US Army Corps of Engineers®

Hansen Dam Basin

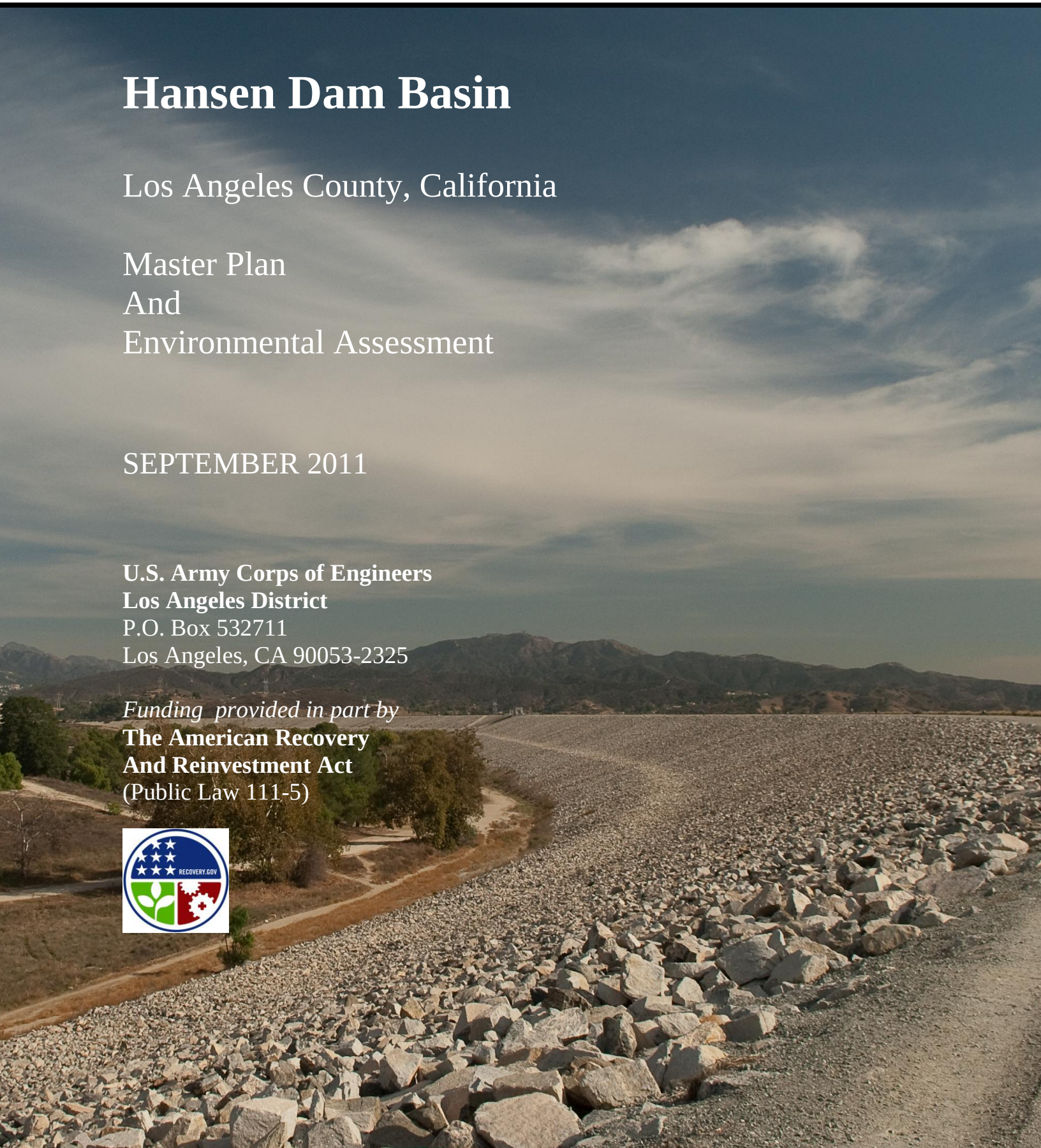
Los Angeles County, California

Master Plan
And
Environmental Assessment

SEPTEMBER 2011

U.S. Army Corps of Engineers
Los Angeles District
P.O. Box 532711
Los Angeles, CA 90053-2325

Funding provided in part by
The American Recovery And Reinvestment Act
(Public Law 111-5)



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EXECUTIVE SUMMARY

This *Master Plan and Draft Environmental Assessment for Hansen Dam Basin* is an update to the *1991 Final Hansen Dam Master Plan and Environmental Impact Statement*. The Federal project, Hansen Dam Flood Control Project, (Dam or Project) refers to the structures, amenities, and lands necessary for operation of the Dam. The Hansen Dam Basin (Basin) refers to the lands acquired for the construction, operation and maintenance of the Project. A U.S. Army Corps of Engineers (Corps) Master Plan for an authorized civil works project is a conceptual project-specific document. It describes the existing resources in the Basin and provides a guide for Corps land management responsibilities and decisions in regard to Project lands, water, and associated resources. The Master Plan provides direction and guidance for land development and utilization in the Basin pursuant to applicable Federal laws, regulations, and policies.

Since the 1991 Master Plan, the land and resource uses within the Basin have changed significantly. Recreation amenities proposed in the 1991 Master Plan such as a 15-acre swimming lake with associated amenities such as picnic areas and restaurant were never built. A 1.5-acre swim lake as part of the Aquatic Center was constructed instead. The updated Master Plan reflects the described changes to the Basin and applicable Federal laws, regulations, policy, and guidance that have been amended or changed since the 1991 Master Plan.

This Master Plan and associated Environmental Assessment (EA) trace the history and development of the Basin and provides the baseline condition of existing resources and amenities. Four community workshops were held during the preparation of this Master Plan to: (1) provide information to the public about the Corps' master planning process; (2) identify the public's needs, desires, and concerns regarding current and future use of the Basin, and (3) gain feedback on existing and proposed changes to the existing land use classifications in the Basin.

Meetings were held with the City of Los Angeles (City), who leases a significant portion of the Basin from the Corps for recreational purposes. The City provided to the Corps information pertaining to current operations and maintenance, future plans, and current and future needs and goals. Visitation data was also provided by the City. Taken together and in light of an integrated ecological approach to land management, the Corps identified resource objectives for land uses as well as each land use classification in the Basin. Resource objectives shape Corps decisions that pertain to future development and activities.

The Basin is classified according to land use classifications, which are dictated by Corps policies and guidance. The Master Plan recommends land at the Basin to be classified into seven land use classifications: (1) Project Operations; (2) Recreation; (3) Environmentally Sensitive; (4) Multiple Resource Management – Recreation – Low Density; (5) Multiple Resource Management – Vegetative Management; (6) Multiple Resource Management - Inactive and/or Future Recreation; and (7) Easement Lands. The Master Plan provides guidance for balancing flood risk management requirements, recreation opportunities, and preservation of natural resources for current and future generations.

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10 INTRODUCTION

10.1 Purpose of a Master Plan

The Hansen Dam Basin Master Plan is a guide for the orderly and coordinated use, development, and management of resources within the Basin. Water, land, and other natural and human resources were assessed and existing conditions documented. Corps guidance for the preparation of Master Plans states that Master Plans shall:

- Be developed and kept current for all Civil Works projects and other fee-owned and easement lands for which the Corps has administrative responsibility for management;
- Provide guidance for project development and use and for the responsible stewardship of project resources for the benefit of present and future generations; and
- Promote the protection, conservation, and enhancement of natural, cultural and man-made resources.

The primary goals of a Corps' Master Plan are to prescribe overall land and water management plans, resource objectives, and management concepts, which include:

- Providing the best possible combination of responses to regional needs, resource capabilities, land use suitability, and expressed public interest and desires consistent with authorized Project purposes;
- Contributing toward a high degree of recreation diversity within the region;
- Emphasizing the particular qualities, characteristics, and opportunities of the project; and
- Exhibiting consistency and compatibility with national objectives.

An Environmental Assessment (EA) was prepared in conjunction with this Master Plan update in accordance with the requirements of the National Environmental Policy Act (NEPA) (42 USC 4321 et seq.), Council on Environmental Quality (CEQ) regulations published at 42 CFR part 1500, and Corps regulations published at 33 CFR part 230. The purpose of the EA is to provide sufficient information on the existing environmental conditions within the Basin and the potential environmental effects of the No-Action Alternative (continuation of the 1981 Master Plan) and the Proposed Action (the updated Master Plan) so that decision makers can determine the need to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The EA is included as Appendix D.

10.2 Project Location

The Project is comprised of a Dam and lands that support the construction, operations and maintenance of the Dam. It is located in Los Angeles County at the confluence of the Big and Little Tujunga Washes along the northeastern edge of the San Fernando Valley (Map 1). The Basin area lies entirely in the City of Los Angeles (Map 2), and is approximately 17 miles northwest of downtown Los Angeles. Foothill Boulevard marks the northern extent, while Glenoaks Boulevard and Montague Street mark the southern boundary of the Basin. The Basin extends beyond Osborne Street to the west and follows Wentworth Street along the east extent.

10.3 Authorized Project Purpose

Flood Risk Management Although the authorized Project purpose in the legislation for the Project was originally referred to as flood control, it is now referred to as flood risk management. The Project purpose is to provide flood risk management to the communities downstream of the Basin, and all other activities that may occur within the Basin must not impede or diminish the purpose of flood risk management.

Hansen Dam and Sports Fields

Hansen Dam was authorized pursuant to two acts of Congress. The Flood Control Act of (FCA) of 1936 (Public Law (P.L.) 74-738), provides for the construction of the Dam and related flood risk management works for the protection of metropolitan Los Angeles County, California. The second (P.L. 75-761), amended the 1936 Act by providing for the acquisition of land, easements, and right-of-way for flood risk management projects, channel improvements, and channel rectification. The Project is an important part of a comprehensive system for flood risk management in Los Angeles County known as the Los Angeles County Drainage Area (LACDA).

Recreation Section 4 of the FCA of 1944, (P.L. 78-534), as amended, authorizes the Corps to construct, maintain, and operate public park and recreation amenities at water resource development projects and to permit the construction, maintenance, and operation of such amenities." It authorizes the Corps to grant leases of lands, including structures or amenities that are suitable for public parks and recreation purposes to Federal, state, or local government agencies when such action is determined to be in the public interest. Since 1948, recreation amenities have been developed throughout the Basin by the City of Los Angeles Department of Recreation and Parks (City) in accordance with a lease agreement between the Corps and the City. Currently, no water is impounded behind the Dam for purposes of recreation and no releases are made downstream for recreation purposes.

Water Conservation Although water conservation is not a Congressionally authorized purpose of the Dam, the water control plan has provisions to operate the Dam to increase water conservation by coordinating Dam releases with the Los Angeles County Department of Public Works (LACDPW) operation of downstream groundwater recharge basins. When the Dam water surface is at or below elevation 1010.5 feet (NGVD), releases may be reduced to match LACDPW and City of Los Angeles Department of Water and Power spreading grounds capacity to recharge water to groundwater. Water conservation operations may not compromise flood risk management. Water held temporarily for water conservation is released at a rate to ensure that the entire storage capacity of the Basin is available if needed for flood risk management operations.

10.4 Need for Updated Master Plan

Federal lands are to be managed in conformance with current Corps' regulations, policy and guidance. This Master Plan memorializes the Corps' assessment of land management needs, expressed public desires, and provides guidance for evaluation of specific developments, uses and activities. Its purpose is to provide land development and utilization guidance that balances the needs and desires of the public with legal, policy, and resource constraints.

Current Federal laws, regulations, and policies are responsive to increasing needs for environmental protection and conservation. Corps' policies recognize a greater need for environmental stewardship that includes conservation and protection of the Nation's natural resources. Consequently, the updated Master Plan reflects a more integrated ecological approach to land management.

The purpose of this Master Plan is to review existing land uses and resources within the Basin, describes the needs and desires of community stakeholders, prescribe land use classifications for the Basin and identify resource and land use objectives. The Master Plan is the Corps' guide for management of the Basin's natural resources.

10.5 History of the Basin

On 12 June 1915, Los Angeles County Flood Control District (LACFCD) was created to address flood risk management in Los Angeles County. The floods of 1914 placed a greater emphasis on the need for flood risk management although there was an awareness of the need prior to 1900. The LACFCD agency worked with the Corps' Los Angeles District on various minor flood risk management projects, but it was not until two decades later with the 1 January 1934 flood that major flood risk management projects were given serious consideration. The New Deal Relief and Public Works Program provided the financial vehicle for comprehensive construction programs.

In 1935 and 1936, the Corps and LACFCD became partners in a large Works Progress Administration contract to design a comprehensive flood risk management system for Los Angeles County including the San Gabriel and Los Angeles Rivers and their tributaries (Corps 1938). The severe storms and floods of February-March 1938 provided additional impetus for a comprehensive flood risk management program in southern California.

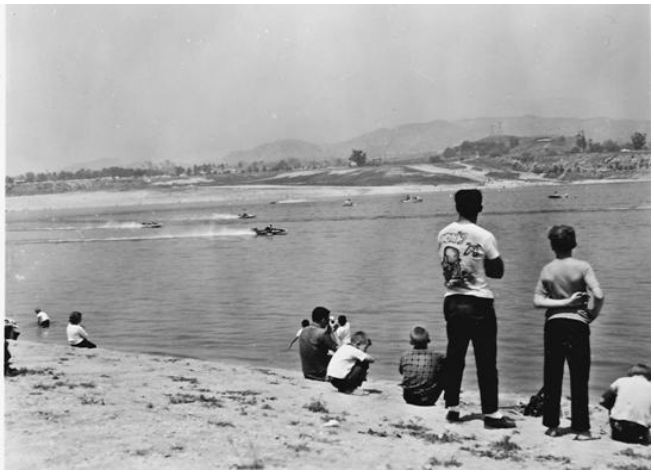
1939 Flooding

The analysis of design, completed in 1939, established the location and design of the Dam and appurtenant flood risk management facilities. The Project was named after horse ranchers Homer and Marie Hansen, who established a ranch in the vicinity of the Dam in the 1800s. The Hansen's ranch was later acquired in 1939 to support construction and operation of the Dam. Construction of the Dam, spillway, and outlet works were completed in September of 1940 at a Federal first cost of over $11,000,000.

Hansen Dam Aerial 9 September 1940

Construction of the Dam

A preliminary report, dated 10 July 1946, outlined recreation possibilities at the Basin. The Basin was already popular for recreation attracting approximately 75,000 visitors annually. The California Department of Natural Resources, Division of Fish and Game voluntarily stocked fish in the water remaining in the borrow pits at the Basin. In April 1948, the City of Los Angeles (City) leased 1,450 acres within the Basin from the Corps for recreation purposes and began a phased program for overall development of the Basin. The initial recreation development at the Basin by the City started in 1952 with the development of Holiday Lake. Holiday Lake was created from the borrow pits for construction of the Dam. Holiday Lake was originally 130 acres, but by 1975 it was reduced to 80 acres of water surface due to sediment accumulation. By 1982 the lake was abandoned as a recreation facility and by 1983 the lake had reduced in size to approximately 30 acres. The 1991 Master Plan reported the lake was entirely filled in.



Holiday Lake Boat Race

Fishing at Holiday Lake

10.6 Applicable Laws, Executive Orders, Regulations, and Policy Guidance

The following Federal laws, Executive Orders, and Corps regulations and guidance are pertinent to the Master Plan update.

Public Laws

The Flood Control Act of 1944, Section 4, as amended (16 USC Section 460d) authorizes the Corps to construct, maintain and operate public park and recreation amenities at water resource development projects; to construct of such amenities by local interest; to permit the maintenance and operation and maintenance of such amenities by local interest; and to grant leases for public park and recreation purposes on Federally-operated lands controlled by the Corps, including structure or amenities thereon. Preference for use is given to Federal, state, or local governmental agencies. The authority to issue licenses is included under this authorization and may be granted without monetary consideration.

The National Environmental Policy Act of 1969, as amended (42 USC 4321 et seq.) provides a framework for Federal agencies to minimize environmental damage and requires Federal agencies to evaluate the potential of environmental impacts of their proposed actions. Under NEPA, a Federal agency prepares an Environmental Assessment (EA) describing the environmental effects of any proposed action and alternatives to that action to determine if there are significant impacts requiring development of an Environmental Impact Statement (EIS) or if a Finding of No Significant Impact (FONSI) is appropriate. The EA must identify measures necessary to avoid or minimize adverse impacts, and all impacts must be reduced to a level below significance in order to rely upon a FONSI.

The Migratory Bird Treaty Act, as amended (16 USC 703-712) prohibits the taking or harming of any migratory bird, the living bird, any part of the bird, its eggs, or eggs without an appropriate Federal permit. This Act covers birds specifically listed therein or named in wildlife treaties between the United States and countries, including Great Britain, Mexican States, Japan and countries once part of the former Soviet Socialist Republics. Disturbance of the nest of a migratory bird requires a permit issued by the United States Fish and Wildlife Service (USFWS) pursuant to Title 50 of the Code of Federal Regulations.

The Fish and Wildlife Coordination Act of 1958 (16 USC 661-667e) requires that any agency impounding, diverting, channel deepening, controlling or otherwise modifying a stream or body of water for any purpose whatever, including navigation and drainage, consult with the United States, Fish and Wildlife Service. The Act is intended to give fish and wildlife conservation equal consideration with the purposes of water resource development projects.

The Federal Water Project Recreation Act of 1965, as amended (16 USC 460*l*-12 to 460*l*-21) requires that recreation and fish and wildlife enhancement be given full consideration in Federal water development projects. The Act authorizes the use of Federal water resource project funds for land acquisition in order to establish refuges for migratory waterfowl.

The Clean Water Act, as amended (33 USC 1251-1387), authorizes water quality programs; requires certification from the state water control agencies that a proposed water resource project is in compliance with established effluent limitations and water quality standards (Section 401); establishes conditions and permitting for discharges of pollutants under the national pollutant discharge elimination system (NPDES) (Section 402); and requires that any non-Corps entity acquire a permit from the Corps for any discharges of dredged materials into the waters of the United States, including wetlands (Section 4040). The Act also defines the conditions which must be met by Federal projects before they may make

discharges into the waters of the United States. Under the Section 404(b)(1) guidelines, as published in 40 CFR 122.6, only the Least Environmentally Damaging Practicable Alternative should be recommended. The United States Environmental Protection Agency (EPA) has primary responsibility for implementing the programs designed to clean up waters of the United States.

