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OUTGRANT POLICIES

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APPENDIX A1-A7: OUTGRANT POLICIES

An outgrant is a written legal document that establishes the timeframe, consideration, conditions, and restrictions on the use of Corps property. An outgrant is typically a lease or license and authorizes the right to use Corps-controlled real property.

The Corps granted a lease of 1,351.8 acres within Hansen Dam Basin for recreation purposes to the City of Los Angeles (City) for a term of 50 years commencing on 21 January 1969 and terminating on 20 January 2019. On 16 August 1972, Supplement 1to the lease was executed which increased the lease by 3.5 acres by adding a parcel that was no longer required by the 6th U. S. Army as a site for a U. S. Army Reserve Center. This increased the total leased acreage to approximately 1,355.3 acres. On 4 June 1974, Supplement 2 was signed which added 0.09 acres to the lease for a parcel that the City of Los Angeles Department of Water and Power no longer needed. This increased the total leased acreage to 1,355.4 acres. A third supplemental agreement to the lease was executed 24 September 2002, which changed the period of the lease to the City from 50 years to 75 years, with a new termination date of 20 January 2044.

In addition to applicable statutes, regulations, and guidelines, the most recent Corps policies for outgrants are described in memoranda and Engineering Regulations (ER) publications. ER 1130-2-550 dated 9 March 2009 provides the "Recreation Development Policy for Outgranted Corps Land." On 30 March 2009 the memorandum, "Non-Recreation Outgrant Policy," was issued. The South Pacific Division issued SPD Regulation 1110-2-1, "Land Development Proposals at Corps Reservoir Projects" on 18 December 2001. It established SPD policy and procedures including checklists and diagrams the districts must use in evaluating land development proposals at Corps Basins within the SPD.

The purpose of these publications was to establish consistent nationwide criteria to evaluate proposals on Corps Civil Works water resources projects. These policies were developed jointly by the Real Estate and Operations Communities of Practice. Because these memoranda establish policies for proposed development, they are included as part of Appendix A.

APPENDIX A1: Recreation Development Policy for Outgranted Corps Land

APPENDIX A2: Non-Recreation Outgrant Policy

APPENDIX A3: Land Development Proposal at Corps Reservoir Projects

APPENDIX A4: Corps Policy on Filming and Photography in Operations Area

APPENDIX A5: Corps Policy on Special Events at Hansen Dam Basin

APPENDIX A6: Corps Policy on Training in Operations Area

APPENDIX A7: Corps Policy on Biological Surveys in Operations Area

APPENDIX A1:
RECREATION DEVELOPMENT POLICY FOR OUTGRANTED CORPS LAND

DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
CECW-CO Washington, D.C. 20314-1000

ER 1130-2-550
Change 5

Regulation
No. 1130-2-550

30 March 2009

Project Operations
RECREATION OPERATIONS AND MAINTENANCE
GUIDANCE AND PROCEDURES

1. This change 5 to ER 1130-2-550, 15 November 1996 establishes a recreation development policy for outgranted Corps lands.

2. Substitute the attached pages as shown below:

Chapter	Remove Pages	Insert Pages
Table of Contents	iii	iii
Chapter 16	_	16-1 through 16-3
Appendix C	_	C-1
Appendix D	_	D-1

3. File this change sheet in front of the publication for reference purposes.

FOR THE COMMANDER:

STEPHEN L. HILL
Colonel, Corps of Engineers
Chief of Staff

CHAPTER 16 – RECREATION DEVELOPMENT POLICY FOR OUTGRANTED CORPS LANDS

16-1. Purpose. This guidance establishes a consistent, nationwide policy that will be applied to evaluate requests for recreation development at Corps water resources development projects and was developed jointly by the Real Estate and Operations Communities of Practice. The Corps intent is to provide public outdoor recreation opportunities that support project purposes and meet the recreation demands created by the project itself while sustaining our natural resources. Depending on specific project legislation, project purposes may also include navigation, hydropower, flood control, and or water supply. Additional statutes can assign missions responsibilities such as fish and wildlife management, and endangered species.

16-2. Applicability. This policy applies to all existing recreation outgrants issued after 6 December 2005 and all new requests for recreation development by Federally recognized Indian Tribes, public (Federal, state and local), private sector and quasi-public entities and individuals at Civil Works water resources development projects. Previously approved development plans for land currently outgranted for recreation development are grandfathered under this policy. When proposed development is not specifically addressed in a previously approved development plan for an existing outgrant instrument, the proposed development will be treated as a new request; however, land availability will not have to be reevaluated. New or existing sublessees that propose recreational development outside the terms and conditions of the current outgrant instrument are considered as a new request. All new requests require a conceptual development plan in sufficient detail to evaluate the proposed recreation development.

