exotic Species Control – A list of target species of invasive, exotic vegetation is provided (Table 5-1). Only herbicides and associated surfactants approved by EPA for use in wetlands and with no/low toxicity to aquatic organisms may be used in aquatic resources.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, the planting, introduction or deliberate dispersal of invasive, exotic plant or animal species is prohibited. Also, see discussion for non-mitigation sites.</p>	<p>To avoid redundancy and improve program efficiency, any new efforts for the control of invasive, exotic vegetation, cowbird trapping, bullfrog and African clawed frog control measures within the aquatic resource integrity areas should be coordinated and to the extent practicable with other landowners/managers who conduct ongoing control programs within the Watershed, in both riparian and</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
		terrestrial habitats. A Mitigation Coordination Program would facilitate these efforts. See <i>Mitigation Coordination Program</i> (Section 5).
<i>Irrigation, Water Influences</i> - Unseasonable watering, manipulating, impounding or altering any natural watercourse, body of water or water circulation, and activities or uses detrimental to water quality, including but not limited to degradation or pollution of any surface or sub-surface waters may result in substantial adverse impacts to aquatic resources.	At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, such activities or uses would not be authorized, except as minimally necessary for the establishment of restored or created native habitats in restoration areas.	Landowners/managers should limit alterations to the natural hydrologic regime within the aquatic resource integrity areas to prevent impairment of the conservation values and the natural condition of the aquatic resources.
<i>Long-term Legal Protection of Conservation Values</i> - The most effective way to provide protection of sensitive resources over time is to confer legal assurances on the lands. Legal assurances refer to implementing agreements, restrictive covenants, conservation easements, or land dedications and are for protecting the conservation values of sensitive resources in perpetuity.	Any compensatory mitigation, including preserved sites, associated with projects evaluated under the SAMP permitting procedures would require legal assurances to ensure the long-term increased benefits at the watershed scale. See SAMP mitigation framework (Section 3.6).	Landowners/managers with control over aquatic resource integrity areas should consider mechanisms for ensuring long-term protections. A Mitigation Coordination Program could facilitate these efforts. See Mitigation Coordination Program discussion (Section 5).
<i>Long-term Monitoring and Maintenance</i> - A monitoring strategy that addresses both surveillance and post-restoration/mitigation type monitoring needs should be included as part of any adaptive management program. Associated with the monitoring program would be certain performance criteria relevant to the conservation program in general as well as project- or site-specific criteria for compensatory mitigation or restoration projects.	At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, the permittee shall be responsible for the ongoing maintenance/repair of the mitigation site. See SAMP mitigation framework (Section 3.6).	To avoid redundancy and improve program efficiency, any new efforts for long-term maintenance and monitoring of sites within the aquatic resource integrity areas should be coordinated, to the extent practicable, with other landowners/ managers with ongoing control programs within the Watershed, in both riparian and terrestrial habitats. A Mitigation Coordination Program would facilitate these efforts. See Mitigation Coordination Program discussion (Section 5).

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
<p>Native Riparian Habitat– Removing, destroying, or cutting of native riparian trees, shrubs or other vegetation may impair or interfere with the conservation values and the natural condition of aquatic resources.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, removal of native riparian habitat, except as required by law for (1) fire breaks, (2) maintenance of existing foot trails or road crossings, (3) flood or erosion control as provided within a conservation easement, and (4) prevention or treatment of disease would not be authorized.</p>	<p>Landowners/managers should take care to avoid and limit activities that would result in the removal or destruction of native riparian vegetation within the aquatic resource integrity areas.</p>
<p>Natural Resource Extraction – Filling, dumping, excavating, draining, dredging, mining, drilling, removing or exploring for or extraction of minerals, loam, gravel, soil, rock, sand or other material on or below the surface may impair or interfere with the conservation values and the natural condition of aquatic resources.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, natural resource extraction would be prohibited.</p>	<p>Landowners/managers should avoid or limit natural resource extraction activities within the aquatic resource integrity areas.</p>
<p>New Road Crossings – Certain types of road crossings may result in substantial adverse impacts to aquatic resources of high value. Bridges and arched culverts with natural bottoms would be considered among the alternative minimization measures available to project proponents.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, the alteration of the general topography of the site, including but not limited to building of new road crossings would be prohibited.</p>	<p>Landowners/managers should undertake reasonable measures to minimize adverse impacts to aquatic resources within the integrity areas from new or reconstructed road crossings. Project proponents should expect to consider alternative routes, crossings, and types of crossings, as they will be thoroughly analyzed by the Corps and Department.</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
<p>Public Access and Recreational Activities – Unless mitigation measures are undertaken to manage active recreation, including, but not limited to, horseback riding, biking, hunting, or fishing, such activities may impair or interfere with the conservation values and the natural condition of aquatic resources. For example, off-trail incursions into the streambed or native riparian habitat and other disturbances in sensitive areas may result in adverse impacts to the aquatic resources or may result in disturbances to riparian species of concern during the breeding seasons.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, recreation including, but not limited to, horseback riding, biking, [and hunting, or fishing] may be prohibited or measures may be required to minimize disturbance.</p>	<p>Any proposals for new recreational facilities within the aquatic resource integrity areas should consider these issues and may wish to include design features, public education component, and access control measures to reduce direct and indirect effects to sensitive resources. See Appendix 4.</p>
<p>Refuse, Trash – The deposition or accumulation of soil, trash, ashes, refuse, waste, bio-solids, or any other material may impair the conservation values of aquatic resources.</p>	<p>As part of a monitoring and maintenance program, landowners/managers shall be required to undertake all reasonable actions to prevent the deposition or accumulation of soil, trash, ashes, refuse, waste, bio-solids, or any other material within mitigation sites.</p>	<p>Land managers/owners may have their own trash removal regime. To avoid redundancy and improve program efficiency, refuse and trash control efforts as part of a long-term maintenance and monitoring of sites within the aquatic resource integrity areas could be coordinated with other landowners/managers with ongoing control programs within the Watershed, in both riparian and terrestrial habitats. A Mitigation Coordination Program would facilitate these efforts. See Mitigation Coordination Program discussion (Section 5).</p>
<p>Signage – The installation and maintenance of informative signage and other notification features saying “Natural Area Open Space,” “Protected Natural Area,” or similar descriptions may be used to inform persons of the nature and restrictions on the access or use of sensitive resources.</p>	<p>The permittee may be required to post and maintain informative signage in or adjacent to a compensatory mitigation site, including preserved areas within the aquatic resource integrity areas. The signage shall be maintained in-perpetuity.</p>	<p>To avoid redundancy and improve program efficiency, the posting and maintenance of informative signage within the aquatic resource integrity areas could be coordinated with other landowners/managers with ongoing access control programs within the Watershed, in</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
		both riparian and terrestrial habitats. A Mitigation Coordination Program would facilitate these efforts. See Mitigation Coordination Program discussion (Section 5).
<p>Vector Control – The Corps and the Department regard the need for protection of public health against vector-borne diseases as an important consideration. A vector is any insect or arthropod, rodent, or other animal capable of harboring or transmitting the causative agents of disease, i.e., viruses, bacteria, parasites, to humans. In the context of aquatic resources, mosquitoes (<i>Culex</i>, sp.) and mosquito-borne diseases are of particular relevance. The Corps and the Department acknowledge that specific mosquito control programs in the aquatic resource integrity areas may be required to reduce localized mosquito populations and minimize the risk of disease transmission to humans via the mosquito.</p> <p>The following are the Corps’ and the Department’s assumptions with regard to a vector control activities at mitigation sites or other aquatic resources in the integrity areas: (1) mosquitoes provide a food source for many birds, bats, amphibians, and fish species resident to riparian and wetland systems and complete elimination of mosquitoes in riparian areas may upset the food web; (2) healthy wetlands, with adequate water circulation to avoid stagnant conditions, along with the presence of mosquito-eating predators, including mosquito-eating beetles, backswimmers, water striders, dragonfly larvae, etc. should provide adequate conditions to prevent infestation; and (3) the wide availability of proven biological control methods renders the use of pesticides and insecticides within aquatic resources, and more invasive control methods, avoidable.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, application of pesticides, biocides, rodenticides, and herbicides (except for weed abatement) would constitute a prohibited activity. Filling or draining aquatic resources at compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, for the purposes of vector control would constitute a prohibited activity. Management efforts should remedy cause, such as poor circulation, or should employ accepted biological control methods.</p>	<p>Implementation of the SAMP Strategic Mitigation Plan should minimize mosquito populations in the aquatic resource integrity areas by reducing breeding sites through restoration and enhancement activities to improve the integrity and function of wetlands and riparian areas. The use of pesticides and insecticides in the aquatic resource integrity areas should be avoided and replaced with an IPM program (see Integrated Pest Management above). Vector control activities can be coordinated with the County of Orange’s Vector Control District and other landowners/managers in the aquatic resource integrity areas to help avoid duplicative or incompatible efforts.</p>

Management Aspect	Applicability for Compensatory Mitigation Sites	Applicability for Aquatic Resource Integrity Areas in General (Non-Mitigation)
<p><i>Vehicular Access</i> – Inappropriate vehicle use (e.g., off-road vehicles) can result in direct and indirect impacts to the conservation values of aquatic resources. Any exclusion fencing used to restrict vehicular access should be installed in a manner that retains or facilitates wildlife movement between contiguous areas within the aquatic resource integrity areas.</p>	<p>At compensatory mitigation sites, including preserved areas within the aquatic resource integrity areas, the use of off-road vehicles and use of any other motorized vehicles except on existing roadways and as necessary to restore native plant communities consistent would constitute a prohibited activity.</p>	<p>Landowners/managers should undertake all reasonable actions to preclude the use of off-road vehicles and of any other motorized vehicles, except on existing roadways, and as necessary to restore native plant communities.</p>
<p><i>Wildlife Movement</i> – Riparian corridors provide foraging, cover, and nesting/breeding habitat for fish and wildlife, and are conduits for many species, including aquatic, riparian, and semi-aquatic or terrestrial species.</p>	<p>Since restoration opportunities prioritized for compensatory mitigation in the SAMP Strategic Mitigation Plan considered wildlife movement, project proponents should consult the plan. An objective is to augment regional aquatic and terrestrial habitat conservation efforts to maintain and restore wildlife movement between existing NCCP Reserve sub-areas.</p>	<p>Activities within the aquatic resource integrity areas should not conflict with, but rather augment regional aquatic and terrestrial habitat conservation efforts to maintain and restore wildlife movement between existing reserve areas such as the Central-Coastal NCCP Subregional Reserve System, the proposed City of Irvine Great Park Wildlife Corridor, and the Laguna Coast Wilderness Park.</p>

4.5 Plan Implementation

The primary means of implementing the Strategic Mitigation Plan will be through the adherence to the SAMP mitigation framework. As previously described, the aquatic resource integrity areas serve as the foundation for the Analytical Framework as well as the permitting and mitigation frameworks. Management of the aquatic resource integrity areas to promote the maintenance and restoration of aquatic resource integrity will be supported by the regulatory process and is one of the principal benefits of the SAMP.

Compensatory mitigation (e.g. in the form(s) of preservation, creation, restoration, and enhancement activities) would be required to offset permanent and temporal impacts to aquatic resources. Generally, compensatory mitigation would occur onsite and/or within the aquatic resource integrity areas. Although not preferred, the Corps and the Department may consider on a case-by-case basis the use of sites outside the aquatic resource integrity areas for compensatory mitigation. In general, the implementation of restoration projects identified in the SAMP or in the riparian ecosystem restoration plan (Smith and Klimas, 2004) would be weighted as providing greater value for the Watershed than an alternative site located outside the aquatic resource integrity areas, or a site that is not identified in the restoration plan.

Furthermore, to facilitate broader scale conservation efforts through compensatory mitigation, the Corps and the Department anticipate the establishment of a third-party mitigation program. Such efforts will assist in addressing the long-term management needs of mitigation lands. A possible option is to coordinate with the City and/or the Great Park Corporation, who are considering whether to establish an approved mitigation banking instrument and/or other third-party mitigation program at the Great Park site. However, at the time of this publication, further investigations and discussions were deemed necessary to determine the appropriateness of establishing mitigation banking agreements and/or other third-party mitigation programs with the Corps and the Department.

As part of the SAMP, the Strategic Mitigation Plan, along with the identification of the aquatic resource integrity areas to avoid any apparent conflicts with the other ecosystem reserve and restoration efforts, including the NCCP. Furthermore, the proposed riparian corridors of the Orange County Great Park were designed in coordination with, and to the satisfaction of, the Corps and the Department.

5 Mitigation Coordination Program

Components of this SAMP

- Analytical Framework
- Permitting Processes, including Mitigation Framework
- Strategic Mitigation Plan
- **Mitigation Coordination Program**

As described and evaluated in this document and the Program EIS/EIR, the Corps and the Department are proposing to adopt modifications to their regulatory processes within their own organizations based on the SAMP. However, there are non-regulatory components of the SAMP that are outside of the Corps and the Department's respective authorities to implement, but are important to achieving the overall goal of sustainable Watershed resources. Therefore, the focus of this section is a Mitigation Coordination Program to guide the implementation of the Strategic Mitigation Plan and to support long-term restoration and conservation goals and management strategies for the Watershed's aquatic resource integrity areas identified through formulation of the SAMP.