The Clean Air Act, as amended (42 USC 7401-7671q), establishes Federal standards for seven toxic air pollutants. It also establishes attainment and maintenance of National Ambient Air Quality Standards (Title I), motor vehicles and reformulation (Title II), hazardous air pollutant (Title III), acid deposition (Title IV), operation permits (Title V), stratospheric ozone protection (Title VI), and enforcement (Title VII). Under Section 176(c) of the Clean Air Act Amendments of 1990, the Lead Agency is required to make a determination of whether the Proposed Actions "conform" to the State Implementation Plan (SIP). Conformity is defined in Section 176(c); compliance with the SIPs is for the purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. If the total direct and indirect emissions from a Proposed Action are below the General Conformity Rule "*de minimus"* emission thresholds, then a Proposed Action would be exempt from performing a comprehensive Air Quality Conformity Analysis, and would be in conformity with the SIP. In addition, the analysis must consider whether the emissions would be "regionally significant" before determining no comprehensive Air Quality Conformity Analysis is required.

The Endangered Species Act of 1973, as amended (16 USC 1531 et seq.), protects threatened and endangered species, as listed by the USFWS, from unauthorized take, and directs Federal agencies to ensure that their actions do not jeopardize the continued existence of such species. Section 7 of the Act defines Federal agency responsibilities for consultation with USFWS.

The Archaeological and Historic Preservation Act, as amended (16 USC 469), requires that Federal agencies consider the effect of their undertakings, including Federally-licensed activity or program, on historic American sites, buildings, objects, and antiquities of national significance when taking actions that include, but are not limited to, flooding, the building of access roads, relocation of railroads or highways, and other alterations of the terrain caused by the construction of a dam.

The National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.), requires that Federal agencies consider the effect of their undertakings, including federally licensed activities or programs, on properties eligible for the National Register of Historic Places (NRHP).

The American with Disabilities Act of 1990, as amended, (42 USC 126 et seq.), prohibits public entities, defined as any state or local government, or division thereof, from excluding any individual with a disability from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity. A "qualified individual with a disability" is an individual with a disability who, with or without reasonable modifications to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity.

Leases: Non-Excess Property of Military Departments and Defense Agencies, as amended, (10 USC 2667(a)), authorizes the Corps to lease Federal land under its control to non-Federal entities when such use will promote the national defense or to be in the public interest. Lands considered for lease under this authority must not be necessary for public use and is not considered excess. This leasing authority typically applies to uses that are considered "non-recreation."

Easements for Rights of Way, as amended (10 USC 2688), authorizes the Corps to issue easements for rights-of-way over, in, and upon Federal land controlled by the Corps when such use will not be against the public interest.

Executive Orders

Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality, amended by Executive Order 11991, Relating to Protection and Enhancement of Environmental Quality, mandates that the Federal government provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. Federal agencies must initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals. CEQ regulations include procedures for early environmental impact statement (EIS) preparation and require impact statements to be concise, clear, and supported by evidence that agencies have made the necessary analyses.

Executive Order 11988, Floodplain Management, outlines the responsibilities of Federal agencies in the role of floodplain management. Federal agencies are required to evaluate the potential effects of actions on floodplains, and should avoid undertaking actions which directly or indirectly induce growth in the floodplain or adversely affect natural floodplain values. Construction of structures and amenities in floodplains must consider alternative approaches that avoid adverse effects and incorporate flood proofing and other accepted flood risk management measures. Agencies shall attach appropriate use restrictions to property proposed for lease, easement, right-of-way, or disposal to non-Federal public or private parties. This EO requires Federal agencies to provide leadership and take action to: (1) avoid development in the base (100-year) floodplain unless it is the only practicable alternative; (2) reduce the hazards and risk associated with floods; (3) minimize the impact of floods on human safety, health and welfare; and (4) restore and preserve the natural and beneficial values of the base floodplain.

Executive Order 11990, Protection of Wetlands, states that the Federal agencies shall take action to minimize destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies responsibilities. Each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use. Federal agencies shall also provide opportunity for early public review of any plans or proposals for new construction in wetlands.

Executive Order 12088, Federal Compliance with Pollution Control Standards, requires all Federal agencies to ensure that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to Federal amenities and activities under control of the agency.

Executive Order 12898, Environmental Justice in Minority Populations and Low-Income Populations, requires Federal agencies to identify and address disproportionately high and adverse impacts of Federal Actions, including Federal licensed actions, programs, policies, or activities, on minority or low income populations in the United States.

Executive Order 13112, Invasive Species, requires Federal agencies to expand and coordinate efforts to prevent the introduction of invasive species and to minimize the economic, ecological, and human health impacts that invasive species may cause.

Executive Order 13148, Greening the Government through Leadership in Environmental Management, mandates that environmental management considerations must be a fundamental and integral component of Federal Government policies, operations, planning, and management. The primary goal of this EO in

the natural resources arena is for each agency to strive to promote the sustainable management of Federal facility lands through the implementation of cost-effective, environmentally sound landscaping practices, and programs to reduce adverse impacts to the natural environment.

Executive Order 13195, Trails For America in the 21st Century, requires that Federal agencies will, to the extent permitted by law and where practicable, and in cooperation with Tribes, States, local governments, and interested citizen groups, protect, connect, promote, and assist trails of all type, throughout the United States.

Corps' Guidance

The following paragraphs list Engineer Regulations (ER), Engineer Pamphlets (EP), and Engineer Manuals (EM) published by the Corps that are pertinent for planning, development, and management of the Basin. These Corps documents are cited with their initial publication date and updates using a system of changes to specific pages to incorporate modifications to the guidance resulting from new legislation or policy changes. The documents including changes are available in digital format at the publications page on the Corps' Headquarters website: http://140.194.76.129/publications/.

- Regulations - Engineer regulations (ER) establishes topic-specific procedural practices that must be followed at Corps District levels.
- Pamphlets - Engineer pamphlets (EP) provide clarification guidance and/or detailed implementation guidance in support of Federal laws and regulations.
- Manuals - Engineer manuals (EM) are documents which provide comprehensive planning and design guidance for a wide range of technical and functional activities.

Engineering Regulations

ER 200-1-5, Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Procedures (EOP) and Doctrine, 30 Oct 2003, provides specific policy and guidance for implementation and the integrated application of the Corps' EOP and associated doctrine across the full spectrum of Corps' program management initiatives and business processes.

ER 200-2-2, Environmental Quality: Policy and Procedures of Implementing NEPA, 04 Mar 1988, (33 CFR part 230), provides policy and procedural guidance to supplement the Council of Environmental Quality's final regulations implementing the procedural provisions of the NEPA for the Civil Works Program of the Corps.

ER 200-2-3, Environmental Compliance Policies, 29 Oct 2010, provides the policy for the management of environmental compliance-related operations and maintenance activities for the U.S. Army Corps of Engineers Civil Works Projects.

ER 405-1-12, Real Estate Handbook, 20 Nov 1985, provides guidance on real estate requirements and procedures, including guidance on appraisals, acquisitions, relocation assistance, homeowners' assistance, real estate claims, audits, and recording and reporting.

ER 1105-2-100, Planning Guidance Notebook, 22 Apr 2000 (original); 30 Jun 2004 (Appendix D - Amendment 1); 31 Jan 2007 (Appendix F - Amendment 2); 30 Jun 2004 (Appendix G – Amendment 1); 20 Nov 2007 (Appendix H – Amendment 1), provides overall direction by which the Corps Civil Works

projects are formulated, evaluated and selected for implementation. It contains a description of the Corps planning process, Corps missions and programs, specific policies applicable to each mission and program, and analytical requirements.

ER 1110-2-240, Water Control Management, 08 Oct 1982; 30 Apr 1987 (change 1); 01 Mar 1994 (change 2), prescribes policies and procedures to be followed by the Corps in carrying out water control management activities, including the establishment of water control plans for Corps and non-Corps projects, as required by Federal laws and directives.

ER 1110-2-400, Design of Recreation Sites, Area and Facilities, 31 May 1988, establishes policy, and guidance for the design of recreation sites, areas, and facilities.

ER 1130-2-530, Flood Control Operations and Maintenance Policies, 30 Oct 1996, establishes the policy for the operation and maintenance (O&M) of Corps flood risk management and related structures at civil works water resource projects and of Corps-built flood risk management projects operated and maintained by non-Federal sponsors.

ER 1130-2-540, Environmental Stewardship Operations and Maintenance Guidance Procedures, 15 Nov 1996 (Original); 04 Nov 2002 (change 1); 31 Jul 2005 (change 2); 11 Aug 2008 (change 3), establishes land management policy for Corps-administered project lands and water, based on various authorizing legislation and the principles of good environmental stewardship. Environmental stewardship includes both passive and proactive management to sustain healthy ecosystems and biodiversity, and conserve natural resources, such that Corps lands and waters are left in a condition equal to or better than their condition when acquired, and such that those natural and cultural resources are available to serve the needs of present and future generations. Management plans will be prepared for all Corps administered lands and waters.

ER 1130-2-550, Recreation Operations and Maintenance Policies, 15 Nov 1996 (Original); 01 Oct 1999 (change 1); 01 Mar 2002 (change 2); 15 Aug 2002 (change 3); 30 Aug 2008 (change 4); 30 Mar 2009 (change 5), establishes the policy for management of recreation programs and activities, and for the operation and maintenance of U.S. Army Corps of Engineers recreation amenities and related structures, at civil works water resource projects.

ER 1165-2-26, Implementation of Executive Order 11988 on Floodplain Management, 30 Mar 1984, sets forth general policy and guidance for Corps implementation of Executive Order 11988, Floodplain Management, as it pertains to planning, design, and construction of Civil Works projects, to activities under the operation and maintenance program, and to the real estate program of the Corps. The policy of the Corps with respect to floodplain management is to formulate projects which, to the extent possible, avoid or minimize adverse impacts associated with use of the base (100-year) floodplain and avoid inducing development in the base floodplain unless there is no practicable alternative. The decision on whether a practicable alternative exists will be based on weighing the advantages and disadvantages of floodplain sites and non-floodplain sites. Factors to be taken into consideration include, but are not limited to, conservation, economics, esthetics, natural and beneficial values served by floodplains, impact of floods on human safety, location advantage, the functional need for locating the development in the floodplain, historic values, fish and wildlife habitat values, endangered and threatened species, Federal and State designations of wild and scenic rivers, refuges, etc. and, in general, the needs and welfare of the people. The test of practicability will apply to both the proposed Corps action and to any induced development likely to be caused by the action. Identification and evaluation of practicable alternatives shall include consideration of alternative sites (carrying out the proposed action outside the floodplain); alternative actions (other means which accomplish the same purpose as the proposed action); and no action. When a determination is made that no practicable alternative to undertaking an action in the

floodplain exists, it will be appropriately documented and the features or qualities of the floodplain that make it advantageous over alternative non-floodplain sites shall be described and adequately supported.

ER 1165-2-119, Modifications to Completed Projects, 20 Sep 1982, provides guidance on the use of available authorities, as compared to the need of new project authorizations, for study and accomplishment of modification to completed projects.

ER 1165-2-400, Recreational Planning, Development, and Management Policies, CH1, 09 Aug 1985, defines the objectives, philosophies, and basic policies for the planning, development and management of outdoor recreation and enhancement of fish and wildlife resources at Corps water resource development projects.

ER 1165-2-501, Civil Works Ecosystem Restoration Policy, 30 Sep 1999, provides policy on Corps involvement in ecosystem restoration and protection through Civil Works programs and activities.

Engineering Pamphlets

EP 310-1-6, Corporate Information: Graphic Standards Manual, 01 Sep 1994 (original); 01 Jun 2006 (change 1), establishes a unified approach regarding the use of Corps logotype and preparation of visual communications. The manual covers the use of the logo in business cards, signs, publications, forms, vehicles, and miscellaneous items.

EP 310-1-6a, 232 Sign Standards Manual, VOL 1, 01 Jun 2006, provides direction and guidance for signage, including planning, use, placement, materials, and maintenance, at Corps Civil Works water resource projects.

EP 310-1-6b, Sign Standards Manual, VOL 2, Appendices, 01 Jun 2006, provides guidance on procurement procedures, materials and specifications, sign maintenance procedures, typography reference, reference material, and reproduction materials for signage at Corps water resource projects.

EP 1130-2-540, Environmental Stewardship and Maintenance Guidance and Procedures, 15 Nov 1996 (original); 04 Nov 2002 (change 1); 31 Jul 2005 (change 2); 11 Aug 2008 (change 3), establishes guidance for the management of environmental stewardship-related operations and maintenance activities at Corps civil works water resource projects and supplements ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies.

EP 1130-2-550, Project Operations-Recreation Operation and Maintenance Guidance and Procedures, 15 Nov 1996 (original); 01 Oct 1999 (change 1); 01 Mar 2002 (change 2); 15 Aug 2002 (change 3); 30 Aug 2008 (change 4), establishes guidance for the management of recreation programs and activities, and for the operation and maintenance of Corps recreation amenities and related structures, at civil works water resource projects and supplements ER 1130-2-510, Recreation Operation and Maintenance Policies. Master Plans and operational management plans are to be developed in accordance with the guidance on master planning and report content contained in Chapter 3 of both ER and EP 1130-2-550.

EP 1165-2-316, Rules and Regulations Governing Public Use of Water Resources Development Projects Administered by the Chief of Engineers, May 2000; codified as 36 CFR part 327, establishes rules and regulations pertaining to the recreation land use and safety measures at Corps administered water resource and development projects.

EP 1165-2-502, Ecosystem Restoration – Supporting Policy Information, 30 Sep 1999, provides policy information in support of ER 1165-2-501 to guide Corps of Engineers involvement in ecosystem restoration and protection through Civil Works programs and activities.

Engineering Manuals

EM 1110-1-400, Recreation Facility and Customer Services Standards, 01 Nov 2004, provides general guidance for the rehabilitation of existing, and the design and construction of new recreation areas and amenities, the provision of customer services, and recreation program evaluation activities at recreation areas managed by the Corps of Engineers. The overall purpose of this document is to establish a uniform level of quality nationwide by which Corps-managed parks will meet the needs of current and future park customers.

EM 1110-2-410, Design of Recreation Areas and Facilities – Access and Circulation, 31 Dec 1982, presents data compiled from experience and research that may be useful to Corps personnel concerned with the design of access and circulation to recreation sites, areas and amenities. The material presented in the manual is intended as design guidance for obtaining an end product which results in safe, useable, economical recreation developments and accessible to all.

South Pacific Division Regulations

SPDR 1110-2-1, Land Development Proposals at Corps Reservoir Projects, Nov 2001, establishes South Pacific Division (SPD) policy for evaluating land development proposals within Basins and flood basins of the Corps, and documenting the results of the evaluation. The policies of this division regulation detail the procedures to be followed in evaluating land development proposals by any entity (companies, organizations, private parties, governments, or agencies) to construct buildings, roads, or other amenities, or in any way would modify the land forms, vegetation, surface characteristics, or use lands within a Basin operated by the Corps for flood risk management. The objective is to assure that project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with project lands are not harmed.

10.7 Pertinent Publications

U.S. Army Corps of Engineers Publications

U.S. Army Corps of Engineers, Los Angeles District, *Analysis of Design Hansen Dam, Volumes 1 and 2,* 1938

U.S. Army Corps of Engineers, Los Angeles District, *Flood Control in the Los Angeles County Drainage Area,* 1939

U.S. Army Corps of Engineers, Los Angeles District, *Hydrology in the Los Angeles County Drainage Area,* 1939

U.S. Army Corps of Engineers, Los Angeles District, *Los Angeles County Drainage Area, California Preliminary Report Recreational Development Hansen Flood-Control Basin,* 1946

U.S. Army Corps of Engineers, Los Angeles District, *Administration and Development of Project Land and Water Areas,* 1956

U.S. Army Corps of Engineers, Los Angeles District, *Hansen Dam Master Plan Los Angeles County Drainage Area, California,* 1975

U.S. Army Corps of Engineers, Los Angeles District, *Operations and Maintenance Manual, Los Angeles County Drainage Area*, 1975

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U.S. Army Corps of Engineers, Los Angeles District, *Plan of Study, Review Report for Flood Control and Allied Purposes, Los Angeles County Drainage Area*, 1976

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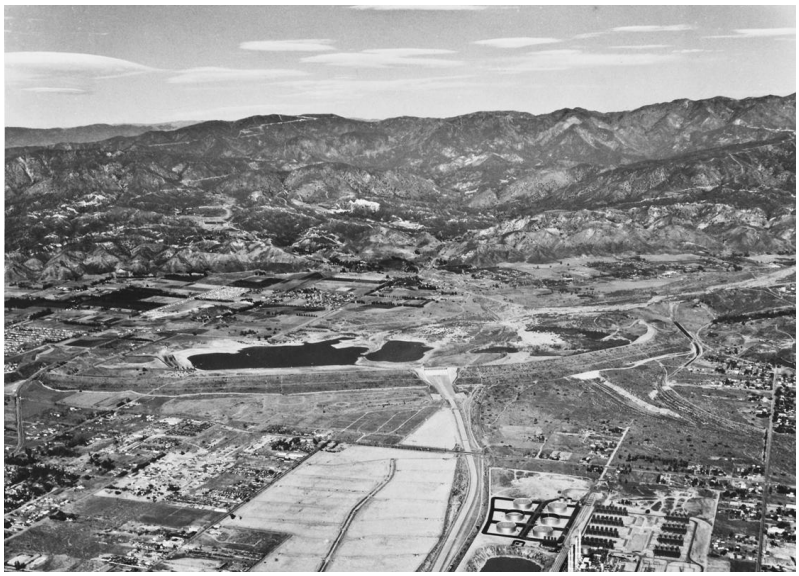
11 PROJECT DESCRIPTION

11.1 Project Data

The Project is comprised of a compacted earthfill embankment, spillway structure, and outlet works. The earth-fill Dam is a compacted, impervious structure 10,475 feet long and 1,087 feet in elevation according to National Geodetic Vertical Datum (NGVD, 1929). The maximum height above streambed is 97 feet. The Dam has a storage capacity of 33,348 acre-feet at spillway crest (elevation 1060 feet) based on the November 2004 topographic survey. The Dam embankment extends in a general east and west direction at right angles to Tujunga Wash. The Dam follows a gentle curve in order to connect the abutments of the Dam with a prominent rock outcrop located near the center of the Dam. At the east end, the Dam abuts against a range of small hills and on the west end, terminates in a gentle sloping hill. Rock is exposed on the hillside at the east abutment and is found at shallow depths on the west abutment. Between the ends of the Dam and the central rock outcrop, the axis of the Dam crosses the lower end of a typical debris cone. The upstream face of the Dam has a slope of 3 horizontal:1 vertical (3H:1V) and is covered with a 2.5 feet layer of riprap over a 6 inch spall blanket. The downstream face has a slope of 6H:1V from the rock toe to elevation 1,020 feet NGVD, a slope of 5H:1V from elevation 1,020 to 1,050 feet NGVD, and a slope of 3H:1V to the Dam crest. Three berms, each 20 feet wide, run parallel to the axis of the Dam, one on the upstream face at elevation 1,040 feet and two on the downstream face at elevations 1,020 and 1,050 feet.