16-3. Policy.

a. The primary rationale for any future recreation development must be dependent on the project's natural or other resources. This dependency is typically reflected in facilities that accommodate or support water-based activities, overnight use, and day use such as marinas, campgrounds, picnic areas, trails, swimming beaches, boat launching ramps, and comprehensive resort facilities. Examples that do not rely on the project's natural or other resources include theme parks or ride-type attractions, sports or concert stadiums, and stand alone facilities such as restaurants, bars, motels, hotels, non-transient trailers, and golf courses. Normally, the recreation facilities that are dependent on the project's natural or other resources and accommodate or support water-based activities, overnight use, and day are approved first as primary facilities followed by those facilities that support them. Any support facilities (e.g., playgrounds, multi-purpose sports fields, overnight facilities, restaurants, camp stores, bait shops, comfort stations, boat repair facilities) must also enhance the recreation experience, be dependent on the resource-based facilities, be secondary to the original intent of the recreation development and the land base occupied by the outgrant. The Corps will not support private exclusive use of any type of facility.

b. Corps policy is to provide outdoor recreation opportunities to the public where there is an unfulfilled demand and a corresponding deficit of those facilities. This shortfall is fulfilled by either the Corps constructing the facilities itself or allowing Federally recognized Indian Tribes, other public (Federal, state and local), private sector, quasi-private entities or individuals to do so on project lands through an outgrant. Accordingly, outgrants that the Corps enters into should not unfairly compete with other established private or public recreational facilities. Existing outgrants with proposed facilities in development plans should be given priority to develop similar facilities within a reasonable timeframe before issuing a new outgrant for like facilities.

16-4. Definitions.

a. Comprehensive Resort – Typically, multi-faceted developments with facilities such as marinas, lodging, conference centers, golf courses, tennis courts, restaurants, and other similar facilities.

b. Conceptual Development Plan – Requestor's or existing lessee's plan for an area of Corps land that shows existing and or proposed facilities, services, and acreage necessary to meet the current and potential public demand and the management and development activities to be undertaken.

c. Master Plan - A conceptual document guiding Corps responsibilities pursuant to Federal laws and regulations to manage the project lands, waters, associated resources, and preserve, conserve, develop, restore and maintain those resources. The primary goals of a Master Plan are to prescribe an overall land and water management plan, resource objectives, land use classifications, and associated design and management concepts. The plan addresses all resources including but not limited to fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, commercial, and outgranted lands, easements and water.

d. Outgrant – Authorizes the right to use Army-controlled real property. It is a written legal document that establishes the timeframe, consideration, conditions and restrictions on the use of Army property. For the purposes of this policy, an outgrant is typically a lease or license authorized by 16 USC 460d, 10 USC 2667 and the general administrative authority of the Secretary of the Army (reference ER 405-1-12, Chapter 8 (Real Property Management) and the forthcoming EC 405-1-80 (Management and Outgrant Programs).

e. Project Level Representative – Person responsible for operations at a project or area level such as lake manager, operations project manager, resource manager, etc.

16-5. Evaluation Criteria.

a. All new requests for recreation development must be in writing and will be reviewed by a district team. At a minimum, the team will consist of a project level representative, Real Estate, Operations, and other district legal/technical elements as appropriate (Engineering, Planning, Regulatory, etc.). Final authority to approve recreation development rests with the District Commander. In the rare circumstance that exceptions to this policy may be warranted,

proposals for recreational developments may be forwarded to the Director of Civil Works through the Division Commander for review on a case by case basis.

b. Although these evaluation criteria are integral to any land availability determination, the preparation of the Report of Availability (ROA) will follow the processes established in ER 405-1-12, Chapter 8 (Real Property Management) and the forthcoming EC 405-1-80 (Management and Outgrant Programs), ER 200-2-2 (Procedures for Implementing NEPA) and ER 200-2-3 (Environmental Quality-Environmental Compliance Policies). In addition, the evaluation will be consistent with ER 1130-2-540 (Environmental Stewardship Operations and Maintenance Policies), ER 1130-2-550 (Recreation Operations and Maintenance Policies), and ER 1130-2-406 (Shoreline Management at Civil Works Projects.)