Primarily a mechanism to support the conservation of aquatic resources within the aquatic resource integrity areas through the implementation of compensatory mitigation and priority sites as described in the SAMP Strategic Mitigation Plan, the establishment of a Mitigation Coordination Program would support the SAMP mitigation framework and the long-term management of areas of higher value to the Watershed's aquatic ecosystem, i.e., the aquatic resource integrity areas. Moreover, the Mitigation Coordination Program serves as a tool for implementing the restoration or enhancement of degraded aquatic resources, which upon restoration should receive the benefits of coordinated long-term monitoring and maintenance activities.

In order to outline how a Mitigation Coordination Program could work, this section is divided into two main parts. The first part (Section 5.1) addresses the fundamental issues the Corps and the Department believe need to be addressed by such a program. The second part discusses a potential organizational and management structure for a Mitigation Coordination Program. Together, these two sections should describe the perceived needs and opportunities for a coordinated effort.

Included in Appendix 4 are other options for aquatic resource management the Corps and the Department considered and land management strategies recommended to reduce the potential for adverse effects that existing land uses can have on the aquatic resources within the identified aquatic resource integrity areas. In Appendices 5 and 6, background information is provided on other ongoing Watershed management efforts, particularly those described in the Draft Watershed Management Plan (Corps, 2005b), and on how this proposed Mitigation

Coordination Program may fit into the broader scheme of Watershed management. Appendix 7 elaborates on how a Mitigation Coordination Program may fund long-term management of aquatic resources within the integrity areas.

5.1 Specifications of the Program

This subsection describes the basic specifications the Mitigation Coordination Program should meet to be most effective. Since there are several issues such a program could address, the activities are organized into two tiers.

Tier 1 – Priority Activities. The primary concerns that the Mitigation Coordination Program should focus on are as follows:

- Coordinate restoration efforts among landowners/managers of properties identified as aquatic resource integrity areas and facilitate the use and access of identified restoration opportunities on their land for others to perform compensatory mitigation restoration and enhancement projects;
- Coordinate long-term monitoring and maintenance efforts in aquatic resource integrity areas to maximize the benefit of expenditures and to avoid redundancy;
- Lead the implementation of the Strategic Mitigation Plan;
- Solicit sponsor(s) of a third-party mitigation program.

Tier 2 – Secondary Activities. The second tier of objectives should be to build upon the extensive endeavors of collaborative stakeholder groups to address Watershed management issues and to facilitate the sharing and utilization of scientific and technical data on the aquatic environment available among the Watershed managers. The Mitigation Coordination Program could also assist in coordinating aquatic ecosystem restoration and enhancement activities unrelated to regulatory programs, i.e., non-compensatory mitigation projects, compatible with the Strategic Mitigation Plan.

5.1.1 Tier 1 Priority Activities

5.1.1.1 Coordinate Aquatic Resource Restoration Efforts

Access to restoration opportunities within aquatic resource integrity areas (especially for compensatory mitigation) should be a primary objective of the Mitigation Coordination Program. Within the Watershed, several landowners/managers control access to and uses of lands with aquatic resources identified as aquatic resource integrity areas. As an element of the SAMP (Section 4), a suite of riparian ecosystem restoration opportunities has been identified on these lands, whereupon restoration of identified sites would improve the overall integrity of the Watershed's aquatic environment. Under the Corps' and the Department's SAMP permitting processes and mitigation framework, the authorization of unavoidable, permanent impacts to aquatic resources would necessitate restoration and enhancement activities as compensation. Although the identification of restoration opportunities help target compensatory mitigation

where it would be most beneficial, unless degraded sites are restored or enhanced, an overall benefit to the Watershed will not be achieved.

Therefore, it should be a goal of the Mitigation Coordination Program to create a protocol that is acceptable to the landowners/managers, whereby they would allow restoration or enhancement efforts to occur on their lands. Several issues must be addressed to accomplish the restoration goals: perceived conflict with existing or planned land uses; fair market value reimbursement for land access and use; the preference of an landowner/manager to retain the option for restoring a site themselves; community acceptability of the restoration work; long-term protection and management of restoration site; and matching the type of restoration work appropriate to the type of impact for which compensatory mitigation may be required.

5.1.1.2 Coordinate Long-Term Adaptive Management, Monitoring, and Maintenance Efforts

It is envisioned the Mitigation Coordination Program would develop measures to accomplish long-term management of the aquatic resources within aquatic resource integrity areas. As mentioned above (Section 4), long-term adaptive management, including monitoring and maintenance is one crucial element of any comprehensive resource protection program. The Mitigation Coordination Program should respond to two distinct, but related management objectives. First is the need to manage the aquatic resource integrity areas in general to prevent degradation of natural or near natural aquatic resource areas over time. Although long-term management of aquatic resources within the integrity areas that are not compensatory mitigation sites would be beyond the obligations of any particular permittee, such management activities would benefit all the stakeholders in the Watershed who wish to maintain the integrity of the aquatic resources for the functions and values they provide.

Second is the need to manage compensatory mitigation sites, a subset of aquatic resources, beyond the short-term, five-year monitoring and maintenance period typically required by previously authorized Corps permits and Department agreements. The primary concern and authority of the Corps and the Department extend to the latter need, i.e., long-term management of compensatory mitigation sites to ensure that a compensatory mitigation site retains the functions and values intended when permanent impacts were authorized. Consequently, under the SAMP permitting program and mitigation framework, compensatory mitigation will include provisions for long-term management. In consideration of the concept of economy of size, it would be reasonable for a sponsor or sponsors to establish a Corps- and Department-approved third-party mitigation program to undertake long-term management of aquatic resources. In the absence of a mitigation bank(s) or other third-party mitigation program(s), a permittee would still be obligated as a condition of their permit/agreement to arrange for the long-term management requirements for any compensatory mitigation site. Since conventional practice for terrestrial habitat protection always incorporates a long-term management component, such related management efforts maybe informative for selecting mechanisms to address long-term aquatic resource management needs. Examples include, but are not limited to the NCCP in Orange County or conservation banks in San Diego County, California.

In the case of the general long-term management of aquatic resource integrity areas other than mitigation sites, a third-party mitigation program could effectively accomplish management activities in a methodical manner. The Mitigation Coordination Program would provide a conduit for coordinating with the various landowners/managers.

(a) *Adaptive Management and Maintenance*

An adaptive management approach to long-term management is preferred (Table 4-7). Such an approach is iterative in nature and intended to provide flexibility to respond to reasonably foreseeable environmental stressors and the dynamic nature of aquatic ecosystems. A fundamental aspect of a comprehensive adaptive management approach is the implementation of a monitoring program and the establishment of mechanisms for preventing and responding to the effects of environmental stressors through the coordination of maintenance, enhancement, and restoration activities.

The adaptive management program should include measures to achieve the following goals: maintain and restore the hydrologic, water quality, and habitat integrity of the aquatic resources within the Watershed; maintain, restore, and/or enhance native riparian ecosystems and other aquatic resources within the aquatic resource integrity areas; protect and support biodiversity; protect and restore sensitive species and their habitats; and allow natural successional stages to occur. It is expected that the adaptive management program would be re-evaluated at least every 10 years to determine its relevance and efficacy given the results of the monitoring data collected and analyzed (Section 5.1.2(b)).

An adaptive management strategy should be able to identify environmental stressors that affect the aquatic resource integrity areas and develop mitigation strategies for addressing needs. Reasonably foreseeable management needs include impacts from environmental stressors related to the close proximity of aquatic resources to the dense human populations of the greater Los Angeles/Orange County metropolitan region, or related to indirect effects of environmental stressors that occur outside the boundary of the aquatic resource integrity areas. For example, the Corps and the Department have identified the following stressors: native vegetation damage, destruction, and removal; the dispersal of invasive, exotic plants and animals, particularly giant reed (*Arundo donax*), cowbirds (*Molothrus ater*), African clawed frogs (*Xenopus laevis*), and bullfrogs (*Rana catesbeiana*); arson and unintentional wildfires; exacerbation of erosion from roads and trails; vector control methods inconsistent with integrated pest management practices; destabilization of streambeds (e.g., downcutting and headcutting) and banks; catastrophic flood events; litter, trash, and refuse; and alteration of geochemical processes, nutrient dynamics, and damage to native vegetation due to increased inputs of atmospheric pollutants.

Often times the effects of stressors only become apparent over time. For instance, although air and water pollution-related effects are beyond the scope of the Mitigation Coordination Program and negligible or imperceptible at the baseline, the effects may become apparent over

time and management plans and strategies should be adaptable to such changes. However, since the incident rates for many of these stressors are unknown or variable, it is difficult to quantify the management costs. Despite the unpredictability, environmental stressors are known phenomena documented in peer-reviewed literature with measurable and detrimental consequences, especially in the context of an extended timeframe. Consequently, an adaptive management strategy would need to be able to respond to the effects of environmental stressors occurring over the long-term.

A more known and studied stressor is that of invasive, exotic species. It is anticipated that invasive, exotic plant species eradication and control would require exotics removal from a stream reach and an appropriate buffer. Provided herein (Table 5-1) is a list of invasive, exotic plant species that typically occur in southern Californian riparian systems, including coast live oak riparian forests, and should be targeted for control.

Table 5-1. Invasive, exotic plant species common to different types of aquatic resources would be targeted for removal and control according to their threat level to the ecosystem.

Threat Level	Botanical Name	Common Name	Riparian	Wetland	Oak Woodland/ Native Grassland
High	<i>Ailanthus altissima</i>	Tree of heaven	X		X
	<i>Arundo donax</i>	Giant reed	X		
	<i>Cortaderia selloana</i>	Pampas grass	X	X	
	<i>Cortaderia jubata</i>	Jubata grass	X	X	
	<i>Cynara cardunculus</i>	Artichoke thistle	X		X
	<i>Foeniculum vulgare</i>	Fennel	X		
	<i>Tamarix</i> spp.	Salt cedar	X		
Medium	<i>Ageratina adenophora</i>	Sticky eupatorium	X		X
	<i>Atriplex semibaccata</i>	Australian saltbush			X
	<i>Brassica nigra</i>	Black mustard			X
	<i>Centaurea melitensis</i>	Tocalote			X
	<i>Cirsium</i> spp.	Bull thistle	X		X
	<i>Conium maculatum</i>	Poison hemlock	X		X
	<i>Erharta calycina</i>	Veldt grass	X		

Threat Level	Botanical Name	Common Name	Riparian	Wetland	Oak Woodland/ Native Grassland
	<i>Phalaris aquatica</i>	Harding grass	X		
	<i>Ricinus communis</i>	Castor bean	X		
	<i>Shinus</i> spp.	Pepper tree	X		
	<i>Silybum marinaum</i>	Milk thistle	X		X
	<i>Vinca major</i>	Periwinkle	X		X
Low	<i>Marrubium vulgare</i>	Horehound	X		X
	<i>Picris echioides</i>	Bristly ox-tongue	X		
	<i>Spartium junceum</i>	Spanish broom			X
	<i>Washingtonia robusta</i>	Mexican fan palm	X		
	<i>Xanthium</i> spp.	Cocklebur	X	X	

(b) *Monitoring and Data Management*

Adaptive management of the aquatic resource integrity areas would require expenditure of capital costs for initial tasks as well as ongoing tasks and their associated costs. Data will be required to improve the understanding of how the environment changes over time. Depending on the sites, much of the baseline data would be available for use. However, additional biotic surveys or other kinds of data may be required.

Many agencies and jurisdictions already collect useful data for their own purposes. It is critical to long-term analysis and management of Watershed resources to collaborate with all other data managers and develop mechanisms both for sharing existing data and for collecting new data. Greater access to data will enable a more accurate adaptive management process, as well as decrease program costs and facilitate a collaborative relationship among stakeholders. The Newport Bay Watershed Management Plan (Corps, 2005b) also includes strategies for sharing data among stakeholders, as well as strategies for acquiring the funding needed to gather and maintain these data sets. Region-wide efforts such as the Southern California Wetland Recovery Project's (WRP) Integrated Wetland Regional Assessment Program (IWRAP), which is under development with a project tracking and data management system, may aid the local Newport Bay efforts.

Both aspects of long-term management, i.e., to maintain aquatic resources in a natural state and to ensure the long-term success compensatory mitigation or other restoration projects, require a long-term surveillance or assessment component as well as a shorter term, site-specific

monitoring program for a particular restoration (non-compensatory mitigation) project. Assessments allow for the detection of problems as they arise and for the formulation of actions to remedy any problems. In the context of problem detection, most assessments, especially in relatively pristine locations, would result in no action taken. On the other hand, monitoring allows for tracking of management activities, and their success as well as alternative management actions, should original management actions fail.

For the relatively pristine aquatic resource integrity areas, i.e., within the NCCP Reserve System and other open space areas, assessments of site conditions could occur infrequently. Such site visits would be to monitor erosion and stream bank destabilization, infestation by invasive plants and animals, the presence of stressors, and for vegetation health. Other collected information could include wetlands delineations, vegetation plot surveys, riparian system cross-sectional surveys, point surveys of identifiable wildlife and tracks, and qualitative assessment of the health and reproduction of the plants.