Hansen Dam Aerial 27 January 1959

The spillway structure, with a crest elevation of 1,060 feet NGVD, 1929 is located near the center of the Dam on a prominent rock outcrop just west of the Tujunga Wash Channel. The approach channel, leading to the crest, is a 320-foot wide rectangular section with invert sloping from the earth berm at elevation 1,040 feet to the point of intersection with the concrete crest section at elevation 1,060 feet. The crest is a Creager and Justin ogee section with an overall length of 302 feet and six 3-foot wide crest piers, making a net length of 284 feet. A concrete lined rectangular spillway channel, which includes the outlet channel at its center, is designed to carry the spillway discharge beyond the earth embankment. The spillway channel consists of a 302 foot constant width section to the toe of the ogee section, and an 897 foot transition to a width of 180 feet from the toe of the ogee section on a slope of 0.08584 and then 664 feet on the slope of 0.02681, being parallel to the outlet channel invert, terminating at elevation 964 feet and finally connecting with the improved channel.

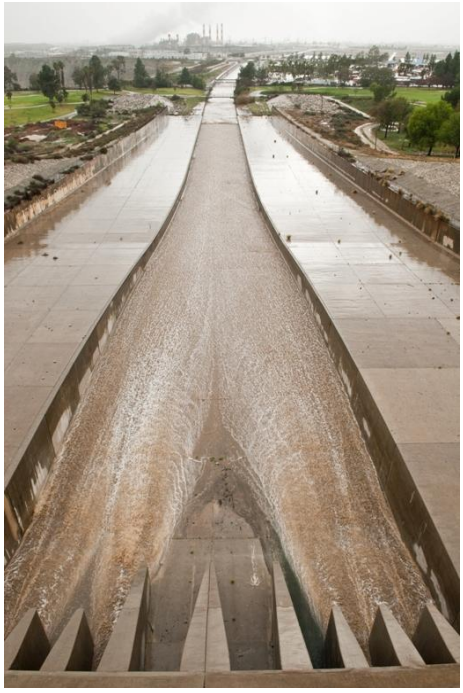
The outlet structures and spillway are located west of the Tujunga Wash Channel in Hansen Knob, which is on the axis of the Dam and approximately bisects it. The outlet structures include an approach channel, an intake structure with operating house and vent house, eight gated and two un-gated outlet conduits, and an outlet channel. The outlet conduits are installed through the overflow spillway section, located symmetrically with respect to the spillway center line and aligned to discharge into Tujunga Wash. The gated conduits are located in the center of the outlet section in two groups of four. All conduit entrances are elliptical in shape and have been provided with a semicircular trash rack structure. The throat entrances to the un-gated conduits are 8 by 8 feet in order to allow larger discharges through. A 60 foot long section, dropping to the approximate elevation of the gated conduits, is used as the transition from the 8 by 8 foot entrance throat to the 8 foot wide by 6 foot high outlet section. The combined maximum capacity of the outlets is 22,000 cfs at water surface elevation 1,060 feet NGVD, 1929, which is at the spillway crest. Of this, 4,900 cfs passes through the un-gated openings and 17,100 cfs passes through the gated openings. Table 2.1 (Corps 2010a) provides a summary of the physical characteristics of the Dam and Basin.

Table 11.1 Hansen Dam and Basin Pertinent Data

General Information	
Construction Completed	1940
Stream System	Tujunga Wash
Drainage Area	151.9 square miles
Basin	
Elevation[1]	
Debris Pool	1,010.50 ft, NGVD
Spillway crest	1,060 ft, NGVD
Spillway design surcharge level	1,081.20 ft, NGVD
Top of Dam	1,087 ft, NGVD
Area[1]	
Debris Pool	372 acres
Spillway crest	826 acres
Spillway design surcharge level	1,084 acres
Top of Dam	1,154 acres
Capacity, Gross[1]	
Debris Pool	3,756 ac-ft
Spillway crest	33,348 ac-ft
Spillway design surcharge level	52,964 ac-ft
Top of Dam	59,299 ac-ft
Allowance for sediment (50-year)	10,500 ac-ft
Allowance for sediment (100-year)	21,000 ac-ft
Dam: Type	Earthfill
Height above original streambed	97 ft

Top Length	10,475 ft
Top width	30 ft
Freeboard	5.8 ft
Spillway: Type	Overflow conc, Ungated ogee
Crest length	284 ft
Design surcharge	21.2 ft
Design discharge	99,700 cfs
Outlets	
Uncontrolled	
Number and size	2 - 8' W x 6' H
Entrance invert elevation	1,011 ft, NGVD
Controlled	
Gates - type	Vertical Lift
Number and size	8 - 5' W x 8' H
Entrance invert elevation	990 ft, NGVD
Conduits	
Number (total)	10
Size and number	2 - 8' W x 6' H ft
Size and number	8 - 5' W x 8' H ft
Length	265 ft
Maximum capacity at spillway crest	22,000 cfs
Regulated capacity at spillway crest	20,800 cfs
Standard Project Flood	
Duration (inflow)	4 days
Total volume (including baseflow)	92,500 cfs
Inflow peak	53,000 cfs
Probable Maximum Flood	
Duration (Inflow)	5 days
Total volume	246,000 ac-ft
Inflow peak	105,000 cfs
Historic Maximums	
Maximum release (2 March 1983)	17,966 cfs
Maximum water surface elevation (2 March 1983)	1,039.70 ft, NGVD
[1]Based on November 2004 Survey. Source: Corps 2010a.	

11.2 Hydrology and Basin Operations



Climate and Hydrology

The climate of the drainage area above the Basin is temperate and semi-arid with warm, dry summers and cool, moist winters. Most precipitation in southern California coastal drainages occurs during the winter season, primarily from November through early April, as mid-latitude cyclones from the northern Pacific Ocean move inland over the area. Most of these storms occur in the winter, characterized by hours of light-to-moderate precipitation, but with many heavy showers and thunderstorms within the storm system. Within the drainage area, mean annual precipitation ranges from slightly more than 15 inches near the Dam to more than 36 inches in the San Gabriel Mountains upstream of Big Tujunga Dam. Precipitation varies greatly by year and by month (Corps 1990).

All of the major inflow and impoundment events in Project history have resulted from winter storms. Runoff from the watershed is characterized by high flood peaks of short duration that result from high-intensity rainfall on the watershed. Flood events are usually less than 48 hours duration. Inflow rates drop rapidly between storms, and inflow during the dry summer season is usually less than 10 cfs. Based on the US Geological Survey stream-gage record for Big Tujunga Creek below the Dam, the long-term average outflow from the Dam from1948 to 2009 is 17,927 acre-feet per year (or 24.8 cubic feet per second). The mean annual outflow varied from a high of 224 cfs in water year 1993 to the lowest runoff of 0 cfs in water years 1950, 1951, 1963-1965, and 1972. Channel flow below the Dam is characterized by releases of relatively long duration with occasional sharp peaks from the tributary urban areas downstream (Corps 1990).

The watershed has a high sediment and debris production potential. The original estimate of sedimentation in the Dam was 5,000 acre-feet (AF) over a 50-year period (1940 to 1990). By 1977, sedimentation at the Basin (approximately 10,000 AF) greatly exceeded the original estimate. Based on the historical average annual sedimentation rate for the Basin, approximately 84 percent (272 acre-feet/year) of all sediment entering into the Basin area remains behind the Dam. Approximately 16 percent (52 acre-feet/year) of all sediment is conveyed downstream into the Tujunga Wash Channel. Due to the amount of sediment that has been deposited behind the Dam, a long-term sediment removal operation was initiated at the Basin in 1984. This operation has restored much of the original Basin storage capacity (Corps 1999).

Dam Operation

The primary Project purpose is flood risk management for the communities in the San Fernando Valley along Tujunga Wash and the Los Angeles River. Water is temporarily stored behind the Dam during periods of high inflows and is released more slowly through the downstream Tujunga Wash Channel. The water control operation described in the Water Control Manual

(Corps 1990) uses the Basin storage capacity (33,348 acre-feet) in conjunction with the outlet release capability (maximum of 20,800 cfs) to manage flood inflow events to the conveyance capacity of the downstream Tujunga Wash and Los Angeles River channels. The operation schedule for the Dam includes controlled releases up to 500 cubic feet per second until the Basin reaches an elevation of 1,010.5 feet NGVD. Above this elevation Dam releases are permitted up to 20,800 cfs, not to exceed the downstream channel capacity in Tujunga Wash or the Los Angeles River (Corps 1990). The available conveyance capacity of the downstream channels vary throughout flood events depending on the physical condition of the channel as well as rainfall and flood runoff downstream of the Dam that use up a portion of the channel conveyance capacity. Project pertinent data is provided in Table 2.1 (Corps 2010a).

At low water surface elevations (up to 1,010.5 feet), the Project can be operated for water conservation during periods of favorable weather and runoff forecasts subject to Project requirements. Dam releases for water conservation are made in coordination with LACDPW and the City, who operate groundwater recharge spreading basins along Tujunga Wash. The operation plan does not provide for the temporary or permanent storage of floodwaters for recreation purposes. During flood risk management operations, areas developed for recreation may be inundated with storm water and are repaired or restored by the lessee (Corps 1999).

Basin Filling Frequency

The frequency and extent of flood inundation is considered in the management of Basin lands. The operation of the Dam to manage flood inflows results in periodic storage of flood waters within the Basin. A statistical analysis of water surface elevations over a historical period of time in which the Dam has been operated determines the filling frequency. Filling frequency refers to the relationship between the maximum water elevation in the Basin and how frequently these elevations are reached. Filling frequency values are presented in Table 2.2.

Table 2.2 Hansen Dam Filling Frequency Relationship

Percent Chance Exceedance	Return Period	Basin Stage (feet)
0.2	500	1066.3
0.5	200	1054.2
1.0	100	1043.4
2.0	50	1034.0
5.0	20	1024.8
10.0	10	1022.8
20.0	5	1014.5
50.0	2	1010.6
80.0	1.25	1007.0
90.0	1.11	1006.4
95.0	1.05	1005.9
99.0	1.01	1005.5

The Basin's water surface elevation gage produces a continuous record of the Basin stage. The filling frequency of the Basin is used to develop a statistical relationship between water surface elevation and

frequency. This statistically derived relationship was augmented by using the results of prior Corps hydrology studies that used inflow volume frequency and hydrograph routing procedures to estimate the frequency of occurrence of the less frequent (rarer) floods such as the 100-year, 200-year, and 500-year events. In Table 2.3, percent chance exceedance means, for example, that every year there is a 1-percent (1 out of 100) chance for the indicated Basin water surface elevation (1043.4 feet NGVD) to be equaled or exceeded due to flood inflows. The elevation-frequency contours in Map 7 show the Basin area inundated for the 10-, 50-, and 100-year return period flood events as well as area inundated when the Basin pool elevation is at spillway crest (1060 feet). With regard to duration of Basin inundation, the project operation for flood risk management produces short periods of Basin inundation. Floodwaters are released quickly (a matter of days) in order to regain storage space to capture future flood inflows. Figure 2.1 presents the historical record of the Project's water surface elevation from October 1941 to September 2007 (65 years) (Corps 2009).

Operational Issues

Basin sedimentation is an operational issue as it steadily reduces storage capacity leading to more frequent Basin inundation at higher pool levels. The Corps periodically excavates sediment within the Basin to maintain storage capacity. The trash rack in front of the outlet works occasionally becomes clogged from vegetative debris accumulation that must be manually cleared (Corps 1990).

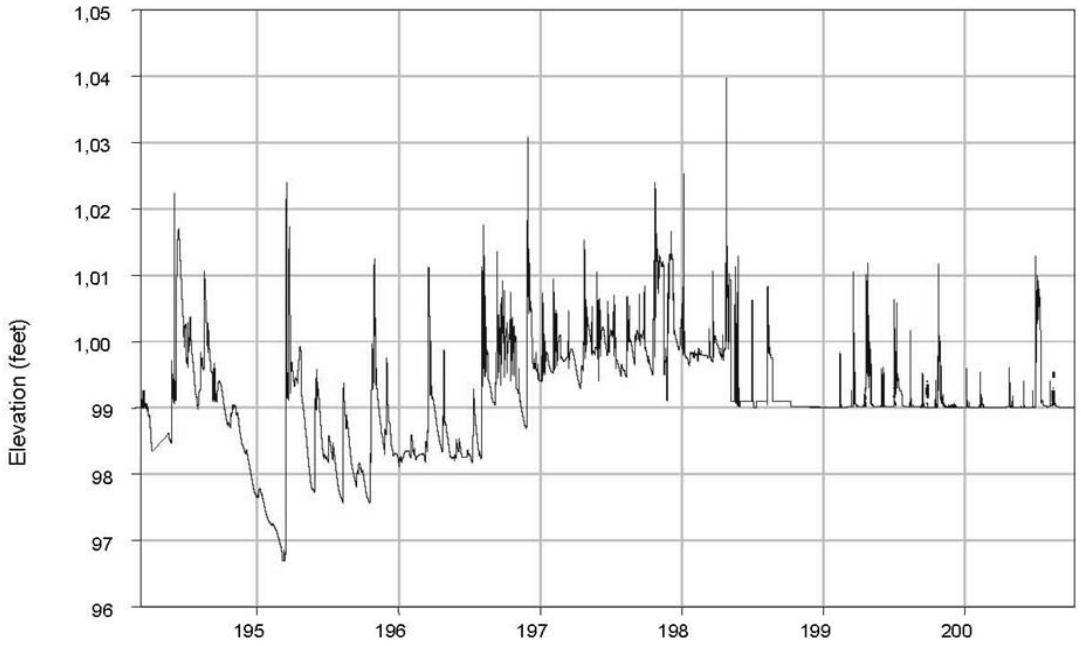


Figure 2.1 Water Surface Elevations

11.3 Real Estate

The Corps acquired 1,507.2 acres for construction, operations, and maintenance of the Project. The Federal government owns 1,461.3 acres in fee and limited flowage rights over an additional 45.9 acres. The Corps, as the agency authorized to manage the Basin, reserves 162.7 acres exclusively for operation of the Dam. The remaining 1,298.6 fee acres are available for compatible uses with a preference toward recreation purposes.

The Corps granted a lease for 1,450 acres to the City of Los Angeles (City) in 1948 for recreation purposes. On 21 January 1969, the Corps granted a new lease of 1,351.8 acres in the Hansen Dam Basin to the City for a term of 50 years. On 16 August 1972, Supplemental Agreement 1 increased lease area by 3.5 acres. On 4 June 1974, Supplemental Agreement 2 added 0.09 acres for a total of 1,355.4 acres. Supplemental Agreement 3, dated 24 September 2002, extended the term of the lease from 50 years to 75 years with a termination date of 20 January 2044. Map 4 shows the area leased for recreation purposes.

11.4 Watershed

The San Gabriel Mountains form the northern divide of the watershed, while a high ridge forms the divide with the upper San Gabriel River watershed to the east, and delineates a 152 square mile watershed. Big Tujunga Dam, located 14 miles upstream of the Project, controls 82 square miles of this drainage area and is a water conservation and flood risk management facility owned and operated by Los Angeles County Department of Public Works (LACDPW). Downstream of Big Tujunga Dam, Tujunga Wash flows across a broad alluvial fan and passes through the Basin, through an urbanized valley, and empties into the Los Angeles River 9.3 miles downstream. Little Tujunga Wash, the other major tributary in the watershed, joins Big Tujunga Wash within Hansen Dam Basin. The longest watercourse in the watershed is the Big Tujunga Wash. It is 31.5 miles in length and an average slope of 148 feet per mile (Corps 1990).

Tujunga Wash Watershed

Approximately 140 square miles of the 152 square mile drainage area above the Basin consists of steep, mountainous terrain, dissected by deep, narrow ravines containing the numerous watercourses, tributaries to this watershed. The remainder of the watershed consists of a

relatively flat alluvial fan surface and valley fill area. Elevations in the mountains vary from 7,124 feet at Pacifica Mountain to 990 feet at the Dam. Much of the watershed is part of the Angeles National Forest (Corps 1990).

11.5 Market Area

Market area refers to the surrounding residential areas and communities that are within a reasonable proximity to the Basin. They are areas where individuals and/or families would be expected to travel from their home to take part in the Basin's recreation opportunities. Populations that utilize the recreational and natural areas of the Basin are considered the market demographic. The primary market demographic includes the residents of adjacent communities including San Fernando, Pacoima, Tujunga and Sun Valley, as well as the City and County of Los Angeles. The market demographic is considered when identifying recreation and resource needs for the Basin. Demographics considered in the master planning process include the 2000 population, estimated 2008 population, age distribution, ethnic heritage, household size, density of people per square mile, median household income, the percentage of individuals living below the poverty level and other statistics (Table 2.3).