c. The team will evaluate requests for recreation development using the following criteria:

(1) Consistent with project purposes

(2) Reasonable connection to the project's natural and other resources

(3) Consistent with land use classifications and resource management objectives in the Project Master Plan (or supplement thereto)

(4) In the public interest

(5) Justified by public demand (market study- See Appendix C)

(6) Economically viable (feasibility study- See Appendix D)

(7) Meets the recreation demands created by the project itself while balancing natural resources requirements

d. Routine, minor expansions/requests of previously approved facilities within the lease footprint such as additional campsites at an existing campground, additional marina boat slips, enlargement of a restaurant, additional picnic sites or parking spaces may warrant a streamlined evaluation in accordance with established District procedures.

16-6. Implementation. This policy is effective immediately and supersedes any existing project, district, or MSC policy on evaluating proposed recreation development.

APPENDIX C

Market Studies

C-1. Market Study.

a. A market study is contingent upon developing an inventory of the supply of existing types of recreational resources within a given area. The study must also include a recreational demand analysis that provides an indication of what people do, feel and want concerning recreational facilities (e.g., public demand). By comparing the inventory and the demand analysis it is possible to determine the types and amount of additional recreational facilities that are needed now or in the future. At a minimum, proposed recreation development by Federally recognized Indian Tribes, public (Federal, state and local), private sector and quasi-public entities and individuals will demonstrate a demand for the type of facilities proposed and a current or near future need for the type of facility being proposed.

b. Proposed demand studies shall contain data on the regional population and future projections, demographic characteristics and an inventory of similar types of recreational facilities (e.g., campgrounds, picnic areas, marinas, etc.) and their resources (e.g., 125 camping spurs, 150 picnic tables, etc) within a 30-mile radius of the proposed site requested for development. The study should demonstrate that the demand analysis was done through one or a combination of methods. General categories of methods include but are not limited to, public input gathered through surveys and or workshops, using recreational standards (e.g., 1000 camping spurs per 50,000 people), participation levels/rates (e.g., 2.4 million people participate in picnicking, which is 56 percent of the regional population), and trend analysis (e.g., extrapolating historical use statistics for those similar types of facilities over a ten to 20 year period).

c. The availability of information described above for use in the study will vary from region to region. Federally recognized Indian Tribes, public (Federal, state and local), private sector and quasi-public entities and individuals should consult with State Census Bureaus, State Departments of Commerce, State and Federal Recreational Agencies, and travel bureaus for this information and to minimize study cost. Each state has a State Comprehensive Outdoor Recreation Plan that contains analysis criteria referenced above. In addition there are numerous Federal recreational studies such as the National Survey of Recreation and Environment that contain this type of information. Regional universities with outdoor recreational departments may also be a source for information and assistance.

d. All costs associated with a market study, NEPA documents, land surveys, preparation and review of the ultimate lease by the Corps as well as any other administrative costs associated with Corps review and approval of any proposed development are the responsibility of the entity proposing the recreation development.

APPENDIX D

Feasibility Studies

D-1. Feasibility Study.

a. The intent in requiring a private sector or individual to provide a feasibility study is to demonstrate that the entity can make a reasonable return of profit on a yearly basis for the proposed recreational development and that such development is economically viable. Factors such as the input of capital to develop the facility(s), maintenance cost, insurance, labor, etc. should be addressed. The type and size level of the facility(s) (e.g., 250 camping spurs vs. 100 spurs, 200 marina boat slips vs. 100) should also be addressed to demonstrate a reasonable rate of profit would occur. The numbers of visitors needed and the associated fee for these services should also be addressed. Detailed charts, graphs, and projections are not required; however, enough data must be provided to demonstrate such factors have been considered and that a profit can be generated.

b. Feasibility studies for Federally recognized Indian Tribes, public (Federal, state and local), or quasi-public entities will also be required. However the content of the analysis is limited to the types and size of the facility and evidence that yearly profits of the facility will offset or nearly offset the yearly operational cost of the proposed facility(s). Private sector or individuals working through a public entity for a development request (third party) will be required to furnish a feasibility study that complies with the requirements for a private requestor or individual as referenced above.

c. All costs associated with a market study, NEPA documents, land surveys, preparation and review of the ultimate lease by the Corps as well as any other administrative costs associated with Corps review and approval of any proposed development are the responsibility of the entity proposing the recreation development.