For less pristine sites in areas more accessible to humans, surveys may be needed more frequently, as these sites are prone to anthropogenic alterations including vandalism, changes in hydrology, and non-point source driven impacts. Site assessments should observe the same parameters as with more pristine sites, including checking for erosion and stream bank destabilization, infestation by invasive plants and animals, the presence of stressors, and for vegetation health.

The Mitigation Coordination Program would assist landowners/managers or third-party mitigation sponsor(s) in coordinating efforts to complete a monitoring plan, which presents field protocol for collecting qualitative and quantitative site data within the aquatic resource integrity areas. Along with the biological information, hydrological information should be collected to assess stream morphological conditions. The Mitigation Coordination Program would participate in efforts among local agencies and landowners/managers to obtain information regarding ongoing or proposed water quality monitoring programs and to avoid duplicative activities.

The monitoring plan should also contain criteria for assessing the success of land management efforts in a watershed context. The success criteria would allow the results of the monitoring efforts to be used to compare specific measures over time as compared with the change from baseline ecosystem conditions. Criteria should be devised to assess site and land management performance with regard to the SAMP goals, ecosystem functions, and hydrologic, water quality, and habitat integrity. Specific criteria should address the aforementioned environmental stressors, data management needs, and monitoring.

The monitoring plan should also include a discussion about survey periods and reporting requirements, including the interval for monitoring and reporting. Using the results of the monitoring efforts, actions to remedy any problems can be identified and prioritized through the collaborative process of the Mitigation Coordination Program.

5.1.1.3 Implementation of the Strategic Mitigation Plan

Another objective of the Mitigation Coordination Program should be to guide the implementation of the Strategic Mitigation Plan. As projects and management activities are implemented and data are collected and analyzed, the prioritization of restoration sites to be implemented would be expected to change over time. Therefore, it is anticipated that the restoration and enhancement priorities identified in the Strategic Mitigation Plan will need to be updated so that it is reflective of the changes in ecosystem conditions over time.

5.1.1.4 Solicit Sponsor(s) of an Third-Party Mitigation Program and/or Mitigation Bank

Many of the conservation activities, including enhancement, restoration, maintenance, and monitoring in aquatic resource integrity areas could be conducted through a formalized arrangement with a mitigation bank or other third-party mitigation program sponsor. The Corps and the Department encourage the establishment of formal Corps- and Department-approved agreements with third-party mitigation program sponsor(s) who would conduct conservation activities within the aquatic resource integrity areas. Such agreements would allow permittees to purchase acreage equivalents from the sponsor in lieu of conducting restoration or enhancement activities themselves so long as specific sites are identified in advance. In addition, third-party mitigation program sponsors could receive separate monies for conducting long-term management activities in the aquatic resource integrity areas, as described above (Section 5.1.1.2).

A top priority in selecting a third-party mitigation program sponsor is to have a singular qualified entity with the capacity to conduct or oversee long-term management activities affecting the aquatic resource integrity areas and to take other actions necessary to help implement the Strategic Mitigation Plan. The selected sponsor would possess the technical expertise and administrative experience to implement a third-party mitigation program, including the capability for overseeing any restoration or enhancement activities, as needed. Additionally, public outreach and education is essential to inform the Watershed stakeholders about this program and build capacity and awareness among the stakeholders to develop increased participation of local landowners/managers of aquatic resource integrity areas. Most importantly, a proven history of fiscally and ecologically responsible management practices transferable to this program would be required. Additionally, if the sponsor were to serve as grantee on any conservation easement for a compensatory mitigation site, the sponsor would have to satisfy the requirements of California Civil Code section 815-816 as a tax-exempt nonprofit organization qualified under section 501 (c)(3) of the Internal Revenue Code and be qualified to do business in this state, with its primary purpose being the preservation, protection, or enhancement of land in its natural, scenic, historical, agricultural, forested, or open-space condition or use.

A Corps- and Department-approved sponsor who establishes and operates a mitigation bank would be able to accept funds to invest as a non-wasting endowment in order carry out long-term aquatic resources monitoring and management, and to plan and implement aquatic resource enhancement projects. In order to generate management funds for the aquatic

resource integrity areas, project proponents/permittees would have the option to pay into a mitigation bank the equivalent funds that would otherwise be required to implement and manage in perpetuity the compensatory mitigation acreage requirements above the minimum 1:1 compensation to impact ratio. For example, should an approved compensatory mitigation plan require 3:1 mitigation to impact ratio, a permittee would be required to conduct mitigation at a ratio of 1:1 replacement and long-term management for that site. However, instead of establishing a larger mitigation site to satisfy the 3:1 ratio, the permittee/project proponent could satisfy the remaining 2:1 requirement by purchasing acreage equivalent credits from an approved third-party mitigation program sponsor for long-term management, i.e., maintenance and monitoring, adaptive management, of aquatic resources in the integrity areas. The Department requires that a WSAA identify the specific location(s) of the compensatory mitigation, so the third-party mitigation program sponsor would be required to link the mitigation actions with the project WSAA.

On a case-by-case basis as determined by the Corps and/or the Department, aquatic resource impacts originating outside of the Watershed may be mitigated by using the third-party mitigation program for compensatory mitigation.

In the case that aquatic resource management consistent with the SAMP long-term management requirements exceeds the baseline funding allocated for ongoing resource management of a particular aquatic resource in the integrity areas and is a measurable financial burden for the participating landowners/manager, the landowner/manager may submit an annual work plan to the third-party mitigation program sponsor and request supplemental funding for aquatic resource management. If the third-party mitigation program is generating funds in excess of what is required for the sponsor to fulfill the obligations as sponsor, funds could be allocated to the land manager making such a request.

Any third-party mitigation program sponsor should establish a non-wasting endowment to fund the following activities on lands within their stewardship: the actions for long-term aquatic resource monitoring and management to maintain the targeted conservation values within the aquatic resource integrity areas; to plan and implement habitat enhancement and restoration actions within the Watershed that support the conservation strategies of the Strategic Mitigation Plan; and to fund the administrative and overhead cost associated the activities identified above, in addition to endowment fund management, preparing and overseeing contacts, and any other necessary administrative duties. Furthermore, the non-wasting endowment would be funded by the fees charged by sponsor under an approved third-party mitigation program. Besides being able to accept fees for mitigation, additional funds would likely need to be obtained from appropriate granting sources.

5.1.2 Tier 2 Secondary Activities

5.1.2.1 Work with Stakeholder Groups to Address Watershed Management Issues

A secondary objective of the Mitigation Coordination Program should be to participate in Watershed management efforts. It is important to acknowledge the many stakeholders within the Watershed engaged in aquatic resource management activities in some way who have undertaken their own studies and analyses for the projects and activities they will be implementing. Specifically, other activities occurring in the Watershed include, but are not limited to the following programs:

- Corps of Engineers Newport Bay Watershed Management Study and Plan (Corps, 2005a, 2005b)
- California Regional Water Quality Control Board's Triennial Review of the Santa Ana Basin Plan and the Watershed Management Initiative (WMI)
- Orange County Drainage Area Master Plan (DAMP; County of Orange et al., 2003) and preparation of a Orange County Water Quality Strategic Plan;
- Nature Reserve of Orange County's (NROC) restoration, enhancement, and adaptive management efforts for the NCCP Reserve;
- Preparation of Natural Resources Conservation Service GIS Study;
- Southern California WRP Work Plan to assist local restoration efforts and the IWRAP;
- Irvine's Wildlife Corridor and Orange County Great Park Plan (City of Irvine, 2003);
- Preparation of the California Sediment Master Plan; and
- Irvine Ranch Conservancy's management program for The Irvine Ranch wildlands and parks.

Although the resource analysis and restoration projects identified in the SAMP will differ from what other entities are doing, such efforts would not be mutually exclusive or contradictory. Indeed, it is the ultimate goal of the SAMP to integrate with the resource conservation efforts of other appropriate stakeholders. Therefore, issues such as the coordination of work plans, data sharing, integration of additional analysis, and the like, can all occur within the SAMP and among stakeholders as these various efforts are implemented and managed over time.

In terms of management activities, the Newport Bay Watershed Management Plan (Corps, 2005b) is perhaps the most closely related to this SAMP. Both documents have been produced by the Corps of Engineers Los Angeles District. However, the SAMP has been created by the Regulatory Division of the Corps, while the Watershed Management Plan has been created by the Planning Division of the Corps. The Watershed Management Plan has no regulatory authority, while the SAMP does. Both documents have been created with the other in mind. The objectives identified for the SAMP Mitigation Coordination Program, and those identified for the Watershed Foundation in the Management Plan, are much the same. Given that the Corps has limits to the level of Watershed management it can require through the regulatory process, both documents provide an outline for how the regulatory process can support a larger

and more comprehensive management process, and how communities and agencies can successfully implement and benefit from broad-based Watershed management efforts.

The Watershed/water management programs, as well as the NCCP and other upland habitat preservation programs, ongoing in the Watershed provide an existing resource management framework to which the SAMP recommendations for aquatic resource conservation may be added. Thus, as a second tier objective the Mitigation Coordination Program should be to coordinate with other stakeholder efforts to maintain and restore the hydrologic, water quality, and habitat integrity of riparian ecosystems and other aquatic resources. The Mitigation Coordination Program is intended to complement other Watershed management efforts, not to supersede other ongoing or proposed Watershed management efforts. Additional discussion about conducting a Mitigation Coordination Program in the context of Watershed management is provided in Appendix 5.

5.1.2.2 Facilitate the Sharing and Use amongst the Watershed Managers of Scientific, Technical Data Available on the Aquatic Environment.

Considering many agencies and jurisdictions collect data for their own purposes, for cost effectiveness and to avoid redundancy, the data managers should develop mechanisms for sharing existing data. Additionally, strategies for collaborating on any new data collection efforts would enable a more accurate adaptive management process, reduce program costs, and facilitate a more collaborative relationship among stakeholders. The Corps Newport Bay Watershed Management Plan (Corps, 2005b) includes strategies for sharing data among stakeholders, as well as strategies for acquiring the funding needed to gather and maintain these data sets. Furthermore, under the proposed WRP IWRAP, there will be protocols and mechanisms for data sharing. A secondary objective of the Mitigation Coordination Program could be to participate in the sharing of data collected under a monitoring program, whether it is through a local or regional database.

5.1.2.3 Facilitate Aquatic Ecosystem Restoration and Enhancement Activities Unrelated to Regulatory Programs or Compensatory Mitigation

Another secondary objective of the Mitigation Coordination Program could be to provide information to groups and landowners/managers interested in conducting non-mitigation aquatic resource enhancement and restoration projects within the aquatic resource integrity areas. This role would support the implementation of the Strategic Mitigation Plan, including implementation of projects consistent with the site design criteria for riparian ecosystem restoration within the Watershed (Smith and Klimas, 2004).

5.2 A Strategy for Coordination Identified

Given their respective authorities, the Corps and the Department can guide and assist in the establishment of mechanisms to achieve the objectives of the Strategic Mitigation Plan and the Mitigation Coordination Program. Ultimately, it requires the commitment of the landowners/

managers and other stakeholders to participate in the SAMP Mitigation Coordination Program and to help implement the Strategic Mitigation Plan.

This section describes a recommended strategy for a establishing a Mitigation Coordination Program. The Corps and the Department considered several models and how they would serve the goals of the Mitigation Coordination Program in light of the organizational infrastructure already existing in the Watershed. The recommended strategy described herein (Section 5.2.1) would build upon existing alliances and suggest mechanisms to address the specific long-term management needs of aquatic resources. Alternative models considered are identified and discussed in terms of the broader Watershed context (Appendices 6 and 7).

5.2.1 Conceptual Model for a Management Structure

The underlying consideration when identifying a management structure for this Mitigation Coordination Program is that the goal of Watershed-wide aquatic resource conservation extends well beyond the scope or jurisdiction of one agency or landowner/manager. Thus, it is acknowledged that a cooperative effort on the part of the Watershed stakeholders would be required to ensure long-term conservation of high value resources through the successful implementation of a Mitigation Coordination Program.

Several open space and reserve programs already exist in the San Diego Creek Watershed, including the NCCP, a 37,380-acre terrestrial habitat reserve system, which is administered by the NROC. The Irvine Ranch wildlands and parks (formerly the Irvine Ranch Land Reserve) overseen by the Irvine Ranch Conservancy, the City of Irvine's Open Space Nature Preserve, and other city open space areas serve recreational and conservation purposes. Generally, the focus of these existing programs has been recreation and the protection and conservation of upland terrestrial natural resources. In contrast, the focus and purpose for this new Mitigation Coordination Program is to bring attention and coordinated management to the particular conservation needs of aquatic resources, primarily the riparian ecosystems in the Watershed.

(a) Coordination Committee

It is envisioned that a Coordination Committee would form from the agencies and landowners/managers who participated in the SAMP formulation process to carry out early implementation of this Mitigation Coordination Program. Eventually, a third-party mitigation program sponsor, once established, would work with the Coordination Committee and assume many of the implementation, administration, and management of the Mitigation Coordination Program on a more permanent basis. Alternatively, an administrator for the Mitigation Coordination Program could be engaged to coordinate the administrative duties associated with the Program.