Table 11.3 Demographic Data for Communities Surrounding Basin

Community		Los Angeles County	City of Los Angeles	San Fernando	Burbank
2000 Population		9,519,338	3,694,820	23,564	100,316
2008 Population Estimation		9,832,137	3,833,995	23,833	102,968
Age Distribution	≤ 9 yrs.	16.1%	15.8%	19.9%	12.3%
	10-19	14.8%	13.7%	17.8%	12.0%
	20-54	52.0%	53.7%	50.1%	54.3%
	≥ 55	17.0%.	16.7%	12.1%	21.4%
Ethnicity	Asian	11.9%	10.0%	1.1%	9.2%
	Black	9.8%	11.2%	1.0%	2.1%
	Latino	44.6%	46.5%	89.3%	24.9%
	Native American	0.8%	0.8%	1.7%	0.5%
	Pacific Islander	0.3%	0.2%	0.1%	0.1%
	White	48.7%	46.9%	42.8%	72.2%
	Other	23.5%	25.7%	49.4%	9.9%
Household Size		3.0	2.8	4.1	2.4
Density (People per Square Mile)		2,344	7,877	9,881	5,782
Median Household Income		$42,189	$36,687	$39,909	$47,467
Individuals Living Below Poverty Level		17.4%	22.1%	19.1%	10.5%
High School Graduates		69.9%	66.6%	41.9%	83.1%
Bachelor's Degree or Higher		24.9%	25.5%	5.4%	29.0%
Living With a Disability		20.4%	21.7%	20.6%	18.2%

[1]Data taken from 2000 Census Data, American FactFinder.
[2]Mixed-race ethnicities reported resulting in a total greater than 100%.

Overall population, household size, and density describe the number of people that may utilize the Basin for recreation purposes. The statistics obtained for the median household income and number of people living below the poverty level help to determine the need for free or low cost

recreation activities. Ethnic and educational background assists in defining the need for signage, interpretative programs, educational enhancement, recreation types, and other activities to meet a broad spectrum of socioeconomic needs.

Population density describes the distribution of people in the market area and is an important demographic to consider in meeting the needs of the community. Los Angeles County is the third most densely populated county in California with 2,344 living in each square mile. The high density of people per square mile indicates that pressure on the natural environment and demand for open space, recreational opportunities, and environmental protections is greater than other less densely populated areas in the state of California.

With an estimated 10 million people living within the Basin market area, there is significant need for recreation opportunities, open space, and environmental stewardship. To reflect the demographics in the market area, the development of these opportunities must widely appeal to a broad spectrum of the population.

11.6 Regional Context

Los Angeles County (County) provides approximately 87,000 acres of parkland (just under 9 acres per 1,000 people); 37,000 acres of recreation area (3.6 acres per 1,000 people); a roughly equivalent amount of wilderness area; 2,900 acres of beaches; 13,000 acres of golf courses; and 645,000 acres of forest. The range of recreation options within and adjacent to the County is very diverse and responds to a broad spectrum of recreation and leisure preferences. The National Parks and Recreation Association recommends 10 acres of open space per 1,000 residents, so the County as a whole has nearly adequate park space. Yet disparities exist at the local level in the more urbanized areas, especially when the access and proximity to open space are considered. The recreation amenities in the Basin play an important role in filling this local need. The range of recreation options within and adjacent to the County is very diverse and responds to a broad spectrum of recreation and leisure preferences. Map 6 shows the locations of open space and park lands throughout the region.

12 PLANNING PROCESS

12.1 Vision and Mission

According to Corps guidance, the ongoing vision of water resources management emphasizes sustainability and environmental stewardship in natural resources management. The Corps mission states:

"The Army Corps of Engineers is the steward of the lands and waters at Corps water resources projects. Its Natural Resources Management Mission is to manage and conserve those natural resources, consistent with eco-system management principles, while providing quality public outdoor recreation experiences to serve the needs of present and future generations. In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values and adheres to sound environmental stewardship, protection, compliance, and restoration practices. The Corps manages for long-term public access to, and use of, the natural resources [of the Basin] in cooperation with other Federal, State, and local agencies as well as the private sector. The Corps integrates the management of diverse natural resource components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities. The Corps conserves natural resources and provides public recreation opportunities that contribute to the quality of American life." (ER 1130-2-550, Chapter 2, Paragraph 2-2.a (1) (15 November 1996).

12.2 Use of the Master Plan

The Master Plan is essential for efficient and cost-effective use of natural resources, recreation development, and management programs. The Master Plan provides guidance for land use and future development. It is a tool for the responsible stewardship of Basin resources for the benefit of current future generations. The goals of the Master Plan are to identify a water and land resource objectives and management concepts including:

- Responding to regional needs, resource capabilities, and expressed public interests and desires consistent with authorized project purposes.
- Contributing towards recreation diversity within the region.
- Emphasizing the unique qualities and characteristics of the Basin.
- Exhibiting consistency and compatibility with national objectives and other state and regional goals and programs.

The Master Plan describes and identifies: (1) an inventory of Basin lands, resources, and uses; (2) a summary of the public participation input; (3) a summary of resource and ecosystem use objectives; and (4) the recommended land use plan.

12.3 Public Participation

Public participation is an essential element in the development of this Master Plan. Community involvement offers an opportunity for the public to voice their concerns and desires and enriches the process with local knowledge of the Basin. The objectives of public involvement are to:

- Provide information about the Corps Master Plan process Make the public's desires, needs, and concerns known to decision-makers; and

- Consider the public's views in reaching decisions (EP 1130-2-550).

The public expressed a strong desire for public spaces to meet the diverse and evolving needs of the surrounding communities. While public input is solicited and encouraged under the master planning process, the Corps cannot relinquish decision making authority, nor deviate from legal or policy constraints.

Four community workshops were held to encourage dialogue between the Corps, the City, and stakeholders. They were held at the Lake View Terrace Recreation Center. The first community workshop was held on Saturday, 21 November 2009. The second workshop was held on Thursday, 28 January 2010. At the second workshop the proposed land use classifications were presented and discussed. Approximately 60 people attended the first two workshops. At the third workshop, a summary of the resource and ecosystem objectives, and the land use classification map were presented and discussed in an open forum. Approximately 20 people attended the third workshop which was held on Thursday, 29 April 2010. The forth workshop was help on 24 August 2011 during the public review period for the Draft Environmental Assessment. Approximately 35 people attended. Comments were provided during the workshops and additional comments were received via mail and email and t have also been incorporated as part of the public participation process. The top 5 comments from all the workshops are shown in Figure 3.1. Issues and comments raised by attendees at the first workshop included the following:

- Allow the model airplane flyers to keep the area that they have been using.
- Keep all areas natural and restore where possible, including all of Tujunga Wash.
    - The alluvial scrub is rarer than riparian habitat.
- Re-open the traditional equestrian trails that once encircled the entire area that are now closed.
    - At a minimum, move the fence at the aquatic area to open the equestrian trail when the center is not open.
- Increase patrols and keep homeless encampments in check.
- Limit new development to the periphery where the active recreation and children's areas are located.
- Enforce existing laws.
- Expand biking/hiking trail system.
- Create an off-leash area for dogs.
- Prohibit paint-ball areas.

Issues and Comments raised by attendees at the second workshop included the following:

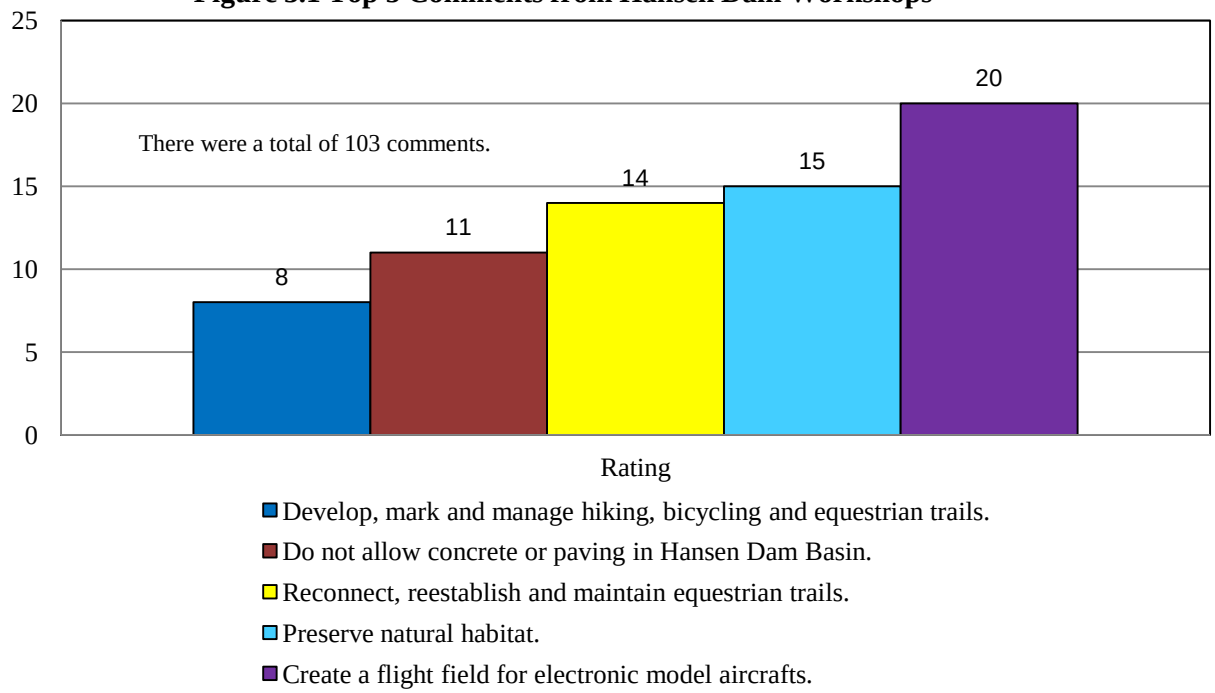
- Concern about the effects of Station Fire on the Basin with the potential for winter storms bringing down heavy sediment loads.
- Quicksand that develops after the wet weather and the lack of proper signage or restrictions to the area.
- Sedimentation restricting the use of the wildlife lake and Holiday Lake.
- Desire for better trail mapping and accessibility.

Issues and Comments raised by attendees at the third workshop included the following:

- The desire for access and fishing on the wildlife lake, much like what was proposed in the 1991 Master Plan and existed previously at Holiday Lake.
- More access to the wildlife lake could reduce homeless encampments.
- Conversion of the low density designation to environmentally sensitive in areas around Tujunga Wash and next to the ballfields.

- Designation of vegetative management or low density recreation instead of inactive and/or future recreation in the areas near ranches.
- Better patrols and maintenance.
- Would like to see the campground (in development phase) opened for local families, not just non-profit organizations, when the campground is finally developed.
- Desire to have Holiday Lake restored by removing sediment.
- Desire for better trail mapping and accessibility.

Figure 3.1 Top 5 Comments from Hansen Dam Workshops



The feedback from the community was carefully considered as well as input from the major lessee. This information was utilized in the development of resource objectives, land use classifications, specific policies on special events, filming, and other activities and are included in Appendix A, Outgrant Policies. Concerns and issues raised by the public have been communicated to the City as many of these issues concern ongoing maintenance which is the responsibility of the City.

13 LAND ALLOCATION, LAND USE CLASSIFICATION, AND RESOURCE INVENTORY AND

The Corps land use classification system is defined in EP 1130-2-550. The Corps acquires land for a specific purpose. This purpose is its "allocation." Allocated lands may be utilized under the opportunities and constraints of "land use classifications." This section describes land allocations and land use classifications, and provides a complete description of all lands within the Basin and their existing classifications, uses, conditions, and needs.

13.1 Land Allocation

Land Allocation
Operations

Land Use Classifications
Project Operations
Recreation
Environmentally Sensitive
Multiple Resource Management*
Easement Lands
***Multiple Resource Management**
Recreation – Low Density
Vegetative Management
Inactive and/or Future Recreation

Land allocation refers to the identification and documentation of lands at Civil Works projects is in accordance with the authorized purposes for which they were or are to be acquired. There are four primary land allocation categories applicable to Corps projects for Project Operations (e.g., flood risk management, water supply, hydropower, etc.), Recreation, Fish and Wildlife, and Mitigation. For Hansen Dam, the Basin land was acquired for the purpose of flood risk management, which falls under the allocation of Project Operations. This allocation establishes that the primary and uncompromising purpose of the Basin is operations for the purpose of flood risk management. All land use classifications are secondary to this purpose and must be compatible with flood risk management.

13.2 Land Use Classifications

Allocated Project lands are further classified for development and resource management consistent with authorized project purposes, and Federal laws including NEPA. The classification process refines the land allocations to fully utilize project lands and must consider public desires, legislative authority, as well as regional and project specific resource requirements and suitability. The Project Operations allocation takes precedent over any other classification categories. For example agricultural or grazing use of project land is not a land use classification, but is an interim or corollary use to meet management objectives. Land is classified into one of the following uses:

Project Operations This classification includes lands required for the structure, operations center, office, maintenance compound and other areas that are used solely for Project Operations.

Recreation Land developed for intensive outdoor recreation activities by the public, including developed recreation areas, and areas for concession, resort, and quasi-public development. Recreation areas planned for initial development are included in this classification. Undeveloped areas are classified as Multiple Resource Management until initiation of the development.

Mitigation This includes land acquired or designated specifically for mitigation. Land classified in this category should be evaluated for consideration for lease or license to the Department of the Interior or the state.

Environmentally Sensitive Where scientific, ecological, cultural, or esthetic features have been identified for conservation and preservation. These areas must be considered by management to ensure the sensitive areas are not adversely impacted. This classification anticipates that there would be limited or no development for public use on land in this classification. There is a strict prohibition against agricultural or grazing uses.

Multiple Resource Management Lands managed for one or more of, but not limited to, these activities to the extent that they are compatible with the primary allocation(s). The activities should be fully explained in the narrative portion of the Master Plan.

> Recreation - Low Density Low density recreation activities such as hiking, primitive camping, wildlife observation, hunting, or similar low density recreation activities.
>
> Wildlife Management Lands in this sub-category shall be evaluated for consideration for lease or license to the Department of the Interior or the state, or shall be designated for direct management by the Corps.
>
> Vegetative Management Includes management activities for the protection and development of forest and vegetative cover.
>
> Inactive and/or Future Recreation Areas Recreation areas planned for the future or that have been temporarily closed. These lands will be classified as Multiple Resource Management in the interim.

Easement lands All lands for which the Corps holds an easement interest but not fee title. Planned use and management of easement lands will be in strict accordance with the terms and conditions of the easement estate acquired for the project.

13.3 Guiding Principles

Community input with Corps' guidance was utilized to identify guiding principles for the management of the Basin. These include:

- Ensure that all uses within the Basin are consistent with the flood risk management operations;
- Protect and restore ecosystem function;
- Ensure that a variety of recreational opportunities are provided for public use; Stakeholders recognize their environmental responsibility and preservation of cultural and historical resources; and
- Management of the Basin lands and activities should integrate sustainable practices.

13.4 Land Use Classification Restrictions

Certain uses and activities at the Basin are not compatible in all classifications, or are limited within classifications. Uses and activities designated as incompatible within a classification are not permitted. Additional guidelines and restrictions applicable to all land use classifications can be found in Appendix A-1, Outgrant Policies.

4.4.1 Project Operations

- No recreation activities are permitted within Project Operations areas except on specifically designated trails and by permission of the District Commander.
- Potentially compatible activities that require review and approval by the District Commander include: filming, training activities for public organizations (e.g., police and fire departments), biological surveys, and volunteer activities. Filming, training and biological surveys must comply with the procedures and requirements outlined in the applicable appendices to this Master Plan. Volunteer activities require case-by-case analyses.
- Use by government personnel during emergencies (fire department staging, etc.) is potentially compatible but shall require case-by-case analysis under the applicable procedures and requirements, including Federal environmental laws and regulations.

Recreation

- Structures/development are allowed to support high density recreation uses and users (e.g., restrooms, drinking/water fountains, garbage and recycling cans, informational signage/kiosks, benches, picnic tables, group picnic areas, etc.). Sports fields and amenities requiring improvements to the land, including grading, excavation, or installation of structures require specific analysis and compliance with applicable environmental laws.
- Dogs and other animals/pets are allowed only on-leash, 6 feet in length or less, except where dog parks for off-leash use are specifically designated.
- Bicycles are allowed on designated trails, paths, and roads. Trails may be closed in the event of excessive erosion.
- Horses are allowed on trails, paths, and roads, but no grazing is permitted.
- Organized volunteer activities that are non-invasive or minimally invasive, such as trash pickup, held outside of breeding season (15 March to15 September) or over 100 feet from environmentally sensitive areas are considered compatible.
- Special events are preferred at the areas designated in the Special Events Policy. Special events may be permitted outside these designated areas in certain circumstances subject to event-specific review. See Appendix A-1, Outgrant Policies, for additional guidance.
- Filming and training activities may be compatible and should be coordinated with the lessee.

Environmentally Sensitive

- Structures/development is not generally considered compatible only to support trail users (e.g., restrooms, drinking/water fountains, garbage and recycling cans, informational

signage/kiosks, and benches). Picnic tables shall be limited and generally located in close proximity to trailheads or other developed areas.

- Dogs are not compatible whether on- or off-leash.
- Bicycles are not allowed. Use of bicycles on dirt trails can contribute to erosion. Trails may be closed to bicycles in the event of safety or environmental concerns.
- Horses are compatible on existing trails, but no grazing is permitted.
- Organized volunteer activities that are non-invasive or minimally invasive, such as trash pickup, held outside of breeding season (15 March to 15 September), may be considered compatible but may require specific environmental analysis.
- Special events are not compatible with this classification. No special events may be held within or traverse Environmentally Sensitive areas. This restriction includes, but is not limited to, organized walk/run events and bicycle races.
- Boating, swimming, and fishing are not compatible with this classification.
- Restoration proposals are compatible. However, all requests will require request-specific analysis.
- Biological surveys are compatible subject to certain restrictions and should be coordinated with the lessee, or the Corps, if the area has not been leased to others.
- Still photography is compatible with this classification. Professional still photography may be compatible subject to certain restrictions and should be coordinated with the lessee or the Corps, if the area has not been otherwise leased to others.