Although the specific roles and responsibilities of each member of the Committee may be detailed in an implementation agreement, generally, the Committee members would agree to participate in the implementation of the Mitigation Coordination Program and provide

guidance and support for the overall implementation of the Strategic Mitigation Plan. However, the Committee would have no control over regulatory functions of the Corps or the Department. Similarly, no additional regulatory authority would be conveyed to the Department and the Corps.

In consideration of their support for the Strategic Mitigation Plan, the Coordination Committee members should agree to refrain from conducting or allowing others to conduct activities in a manner that would impair the conservation values of the aquatic resources within the aquatic resource integrity areas. One way to provide such assurances is through the conveyance of legal protections over their lands (e.g., restrictive covenant, conservation easement). By participating on the Coordination Committee, the members would agree to develop protocols for allowing coordinated access to lands within the aquatic resource integrity areas for the purposes of conducting monitoring and biological resource inventories, and implementing measures designed to control invasive, exotic plant and animal species and as provided for in the Strategic Mitigation Plan, including the adaptive management activities.

Following the formation of a Coordination Committee, the Committee could begin to establish the appropriate administrative and organizational structure for the Watershed Coordination Program in consideration of other plans for organizational structures to coordinate Watershed management efforts. Engaging a third-party mitigation program sponsor and/or interim administrator would also be a top priority. Herein is a basic overview of a plan to implement the Mitigation Coordination Program. If the Coordination Committee decides a separate administrator is necessary, then Appendices 7 and 8 may help to guide the Committee through the steps.

(b) Mitigation Coordination Program Administrator, Third-Party Mitigation Program Sponsor

Beyond increasing Watershed stakeholder coordination, the Corps and the Department recognized a need for a third-party mitigation program sponsor to conduct enhancement and long-term management of aquatic resources in the integrity areas. When defining the role of a managing entity, either an third-party mitigation program sponsor or Mitigation Coordination Program administrator (or other Watershed management entity), one must understand the capacity and mechanisms in place within a Watershed as well as the parameters and needs of the particular program. In consideration of the various regional Watershed planning and terrestrial habitat conservation efforts underway in the San Diego Creek Watershed, the Corps and the Department perceived a need for the third-party mitigation program sponsor or Mitigation Coordination Program administrator to coordinate program-related efforts with ongoing conservation efforts to the extent practicable. This underlying goal of coordination should inform the Coordination Committee's process of selecting a suitable candidate third-party mitigation program sponsor.

A potential management strategy, which warrants further exploration, involves expanding upon the existing management network by initiating more formal collaboration and

coordination among the Watershed resource managers. This proposed alternative would entail increased coordination among at least the NROC Board of Directors, the Newport Bay Watershed Management Committee, and the SAMP Mitigation Coordination Program Committee (once it is in place). Many of the representatives for the landowners and land managers are involved with the SAMP are also NROC participants and are involved with the other committees in the Watershed. The Newport Bay Watershed Management Committee holds regular meetings and the SAMP stakeholders have attended meetings periodically to provide information about the SAMP process, and learn about other ongoing activities in the Watershed. Once the SAMP regulatory and mitigation programs are implemented, it would be advantageous to coordinate routinely with the other committees in a substantive way. This strategy would provide mechanisms to develop a more integrated and comprehensive approach to ongoing and future efforts of Watershed management (Figure 5-1).

5.2.2 Options for a Mitigation Coordination Program Administrator and/or Third-Party Mitigation Program Sponsor

The Corps and the Department have had preliminary discussions with the City of Irvine, NROC's Executive Director, The Nature Conservancy, and the Center for Natural Lands Management (see Appendix 6 for additional information). At this time, detailed information needs to be gathered about the responsibilities and costs associated with a program, regardless of which entity may be a sponsor or administrator. It is reasonable to assume any prospective third-party mitigation program sponsor or Mitigation Coordination Program administrator would require assurances of sufficient funding to carry out management duties and a detailed PAR or similar method would need to be conducted to identify management actions and funding needs. Moreover, a business plan for the sponsor or administrator is needed.

Should an entity agree to assume additional responsibilities related to the Mitigation Coordination Program as administrator or third-party mitigation program sponsor and receive acreage equivalent fees for compensatory mitigation, the entity would be required to complete a mitigation banking agreement or other third-party mitigation program implementation agreement with the Corps and the Department. Such an agreement would establish the terms and conditions by which the entity would fulfill the roles and responsibilities as sponsor.

Although the Corps contacted several entities about the potential interest for serving as a Mitigation Coordination Program administrator or third-party mitigation program sponsor, such communications do not confer any obligation to such entities to pursue the role of sponsor or administrator, nor does it preclude any other entity who meets the requirements from becoming a Mitigation Coordination Program administrator or third-party mitigation program sponsor. For example, the City of Irvine and/or the Great Park Corporation are considering whether to establish an approved mitigation-banking instrument and/or other third-party mitigation program with the Corps and the Department. These options are compatible with the establishment of a separate third-party mitigation program that would target management of the aquatic resource integrity areas.

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6 SAMP Implementation

The SAMP addresses resource conservation and regulatory program issues pursuant to the Corps' and the Department's respective authorities over proposed development and infrastructure projects affecting jurisdictional aquatic resources within the Watershed. Consequently, the agencies intend to use the SAMP Analytical Framework and permitting framework in carrying out their responsibilities for aquatic resource management in the Watershed. This section summarizes the next steps for finalizing the SAMP as well as what measures are needed to ensure successful implementation of the SAMP elements. Also included in this section is a discussion about the duration and applicability of the SAMP.

6.1 Finalizing the SAMP

The Department included the draft template SAAs for the Watershed (Appendix 3) for review and comment with the circulation of this document and the draft Program EIS/EIR.

Similarly, concurrent with the draft Program EIS/EIR, the Corps included a Special Public Notice (Appendix 1) announcing its intention to revoke the use of selected NWP's in the Watershed and establish procedures for issuing LOPs to authorize regulated activities that meet the terms and conditions of the LOP procedures, regardless of whether the proponent participated in the SAMP formulation. As described above (Section 3.3), the LOP procedures entail requirements for the preparation of a tiered environmental assessment and public interest review. Since categories of activities eligible for LOP procedures are evaluated in the Program EIS/EIR, the Corps will tier subsequent project-specific environmental review from the Program EIS/EIR, in accordance with 40 CFR 1502.20 of CEQ's NEPA regulations. Consequently, the environmental impact assessment for future project-specific LOPs will be shortened to focus issues for environmental review and decision and eliminate repetitiveness.

Additionally, the Corps included a Special Public Notice (Appendix 2) announcing its proposal to establish an RGP for routine maintenance activities in jurisdictional areas outside the aquatic resource integrity areas. As described in section 3.3, this RGP would cover the future maintenance projects for project proponents whose activities meet the terms and conditions of the RGP, regardless of whether the proponent participated in the SAMP formulation.

Following the finalization of the Program EIS/EIR and adoption of the SAMP, the Corps' will issue its Record of Decision. Then, the Corps will formally establish its SAMP permitting (revocation of selected NWP's, establishment of LOP procedures and an RGP) and mitigation frameworks. Permits or streambed agreements may be issued under the SAMP permitting process, including the mitigation framework. The Corps would tier its project-specific environmental review for any future permit actions from the Program EIS/EIR, in accordance with 40 CFR 1502.20 of CEQ's NEPA regulations.

Similarly, the Department would verify that projects meet the conditions of the WSAA Process, including CEQA requirements, and enter into an agreement with the project proponent.

Permits and special conditions, and a WSAA and its conditions would require the permittee/project proponent to implement mitigation requirements per the SAMP mitigation framework, which may include a combination of avoidance/preservation, restoration, creation, enhancement, and/or acreage equivalent fees to an approved third-party mitigation program for long-term adaptive management. The permit special conditions would reference the SAMP and the Program EIS/EIR for the SAMP. In this way, the permittees would help implement long-term aquatic resource conservation and management program.

The agencies anticipate a phased implementation of the Mitigation Coordination Program, including the formation of a Coordination Committee by the SAMP Participants.

In the interim period before the SAMP is finalized, project applications will be evaluated in terms of the SAMP Analytical Framework. Moreover, the proposed SAMP mitigation policies and Strategic Mitigation Plan will inform the Corps and the Department's decisionmaking processes within the Watershed.

6.2 Term of the SAMP and Permitting Procedures

Since the SAMP is a plan, it has no expiration date per se. Similarly, the elements of the SAMP, including the regulatory procedures, have no expiration date.

In contrast, different regulatory authorizations may have expiration dates. For instance, under Corps regulations (33 CFR Part 325), the Corps may authorize an RGP for a five-year term with the option to renew, but an individual project authorized for work by the RGP would have an approved maintenance window with an expiration date ranging from a few months to less than two years, depending on the project. The LOP procedures would be established for an indefinite period, and until subsequently modified or replaced. However, a specific project authorized by an LOP would be granted a reasonable period of time for construction that will be determined on a project basis, as appropriate to the scope and nature of the particular authorized activity and in accordance to Corps regulations, but generally will be two years. Since a jurisdictional determination verified by the Corps is valid for up to five years unless new information warrants revision of the determination before the expiration date (USACE, 2005a), any long-term LOPs with durations of greater than five years may include additional notification and verification requirements.

Similar to the LOP procedures, the Department's WSAA Process has no expiration date. The Watershed template SAAs and the SAA Templates Master Conditions List will be reviewed periodically to ensure consistency with the streambed alteration agreement program. Individual SAAs will have expiration dates determined on a project basis, as appropriate to the

scope and nature of the particular authorized activity, but generally an SAA expiration date will correspond to that of the Corps' authorization, i.e., RGP, LOP, or SIP.

The Corps and Department will retain the right to revoke, suspend or terminate a Corps LOP or RGP or Department SAA, respectively, held by one or more permittee in the event of a violation of the terms and conditions of the Corps LOP or RGP or Department WSAA. Neither the Corps nor the Department shall initiate an action to revoke any Corps LOP or RGP or Department SAA without first pursuing applicable processes as specified in the Corps' or the Department's regulations. Any action to suspend activities or privileges under a Corps LOP or RGP, or a Department SAA, to the maximum extent consistent with the purposes of the suspension or revocation, shall be limited to address the discrete action or inaction underlying the suspension or revocation, in order to minimize any impacts on the responsible party and other parties.

6.3 Transition to the SAMP/WSAA Process

The effective date will be posted in a subsequent Public Notice/Notice of Decision following the Corps Record of Decision and the Department's certification of the Program EIS/EIR. The SAMP/WSAA Process will apply to applications for permits and agreements received after the effective date of the SAMP/WSAA Process.

Complete applications for permits and agreements received prior to the effective date will be processed in accordance with the previous permitting processes. Nevertheless, applications received prior to the effective date or in the application phase at the publication of this Program EIS/EIR should consider the SAMP tenants, Analytical Framework, mitigation framework, and Strategic Mitigation Plan to the maximum extent practicable. Since the Final Mitigation Rule became effective, the Corps and the Department believe many of the requirements of the Mitigation Rule are incorporated into the SAMP/WSAA Process mitigation framework. Furthermore, the Final Mitigation Rule endorses the use of watershed plans when available and the SAMP is an available watershed plan.

After the effective date, permittees with existing standard individual permits and standard or master streambed alteration agreements shall be eligible for extensions and minor modifications without triggering the SAMP/WSAA Process permitting processes. Significant increases in scope of a previously permitted activity will be processed as a new application for permits (33 CFR Section 325.7) and agreements, and as such will be subject to the SAMP/WSAA Process. However, the Corps and the Department will take into account whether applying the new SAMP/WSAA Process to a particular project would result in a substantial hardship to an applicant. The Agencies will consider whether the applicant can fully demonstrate that substantial resources have been expended or committed in reliance on previous permitting processes or compensatory mitigation in determining the extent to which new provisions under the SAMP/WSAA Process will apply. In most cases, final engineering design work, contractual

commitments for construction, or purchase or long-term leasing of property will be considered a substantial commitment of resources.

After the effective date, activities authorized under current NWP's scheduled for revocation that have commenced or are under contract to commence by the effective date, will have twelve months to complete the activity under the terms and conditions of the current NWP's (33 CFR 330.6(b)). Activities completed under the authorization of an NWP which was in effect at the time the activity was completed will continue to be authorized by that NWP (33 CFR 330.6(b)). Activities that remain incomplete after the close of the grandfather period will require new authorization under the SAMP permitting processes.

Corps and Department-approved mitigation plans for compensatory mitigation projects associated with either previously authorized permits/agreements, or complete applications for permits and agreements that were received prior to the effective date, will remain valid.