Multiple Resource Management (MRM)

MRM – Recreation – Low Density

- Amenities and structures/development to support recreational uses require specific analysis per the recreation outgrant policy (Appendix A-1). Designated, organized sports fields are NOT compatible with this classification.
- Amenities and structures Dogs are compatible only on leashes 6 feet or less in length, except where dog parks for off-leash use are specifically designated. Bicycles are allowed on designated trails, paths, and roads. Dirt trails may be closed in the event of excessive erosion.
- Horses are allowed on trails, paths, and roads, but no grazing is allowed.
- Organized volunteer activities that are non-invasive or minimally invasive, such as trash pickup, held outside of breeding season (15 March to 15 September) or over 100 feet from environmentally sensitive areas, are considered compatible.
- Limited special events may be compatible. Special events are preferred in the land use classification and may be permitted subject to event-specific review. See the Appendix A, Special Policies for additional guidance.
- Still photography is compatible with this classification. Professional still photography may be compatible subject to certain restrictions and should be coordinated with the City, other lessee, or the Corps, if the area has not otherwise been outgranted.

MRM – Vegetative Management

- Structures/development are generally considered compatible only to support trail users (e.g., restrooms, drinking/water fountains, garbage and recycling cans, informational signage/kiosks, and benches). Picnic tables shall be limited and generally located in close proximity to trailheads or other developed areas.
- Dogs and other animals/pets are compatible only on leashes 6 feet or less in length, on designated trails. No dogs are allowed off designated trails, whether on- or off-leash.
- Bicycles are allowed only on designated trails. Use of bicycles on dirt trails can contribute to erosion. Trails may be closed to bicycles in the event of safety or environmental concerns.
- Horses are compatible on existing trails, but no grazing is permitted.
- Organized volunteer activities that are non-invasive or minimally invasive, such as trash pickup, held outside of breeding season (15 March - 15 September), may be considered compatible but may require specific environmental analysis.
- Special events are not compatible with this classification. No special events may be held within or traverse MRM-Vegetation Management areas. This restriction includes, but is not limited to, organized walk/run events and bicycle races.
- Still photography is compatible with this classification. Professional still photography may be compatible subject to certain restrictions and should be coordinated with the lessee or the Corps, if the area has not been leased to others.
- Restoration proposals may be compatible with the MRM-Wildlife Management and MRM –Vegetative Management classifications. All requests require specific analysis. Biological surveys may be compatible subject to certain restrictions and should be coordinated with the lessee or the Corps, if the area not otherwise leased to others.

MRM – Inactive and/or Future Recreation

- Areas may include areas leased for recreation or non-recreation purposes, as identified on Basin map.
- Dogs and other animals/pets are allowed only on areas leased for recreation purposes, on leashes 6 feet in length or less.
- Limited special events may be compatible. Special events are preferred at the areas designated in the Special Events Policy. Special events may be permitted outside these designated areas in certain circumstances subject to event-specific review. See Appendix A, Special Events Policy for additional guidance.
- Filming, training, and volunteer activities may be compatible and should be coordinated with the lessee or the Corps if the area is not leased.

13.5 Existing Land Use Classifications

Within the Basin, the land use classifications in the 1991 Master Plan are Project Operations, Recreation, Environmentally Sensitive Areas, and Multiple Resource Management – Potential Recreation, and Inactive and/or Future Recreation, and Easement Lands. The 1991 Master Plan Land Use Classification Map is shown in Map 8.

Project Operations

In the 1991 Master Plan, only the Basin outlet channel, spillway, and outlet works control house were classified as Project Operations. The Dam embankment was classified as Recreation. The 1991 Master Plan permitted public use of an operation and maintenance road on the top of the Dam as a designated trail.

Recreation

The Dam was given a land use classification of Recreation, but also included in this classification was the golf course, Little League fields, Hansen Dam Park, Aquatic Center (not yet developed at the time of the 1991 plan), the Sport Center, Lake View Terrace Recreation Center, Equestrian Area, and Orcas Park. The Aquatic Center was built close to the original footprint as demarcated on the maps in the 1991 Master Plan. No distinctions were made between Recreation and MRM – Recreation – Low Density.

Mitigation

No lands were designated as Mitigation, but it was noted that in the future, some of the Environmentally Sensitive lands may be set aside as Mitigation for debris removal or in association with construction of Phase II of the equestrian center.

Environmentally Sensitive

In the 1991 Master Plan, two areas of approximately 480 acres were assigned to this classification. Both are in the Big Tujunga and Little Tujunga Washes and subject to flooding and sedimentation. These areas support sensitive habitat and contain wildlife corridors.

Multi Resource Management (MRM)–Inactive and/or Future Recreation

The 1991 Master Plan identified 14 potential recreation development areas. Land use developments ranged from low to high density recreation. It recommended development of low density recreation amenities adjacent to residences and higher density activities in areas along Foothill Boulevard. Lake development was identified to provide a full range of recreation amenities. The lake would feature boating, fishing, interpretation, trails and picnic areas. Amenities have not been developed.

Easements

Flowage easements refer to lands over which the federal government acquired a limited right to inundate the land. An easement is not equivalent to fee title. The Corps holds flowage easement over 45.9 acres of Basin lands. Lands classified as Easement do not include easements that have been outgranted by the Corps to non-Federal entities.

13.6 Existing Facilities

Hansen Dam Park is approximately 37 acres and is located north of the intersection of Osborne Street and Dronfield Avenue. The park includes barbecue pits, an unlighted baseball field, a

Universal Access Playground (UAP), picnic tables, and an unlighted soccer field. The park has a system of trails for hiking and bicycling. One trail crosses the top of the Dam and an equestrian trail is located at the base of the Dam.

Hansen Dam Aquatic Center is a 40-acre water recreation facility located on the northwest side of Hansen Dam Recreation Area. The facility consists of a 9-acre recreation lake and a 1.5-acre swimming lake. The recreation lake is available for fishing, paddle boat rentals, and public boating. The facility has 50 restrooms, 20 dressing rooms, 25 showers and picnic areas. The facility has parking for 415 vehicles.

Hansen Dam Park

Hansen Dam Aquatic Park

Hansen Dam Golf Course is an 18-hole 211-acres golf course located immediately downstream of the Dam and on the face of the Dam. The golf course includes a pro shop, driving range, and a clubhouse with a restaurant/snack bar.

Hansen Dam Sports Complex is approximately 26-acres, located north of the intersection of Osborne Street and Dronfield Avenue. The complex includes four baseball fields, two soccer fields, and an amphitheater.

Hansen Dam Equestrian Center is approximately 35-acres and is located south of the intersection of Foothill Boulevard and Orcas Avenue, situated between Little Tujunga Wash and Orcas Park. Amenities include stables that can accommodate 100 horses, covered pens, 12 arenas with sand footing for both dressage and jumping, eight turnouts. and lunging arena areas. Equestrian trails are easily acceptable and ample parking for both vehicles and horse trailers is provided.

Top Row: Golf Courses, Bottom: Hansen Dam Equestrian Center,

Lake View Terrace Recreation Center is an approximately 22-acre complex located to the north of Foothill Boulevard and west of Orcas Avenue. Amenities include barbecue pits, picnic tables, lighted outdoor basketball courts, a children's play area, a 90 person capacity community room, an indoor gymnasium, lighted tennis courts, and parking.

Lake View Terrace Recreation Center

Orcas-Gabrielino Equestrian Center is approximately 22 acres with a large arena and is located east of the Hansen Dam Equestrian Center.

4.6 Qualitative Facility Assessment

A qualitative assessment of the condition of existing recreation amenities was completed to identify potential short-term capital repair needs. The facility assessment does not involve detailed evaluation of structures, non-recreation amenities, and amenities that are not open and available to the public. Potential needs are summarized in Table 4.1.

Table 13.1 Description and Qualitative Assessment of Existing Basin Recreation Features		
Facility	**Description**	**Qualitative Assessment**

Facility	Description	Qualitative Assessment
Hansen Dam Park	West side of Basin picnic area, with universal access playground and tot lot. A small storage facility/ administration office is present. Parking areas are plentiful, both paved and unpaved. Overflow parking lots are also located at the east end of the Recreation area (where Osborne and 210 intersect). Overflow parking areas are denuded and result in fugitive dust.	Good
Hansen Dam Sports Complex	Four baseball fields with cyclone backstop and seating risers. Large multi-purpose sports field with soccer goals and 3-4' cyclone fencing around. Fencing is rusted or bent in places. Small concrete amphitheater with back wall surrounded by grass slope for seating. Grass in need of rejuvenation throughout area. A cyclone fence enclosure is also present. Restrooms in fair condition, but may be in need of more regular maintenance or amenities replacement.	Fair-Good
Hansen Dam Aquatics Center	This area includes a fishing lake that is regularly stocked, picnic areas, a swim lake with lifeguards and water slide, and several restrooms. The fishing lake has a boat wooden/concrete pier boat launch and a small fee hut. Fishing lake shorelines are hardened and few trees are present. Shade may also aid in reducing water temperature for stocked fish. The swim lake (pool) has 4 lifeguard towers, and is surrounding by cyclone fencing.	Good
Lake View Terrace Recreation Center	Gymnasium, restrooms, community room. Two tennis courts outside and 1 full basketball court and 3 hoops. Visitor Center tot lot with sand surface. Awnings recommended for shade over tot lot.	Good
Pacoima Little League	"Sunny Slope" baseball fields. Three fields of varying sizes surrounding by approx. 6' cyclone fence. Lots of trash, vandalism, bent and broken benches or amenities. There are only portable toilets and "dugouts" are extremely small and in poor condition. This facility needs grass rejuvenation, new fencing, new dugouts, new signage, and permanent restrooms, preferably with locker rooms.	Poor
Maintenance Office	Small wooden hut surrounded by cyclone fencing with barbed wire. The area is poorly maintained, fencing is bent and rusted, grass is dead and bare ground is prevalent.	Poor
The Bluffs at Hansen Dam	Maintained grass and ornamental tree area with view of the Aquatics Center and Basin.	Good

Facility	Description	Qualitative Assessment
Hansen Dam Equestrian Center	This area includes wooden stables, several horse jump arenas, a small office area, and horse training fields. Ground is level and stables are secure. There are some leaking faucets and lots of dirt and dust in the paved lots.	Good
Orcas – Gabrielino Equestrian Center	Picnic areas, tot lot, lawn, ornamental tree area. There is a horse training field to southeast of Orcas Park.	Good
Hansen Dam Golf Course	18-hole golf course with driving range, clubhouse, restrooms and parking, all well-maintained.	Good

4.7 Projected Future Population Growth and Demographic Shifts

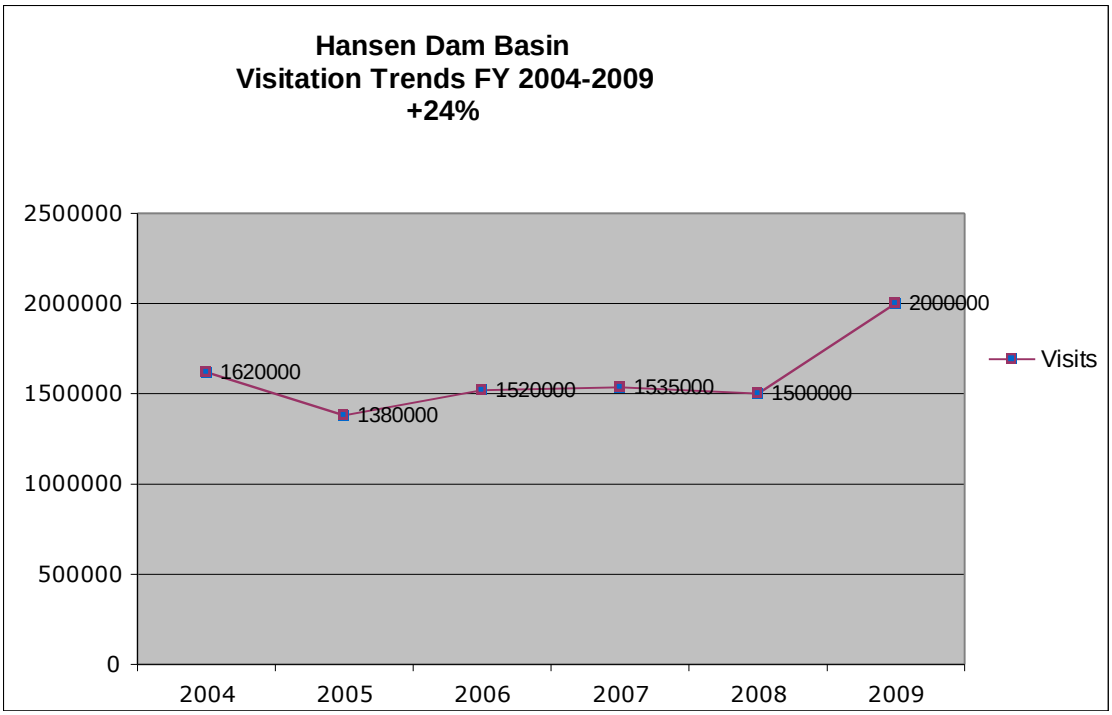
The population of Los Angeles County as enumerated in the 2000 Census, was approximately 9.6 million people, with approximately 20% living within the San Fernando Valley, within a 30-mile service radius of Hansen Dam Basin (source: U.S. Census, 2000). A 2007 forecast prepared by the California State Department of Finance suggested that by 2010 the county's population would approach 10.5 million people, and by 2020, approximately 11.2 million people (State of California 2007). The current economic climate may temper this growth rate, which represents 17% from 2000-2020, and 7% from 2010-2020. Over the long term it is anticipated that the County's population will increase placing demands on existing recreation amenities.

State data also suggests that the age cohorts with the largest projected growth rates from 2010 to 2020 are those aged 70-74 which is a 51% increase, ages 65-69, a 50% increase, and 60-64 which is a 32% increase. By contrast, the share of the population that is aged 10-19 is anticipated to decline by over 15% during the period. These figures reflect the aging of the "Baby Boom" generation, whose members have sought to maintain an active lifestyle, including pursuing a range of low-impact recreation activities such as fitness walking and biking, as well as higher intensity sports like tennis and skiing. This demographic shift may suggest a need to provide and maintain venues for these activities, while also providing for athletic fields that can support team and league activities oriented toward younger participants.

Los Angeles County is also ethnically diverse. Hispanic residents are projected to comprise the largest share of the population in 2020, at approximately 52%. This mirrors the statewide trend: by 2020 California's population of European descent will have grown only 4%, while the Hispanic population will have grown 58%, and the Asian/Pacific Islander population will have grown 55%. The African American population will have grown 20%, and American Indian population will have grown 29%. %. Recreation preferences are shown to be linked to cultural and ethnic values. Amenities must be responsive to the values of the market demographic.

Visitation Trends at Hansen Dam Basin and Related Amenities

Figure 4.1 illustrates trends in visitation in the recreation from Fiscal Year 2004 through 2009. Trends are based upon estimates generated from actual enrollment numbers in recreation teams and leagues, attendance at permitted special events, and golf course rounds.



Visitation estimates suggest a 24% increase in number of visits and visitor hours during this timeframe, with most of the increase occurring between 2008 and 2009. Recreation managers attribute the 2009 increase to two factors:

- The economic downturn resulting in greater active participation in lower-cost or free recreation amenities. One example is the observed increased use of city-operated golf courses, which are substantially less expensive than private amenities.
- New amenities, including the universally-accessible playground, and planned amenities scheduled to be added at or next to the Basin, including opening a Children's Museum, ranger station, and youth campground which generate additional interest in the Basin even though the amenities are not yet available.

Looking into the future, it is reasonable to assume that visitation would remain roughly stable at 2009 levels, at the most conservative projection, or grow at the projected rate of population increase of approximately 7% by 2020. Should the economic outlook remain poor, a more significant increase might be observed.

There are a number of regional-scale recreation amenities within a 30-mile service radius of the Basin that are also attractive destinations for area residents. The 30-mile service radius reflects the Corps guidance, see Appendix A, as well as related Los Angeles County level of service

standards for regional parks that indicate a 25-mile service radius. Appendix E, Map 15 illustrates regional amenities near the Basin. Map 12 also shows that the northern portion of the service area also encompasses the Angeles National Forest, as well as the San Gabriel Wilderness Area.

There are significant public land resources available to potential visitors. Table 4.2 illustrates the total park acreage within Los Angeles County. The range of recreation options within and adjacent to the County is very diverse and responds to a broad spectrum of recreation and leisure preferences. County-wide studies assessing future needs for recreation amenities are not presently available. The City of Los Angeles Department of Recreation and Parks completed a citywide community needs assessment in 2009. The objective of the City's needs assessment was to develop strategies to help prioritize and address the challenges the City faces in developing or planning for the provision of recreation amenities, such as:

- Acquiring additional recreation and park land and finding opportunities for the reuse of land already in the public domain.
- Updating existing recreation amenities requiring improvements.
- Preventing future maintenance problems through effective asset management of public amenities.
- Offering positive recreation alternatives to an increasingly dense and urbanized population.

The needs assessment included a comprehensive community outreach and input process that engaged community leaders, stakeholders and the public across the City through a series of one-on-one interviews, focus groups and community forums followed by a statistically valid, mail-phone citywide household survey of almost 3,000 residents. Key findings from this survey as summarized below help to inform the Corps' understanding of recreation needs and trends that may have an impact on amenities at Hansen Dam Basin (Figure 4.2).

Key findings from the City's needs assessment are summarized below.

Table 13.2 Acres of Recreation Lands in Los Angeles County

Acres of Recreational Lands in Los Angeles County

Acres (Using 2008 Thomas Brothers Map)	Park	Open Space	Beach	Ecological Preserve / Estuary	Fairground	Historical Park	Historical Point of Interest	Recreation Area	Wilderness Area	Wildlife Refuge	Zoo	Forest	Golf Course	TOTAL ACRES
City of Los Angeles	11,906		166	518			46	1,123		177	103		1,523	**15,562**
Other Cities in Los Angeles County	15,991	2,822		214		18	1	2,274	1,177	137			5,123	**27,757**
Los Angeles County	6,233	58	2,000	134		1,361		1,106		2,019			1,093	**14,441**
State of California	33,833		707	37	470			24,150						**58,727**
Private	57		0					3,271					5,486	**8,984**
Santa Monica Mountains Conservancy	17,519	4,993		870	170									**23,382**
Federal Government	1,516		0					4,366	35,410			645,496		**686,788**
Unknown	225												116	**341**
TOTAL ACRES	**87,280**	**7,873**	**2,873**	**1,773**	**640**	**1,346**	**47**	**36,290**	**36,587**	**2,333**	**103**	**645,496**	**13,341**	
ACRES PER 1000 PEOPLE IN THE CITY (Using 2006 Census Est. 9,948,081)	**Park**	**Open Space**	**Beach**	**Ecological Preserve / Estuary**	**Fairground**	**Historical Park**	**Historical Point of Interest**	**Recreation Area**	**Wilderness Area**	**Wildlife Refuge**	**Zoo**	**Forest**	**Golf Course**	**TOTAL ACRES**
City of Los Angeles	1.197	0.000	0.017	0.052	0.000	0.000	0.005	0.113	0.000	0.018	0.010	0.000	0.153	**1.564**
Other Cities in Los Angeles County	1.607	0.284	0.000	0.022	0.000	0.002	0.000	0.229	0.118	0.014	0.000	0.000	0.515	**2.790**
Los Angeles County	0.627	0.006	0.201	0.013	0.047	0.133	0.000	0.111	0.000	0.203	0.000	0.000	0.110	**1.452**
State of California	3.401	0.000	0.071	0.004	0.000	0.000	0.000	2.428	0.000	0.000	0.000	0.000	0.000	**5.903**
Private	0.006	0.000	0.000	0.000	0.017	0.000	0.000	0.329	0.000	0.000	0.000	0.000	0.551	**0.903**
Santa Monica Mountains Conservancy	1.761	0.502	0.000	0.087	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**2.350**
Federal Government	0.152	0.000	0.000	0.000	0.000	0.000	0.000	0.439	3.559	0.000	0.000	64.886	0.000	**69.037**
Unknown	0.023	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.012	**0.034**
TOTAL ACRES	**8.774**	**0.791**	**0.289**	**0.178**	**0.064**	**0.135**	**0.005**	**3.648**	**3.678**	**0.235**	**0.010**	**64.886**	**1.341**	**84.034**

Notes:

Population

2006 US Census estimate: 9,948,081(2000 census: 9,519,338)

Data Source

Thomas Brothers 2008 GIS map Layer TBM_LACO_OWNA

Processing

Data layer contained many types of areas. Areas NOT used: Airport, Museum Park, Cemetery, Civic Center, College/University, Hospital, Military, Miscalleneous, Movie Studio, Oil Refinery, Prison, Racetrack, Shopping Mall, Stadium/Arena. Data layer lacked juristriction. Data was compared to TBM's City Boundaries layer, LAEAP's own Parks layer, property names were inspecte; web sites were consulted. Best effort was made ot classify ownership of properties as shown in tables above.
Processed by Daniel Elroi, NorthSouth GIS, 9/10/08.

LARAP's Data

LARAP's own parks layers was NOT used, to help keep this analysis consistent, i.e. To use a single data source. However, the total acres derive from Thomas Brothers match LARAP's own total acres.
Acres per LARAP Parks layer: 15,565

- Unmet citizen needs exist for a wide range of parks, trails, outdoor and indoor amenities and programs. From a list of 30 various parks and recreation amenities, respondents were asked to indicate for which ones they and members of their household have a need. The parks and recreation amenities with the highest percentage of need from respondent households are: walking and biking trails (63%), small neighborhood parks (60%), large community and regional parks (53%), shelters and picnic areas (50%) and nature trails (46%). Interestingly, these are amenities that benefit a broad constituency, not just one or two user groups. The figure below summarizes the percentage of survey respondents indicating a need for each type of facility queried *(all figures taken directly from the Needs Assessment report)*.

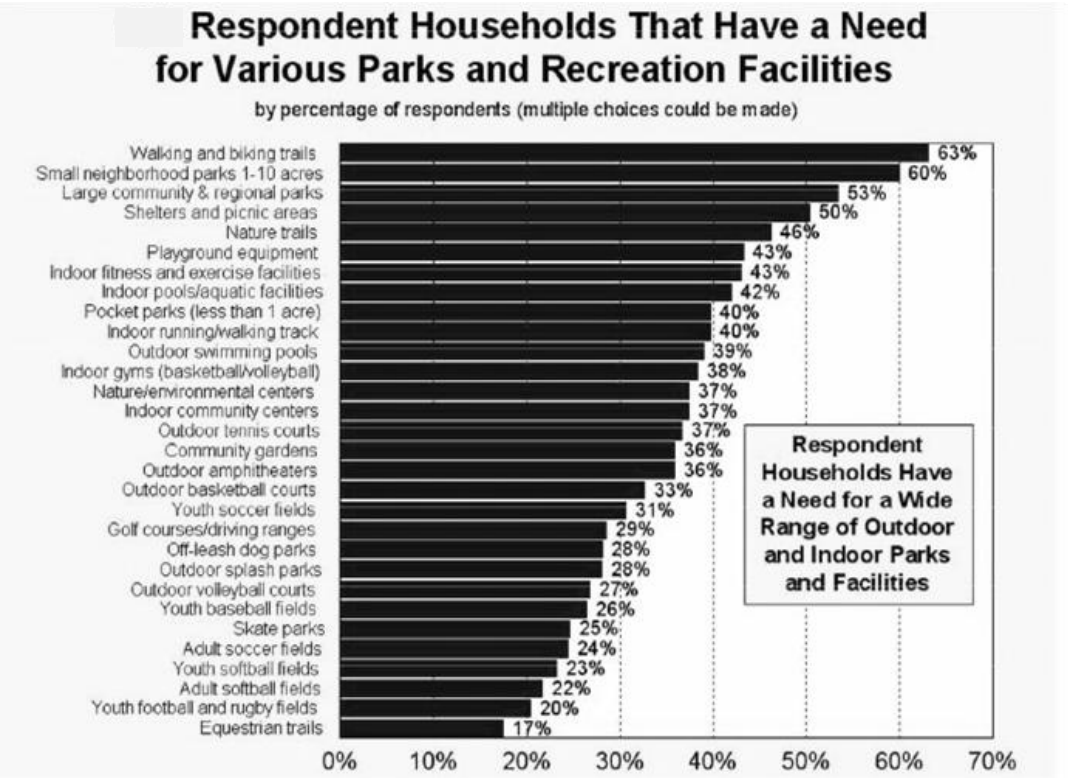


Figure 13.2 Respondent Households that Have a Need for Various Parks and Recreation Amenities

- From a list of 23 recreation programs, respondents were asked to select the four that they currently participate in the most often at the City of Los Angeles Recreation and Parks Department amenities. The programs that respondent households currently participate in most often at City amenities are: special events/festivals (8%) and youth sports programs (7%). It should also be noted that special events/festivals had the highest percentage of respondents select it as their first choice as the program they currently participate in most often at City amenities.

Assessment of State Future Trends

The trends described above, which emphasize low impact, low density recreation, are echoed in the California State Parks' 2008 California Outdoor Recreation Plan (CORP, California State Parks, 2009).

Californians tend to participate in activities that are less expensive, require less equipment, and need fewer technical skills. Californians' top 15 activities (by participation) were:

1. Walking for fitness or pleasure
2. Driving for pleasure, sightseeing, driving through natural scenery
3. Beach activities
4. Swimming in a pool
5. Day hiking on trails
6. Wildlife viewing, bird watching, viewing natural scenery
7. Jogging and running for exercise
8. Bicycling on paved surfaces
9. Outdoor photography
10. Using open turf areas
11. Using play equipment, play structures, tot-lots
12. Organized team sports such as soccer, football, baseball, softball, basketball
13. Fishing – freshwater
14. Bicycling on unpaved surfaces and trails
15. Surfing or boogie boarding, windsurfing

The most commonly used facility types included community/facility buildings, open spaces to play, picnic tables/pavilions, unpaved multipurpose trails and paved trails. Less than 20% of respondents reported using amusement (e.g., park train ride) areas, tennis or basketball courts, dog park areas, botanical gardens, or skate parks. The most common activities adult respondents participated in were:

- Walking (49%)
- Playing (30% - e.g., Frisbee, playing catch with a ball, kite flying, playing with children)
- Sedentary activities (24%)
- Eating/picnicking (24%)

Respondents participated the least in:

- Fishing (5%)
- Active water sports (4%)
- Tennis (2%)
- Martial arts/tai chi/yoga (<1%)
- In-line skating (<1%).

When asked which recreation activities they would like to participate in more often, the majority of adult respondents chose:

- Walking for fitness or pleasure (46%)
- Camping in developed sites with amenities such as toilets and tables (45%)
- Bicycling on paved surfaces (45%)
- Day hiking on trails (44%).

California Outdoor Recreation Plan 2008 Research suggests that this demand is from a variety of age groups including the Baby Boom generation, which continues to hike, mountain bike, kayak, and engage in other physically active, resource-based recreation. By contrast, golf and tennis are decreasing in popularity.

This state wide survey suggest a continuing future need for outdoor recreation walking/jogging/cycling paths, flexible open turf areas that are not necessarily dedicated to a particular type of programming, and opportunities for the occasional but perhaps transient high risk adventure sport.

City Projections of Potential Future Needs and Demands

The City of Los Angeles Recreation and Parks Recreation Managers provided their views on future needs and Basin utilization as well as issues and concerns related to facility crowding, carrying capacity, and long-term sustainability. Though no Basin-specific visitor surveys were conducted, recreation managers' observations help predict potential future needs and demands. Recreation managers for the City indicated that the most popular areas in the Basin are:

- The Sports Complex
- The Aquatics Center including fishing areas
- Hansen Dam Park, including the playground and trails. Trails on top of the Dam are very popular.
- Lake View Terrace
- Gabrielino Park
- The Golf Course

Recreation managers indicate that none of these areas are so heavily utilized as to suggest that future management actions may be required to address potential resource impacts associated with a large number of visitors. Demands for these amenities are highest on the weekends; during the week, demand is reasonable and readily managed.

Public demand is high for soccer, baseball, and for open turf fields that can support flexible programming and are not dedicated to one particular use. Recreation managers report that demands are high for these amenities throughout the City and not just within the immediate service area covered by the Basin.

Recreation managers were queried about visitor use patterns, movement between amenities, and needs for improved connectivity within the Basin, and from the Basin to adjacent neighborhoods. Use patterns tend to vary depending on the type of activity that a visitor engages in. For highly specialized activities/amenities, such as using the Sports Complex, visitors tend to go to the

activity venue, participate in the onsite activities, and then leave. Visitors participating in more generalized activities, including full day users, may move between Basin facilities. For example, some visitors may use the aquatic amenities and then visit the playground.

Recreation managers felt positively in regard to connectivity between amenities within the Basin and externally to adjacent neighborhoods. Recreation managers will look to improve connections before the Children's Museum opens, although it should be noted that the museum is not on Corps Basin land but accessible from it.

Recreation managers assessed the potential need for additional parking, restrooms, and related support amenities. No chronic parking issues were reported such as visitors parking on grass, or illegally on roadways that were viewed as requiring management actions. The overlook occasionally experiences issues in the early morning and later in the evening, and recreation managers are considering expanding the parking lot, more effectively delineating spaces, and providing curbs and bollards to keep visitors in designated areas.

Restrooms can face heavy pressure during highly attended events, such as the annual 4th of July celebration that drew an estimated 25,000 people in 2009. Additional amenities may be needed. Installation of portable restrooms in the short term may help alleviate this pressure.

Conclusions

Hansen Dam Basin provides a diverse array of recreation experiences, from "traditional" bat-and-ball active athletics, an aquatics facility with a zero depth entry pool, fishing amenities, a Universal Access Playground, multi-use trails, and a golf course. Additional amenities under construction include a youth campground, ranger station, and skate park.

Projected visitation at the Basin through 2020 is estimated to remain stable at 2009 levels, in the most conservative projection, or grow at a rate equal to or exceeding the projected population increase of approximately 7%. This growth in visitation suggests additional demands for active athletic playing fields, and lower impact amenities such as trails and picnic areas in response to desires for more "green breathing space".

Basin carrying capacity, which includes both an environmental dimension, "how much use can the resource support without being compromised?", and a social dimension "how much use can occur before the quality of visitor experience is diminished?", presently appears to be in balance. Since it is estimated that visitation will continue to increase, future land use development plans and studies will be required to account for population growth, balance recreational diversity, and accommodate new demands within a developed footprint in a manner that is environmentally and economically sustainable.

13.8 Existing Environmental Conditions

An EA has been prepared in conjunction with this Master Plan to comply with NEPA, other Federal laws, Executive Orders, and Corps' guidance. The EA describes the physical land resources, air quality, noise conditions, biological resources including Federally-threatened and

endangered species, cultural resources, hazardous and toxic wastes, socioeconomics, environmental justice, traffic and transportation, utilities, esthetics, recreation resources, public health and safety, and sustainability. Other information includes the environmental consequences of the Recommended Plan, consultation and coordination with interested parties.

4.9 Constraints

The primary constraint for land uses within the Basin is the periodic inundation of portions of the Basin for downstream flood risk management. Areas within the Basin have been identified according to topographic analysis reflecting the level of flood inundation, and activities and structures that may occur within each area of the Basin. Table 4.3, based on CESPD R 1110-2-1, provides the acceptable uses of each inundation category, including appropriate structure constraints and appropriate recreational or other uses.

The frequency, extent, and duration of flood inundation must be considered in the management and appropriate use of the Basin. As part of this updated Master Plan, the filling frequency curves have been recalculated and maps have been developed that illustrate flood stage elevations for the 10-, 50-, and 100-year floods. Appendix E, Map 16 illustrates locations of existing recreation amenities with flood line elevations.

Table 13.3 Minimum Criteria for Basin Land Use

Evaluation Frequency	Development Constraints	Acceptable Land Uses
Up to 10-yr flood	Subject to prolonged inundation, sedimentation, and wave erosion	Structures are not recommended. Natural trails and open play fields are acceptable.
10-yr flood to the 50-yr flood	Subject to frequent flooding, sedimentation, and wave erosion	Open or floodable structures and field amenities that can sustain inundation with acceptable maintenance cost. Concession stands with portable contents, bridle trails, shade and picnic armadas, backstops, goalposts, etc. are considered appropriate.
50-yr flood to the 100-yr flood	Subject to periodic flooding, sedimentation, and wave erosion	Floodable structures and multipurpose paved surfaces that can sustain inundation with acceptable maintenance cost. Floodable restrooms and picnic areas are considered appropriate.
100-yr flood to the Basin Design Flood	Subject to infrequent flooding, sedimentation, and wave erosion	Flood-proofed, closed structures are permitted. Structures conductive to human habitation are prohibited.

Topography

The topography within the Basin is relatively flat, (Map 14) and ranges from an elevation of 1,000 feet NGVD, 1929 at the outlet works to 1,100 NGVD, 1929 feet at the east end of the Basin in the vicinity of Big and Little Tujunga Washes Areas in the Basin suitable for future

recreation development are in the northwestern area of the Basin, which is relatively flat and above the 50-year flood elevation.

Wildlife Lake

Picnic Area

Connectivity and Accessibility

Connectivity and Access to the Basin Interstate 210 (Foothill Freeway) borders the northern edge of the Basin. The Basin is accessible from the 210 Freeway via the Osborne Street exit or Wheatland Ave. exit. From local streets the Basin is accessible from the Osborne Street, Dronfield Street, and Foothill Boulevard. Equestrians access the Basin from Little Tujunga Wash under Foothill Boulevard and the 210 Freeway. The Basin is serviced by Los Angeles County Metropolitan Authority (Metro) bus lines: 90, 91, 290, 166, 292, and 364; and City of Los Angeles Department of Transportation (LADOT) bus lines 409 and 419.

Accessibility and Connectivity within the Basin There are numerous parking lots throughout the Basin that provide access to the major amenities. Map 19 shows the location of recreation amenities and their associated parking lots and access points. Recreation amenities are located around the perimeter of the Basin minimizing recreational use impacts on the ecologically sensitive areas of the Basin.

Because the Basin is subject to inundation and sedimentation as a result of storm events, trails throughout the Basin are often washed out. These are seasonal, as trails are re-established by the equestrian community riding through the area.

Wildlife Corridors and Connectivity Habitat connectivity is an important factor for the health of fish and wildlife populations. Movement of species within or between areas of suitable habitat can be limited by the presence of barriers, which may limit the overall habitat range available.

There are two types of barriers: a barrier that is impassable under any circumstances for a particular species and a filter barrier, which may be utilized by a species under some

circumstances. For example, most small ground-dwelling species such as amphibians, reptiles, and small mammals will not pass or are reluctant to pass over a busy roadway, retaining walls, a large area with no vegetation, fences, or other physical barriers or through filters, and are therefore less mobile than other species. Fish barriers include low or no stream-flow, culverts, dams, concrete channels, felled trees and other natural and man-made obstacles. Large mammals and birds are less sensitive to barriers.

Tujunga Wash

The Basin is located near the San Gabriel Mountains, an area of relatively high biological diversity and abundance. The Basin is connected to the San Gabriel Mountains via the Big and Little Tujunga Washes, which pass beneath Interstate 210 and provide both an aquatic and terrestrial habitat corridor. Aquatic passage through this corridor is extremely limited due to normal low flows and the presence of the Dam. Terrestrial species are able to pass into the stream corridors from the Angeles National Forest and then into the Basin beneath Interstate 210.

The Basin is not connected to any other significant natural habitats. Movement in or out of the Basin is restricted by the Dam embankment, surrounding urbanization, and roadways. As a result, maintaining open and unrestricted passage within the stream corridors for both aquatic and terrestrial species is necessary to maintain the Basin's ecological diversity.