7 Glossary

Adaptive Management - "Adaptive Management" shall mean the development of a management strategy that anticipates likely challenges associated with compensatory mitigation projects and provides for the implementation of actions to address those challenges, as well as unforeseen changes to those projects. It requires consideration of the risk, uncertainty, and dynamic nature of compensatory mitigation projects and guides modification of those projects to optimize performance. It includes the selection of appropriate measures that will ensure that the aquatic resource functions are provided and involves analysis of monitoring results to identify potential problems of a compensatory mitigation project and the identification and implementation of measures to rectify those problems. It is a flexible, iterative approach to long-term aquatic resources management within the aquatic resource integrity areas that is directed over time by the results of ongoing monitoring activities and other information. Aquatic resource management techniques and specific objectives are regularly evaluated in light of monitoring results and other new information. These periodic evaluations are used over time to adapt both the management objectives and techniques to achieve overall management goals. This approach involves managing aquatic resources in aquatic resource integrity areas in a manner designed to maintain or improve ecosystem functions and values over the long term. Under Adaptive Management, appropriately managed aquatic areas have a greater likelihood of maintaining functions and values than a system that is unmanaged or ineffectively managed. Measures specified in the Strategic Mitigation Plan and Mitigation Coordination Program for managing lands in the aquatic resource integrity areas are based on an adaptive management model.

Aquatic Resource Integrity Areas – The “aquatic resource integrity areas” in the San Diego Creek Watershed are comprised of aquatic resources identified for their higher values related to ecological integrity, wildlife corridor values, sensitive species habitat, and other factors, as well as the adjacent upland areas of influence that drain into the aquatic resources. The aquatic resource integrity areas are the keystone of the SAMP Analytical Framework, permitting framework, Strategic Mitigation Plan, and Mitigation Coordination Program.

Alleleopathic (or allelopathic) – The quality of a plant species to inhibit growth in another species of plant through the production and release of chemicals.

Aquatic - General reference to various water-oriented habitats such as rivers, streams, creeks, ponds, lakes, etc. These resources may be perennial, intermittent, or ephemeral in nature.

Aquatic Resources – “Aquatic Resources” shall mean the areas of Corps and the Department regulatory jurisdiction in the San Diego Creek Watershed pursuant to the CWA or FGC. For example, aquatic resources are all waters and water habitats including lakes, ponds, streams, rivers and adjoining riparian areas that they affect, as well as marshes, vernal pools, seeps, flats, and other wetlands.

Buffer (area, zone, or habitat) or Vegetated Buffer – A buffer is an intervening upland, wetland, and/or riparian area that separates aquatic resources from developed or disturbed areas and protects and/or enhances aquatic resource functions associated with wetlands, rivers, streams, lakes, marine, and estuarine systems from disturbances associated with adjacent land uses. Buffers reduces the impacts on the aquatic resources that may result from human activities. The critical functions of a buffer, associated with an aquatic system, include shading, input of organic debris and coarse sediments, uptake of nutrients, stabilization of banks, interception of fine sediments, storm flow attenuation during high water events, protection from disturbance by humans and domestic animals, maintenance of wildlife habitat, and room for variation of aquatic system boundaries over time due to hydrologic or climate effects. A vegetated buffer could be established by maintaining an existing vegetated area or planting native trees, shrubs, and herbaceous plants on land next to open waters. Mowed lawns are generally not considered vegetated buffers because they provide little or no aquatic habitat functions and values. The establishment and maintenance of vegetated buffers may be given consideration as compensatory mitigation to offset requirements after replacement has been satisfied at a ratio of 1:1 and when buffers are incorporated in conjunction with the restoration, establishment, enhancement, or preservation of aquatic habitats to ensure that activities authorized by the Corps and the Department’s regulatory programs result in minimal adverse effects to the aquatic environment.

CEQA - “CEQA” shall mean the California Environmental Quality Act, California Public Resources Code section 21000 *et seq.*

CESA - "CESA" shall mean the California Endangered Species Act, Fish and Game Code section 2050 *et seq.*

Channel – A natural stream or river, or an artificial feature such as a ditch or canal that exhibits features of bed and bank, and conveys water primarily unidirectional and down gradient. The active stream channel is defined as the area inundated when the stream is at bankfull stage, which corresponds to the discharge at which most channel-forming processes occur.

Clean Water Act – The federal law that establishes standards and procedures for limiting the discharge of fill and pollutants into waters of the U.S..

Compensatory Mitigation – For purposes of Section 404 of the Clean Water Act, compensatory mitigation is the restoration (re-establishment or rehabilitation), establishment (creation), enhancement, or in exceptional circumstances, preservation of wetlands and/or other aquatic resources to compensate for unavoidable adverse impacts that remain after all appropriate and practicable avoidance and minimization has been achieved.

Condition – Condition means the relative ability of an aquatic resource to support and maintain a community of organisms having a species composition, diversity, and functional organization comparable to reference aquatic resources in the region.

Conservation Easement – Pursuant to California Civil Code section 815-816, the term “conservation easement” means “any limitation in a deed, will, or other instrument in the form of an easement, restriction, covenant, or condition, which is or has been executed by or on behalf of the owner of the land subject to such easement and is binding upon successive owners of such land, and the purpose of which is to retain land predominantly in its natural, scenic, historical, agricultural, forested, or open-space condition” [section 815.1]. Furthermore, only the following types of entities or organization may acquire and hold conservation easements:

(a) Tax-exempt nonprofit organization qualified under section 501 (c)(3) of the Internal Revenue Code and qualified to do business in this state which has as its primary purpose the preservation, protection, or enhancement of land in its natural, scenic, historical, agricultural, forested, or open-space condition or use.

(b) The state or any city, county, city and county, district, or other state or local governmental entity, if otherwise authorized to acquire and hold title to real property and if the conservation easement is voluntarily conveyed. No local governmental entity may condition the issuance of an entitlement for use on the applicant’s granting of a conservation easement pursuant to this chapter [section 815.3].

Conservation Guidelines - "Conservation Guidelines" shall mean the management practices for the aquatic resource integrity areas described in Appendix 4 that complement the Strategic Mitigation Plan and Mitigation Coordination Program.

Coordination Committee - "Coordination Committee" shall mean a committee composed of the SAMP Participating Applicants and the Corps and Department that will oversee the initial implementation of the Mitigation Coordination Program.

Corps Jurisdictional Activity - "Corps Jurisdictional Activity" shall mean activities resulting in a discharge of dredged or fill material into waters of the U.S. subject to regulation under section 404 of the CWA, 33 U.S.C. section 1344.

Corps LOP - "Corps LOP" shall mean the Letter of Permission procedures for the San Diego Creek Watershed that the Corps issued in a Special Public Notice concurrent with this SAMP and any finalization of or amendments thereto, attached hereto at Appendix 1.

Corps RGP - "Corps RGP" shall mean the Regional General Permit for the San Diego Creek Watershed that the Corps issued in a Special Public Notice concurrent with this SAMP and any finalization of or amendments thereto, attached hereto at Appendix 2.

Creation – The conversion of a persistent non-aquatic resource, i.e., terrestrial resource, to an aquatic resource. For the purpose of this plan, creation includes the conversion of sites that currently do not meet the definition of wetlands, even though these sites were wetlands prior to being permanently drained and/or covered by fill.

Delineation – A determination of the boundaries of a wetland or other aquatic site.

Department Jurisdictional Activity - "Department Jurisdictional Activity" shall mean any activity resulting in the alteration of those areas subject to the Department jurisdiction under Division 2, Chapter 6, of the FGC.

Department WSAA Process - "Department WSAA Process" shall mean the procedures established by the Department in conjunction with the SAMP for the San Diego Creek Watershed to provide for a Watershed-based approach to issuing Department Streambed Alteration Agreements (SAAs) and includes the use of one of three Department template SAAs for the Watershed, the SAA Templates Master Conditions List, and a comprehensive mitigation framework, including a Mitigation Coordination Program. The Department issues its SAAs pursuant to Division 2, Chapter 6 of the FGC. Template SAAs for the Watershed are attached hereto at Appendix 3.

Discharge - The placement of dredged or fill material into waters of the U.S. that may result in impacts to the aquatic system, as described in 33 CFR Part 323.2. Examples include the redeposition of material during excavation, mechanized land clearing, and ditching.

Drainage Basin – Area contributing to mainstem inflow from upstream of a riparian reach.

Ecosystem Management – A collaborative management approach that focuses on sustaining the integrity and biodiversity of ecological components, conditions, and functions in reconciliation with the promotion of economic opportunities.

EIR - "EIR" shall mean an Environmental Impact Report prepared pursuant to CEQA for the SAMP to address the Department's WSAA Process.

EIS - "EIS" shall mean an Environmental Impact Statement prepared pursuant to NEPA for the SAMP.

EIS/EIR - "EIS/EIR" shall mean a program-level environmental document for the San Diego Creek Watershed Special Area Management Plan/Watershed Streambed Alteration Agreement Process (SAMP/WSAA Process), prepared in compliance with the requirements of NEPA and CEQA.

Eligible Activities - "Eligible Activities" shall mean those activities that are consistent with the SAMP LOP procedures, RGP, and WSAA Process. Authorizations for other types of Corps and Department Jurisdictional Activities would require evaluation under the Corps SIP and Department SAA processes.

Eligible Areas - "Eligible Areas" shall mean those areas identified in the SAMP as being eligible for the permitting process described in the Corps LOP procedures and RGP and the Department WSAA Process.

Enhancement – The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s).

Enhancement results in the gain of selected aquatic resource function(s), but may also lead to the decline in other aquatic resource function(s). Enhancement does not result in a gain of aquatic resource area.

Ephemeral Stream – An ephemeral stream has flowing water only during and for a short duration after, precipitation events in a typical year. Ephemeral streambeds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

ESA - "ESA" shall mean the federal Endangered Species Act of 1973, as amended, 16 U.S.C. section 1531 *et seq.*

Establishment – “Establishment” (creation) means the manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area and function.

Fill Material – “Fill material” shall mean material (including but not limited to rock, sand, and earth) that has the effect of: (i) replacing any portion of a water of the United States with dry land; or (ii) changing the bottom elevation of any portion of a water of the United States. The term fill material does not include discharges covered by proposed or final effluent limitations guidelines and standards under sections 301, 304 or section 306 of the CWA (see generally, 40 CFR Part 401), or discharges covered by an NPDES permit issued under section 402 of the CWA.

Fish and Game Code - "Fish and Game Code" shall mean the California Fish and Game Code.

Flood Channel – The term “flood channel” is used in the context of discussing the opportunities and constraints of restoring riparian areas. Hydrologists calculate the overall flood channel size, including channel, floodplain, and terraces needed to contain a major flood event. In most cases, the flood channel is likely to contain the 100-year flood, but local flood management criteria determine overall "flood channel" size. The term "floodplain" has been reserved for the area subject to inundation at the 50-year recurrence interval. However, larger magnitude floods may also inundate one or more terraces. In a developed environment, protection of life and property requires that containment of floodwaters be a part of the design criteria for stream systems. Therefore, the design templates referred to herein and in ERDC’s restoration plan (Smith and Klimas, 2004; Appendix B-3 of the Program EIS/EIR (URS Corp., 2008; revised by Corps, 2009)) generally specify the number and height of terraces appropriate to sustain a riparian community characteristic of a particular geomorphic zone, based on reference data from streams in the basin and region. However, the range of terrace widths encountered in reference systems varied widely. Although the reference data provide general target ranges, hydrologists calculating the overall flood channel size must determine actual minimum terrace widths for restored systems. See also **Channel, Floodplain, Terrace, and Riparian Ecosystem.**

Flood Control Facilities – “Drainage and flood control facilities” including locally designated flood control channels, outfalls, culverts, retention/detention basins and sediment basins are located within or near jurisdictional waters. As the infrastructure component of a broader “flood management” program, flood control facilities are designed and constructed in accordance with applicable hydrologic design standards to prevent loss of life and reduce property damage caused by floods. Construction of permanent flood control structures generally requires soil excavation, removal, compaction, and sometimes concrete-lining and or placement of bank stabilization measures in channels. These construction activities can result in the following types of impacts: permanent loss of aquatic habitat from removal of riparian vegetation and replacement with concrete channel; temporary and permanent loss of upland habitat from temporary placement of dredged or fill material or permanent impacts of location of flood control basins; permanent alteration to channel hydrology from channel reconfiguration, concrete lining, changes in hydraulic flow characteristics, streambed and bank stabilization; and potential temporary impacts to water quality from uncontrolled sediment during construction. Maintenance typically involves periodic dredging of accumulated sediments in channels and basins as well as periodic removal of vegetation to restore the original basin and channel design capacity and configuration. Dredged material is typically placed in upland areas and proper sedimentation controls are used. Maintenance activities may also involve excavation of accumulated sediments in outfall and intake structures, culverts and other structural features of the conveyance system to maintain design capacity. For maintenance, impacts would generally be temporary including short-term loss of aquatic habitat and potential impacts to water quality from temporary soil disturbing activities.

Flood Management - “Flood management” refers to an integrated approach undertaken to reduce flood risks and may include floodplain management, planning and investments in flood projects, and improved management of infrastructure that balances public safety and environmental protection. Related are storm water quality and drainage management efforts. Some flood management activities are regulated by the Corps and/or the Department, while others (in non-jurisdictional areas) are not.

Floodplain – “Floodplain” shall mean the land adjacent to a stream or lake, built of alluvium and subject to repeated flooding. Technically, the floodplain is the valley floor level corresponding to the bankfull stage. However, there are various “floodplains” (e.g. 5-year, 10-year, etc.), which include surfaces inundated at flow depths or frequencies of interest in a particular situation. For the purposes of the SAMP and related studies, the floodplain corresponds to the “flood prone area” as defined by Rosgen (1996). This is the area flooded to twice the depth of the maximum channel depth at bankfull stage, which is usually assumed to correspond approximately to the 50-year floodplain. In coastal streams of southern California, the flood prone area usually includes most or all of the point bar deposits below the scarp rising to the lowest distinct terrace.

Functional Assessment - The process by which the capacity of a wetland to perform a function is measured. See also, **Functional Integrity**.

Functional Integrity – The Corps Waterways Experiment Station (WES) and the Cold Regions Research and Engineering Laboratory (CRREL), as experts in aquatic resource delineation and wetland functional assessment, developed tools to conduct a high precision, planning level delineation, i.e., the identification of aquatic resources, and a landscape level functional assessment, i.e., the characterization of aquatic resources. These tools were used to assess aquatic resources within the San Diego Creek Watershed, Orange County, California. As part of the functional assessment, the Corps assessed the following endpoints: hydrologic integrity, water quality integrity, and habitat integrity. **Hydrologic integrity** refers to the frequency, magnitude, and location of stream water flow and the interaction of the stream with the floodplains. **Water quality integrity** refers to the processing of nutrients and sediments within streams. **Habitat integrity** refers to the quality and quantity of habitat necessary to support functioning riparian systems. (See definitions below for additional information.)

Functions – Functions means the physical, chemical, and biological processes that occur in ecosystems.

Geomorphic - A term referring to the shape of the land surface.

Geomorphic Zone – Five geomorphic zones were identified for the ERDC restoration plan (Smith and Klimas, 2004) based on topographic maps, the maps and descriptions provided in the county soil survey (Wachtell, 1978), and geologic maps and reports on Orange County and the region (Morton et al., 1976; Morton and Miller, 1981). A geomorphic zone was assigned to each riparian reach using aerial photography, baseline assessment data, and the knowledge of each riparian reach acquired during baseline assessment field sampling. Based on the typical, “natural” condition of each of the five geomorphic zones in terms of geomorphology, vegetation structure, and the typical current condition, the following geomorphic zones (GZ) were identified: GZ 1 – riparian areas in V-shaped valleys with predominantly bedrock control; GZ 2 – small floodplains and terrace fragments in mountain and foothill valleys, where meander belt formation is restricted by lateral impingement of alluvial fans and colluvium; GZ 3 – meander belts in alluvium within broad mountain and foothill valleys, and through marine terraces; GZ 4 – broad alluvial fan deposits where mountain and foothill valleys open to the coastal plain, and marine terraces; and GZ 5 – riparian areas along larger streams of the coastal plain area.

Great Park - "Great Park" or Orange County Great Park shall mean those lands in the City of Irvine that were formerly part of the MCAS El Toro and now planned for open space, restoration, and development by the City of Irvine, the Great Park Corporation, and Heritage Fields, LLC.

Habitat Integrity – Riparian ecosystems with habitat integrity exhibit the quality and quantity of habitat necessary to support and maintain a balanced, integrated, adaptive biological system having the full range of characteristics, processes, and organisms at the site-specific, landscape, and watershed scales that historically characterized riparian ecosystems in the region. Several factors were considered in selecting indicators of habitat integrity, including the spatial extent and quality of riparian habitat, the “connectedness” of riparian habitats at the riparian reach

and drainage basin scales, and the spatial extent and quality of upland habitat in the landscape adjacent to riparian ecosystems. Moreover, headwater streams provide unique habitats for aquatic biota. Small spring-fed headwater streams can serve as thermal refuges for fishes, serving as a refuge from freezing for stream fishes during winter (e.g. Power et al., 1988) and cool refuges for young fishes during summer (e.g. Curry et al., 1997). Therefore, the elimination of headwater streams from the landscape increases the vulnerability for extinction of aquatic invertebrate (e.g. Morse, 1993), amphibian, and fish species (e.g. Etnier, 1997), including federally listed threatened or endangered species.

The following five indicators were used to calculate the Habitat Integrity Index for each riparian reach: Area of Native Riparian Vegetation (Riparian Reach (RR) Scale); Riparian Corridor Continuity (RR Scale); Riparian Corridor Continuity (Riparian Reach/Drainage Basin (RRDB) Scale); Land Use/Land Cover at Riparian Ecosystem Boundary (Riparian Reach/Local Drainage (RRLD) Scale); and Land Use/Land Cover in 100m Buffer around the Riparian Ecosystem (RRDB Scale).

Riparian Corridor Continuity indicates the degree to which the main stem channel of a riparian reach exhibits an uninterrupted vegetated riparian corridor. Riparian ecosystems typically form a relatively continuous corridor along the stream channel and floodplain. Intact vegetated corridors allow animals to move to locations throughout a watershed on a daily, seasonal, or annual basis (La Polla and Barrett, 1993; Machtans et al., 1993; Naiman et al., 1993; Naiman, 1996), but see Simberloff et al. (1992). Gaps in the continuous riparian corridor can occur because of natural fluvial processes during large magnitude events (Hawkins et al., 1997). However, gaps are more frequently created as a result of cultural alterations such as road crossings, power and pipeline corridors, agriculture activities, and urban/industrial development. Wild fire, natural or resulting from arson, can create gaps in the riparian corridor, as well.

Land Use / Land Cover (LULC) at Riparian Ecosystem Boundary (BND_{RR}) indicates the presence of cultural features at the boundary of the riparian ecosystem that are likely to inhibit the normal movement of fauna between riparian and adjacent upland habitats. Land use / land cover at the boundary of the riparian ecosystem plays an important role in determining the ability of animals to move freely between riparian and adjacent upland ecosystems on a daily or seasonal basis (Petersen et al., 1992; Statzner et al., 1997; Vought et al., 1994; Osborne and Kovacic, 1993). Under natural conditions, riparian vegetation transitions gradually to native upland vegetation at the edge of the riparian ecosystem. A variety of cultural activities replace these native or naturalized vegetation communities with agriculture, urban/industrial, transportation corridors, or other types of LULC that reduce the likelihood the animals can move freely between the riparian ecosystem and adjacent uplands.

Land Use / Land Cover in Upland Buffer (BUF_{RR}) indicates the degree to which the LULC in a buffer zone has been culturally altered. Land Use / Land Cover -Upland Buffer differs from the Land Use / Land Cover - Riparian Reach Boundary indicator in that it is concerned with LULC in the entire adjacent upland landscape and not just at the boundary between the riparian

ecosystem and the adjacent upland. LULC in upland areas adjacent to riparian ecosystems are important because of their ability to support the life requirements of a variety of native species. Under reference conditions, the upland buffer consists of native vegetation communities. A variety of cultural activities replace these native or naturalized vegetation communities with agriculture, urban/industrial, transportation corridors, or other types of land use. Changes in LULC in the buffer also have the potential to affect the rate at which water and sediment moves toward riparian areas from the uplands (Peterjohn and Correll, 1984, 1986; Osborne and Kovacic, 1993; Barling and Moore, 1994). Also, see **Functional Integrity**.

HCP - "HCP" shall mean a Habitat Conservation Plan pursuant to section 10 of ESA.

Headwater Local Drainage Basins – “Headwater local drainage basins” are local drainages of a particular reach with tributaries consisting of first order streams discharging to second order streams. The protection of the particular tributaries flowing into a reach would allow for the maintenance and/or restoration of riparian ecosystem integrity at the reach, sub-basin, and watershed scales.

Hydrogeomorphology – “Hydrogeomorphology” refers to the interaction between the structural components and the physical, chemical, and biological processes of a stream as it flows through its watershed.

Hydrologic Integrity – Riparian ecosystems with high hydrologic integrity exhibit the range of frequency, magnitude, and temporal distribution of stream discharge, and surface and subsurface interaction between the stream channel, floodplain, and terraces, that historically characterized riparian ecosystems in the region (Bedford, 1996, Poff et al., 1997, Richter et al., 1997). In the arid and semi-arid southwest, a natural riparian ecosystem exhibits seasonal intermittent, ephemeral, or low flow periods, with annual bankfull discharges superimposed on a background of episodic, and often catastrophic, larger magnitude floods that inundate historical terraces (Graf, 1979, 1988; Harris, 1987; Fisher et al., 1982; Friedman et al., 1996a, Friedman et al., 1996b).

Additionally, headwater streams in particular provide hydrologic retention capacity, thereby mediating the flow of water throughout a watershed. Without flow retention, downstream portions of the watershed would experience increased frequency and intensity of flooding as well as lower base flows (e.g., Dunne and Leopold, 1978). In turn, increased frequency and intensity of flooding accelerates channel erosion downstream (e.g., Trimble, 1997).

In selecting indicators to assess hydrologic integrity, two groups of characteristics and processes were considered. The first group focused on the factors that influence frequency, magnitude, and temporal distribution of stream discharge, and the second group focused on the factors that influenced the hydrologic interaction between the stream channel, floodplain, and historical terraces.

Direct measures of stream discharge are unavailable at the riparian reach scale in this Watershed. Consequently, several indicators were selected at the drainage basin scale with the

assumption that an indirect estimate of deviation from reference condition can be made based on changes in specific characteristic and processes of a drainage basin such as interception, infiltration, evapotranspiration, percolation, groundwater flow, and surface water flow over land and in channels. Cultural alteration of the drainage basin alters these characteristics and processes and consequently stream discharge. While it is difficult to quantify the exact nature of the relationship between specific drainage basin characteristics, as represented by the indicators, and stream discharge, in general, as cultural alteration of a watershed increases, so does the deviation from short and long-term historical patterns of frequency, magnitude, and distribution of stream discharge. Therefore, the following four indicators of hydrologic integrity were selected to reflect the degree of cultural alteration in a drainage basin with the potential to influence stream discharge: Altered Hydraulic Conveyance (RRDB Scale); Surface Water Retention (RRDB Scale); Perennialized Stream Flow (RRDB Scale); and Import, Export, or Diversion of Surface Water (RRDB Scale).

Altered Hydraulic Conveyance (AHC_{RR} / AHC_{RRDB}) indicates the degree to which engineering techniques have been used to “improve” the capacity of channels in a riparian reach or drainage basin to convey surface water downstream. The engineering techniques involve reducing the frictional resistance, i.e., roughness, caused by channel substrate, vegetation, woody debris, and other objects in the channel (Barnes, 1967), minimizing the wetted perimeter, and/or shortening the length of a channel. Specific techniques include dredging, straightening, hardening, and lining of the stream channel as well as the removal of vegetation (Galay, 1983, Brookes, 1988).

Increasing the volume of water and velocity at which water is conveyed downstream can result in a substantial change in the hydrologic regime, and hence hydrologic integrity, in the riparian reach where the alteration occurs as well as in upstream and downstream reaches. For example, removal of vegetation decreases channel stability and increases erosion by reducing the resistance afforded by the network of plant roots, and by increasing the velocity and consequently the erosive force of water in the channel. A straightened stream reach would typically respond by incising to reestablish a more energy efficient and stable channel slope (Shankman and Samson, 1991), which in turn initiates headcutting and increased erosion upstream. Downstream of an altered stream channel the hydrologic regime can also be affected in terms of increased peak discharges, decreased channel stability, and increased erosion due to increased water velocity.

Surface Water Retention (SWR_{RRDB}) indicates the degree to which the hydrologic regime in a riparian reach has been altered because of short- and long-term storage of surface water in reservoirs, lakes, sediment basins, retention ponds, and similar surface water storage facilities. Streams in arid regions are disturbance-dominated systems (Resh et al., 1988; Power et al., 1988, 1996; Rood and Mahoney, 1990). During flash floods, stream discharge can increase by several orders of magnitude causing aquatic organism mortality, destruction of riparian vegetation, and changes in channel morphology. The biological components of riparian ecosystems have adapted to these episodic cycles of disturbance, and developed a variety of mechanisms that make it possible to survive and indeed flourish where other organisms cannot. Short- and long-term retention of surface water in storage facilities can substantially alter the characteristic

pattern of discharge over the water year (Cushman, 1985; Bain et al., 1988; Dynesius and Nilsson, 1994; Ligon et al., 1995; Poff et al., 1997; Hadley and Emmett, 1998). Most importantly, surface water retention facilities eliminate the low frequency, high volume discharges that reset the system (Hawkins et al., 1997). However, it can also lead to perennialization of stream flow, change the pattern of seed distribution, germination, and survival, and change a variety of other physical and biological processes necessary to perpetuate the riparian ecosystem (Hynes, 1975; Warren, 1979; Lotspeich and Platts, 1982; Frissell et al., 1986; Kondolf et al., 1987; Debanco and Schmidt, 1989; Stromberg and Patton, 1991; Johnson, 1994; Power et al., 1996; Kershner, 1997; Kondolf, 1997; Richter et al., 1997).