Maintenance

A constraint to new or changed development within the Basin can be the resources needed for adequate maintenance. During economic downturns when municipal revenues are reduced, City recreation department budgets may be reduced. By contrast, when budgets are adequately funded, finding and employing trained staff may be a challenge. Compounding this problem for recreation managers is the availability of funding for capital improvements but a lack of sufficient funding for ongoing maintenance. Consequently, construction of additional recreation amenities without additional operations and maintenance funding will stretch existing park maintenance resources.

When new amenities are proposed additional maintenance resources should be identified at the outset. If additional resources are not available to meet the additional needs, fees or volunteer services may be an alternative to address resource gaps.

5 RESOURCE OBJECTIVES

5.1 Resource Management

Resource management is moving towards an integrated ecological approach, as demonstrated by the changing guidance of the Federal government. In urbanized areas such as southern California, ecosystems and their various habitat communities have become severely restricted. With the surrounding environment so drastically altered, biodiversity (species richness) is reduced and landscape linkages are broken. Conservation and restoration require a redefined planning process. A Corps Master Plan must reflect the most current advances in restoration ecology and wildlife management in the context of the Corps mission, regulations, and guidance.

Science recognizes the need for habitat connectivity so that wildlife not only has the necessary space to roam, but also has genetic diversity to ensure that an "island effect" on species is not inadvertently created on remnant habitat lands. With species increasingly endangered or of special concern, objectives must consider habitat that is needed for species most at risk given current conditions at the Basin. Objectives must also anticipate changes that may alter this scenario in the future. Effective adaptive management techniques need to respond to current conditions as well as an unknown future. The following Resource Objectives are common to all land use classifications and incorporate the principles of Flood Risk Management, Safety and Security, Environmental Quality and Character, Connectivity, and Community Involvement,

5.2 Resource Objectives

Resource objectives are based on the input from stakeholders as well as Corps' guidance. Resource objectives apply to all lands managed by the Corps.

5.2.1 Flood Risk Management

The primary Project purpose is flood risk management. Flood risk management is the process of identifying, evaluating, selecting, implementing and monitoring actions to manage levels of flood risk. Land utilization for purposes other than flood risk management *must* be compatible and cannot compromise Project operations. The resource objectives for flood risk management apply to all land use classifications. Project Operations land are managed by the Corps for operations and maintenance of the Project including the Dam embankment, outlet works, spillway, access roads, and other needs associated with Project operations. In general, Project Operations land will be reserved exclusively for Corps operations unless the District Engineer finds that another use would be compatible with Corps operations and that permitting a secondary use would be in the interest of the government.

<u>Resource Objectives</u>

- Educate the public and stakeholders on flood risk awareness and safety issues.
- Promote installation of signage and interpretation to educate the public about the role of the Basin for flood risk management.

- Ensure that future land use proposals and activities are compatible with estimated levels and frequency of inundation, to ensure that the Dam can be operated without constraints that compromise downstream flood risk reduction.

Resources: EO 11988, ER 1165-2-26, ER 1110-2-240, ER 1130-2-530, EP 310-1-6a, CESPD R 1110-2-1.

5.2.2 Safety and Security

Safety includes not just safety from flood risk, but also physical safety for all persons while on federal lands. Affording persons the ability to survey one's surroundings; comprehend potential threats; report potential threats; and the ability to leave federal lands in the event of perceived danger are aspects of a safe and secure environment.

Resource Objectives

- Educate the public and stakeholders on flood risk awareness and safety issues.
- Install additional signage on any road traversing the Basin identifying that motorists are entering and/or exiting a flood-control basin.
- Ensure that infrastructure is properly maintained to avoid creating a public hazard.
- Provide means for visitors and emergency personnel to communicate quickly their specific location in the Basin.
- Safety features such as fencing, lighting, warning signs, and call boxes installed where needed and maintained.
- Maintain adequate patrols for safety.
- Design of amenities so that vandalism and other "illegal activities" are discouraged.
- Maintain a Basin safety plan that ensures that restricted areas, danger zones, and hazardous areas are clearly marked and if necessary, barricaded and closed.

Resources: EP 1130-2-550, EM 385-1-1.

5.2.3 Environmentally Quality

Environmental quality refers to the integrity and value of natural resources including land, water, air, noise, aesthetic, biological, and cultural resources. The conservation, preservation, and restoration of environmental resources are recognized as important to human welfare and quality of life. Through environmental legislation, Congress has emphasized protection and enrichment of environmental quality as priorities of the Government.

With increased urbanization throughout southern California, natural resources have become increasingly limited. The Basin provides a large open space within a densely populated urban area. Within the Basin, important natural habitats provide refuge for endangered species and species of special concern. Where practicable, these habitats should be managed or restored for protection and conservation of the species.

The impacts of climate change expected during this century will impact storm and flooding frequency and duration, availability and quality of water, wild fires, ecosystem functions, and energy production and demand. To minimize future impacts, stakeholders must be ready to develop, implement, and assess adjustments or changes in operations and maintenance to enhance resilience or reduce vulnerability to systems and programs. Energy is a key component in reducing the impacts of climate change. Energy saving measures should be implemented and new development constructed in accordance with green building principles.

Resource Objectives

- Encourage uses, activities, management practices, and future development that conserve natural and cultural resources.
- Preserve areas containing unique, sensitive and/or significant resources to minimize disturbance so the integrity and values will not be adversely impacted by other uses, management practices, or developments within the Basin.
- Discourage uses in natural lands or open spaces that deteriorate environmental quality and provide environmental compensation for land uses that adversely affect the natural resources of an area that cannot be prevented.
- Design site, operation of facilities, and activities to avoid or minimize adverse environmental impacts per Corps' guidelines and design criteria.
- Promote use of appropriate native plant palettes in new landscaping or when rehabilitating established landscaped areas to maximize biodiversity and reduce soil erosion.
- Preserve areas of vegetation that have a cultural and/or social significance.
- Minimize conflicts between land uses, activities, and developments through buffering, screening, and other measures
- Promote land uses and activities that minimize impacts to global climate change.
- Use adaptive management to respond to changing conditions due to climate change.
- Encourage use of reclaimed water for irrigation of recreation amenities.
- Promote traffic plans that would minimize generating pollution within the Basin
- Encourage new development to be consistent with green building principles.
- Encourage sustainable design.
- Encourage new buildings achieve a Leadership in Energy & Environmental Design (LEED®) Silver or higher rating.
- Determine suitability of natural areas for either wildlife habitat or recreation before changing land use classifications.

Resources: North American Wetlands Protection Act, Aesthetic and Scenic Quality § 232 of WRDA 1996, Endangered Species Act, National Historic Preservation Act as amended, Clean Air Act, Noise Control Act, Clean Water Act, Environmental and Economic Benefits of Landscape Practices on Federal Landscaped Grounds, EO 13186 Federal Responsibilities to Protect Migratory Bird Act, EO on Federal Leadership in Environmental, Energy and Economic Performance, ER 1130-2-540.

5.2.4 Recreation

There is a critical shortage of open space within urbanized southern California. The goal is to provide quality recreation experiences including an accessible, safe and healthful environment, a

diversity of recreation opportunities for a diverse cultural community, and maintain a harmonious balance between the natural resources of the Basin and the community's needs and desires. ER 1130-2-550 states that the primary rationale for any future recreation development must be dependent on a project's natural or other resources. Previously approved development plans for land currently outgranted for recreation are grandfathered under this regulation.

Resource Objectives

- Encourage community participation in expressing needs and desires to identify future development proposals.
- Optimize design of recreation amenities and access to minimize conflicts between activities and natural resources.
- Respect landscapes of significant and/or cultural value.

Resources: 16USC 460d, ER 1165-2-550, EP 1165-2-550

5.2.5 Connectivity

This resource places value on the movement of people between facilities in the Basin to maximize public benefit and also to minimize environmental degradation. Movement of people in, out, and around the Basin must consider various modes of transportation, individual mobility, the need for safety and to quickly evacuate during a flood event.

Resource Objectives

- Encourage identification and connection with regional trail systems and eliminate impediments to trail connections within the Basin.
- Promote safe and efficient circulation and access to the Basin's recreation facilities to control traffic and provide a link between activities within the Basin.
- Minimize impacts on natural resources by locating similar amenities near vehicular access points.
- Encourage circulation and traffic plans for optimal use of public transportation to and within the Basin.

Resources: NTSA, Trails for America in the 21st Century Act (16 USC 1245).

5.2.6 Ecosystem Restoration

Natural creeks are an integral wildlife corridor within the region. Within the Basin several tributaries of the Los Angeles River carry local run-off through the Basin to the river. With urbanization these creeks have become degraded, reducing wildlife connectivity, losing habitat value, and reducing water quality.

Resource Objectives

- Encourage the restoration of creeks and streams for safe corridors for wildlife movement.

- Restore wildlife habitat diversity and value.

Resources: North American Wetlands Protection Act, Endangered Species Act, EO 13186 Federal Responsibilities to Protect Migratory Bird Act.

5.2.7 Cultural Resources

Cultural resources play an important role in preserving the nation's heritage and history. Nature centers and interpretative panels can safely display artifacts and interpret the history of a site, while ensuring the protection of identified sites for future generations.

Resource Objectives

- Promote preservation and protection of historic and cultural sites within the Basin.
- Encourage education and interpretation aspects of cultural sites.

Resources: National Historic Preservation Act, Archeological Resources Preservation Act.

5.2.8 Community Involvement

Encourage the local community to become partners with Basin stakeholders (i.e. City) and the Corps as Basin stewards. Creating a sense of ownership empowers the local community to play an active role in future development by indentifying problems, participating in volunteer programs, identifying and protecting resources, and educating the general public about these resources.

Resource Objectives

- Volunteer programs for education and interpretation, clean-up and restoration activities, and safe accessibility of the Basin.
- Maintain communication channels among Basin users, lessees, and the Corps on the public's needs and desires, future development, and problems and opportunities within the Basin.

Resources: NEPA (42 USC 4321 et seq.), EP 1130-2-550.

6 LAND USE CLASSIFICATION AND RESOURCE PLAN RECOMMENDATIONS

6.1 Recommended Land Use Classifications

The recommended land use classifications proposed in this Master Plan include: Project Operations, Recreation, Environmentally Sensitive, and Multiple Resource Management - Recreation - Low Density, Multiple Resource Management - Vegetative Management, and Multiple Resource Management - Inactive and/or Future Recreation.

Nationwide regulations and policies are outlined in Chapter 16, ER 1130-2-550 and the "Non-Recreation Outgrant Policy." The South Pacific Division of the Corps issued SPD Regulation 1110-2-1, "Land Development Proposals at Corps Reservoir Projects," to clarify acceptable guidelines for development proposals. The Corps has prepared additional guidance regarding appropriate uses within each land use classification. This guidance is intended to clarify to the stakeholders and the public what activities/events are compatible with resource goals and objectives described in Section 5 and in accordance with Corps guidance and regulations on outgranted lands.

Maps 21 and 22 illustrate recreational and restoration opportunities and are discussed in the Environmentally Sensitive, MRM Vegetative Management, and Inactive and/or Future Recreation classifications.

6.2 Recommended Actions Applicable to All Land Use Classifications

A number of recommended actions are applicable to all land use classifications. These include:

- Improve condition of existing trails and create new trails where appropriate. Improvement of hiking trails and other designated use trails in conjunction with other restoration measures would increase public access and awareness of the biological and other natural resources in the Basin.
    - These improvements should incorporate ecosystem restoration efforts and appropriate design and management to enhance the visitor's experience while not compromising the greater ecosystem.
- Implement policy of landscaping with indigenous native plants. Identify a plant palette of indigenous native plants to use in landscaping new recreation areas and replace non-native plant material with native plants over time except where provided in association with a specific cultural, historical, or recreation experience.
    - Eradicate invasive exotic species, including but not limited to giant reed (*Arundo donax*), consistent with nationwide policy (EO 13112). Educate the public on the significance of the need for eradication and how action would substantially enhance the natural environment throughout the Basin. Through an Adaptive Habitat Management Plan (AHMP) an invasive species eradication program should be implemented to restore native plant communities. Through the AHMP process with interested stakeholders, create a short-term and long-range plan for plant

replacement that seamlessly integrates native plants over time in the existing landscape.

- Recognize that the existing ornamental and turf landscape requires more water than the native plants that may replace them, and adjust irrigation practices as needed.
- If and when it becomes necessary to replace whole sections of the landscape with native plants ensure the successful establishment of the native plants by having compatible needs.
- Institute a system of way-finding using Corps signage guidelines (EP 310-1-6a, 01Jun 06) so that the public and emergency personnel are able to easily navigate the Basin.
- Combine a system of GPS with trail markers to positively identify locations in the Basin.
- Create signs to be placed throughout the Basin that identifies current locations of visitors as well as other amenities in the Basin.
- Indicate on signs where park personnel can be reached in case of emergencies.
- Install signs that indicate length and physical difficulty of trails and estimated walking/hiking times. Institute sustainable resource management practices consistent with those already instated by the City.
- Continue green waste management policies for recycling of lawn clippings, shrub and tree trimmings and green debris, either on site or for composting off site.
- Implement additional "smart irrigation" systems throughout the Basin with satellite-operated controllers that monitor weather conditions and adjust irrigation schedules accordingly. Create an education program to demonstrate how this can be adapted for residential landscapes.
- When replacing irrigation systems, identify zones with similar watering regimes and retrofit to meet these needs; avoid planting schemes where water requirements may be incompatible.
- Regularly evaluate the salinity of soils irrigated with recycled water and balance soil amendment practices to sustain habitat or landscape value.
- Develop a program to manage and recycle construction waste and provide incentives and recognition for lessees and contractors who adopt it per EO 13514. Identify a "green list" of contractors who have implemented strong recycling programs and encourage their participation in future projects.
- Retrofit pavement projects with the use of porous pavement alternatives where appropriate to allow for the infiltration of storm-water.
- Implement landscape-based storm-water management systems, such as bio-swales, rain gardens and infiltration areas in retrofits and new construction projects.
- Naturalize edges of stream channels and paved surfaces wherever feasible to provide a buffer and cover for wildlife, prevent erosion, and intercept sediment and nutrients from runoff.
- Develop an Integrated Pest Management program that uses alternatives to chemical fertilizers and pesticides.
- Use low-voltage solar lighting where feasible.
- Identify potential heat islands and provide landscape-based mitigation to furnish shade and evapo-transpiration.

6.3 Recommendations Applicable to Individual Land Use Classifications

6.3.1 Project Operations

Land classified as Project Operations covers 197.8 acres, including 35.1 acres of roadways within the Basin. The classification of land as Project Operations has been expanded to the Dam embankment as well as the Dam outlet works and spillway structures.

Project Operations land is the most restrictive land use classification. This area is managed by the Corps. While vegetation or trails may be permitted within Project Operations areas, vegetation may need to be cleared out periodically to maintain flood storage capacity, trails may need to be closed off quickly in the event of eminent flooding, and trails may be closed following a storm event due to damage caused by inundation.

Project Operations

Information about flood risk management and the Dam operations could be provided at the parking lot on Osborne Street adjacent to the top of the Dam.

Recreation

A total of 229.9 acres is recommended for classification into the Recreation category.

The land use classification of Recreation is the most flexible or developable classification. This classification allows for amenities such as sports fields and associated support amenities including parking lots, restrooms, concessionaires and other amenities. Recreation areas are generally located in areas of higher elevations in the Basin as Corps policy restricts structures within given flood-line elevations or they must be mitigated for by being floodable. Requests for development for non-recreational purposes must be evaluated on a site-specific basis for compatibility.

The Recreation classification includes many of the current recreation amenities and uses in the Basin. These amenities are very popular and well-maintained by the City. The City does not have any immediate plans to change these uses. The areas included for recommendation into this classification include:

- Hansen Dam Park
- Hansen Dam Aquatic Center
- Sports Complex
- Lake View Terrace Recreation Center
- Orcas Gabrielino Equestrian Center
- Pacoima Little League Baseball Fields
- Hansen Dam Equestrian Center
- Ranger Station

At the Orcas Gabrielino and Hansen Dam Equestrian Centers it is recommended that an overall plan for BMPs for water quality be implemented for the entire facility to include the placement and structure of wash-down amenities, manure management, dust control, and integrated pest management.

The Pacoima Little League Fields are in need of rehabilitation. These fields are in poor condition. There is visible trash, vandalism, bent and broken benches, and rusted chain link fencing. There are only portable toilets and "dugouts" are extremely small and in poor condition. This facility should receive grass rejuvenation, new fencing, new dugouts, new signage, and permanent restrooms, preferably with locker rooms. Landscaping should utilize a native plant palette including areas that provide shade cover.

A Ranger Station in the northwestern portion of the Basin adjacent to Osborne Street is currently under construction. The Ranger Station would serve as an office for park staff and a visitors' center and have parking and landscaping. The Ranger Station is to be built with City funding.

Pacoima Little League Fields

Future Ranger Station Site

Environmentally Sensitive

A total of 721.2 acres is recommended for this land use classification which was designated as Environmentally Sensitive and Recreation in the 1991 Master Plan.

This is the most protected category of land use classification for vegetation, wildlife, and cultural resources. It is recommended that the areas under this classification include lands surrounding Big and Little Tujunga Wash and the wildlife lake. The endangered least Bell's vireo and coastal California gnatcatcher have been observed in this area (see Map 18) as well as the San Fernando Valley spineflower and the Santa Ana sucker. This classification would severely restrict activities and use of the area. It would provide a high level of protection of the area to preserve the habitat value for resident species and is compatible with Corps environmental stewardship policies and reflects community desires for protection of wildlife habitat. Activities such as hiking, bird watching, and photography are permitted under Corps guidance. Unpaved trails transect the area and are used by equestrians and are accessible from a number of areas within the Basin (see Map 19).

Several areas are degraded and it is recommended that these be restored, specifically the area west of Little Tujunga Wash, south of the 210 Freeway. A large patch of *Arundo donax* as indicated on Map 17, should be removed as it has the potential to spread throughout the Basin.