Perennialized Stream Flow (PSF_{RR} / PSF_{RRDB}) indicates the degree to which the hydrologic regime of a riparian reach has been altered by a supplementary supply of surface water resulting from cultural activities such as irrigation. Perennialization refers to the conversion of intermittent or ephemeral stream channels to a perennial stream through the addition of surface water flow (usually at low levels) in a stream channel from artificial supplies of surface water. The supply of water usually occurs in the form of irrigation or treated return water. In arid regions, perennialization facilitates a shift in plant and animal community composition away from what normally occurs in a riparian reach that is not perennialized. Perennialization also has the potential to affect physical and chemical processes in riparian ecosystems.

Import, Export, or Diversion of Surface Water (IED_{RRDB}) indicates the degree to which the hydrologic regime of a riparian reach has been altered from import, export, or diversion of surface water. Inter-basin import and export of surface water and the intra-basin diversion of water for public water supply, irrigation, and ground water recharge is common in the arid western United States. The import, export, or diversion of water within and between watersheds has been shown to affect a wide variety biotic and abiotic processes because of changes in the quantity and timing of surface water discharge and other aspects of the hydrologic regime (Taylor, 1982; Kondolf et al., 1987; Stromberg and Patten, 1990; Petts, 1996; Davies et al., 1992)

Frequency, magnitude, and distribution of stream discharge similar to the historical range of conditions do not alone ensure the hydrologic integrity of a riparian reach. Rather, hydrologic integrity also depends on maintaining the interaction between the stream channel, floodplain, and terraces of the riparian ecosystems through overbank and subsurface flows. This interaction is critical to the maintenance of riparian plant communities, sediment storage, carbon dynamics, biogeochemical processes, and other characteristics and processes of riparian ecosystems. Therefore, the following two indicators were selected to represent the degree of interaction between the stream channel and the floodplain: Altered Hydraulic Conveyance (RR Scale) described above; and Floodplain Interaction (RR Scale). Floodplain Interaction (FI_{RR}) indicates of the degree to which the overbank hydrologic connection between the bankfull channel and the active floodplain and terraces of the riparian ecosystem has been lost in a riparian reach. The lost connection could be a result of levees, channelization, or channel incision. Many of the characteristics and processes of riparian ecosystems are dependent on periodic hydrologic interaction between the stream channel and the floodplain. When the

hydrologic connection is lost, the physical and biological characteristics of the riparian ecosystem become altered. Combined, the six-abovementioned indicators of stream discharge and hydrologic interaction were used to calculate the Hydrologic Integrity Index for each riparian reach. Also, see **Functional Integrity**.

Impact – “Impact” shall mean adverse effect.

In-lieu Fee Program – “In-lieu fee program” shall refer to a program involving the restoration, establishment, enhancement, and/or preservation of aquatic resources through funds paid to a governmental or non-profit natural resources management entity to satisfy compensatory mitigation for Corps permits or Department agreements. Similar to a mitigation bank, the in-lieu fee program sells credits to permittees whose obligation to provide compensatory mitigation is then transferred to the in-lieu fee program sponsor. The rules governing the operation and use of in-lieu fee programs are somewhat different from the rules governing operation and use of mitigation banks. The operation and use of an in-lieu fee program area governed by an in-lieu fee program instrument.

In-lieu Fee Program Instrument – “In-lieu fee program instrument” means the legal document for the establishment, operation, and use of an in lieu fee program. An in-lieu fee program instrument must be approved by an interagency review team, an interagency group of federal, tribal, state, and /or local regulatory and resource agency representatives that reviews documentation for, and advises the Corps on, the management of a mitigation bank or an in-lieu fee program.

In Perpetuity – In the context of aquatic resource conservation, “in perpetuity” protection shall mean protection of conservation values for an indefinite period of time, or forever. For purposes of implementing agreements, the operational definition often is a 100-year term.

Infrastructure - "Infrastructure" shall mean all public and quasi-public service facilities and structures, including, but not limited to road crossings, landfills, flood control facilities, water transmission lines and facilities, electric utility lines and sewer facilities, and supplemental or appurtenant facilities to road crossings and flood control facilities, such as water quality features, swales, and basins.

Intermittent Stream – An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Jurisdictional Wetlands – Areas that meet the soil, vegetation, and hydrologic criteria described in the "Corps of Engineers Wetlands Delineation Manual" (Environmental Laboratory, 1987) and its interim regional supplement for the arid west region (USACE, 2006).

Land Use Laws and Ordinances – see **Local Land Use**.

Level of Effort – For the ERDC restoration plan (Smith and Klimas, 2004), a scale estimating the level of effort that would be required to restore a riparian reach segment to the prescribed Restoration Template was developed. Based on the analysis of 50 riparian reaches within the Watershed, using aerial photography, baseline assessment data, knowledge of each riparian reach acquired during baseline assessment field sampling, and field verification, a level of effort value was assigned to each riparian reach segment. Level of effort was intended to serve as a tool for planners based on the assumption that limited resources or potential sites would be available for restoration, or limited potential sites available to offset certain types of impacts. The level of effort scale represents a surrogate for the resources required, as no consideration of land purchase costs or similar issues are represented in these estimates. Unforeseen circumstances could dramatically alter the estimates. The following five categories of level of effort are listed: None, Light Planting, Heavy Planting, Light Earthwork, and Heavy Earthwork. (For further detailed description, please consult the ERDC restoration plan.)

Local Drainage – Area contributing to tributary, groundwater, and overland flow that directly enters the riparian reach.

Local Land Use – Local land use decisions are the responsibility of local government, which may control land use through Planning Laws, Financial/Property Ordinances, Subdivision Ordinances, Zoning Ordinances, and Building Ordinances. These legal mechanisms of land use allow for the prioritization and implementation of conservation objectives. Although through various programs, including the SAMP, state and federal agencies may provide technical and policy information to inform the local land use decisionmaking, control over local land use remains outside the authority of state and federal governments.

Mitigation – "Mitigation" shall mean all measures to avoid, minimize, reduce, or offset impacts of any activities resulting in impacts to Corps or the Department jurisdiction, including but not limited to: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impact by limiting the timing, degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; compensating for impacts as provided for in the Corps LOP and RGP and the Department WSAA Process.

Mitigation Bank or Banking – Use of a single site, suitable for wetlands enhancement, restoration, and/or creation, for the mitigation of impacts on wetlands that result from more than one project at other sites.

Mitigation Framework – A component of the SAMP regulatory program modifications for the Watershed includes an approach to mitigation that is informed by the SAMP Analytical Framework. Mitigation, including avoidance and minimization of impacts as well as compensation is addressed under the SAMP mitigation framework. Both the Corps and the Department have agreed to a set of mitigation policies and to implement the SAMP Strategic

Mitigation Plan as well as to promote a Mitigation Coordination Program to improve the effectiveness and efficiency of mitigation occurring within the Watershed.

Mitigation Sequencing – Provisions in the EPA section 404(b)(1) Guidelines (40 CFR 230.10) and the 1990 Corps/EPA MOA requiring avoidance and minimization of adverse impacts on the aquatic environment before compensatory mitigation may be considered.

Natural Community Conservation Plan (NCCP) – "NCCP" shall mean the Natural Community Conservation Planning program, specifically the Orange County Central-Coastal NCCP Subregional Plan, developed pursuant to the NCCP Act, FGC section 2800 *et seq.* NCCP is a program of the Department that takes a broad-based ecosystem approach to planning for the protection and perpetuation of biological diversity. The NCCP process identifies and provides for the regional or area-wide protection of plants, animals, and their habitats, while allowing compatible and appropriate economic activity. The primary objective of the NCCP program is the conservation of natural communities at the ecosystem scale while accommodating compatible land uses.

NCCP/HCP - "NCCP/HCP" shall mean the plan for conservation in the Central/Coastal Subregion approved by the County, Department, and USFWS to meet the requirements of sections 7 and 10(a) under ESA, sections 2081 and 2084 under CESA and sections 2810, 2825(c), 2830 and 2835 under the NCCP Act.

NEPA - "NEPA" shall mean the National Environmental Policy Act, 42 U.S.C. section 4321 *et seq.* and the Corps' implementing regulations at 33 CFR Part 325, Appendix B.

NROC - "NROC" shall mean the Nature Reserve of Orange County, the non-profit corporation established for the management of the Orange County Central-Coastal NCCP Reserve System.

Open Water – An area that, during a year with normal patterns of precipitation, has standing or flowing water for sufficient duration to establish an ordinary high water mark. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered open waters. The term "open water" includes rivers, streams, lakes, and ponds.

Ordinary High Water Mark – The Corps' jurisdictional limits of streams are defined by using the "ordinary high water mark" (OHWM). The OHWM is defined at 33 CFR 328.3(e) as "... that line on the shore established by fluctuations of water and indicated by physical characteristics such as clear, natural lines impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area". Additionally, seasonal wetlands, as described in the Corps of Engineers Wetland Delineation Manual, are where "...water in a depression (is) ... sufficiently persistent to exhibit an ordinary high water mark or the presence of wetland characteristics." The regulated waters delineated in the PLD are intermittent streams, riverine, isolated wetland depressions, and coastal salt marshes. The isolated depressions, coastal marshes, and parts of the riverine system were determined to be

wetlands because they met the three-parameter criteria. The intermittent stream and some portions of the perennial streams were treated as waters of the U.S..

Perennial Stream – A perennial stream has flowing water year-round during a typical year. The water table is located above the streambed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Planned Activities - "Planned Activities" shall mean development on land or interests in land owned or controlled by one or more of the SAMP Participating Applicants in the Eligible Areas, including development of communities and infrastructure, and anticipated activities allowed within the SAMP Eligible Areas as described in herein.

Potential Applicant - "Potential Applicants" shall mean landowners, applicants, and local governments who did not actively participated in the formulation of SAMP.

Preservation – “Preservation” is the removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment – The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area.

Reference aquatic resources – A set of aquatic resources that represent the full range of variability exhibited by a regional class of aquatic resources as a result of natural processes and anthropogenic disturbances.

Rehabilitation – The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration – The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. To track net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Restrictive Covenant – The purpose of a restrictive covenant is to ensure the restricted property, i.e. conservation or mitigation site(s), would be retained in perpetuity in a natural condition and to prevent any use of the restricted property that would impair or interfere with

the conservation values of the restricted property. Typically, the declarant (landowner/signatory) intends to confine the use of the restricted property to such activities, including without limitation, those involving the preservation and enhancement of native species and their habitat in a manner consistent with the habitat conservation purposes of the restrictive covenant.

Restoration Templates – As presented in the ERDC restoration plan (Smith and Klimas, 2004), restoration templates were assigned based on the potential to establish natural plant communities with composition, structure, and overall diversity characteristic of the geomorphic zone. Analyses of habitat requirements for animal species of concern in the region indicate that complex and diverse riparian plant communities are among the key determinants of habitat quality (e.g. Franzreb, 1989; Finch and Stoleson, 2000). In order to re-establish such natural conditions, it is assumed that floodplains, terraces, and adjacent uplands must be available for restoration and surfaces must be restored to appropriate height relative to bankfull stage to establish self-sustaining plant communities. The restoration plan estimated the ranges of appropriate values for the widths and heights of these surfaces based on reference data from the most intact reaches within southern California watersheds, including the San Diego Creek Watershed, as well as the criteria for channel geometry determinations defined by Rosgen (1996). All templates include a zone of native upland vegetation as part of the overall riparian corridor, in addition to the riparian vegetation associated with the channel and terrace systems. The five restoration templates are listed as follows: Natural Channel Template, Incised Channel Template, Constrained Channel Template, Engineered Channel Template, and Restoration Impractical. (For detailed information, please consult the ERDC restoration plan.)

Riparian Ecosystem (also Riparian, Riparian Areas, Riparian Zone, Riparian Vegetation) – Riparian areas typically border rivers and streams such that the riparian zone usually is defined as the area that lies along a stream channel. “Riparian areas” are lands adjacent to streams, rivers, lakes, and estuarine-marine shorelines; they provide a variety of ecological functions and services and help improve or maintain local water quality. The term “riparian zone” implies some interaction with the channel (e.g., inputs of organic material), but the definition used for this and related studies, is based primarily on proximity and may include upland vegetation growing on a high terrace or overhanging a channel from the top of a cut bank as well as species that occur only in association with watercourses. In the technical reports prepared in support of the SAMP (Smith, 2000; Lichvar et al., 2000), the term “riparian vegetation” is reserved for the latter group of plants, such as sycamores, willows, and mulefat. Riparian areas are particularly important because they link and integrate across landscapes by serving as corridors through which water, materials, and organisms move. In arid regions, riparian areas are critical to maintaining regional biodiversity because they provide habitat for a disproportionately large number of species in spite of their limited areal extent. Riparian areas typically include a zone of frequent flooding (bankfull), that is regulated under existing federal and state law, as well as a less frequently flooded transition zone between these areas regulated under state law and adjacent uplands (active floodplain to floodplain terrace). These transition zones vary in regulated statute from jurisdictional waters (including wetlands) to uplands even though they contribute greatly to the habitat, hydrologic, and biogeochemical functions

performed by riparian areas. For the purposes of the SAMP, including the WSAA Process, and in the related studies, the Corps and the Department identified and assessed, and proposed management that should focus on the bankfull channel and transition zone, together as a “functional” riparian ecosystem. However, regulatory processes will remain applicable to jurisdictional areas.

Riparian Reach – A unit of assessment used for the LLFA of riparian ecosystems conducted by the Corps (Smith, 2000) that represents the segment of the main stem, bankfull stream channel and adjacent riparian ecosystem considered relatively homogenous with respect to geology, geomorphology, channel morphology, substrate type, vegetation communities, and cultural alteration.

Ruderal – Ruderal plant communities occur in areas of disturbances such as along roads, trails, parking lots, and other areas subjected to ongoing or past disturbances (e.g., vehicle activities, mountain bikes, mowing, etc.). Ruderal communities of native and exotic weedy species become established after a disturbance has taken place. Although ruderal communities may be successional in nature and give way to the native communities when the stressor is removed, some introduced weedy species become established and the site may never return to its original state without intervening restoration activities.

SAMP - "SAMP" or “Special Area Management Plan” shall mean the plan and associated regulatory and mitigation program established by the Corps pursuant to section 404 of the CWA, 33 U.S.C. section 1344, for the San Diego Creek Watershed to provide for a watershed-based approach to issuing Corps permits, the Department’s template SAAs for the Watershed, and a coordinated, comprehensive mitigation strategy, including the Strategic Mitigation Plan, and Mitigation Coordination Program.

Section 404 Permit – The permit issued by the Corps under section 404 of the CWA for authorizing the discharge of dredged or fill material into waters of the U.S., including wetlands; also known as Corps permit, fill permit, Department of the Army permit, DA permit, individual permit, 404 permit.

Section 404(b)(1) Guidelines – Substantive regulations in 40 CFR 230.40, promulgated in accordance with section 404(b)(1) of the CWA, that provide the standards for unacceptable adverse impacts on waters of the U.S., including wetlands, used to determine whether a section 404 permit should be issued. Generally, discharges of fill are allowed under the Guidelines only if no other environmentally less damaging practicable alternative is available, no significant degradation of the waters, no jeopardy to threatened and endangered species, and if appropriate and practicable steps have been taken in sequence to avoid, minimize, and compensate adverse impacts on the aquatic ecosystem.

Stream Order – Strahler stream order refers to a stream numbering method in which the smallest, terminal stream segments receive a designation of first order or “1.” A stream segment downstream from the confluence of two first order stream segments receives a

designation of second order or “2.” A stream segment downstream from the confluence of two second order stream segments receives a designation of third order or “3,” and so on. In all cases, stream order increases only when two stream segments of equal order join.

Streambed or stream bed – For the SAMP, the term streambed refers to riverine aquatic resources located within the bed, bank, and channel geomorphic features. A streambed may include all or a portion of the riparian zone. Streambeds are a sub-set of aquatic resources, and may overlap with Corps jurisdiction located within the OHWM. Streambed resources include perennial, intermittent, and ephemeral drainages that display a bed, bank, and channel. The Corps defines “stream bed” in terms of its jurisdiction: the substrate of the stream channel between the ordinary high water marks, where the substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the OHWM, are not considered part of the stream bed. The Department defines “streambed” as the land beneath a stream and its outermost banks, whereby the streambed includes that portion of a stream channel directly beneath its waters and extends laterally beneath the banks where subsurface hydrologic connectivity exists between the stream and the surrounding land.

Sub basin – see **Local Drainage** and **Drainage Basin**.

Temporal Loss – “Temporal loss” is the time lag between the loss of aquatic resources functions caused by the permitted impacts and the replacement of aquatic resource functions at the compensatory mitigation site. Higher compensation ratios may be required to compensate for temporal loss. When the compensatory mitigation project is initiated prior to, or concurrent with, the permitted impacts, the district engineer may determine that compensation for temporal loss is not necessary, unless the resource has a long development time.

Terraces – Terraces are usually defined as former floodplains, although they also include flat surfaces carved by flowing waters, or the wave-cut surfaces of the marine terraces. For the purposes of the SAMP technical studies, terraces (excluding marine deposits) are alluvial features originally deposited as floodplains, but which under baseline conditions are situated outside the 50-year flood zone, i.e., the flood prone area. There may be multiple terraces associated with some stream reaches, usually identifiable as distinct steps along the channel, but sometimes the lowest terrace is contiguous with the floodplain, and is identifiable only with measurements based on the bankfull stage.

Third-Party Mitigation Program - “Third-Party” mitigation occurs in circumstances where a permittee provides acreage equivalent funds to an approved third party instead of either completing project-specific mitigation or purchasing credits from a mitigation bank approved under the Banking Guidance (2000), which was jointly prepared by the Department of the Army (Corps), the Department of the Interior (USFWS), the EPA, and the National Oceanic and Atmospheric Administration (National Marine Fisheries Service). Third-party mitigation must be approved in advance by the Corps and the Department.

Vegetated Buffer – see **Buffer**

Water Quality Integrity – Water quality integrity was defined as exhibiting a range of pollutant loading, including nutrients, pesticides, hydrocarbons, and sediments that are similar to those that historically characterized riparian ecosystems in the region. Assessing changes in the range of loading in each pollutant category can be determined directly by comparing data for current loading with data describing historical loading, when such data are available. While there are historical and recent monitoring data available for a limited number of stations in the Watershed, little or no loading data are available at the riparian reach scale. Consequently, the assessment of water quality integrity was based on indicators of drainage basin and riparian reach characteristics shown to influence water quality integrity.

Three groups of factors were considered in selecting indicators for the water quality integrity endpoint. The focus of the first group of factors was on whether or not the changes in land use in the drainage basin had the potential to increase sources of pollution compared to the reference condition. The second group focused on whether or not the stream channel pollutant transport system had changed in relation to reference condition in terms of frequency, magnitude, and temporal distribution of stream flow (Kuenzler, 1977). The third group focused on whether or not changes in land use in the areas adjacent to the stream, or the loss of a hydrologic connection between the stream channel and the floodplain had decreased the likelihood of pollutant elimination, i.e., being physically captured or biogeochemically processed, as compared to reference condition. A number of studies have shown that cultural alteration of these factors can lead to increased loading in one or more pollutant categories (Osborne and Wiley, 1988; Allan and Flecker, 1993; Hunsaker and Levine, 1995; Perry and Vanderklein, 1996; Richards et al., 1996; Allan et al., 1997; Bolstad and Swank, 1997; Johnson et al., 1997; Wang et al., 1997; Miltner and Rankin, 1998; Trimble, 1997; Basnyat et al., 1999). To reflect the condition of land use in the drainage basin, one composite indicator of water quality, Land Use/Land Cover in Drainage Basin (LULC_{RRDB}), was selected. Land use / land cover (LULC) indicates the way in which a tract of land is utilized, has been developed, or the class of vegetation. For example, a tract of land that is used to produce row crops is assigned an agricultural LULC; golf courses and parks are assigned to a recreational or open space LULC; and urban areas are typically assigned to a residential, industrial, or commercial LULC. Lands supporting natural vegetation communities, i.e., chaparral versus pasture, are assigned to a shrub, forest, or grassland LULC. A variety of LULC classifications have been developed over the years. Today however, the reference to LULC usually implies the USGS classification of LULC (Anderson et al., 1976) or a similar, but more detailed regional variation of this classification. This type of LULC classification is typically developed through the interpretation of aerial photographs or the analysis of other remote sources of thematic information (USGS, 1990).

Over the centuries, humans have modified the LULC of the natural landscape through intensive land management practices such as agriculture, forestry, and grazing, as well as through industrialization and urbanization. The net effect of these activities has been a dramatic shift in

the type and extent of LULC that occur around the world today, particularly in developed countries (Meyer and Turner, 1992; Hannah et al., 1994).

A number of studies have related LULC to water quality. While studies have consistently shown that the water quality decreases as natural LULC are culturally altered, the specific relationships and causative factors vary widely. For example, Hunsaker and Levine (1995) found that LULC changes in the watershed had the greatest effect on water quality, while Graf (1998) found that changes in LULC in the surrounding landscape had the greatest effect. The relationship between LULC and quantity and quality of surface water has been documented for a variety of wetland and aquatic systems (Brugam, 1978; Ehrenfield, 1983; Kuenzler, 1986; Howarth et al., 1991; Ryan, 1991; Williamson et al., 1992; Richards and Host, 1994; Cooper, 1995; Blair, 1996; Wilber et al., 1996; Caruso and Ward, 1998). In the western United States specifically, livestock grazing, agriculture, and urbanization have often been identified as contributors to increased surface water runoff and non-point sources of sediment, nutrients, and other classes of pollutants (Armour et al., 1991; Sedgwick and Knopf, 1991; Charbonneau and Kondolf, 1993; Busch and Smith, 1995; Rothrock et al., 1998).

Four sub-indicators were used to measure the LULC indicator. Each of the sub-indices were measured as the percent of the drainage basin of a riparian reach with LULC types with the potential to increase the nutrient, pesticide, hydrocarbon, or sediment loading in downstream surface waters. Using the ArcView GIS themes of riparian reach and LULC themes, the area of a drainage basin occupied by each LULC was determined for each sub-indicator. The area of LULC types with the potential to increase pollutants, hydrocarbons, nutrients, and sediment were then summed across the drainage basin and divided by the total drainage basin area to determine the sub-indicator value. The four sub-indicator values were averaged to determine the LULC indicator value.

Additionally, five indicators were selected to reflect the condition of the stream system that transports pollutants. These indicators are the same used to assess hydrologic integrity with the exception of Floodplain Interaction and included the following indicators: Altered Hydraulic Conveyance (RRDB Scale), Altered Hydraulic Conveyance (RR Scale), Surface Water Retention (RRDB Scale), Perennialized Stream Flow (RRDB Scale), and Import, Export, or Diversion of Surface Water (RRDB Scale).

The following three indicators of water quality were selected to reflect the condition of riparian ecosystem with respect to its ability to physically capture and biogeochemically process pollutants, and thus eliminating pollutants from the system: Floodplain Interaction (RR Scale); Sediment Regime (RR Scale); and Area of Native Riparian Vegetation (RR Scale).

Sediment Regime (SR_{RR}) indicates the degree to which the sediment dynamics in the main stem channel of a riparian reach are in equilibrium with respect to the supply of sediments from upstream sources and erosion and deposition processes within the channel. A variety of cultural activities can alter sediment dynamics and/or channel geometry. These types of changes include channel erosion due to physical disturbance, channel incision and head-cutting

due to the alteration of slope, channel aggregation due structures that impede flow, i.e., weirs, drop structures, culverts, and irrigation diversions (Kondolf et al., 1987).

Area of Native Riparian Vegetation indicates the degree to which native riparian vegetation communities occupy the flood prone area of the main stem channel through a riparian reach. Much has been written about the importance of native riparian vegetation communities in the support of specific faunal groups such as amphibians (Brode and Bury, 1984), birds (Hendricks and Rieger, 1989), and fauna in general (Hubbard, 1977; Faber et al., 1989; Knopf et al., 1988).

These nine indicators were used to calculate the Water Quality Integrity Index for each riparian reach. Also, see **Functional Integrity**.

Waterbody - For purposes of the SAMP, a waterbody is a jurisdictional Water of the U.S. that, during a year with normal patterns of precipitation, has water flowing or standing above ground to the extent that an OHWM or other indicators of jurisdiction can be determined, as well as any wetland area (see 33 CFR 328.3(b)). If a jurisdictional wetland is adjacent--meaning bordering, contiguous, or neighboring--to a jurisdictional waterbody displaying an OHWM or other indicators of jurisdiction, that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of "waterbodies" include streams, rivers, lakes, ponds, and wetlands.

Waters of the State – Consistent with the Porter-Cologne Water Quality Control Act, "waters of the state" means any surface water or groundwater within the boundaries of the State of California, including saline waters and perennial, intermittent, and ephemeral rivers and streams. (See Water Code section 13050(e).)

Waters of the United States -- "Waters of the United States" or "waters of the U.S." are waterbodies that are regulated under section 404 of the CWA. It is the broadest category of regulated waterbodies and includes wetlands, along with non-wetland habitats, such as streams, rivers, lakes, ponds, bays, and oceans.

Watershed – A hydrologically defined geographical area that drains to a major waterbody such as a river, lake, or creek, which is usually the waterbody for which the watershed is named.

Watershed Approach – EPA defines the watershed approach as a framework used to coordinate environmental management efforts of the private and public sectors to address the priority problems within a hydrologically defined geographic area that considers ground and surface water flows. As applied to the SAMP, the target is to develop regulatory tools using a watershed approach to improve the Corps and the Department's contribution to riparian ecosystem management within the ongoing broader watershed management efforts. In the context of compensatory mitigation, an analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types

and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by Corps permits and Department agreements. The watershed approach may involve consideration of landscape scale, historic, and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for permits or agreements.

Wetland(s) – Areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

WSAA Process - “Watershed Streambed Alteration Agreement Process” or “WSAA Process” shall mean the procedures established by the Department in conjunction with the SAMP for the San Diego Creek Watershed to provide for a watershed-based approach to issuing Department Streambed Alteration Agreements per FGC section 1600 *et seq.* and includes the use of one of three Department template SAAs for the Watershed, a SAA Templates Master Conditions List, and a comprehensive mitigation strategy, including a Mitigation Coordination Program.

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