The area east of the Equestrian Center is currently ornamental trees and maintained lawn. It is recommended that this area be converted to the mixed sage scrub that surrounds it. It will also be important to watch for infestations of non-native plants throughout the entire area and take steps to quickly remove them in order to preserve as high a quality habitat as possible.

MRM – Recreation – Low Density

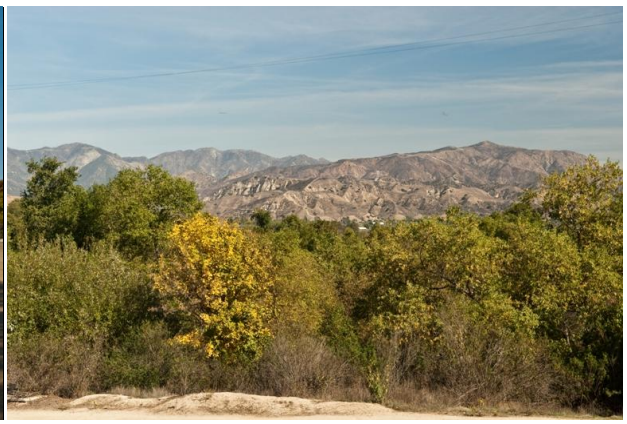
Approxemately273 acres are recommended for this land use classification. The areas proposed for this classification include the youth campground, several open "play" areas and the Hansen Dam Golf Course.

The classification of MRM – Recreation – Low Density recognizes areas that have less intensive recreation uses such as picnic areas and open play areas. Special events may be permitted in these areas on a case by case basis and must be compatible with the surrounding area to limit impacts to adjacent areas. Special events must comply with guidelines established by the Corps included in Appendix A-5, Special Events Policy.

The youth campground is located in the southwestern area of the Basin adjacent to the Dam. The camping area will consist of six tent pads, a concrete slab for a dining tent, restroom amenities, a sewer pump station, and sewer and water lines. The campground is cost shared by the Corps and the City. Recommendations for future improvements of the campground include installing interpretive signs about the natural history of the area and watershed. The City has incorporates many sustainable practices into the management of its golf courses. These practices include:

- Smart irrigation
- Mulching lawnmowers that keep grass clippings in place
- Green waste taken to Griffith Park and composted.

Site of Future Campground



View from Future Campground

The use of recycled water is proposed at the Basin through construction of water lines from the Donald C. Tillman Water Treatment Plant in Sepulveda Dam Basin. It is recommended that the

City undertake an environmental audit of golf course maintenance practices. Factors to be considered in an audit would include an investigation of quantities of herbicides, pesticides, fungicides, and fertilizers applied and trash disposal of ancillary operations such as the restaurant. With this information, steps can be taken to reduce the environmental impacts through implementation of Integrated Pest Management (IPM) practices and improved recycling.

MRM – Vegetative Management

A total of 10.2 acres is recommended for this land use classification.

Given its current condition, its proximity to active recreation and road, yet adjacent to the Environmentally Sensitive area, this land use classification is most appropriate designation.

6.3.6 MRM – Inactive and/or Future Recreation

Approximately 25 acres is recommended for this land use classification.

MRM – Inactive and/or Future Recreation areas include those areas that may be empty open space (including dirt lots for overflow parking) or utilized on an interim basis, such as for agriculture or special events. Careful consideration should be given to how lands classified as MRM – Inactive and/or Future Recreation are developed. Once a recreation use is established with the attendant capital investment and established user group, a change to a different use in the future may be extremely difficult. The areas recommended for this classification are shown on Map 20.

6.3.7 Easement Land

A total of 45.9 acres are private lands encumbered by Federal government flowage easements. There are no recommendations for this land use classification. The Corps retains limited jurisdiction over easement lands.

6.4 Timeline of Resource Plan Recommendations

The tables below summarize the recommendations discussed above in Section 6.2 according to their timeline for implementation.

Table 6.1 Recommended Actions for Improvement and Management Throughout Basin
Recommended Immediate Measures

Table 6.2 Recommended Future Measures

Action	Associated Measures
(1) Immediate Recommended Measures	
Native Plant Landscaping and Exotic Plant Removal	• Institute exotic plant eradication program for species such as giant reed, tree tobacco, castor bean, salt cedar must be developed in conjunction with the AHMP. A system of replacing non-natives with native species should be implemented.
Install Wayfinding	• Create a system of signage throughout the Basin that enables visitors to identify their location as well as other amenities in the Basin. Indicate on signs location of park personnel in case of emergencies, as well as emergency phone numbers. • Where practicable, install signs that indicate length and physical difficulty of trails and estimated walking/hiking times. • Combine a system of GPS with trail markers to identify locations.
Trail Improvement	• Enhance hiking trails and other low-density recreational features in conjunction with restoration management measures would increase accessibility to the public and facilitate more awareness of the biological resources found in the Basin. • Connect trails to create loops and facilitate movement throughout Basin. • Decommission disturbed trails and unofficial trails created by Basin visitors. • Structure trails to discourage homeless encampments.
Implement Sustainable Resources Management	• Employ green waste management, smart irrigation, and BMPs • Develop an Integrated Pest Management (IPM) program for golf course. • Use low voltage solar lighting and other energy saving utilities and measures. • Proper management of special events to eliminate closures of park amenities or impacts to environmentally sensitive areas. • Manage fugitive dust at denuded lots. • Manage special events to ensure no inappropriate use of Environmentally Sensitive and MRM- Vegetative Management Areas.
(2) Potential Immediate or Future Actions Specific to Land Use Classification	
Project Operations	• Include education about flood risk management and the operations of the Dam in interpretive signage.
Recreation	• Develop BMPs for implementation at the Orcas-Gabrielino and Hansen Dam Equestrian Centers • Rehabilitate and improve the Pacoima Little League Fields
Environmentally Sensitive	• Include education about flood risk management and the operations of the Dam in interpretive signage. • Restore native upland, riparian, riverine, and wetland habitats. • Conduct periodic biological surveys, particularly to determine presence in Basin of Federally protected species. • Manage trails and vegetation to limit homeless camps.
MRM – Recreation – Low Density	• Install signage with educational information regarding the Dam and watershed.
MRM – Vegetative Management	• Restore wetland areas.
MRM – Inactive and/or Future Recreation	• Investigate potential for development of model airplane field for electric planes.

6.5 Economic Feasibility

Economic feasibility involves demonstrating the economic value of implementing recreation development plans that are sustainable over time in terms of public needs and desires, use and perception, and operation and maintenance. It is recognized that well maintained recreation amenities are well used and those that are not have little interest from the public and are often considered unclean and/or unsafe and decline further. When this happens, it often costs more to refurbish and rehabilitate amenities or implement new ones than providing a carefully constructed operations and maintenance program.

While no specific plans are considered under this updated Master Plan, future plans proposed for recreation development are guided by Corps policies and guidelines for demonstrating the need and economic feasibility of such proposals. This includes documenting financial capability on the part of the proponent, sufficient funding to complete the proposal, as well as long term operation, maintenance, and repair. The proponent must also show the economic need for the project by providing market survey information to indicate community desire and the need for the project to indicate its future community use and intrinsic value.

If a proponent is not able to provide funding through normal budgetary means to maintain quality and use to a safe and clean standard, funds for operation and maintenance may need to be found elsewhere. This may involve the charging of use fees for certain activities such as ball fields, group reservations and special events (fees are subject to District Commander approval). Other sources include state and local funding sources, trusts, and private organizations to help defray costs. Public volunteer programs to staff amenities such as nature areas and visitor center could be pursued.

7 CONCLUSION

The Federal government owns and the Corps manages eleven Basins in southern California with the primary purpose of flood risk management. Since the Basins are "dry" most of the year, holding water only after storm events occur (usually December through March), the Basin may also be used for other purposes, primarily recreation that may not impede Project operations. Over sixty (60) years of Federal laws and regulations have empowered the Corps to work with local interests to develop, construct, operate, and maintain recreation amenities within the Basins serving community needs.

The Corps leased to the City of Los Angeles through its Department of Recreation and Parks a significant portion of land in the Basin to the City for recreation purposes. Over the last fifty (50) years the Corps and the City have developed a variety of recreation amenities with Federal and City funds through cost sharing agreements. Amenities include ball fields, picnic areas, trails, and lakes. The City has also independently developed recreation amenities.

The Master Plan is a tool for the Corps, stakeholders, and public interests to guide future development in the Basin. Corps regulations and policies guide the development of amenities through the Master Plan. This Master Plan is an update of the last Master Plan for Sepulveda Dam Basin completed in 1981. Although Corps regulations recommend the update of a Master Plan every five (5) years, Federal funding is not always available to initiate and complete this process. As a result, this Master Plan incorporates a longer time frame into it, identifying short and long term recommendations for recreation development, amenity maintenance, restoration of native habitats, and other actions. This has been accomplished through a process which has:

- Identified existing recreation amenities and other facilities within the Basin,
- Incorporated the local community's needs and desires for recreation development,
- Developed resource goals and objectives, and
- Developed additional policies to facilitate these goals and objectives.

As a result, this Master Plan identifies land use classifications for the Basin based on this process within the definitions of Corps regulations. This will guide interested parties for future development through years to come to preserve and protect the Nation's lands and resources.

8 APPROVAL

I have reviewed this Updated Master Plan and Environmental Assessment for Hansen Dam Basin prepared by my staff for the guidance of future development for recreation and environmental stewardship efforts within the Hansen Dam Basin located in the City of Los Angeles, Los Angeles County, California in keeping with the Corps' mission, values and vision.

This Master Plan is technically sound, environmentally acceptable, and meets the appropriate requirements of Corps' regulations guiding the development of Master Plans for Corps' water and land resource projects.

Therefore, I approve this Master Plan for Hansen Dam Basin as presented, subject to updates as needed for the benefit of flood risk management, public use, and environmental stewardship.

28 SEP 2011
Date

R. Mark Toy, P.E.
Colonel, US Army
Commander and District Engineer

9 ACRONYMS AND GLOSSARY

ac-ft	acre-feet
ARRA	American Recovery and Reinvestment Act
BMP	Best management practices
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
Corps	U.S. Army Corps of Engineers
CWA	Clean Water Act
dB	Decibels
DSAC	Dam Safety Action Classes
EA	Environmental Assessment
EC	Engineering Circular
EIS	Environmental Impact Statement
EM	Engineer Manuals
EO	Executive Order
EP	Engineer Pamphlets
EPA	Environmental Protection Agency
ER	Engineer Regulations
FCA	Flood Control Acts
FONSI	Finding of No Significant Impact
LACDA	Los Angeles County Drainage Area
MP	Master Plan
MRM	Multiple resource management
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
P.L.	Public Law
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SPD	South Pacific Division
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
WRDA	Water Resources Development Act

Abutment A geological feature that each end of a Dam is tied into for support.

Archaeological resources Surface or buried material remains, buried structures, or other items used or modified by people.

Basin Land area comprised of all Federal lands managed by the Corps that were acquired for the construction, operation and maintenance of the Whittier Narrows Dam Basin.

Channel Portion of the project carrying flow may be described as: natural, constructed, riprapped, concrete, trapexoidal, leveed, overbank, low flow, bypass etc.

Dam Barrier built to hold back flowing water.

Discharge Volume of water that passes through a given cross-section per unit time; commonly measured in cubic feet per second (cfs) or cubic meters per second (m3/s); also referred to as flow. In its simplest concept discharge means outflow; therefore, the use of this term is not restricted as to course or location, and it can be applied to describe the flow of water from a pipe or from a drainage basin.

Drainage area Area of a stream at a specified location is that area, measured in a horizontal plane, which is enclosed by a drainage divide.

Easement Lands Land over which the Federal government acquired an interest in real estate to support construction, operation and/or maintenance of the project. Not equivalent to fee title.

Ecosystem Management An ecosystem is a dynamic community of biological organisms, including humans, and the physical environment in which they interact. Ecosystem management by the Corps is a proactive, goal-driven approach to sustaining ecosystems and their values. The Corps will manage communities to promote regional environmental values occurring on project lands toward sustaining ecosystems in which the project lands and waters occur. Such ecosystems and communities will be identified in resources objectives and/or land use classifications contained in the Master Plan and the OMP. Preferential treatment will be given to the management of ecosystems, communities, and habitats identified as having special status species. (ER 1130-2-540 15 Nov 96 2-2 f. (1)(a))

Embankment Bank of earth, concrete, or other material constructed to hold back water.

Endangered Species Any species which is in danger of extinction throughout all or a significant portion of its range, and has been so listed by the FWS/NMFS at 50 CFR 17.11 and 17.12.

Enhancement Enhancement measures/activities are those measures/activities taken above a stewardship level (i.e., level of required to sustain fish and wildlife resources for the life of the project), and those measures/activities which produce an increase or concentration of animal numbers for the purpose of recreation benefits. Historically the term “enhancement” has been used an indication of a net habitat improvement over the without project condition. However, this term now implies making the habitat better for some species than it would have been naturally in the absence of human intervention. Since this goes beyond the goal of ecosystem restoration, the use of the term, enhancement is rarely appropriate in Corps documents.

Flood Risk Management Flood risk management is the process of identifying, evaluating, selecting, implementing, and monitoring actions taken to mitigate levels of risk. Scientifically sound, cost-effective, integrated actions are taken to reduce risks. Social, cultural, ethical, environmental, political, and legal considerations are accounted for in the process.

Floodplain The lowland that borders a river, usually dry but subject to flooding.

Groundwater Water in the ground that is in the zone of saturation, from which wells, springs, and groundwater runoff are supplied.

Historic archaeological resources Archaeological sites whose deposits that post-date European contact.

Interpretive Services Communication and education processes provided to internal and external audiences which support accomplishment of Corps missions, tell the Corps story, and reveal the meanings of, and relationships between natural, cultural, and created environments and their features.

Invasive Species A species whose introduction does or is likely to cause economic or environmental harm or harm to human health. A species that is non-native to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Invert As used in hydraulic engineering, the bottom or lowest point or elevation of a structure such as a pipe, conduit or channel.

Land Allocation The identification and documentation of lands at Civil Works projects in accordance with the authorized purposes for which they were or are to be acquired. There are four primary land allocation categories applicable to Corps projects: (1) operations (i.e., flood control, hydropower, etc.), (2) recreation, (3) fish and wildlife, and (4) mitigation.

Land use classifications All lands are acquired for authorized project purposes and allocated for these uses. The classification process is a further distribution of project lands by management categories, which based upon resources available and public needs, will provide for full utilization while protecting project resources. (EP 1130-2-550 15 Nov 96 1-4.d.)

Market Area The geographic range that people are expected to reasonably travel from to visit the Basin area.

Master Plan A conceptual document guiding the Corps responsibilities pursuant to Federal laws and regulations to preserve, conserve, restore, maintain, and manage the project lands, waters, and associated resources. The plan addresses all resources including but not limited to fish and wildlife, vegetation, cultural, esthetic, interpretive, recreation, mineral, commercial, and outgranted lands, easements and water. The Master Plan is the document that organizes authorized activities, i.e., established by project specific authorities as well as general authorities for stewardship responsibilities which guide the project's role within the region, watershed, and ecosystem.

Mitigation Mitigation measures authorized by Congress or approved by Headquarters compensate for ecological resources unavoidably and adversely affected by a Corps project. Mitigation includes stand-alone projects; work undertaken concurrently with project construction; and operation, maintenance and management measures. (ER 1130-2-540 15 Nov 96 2-2 (6)(b)

Multiple Resource Management Lands managed for one or more of, but not limited to, these activities to the extent that they are compatible with the primary allocation(s). The activities should be fully explained in the narrative portion of the Master Plan.

Native Species With respect to a particular ecosystem, a species that other than as a result of an introduction, historically occurred or currently occurs in that ecosystem.

Non-statutory Mitigation The definition of mitigation is broadened to include "all measures necessary to make the Corps project whole." No specific statute may address these actions, yet damages are incurred and appropriate mitigation should be provided. Non-statutory mitigation actions may take the form of actions to restore project value, such as replacing trees, soil stabilization, and providing new, relocated, or replacement amenities.

Outgrant Authorizes a non-Federal entity the right to use Army-controlled real property. It is a written legal document that established the timeframe, consideration, conditions, and restrictions on the use of Army property.

Outlet works The hydraulic structure that controls the flow of water through a dam, usually consisting gates upstream of a lined conduit or pipe.

Outreach Activities Communication efforts involving programs that reach diverse populations such as students, teachers, organized groups such as Boy Scouts, Girl Scouts, 4-H, and the general public, beyond the physical boundaries of Corps projects and amenities.

Planning Area The planning area is a geographic space with an identified boundary that includes the area identified in the study authorizing document and the location of alternative plans which are often called project areas. The locations of resources that would be directly, indirectly or cumulatively affected by alternative plans are also called the affected area.

Recreation – Low Density Recreation activities such as hiking, primitive camping, wildlife observation, hunting, or similar low density recreation activities.

Recreation Land developed for intensive recreation activities by the visiting public, including developed recreation areas and areas for concession, resort, and quasi-public development. At new project, recreation areas planned for initial development will be included in this classification. Future areas will be classified as multiple resource management until initiation of the development.

Resource Objectives Clearly written statements that are specific to a project or group of projects. They specify the attainable options for resource development and/or management. They must be consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and expressed public desires.

Special Event Special events at Corps' Basins such as water carnivals, fishing tournaments, boat regattas, music festivals, dramatic presentations, and other special recreation program of interest to the general public.

Spillway Hydraulic structure whose purpose is to bypass flow that exceeds the storage and/or release capacity of a dam.

Stewardship Natural resources management through a stewardship concept ensures the conservation, preservation, or protection of those resources for present and future generations. Stewardship focuses on sustaining ecosystems. Stewardship shall be applied in a biological community context, thereby providing protection for the existing species populations, communities, habitat types and ecosystems.

Traditional cultural properties Places associated with the cultural practices or beliefs of a living community. The significance of these places sites is derived from the role the property plays in a community's cultural identity as defined by its beliefs, practices, history and social institutions.

Watershed An area characterized by all direct runoff being conveyed to the same outlet. Similar terms include basin, drainage basin, catchment, and catch basin. A part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

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