APPENDIX A2:
NON-RECREATION OUTGRANT POLICY

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
WASHINGTON, D.C. 20314-1000

CECW-CO/CEMP-CR

MAR 30 2009

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Non-Recreational Outgrant Policy

1. **Background**. In executing the U.S. Army Corps of Engineers mission, districts receive numerous and diverse proposals for use of lands and waters at Civil Works water resources projects. Nationwide guidance specifically for recreation development on outgranted land was issued on 6 December 2005. No similar nationwide criteria exist to evaluate proposals for non-recreation purposes. Districts have taken different approaches in evaluating these proposals. This has created inconsistencies in the type and scope of use authorized and other conditions related to authorizations, such as mitigation and long term affects on public resources. Past proposals have included a wide variety of activities involving the utilization of public lands and waters, such as roadways, public utilities (power lines, waterlines, intakes and outfalls, natural gas and fuel pipelines, etc.), commercial navigation activities (harbors, barge terminals, mooring cells, etc.), flood risk management or hydropower generation structures, public facilities such as schools, fire houses, police stations, and private residential subdivisions. At times, there may be an interrelationship between recreation and other real estate outgrant proposals (e.g. leases, licenses, easements). In those cases, the intent and philosophy of both policies will be evaluated, along with other applicable statutes, regulations, and guidelines, such as the Corps Environmental Operating Principles. This policy was developed jointly by the Real Estate and Operations Communities of Practice.

2. **Purpose**. The purpose of this guidance is to establish a consistent, nationwide policy that will be applied to evaluate non-recreational real estate outgrant requests for use of Civil Works lands and waters. The Corps intent is to meet legitimate needs for the use of project lands and waters while sustaining our natural resources and protecting authorized project purposes. Depending on specific project legislation, project purposes may include navigation, hydropower, flood risk management, recreation, water supply, and low flow augmentation. Additional statutes can assign mission responsibilities, such as fish and wildlife and endangered species management.

3. **Applicability**. This policy applies to all new non-recreational outgrant requests for use of Corps fee owned lands and waters by the public (Federal, State and local), Indian Tribes, private sector, quasi-public entities, or individuals at Civil Works water resources projects. All requests submitted prior to the effective date of this policy will be processed in accordance with current District policies. Existing outgrants are grandfathered under this policy. Proposals to modify or renew existing outgrants will also be evaluated for policy compliance under this guidance.

CECW-CO/CEMP-CR
SUBJECT: Non-Recreational Outgrant Development Policy

All new proposals must comply with Section 9 - Evaluation Criteria, Enclosure 1 - General Outgrant Application Information, and as applicable, Enclosure 2 - National Environmental Policy Act Guidance, Enclosure 3 - Mitigation Guidance, and Enclosure 4 - Additional Guidance For Specific Outgrant Applications. It is recommended that designated corridors be established in Project Master Plans where feasible and new proposals should utilize these corridors where they exist. This policy is not applicable to oil, gas, or mineral exploration or extraction. This policy is also not applicable to the licensing of hydropower facilities by non-federal interests on Corps administered Civil Works Projects. That program is regulated by the Federal Energy Regulatory Commission. However, full compliance with the associated non-federal hydropower requirements defined in ER 1110-1-1454 (Corps Responsibilities for Non-federal Hydroelectric Power Development under the Federal Power Act) is required. Specific guidance for evaluating antenna sitting requests is contained in 41 CFR 102-79.70-79.100. A license, lease, or easement will be issued in association with the request depending on proposed use of the Federal property (i.e. whether a tower or other facilities will be constructed on Federal property; or solely placement of an antenna).

4. **Policy.** The primary rationale for authorizing any future non-recreational outgrant request for use on Corps lands or waters will be one of two reasons: there is no viable alternative to the activity or structure being located on Civil Works land or waters; or, there is a direct benefit to the government. Examples of instances of no viable alternative include but are not limited to: cross-country utilities, pipelines, or roadways that must cross projects, public water intakes, or commercial mooring cells in a navigable waterway. If a proposal meets one of these two criteria, it must be evaluated in light of compatibility with authorized project purposes, compliance with statutory and regulatory requirements, including environmental and cultural resource laws, cumulative impacts, and overall long-term public interest factors. The impacts associated with an individual action or the accumulated impact of a series of actions must not adversely impact the capability of the project to generate the benefits for which the project was congressionally authorized, constructed, and is operated. The Corps shall coordinate and/or consult with American Indian/Alaska Native Governments when reservation lands are involved. Public or private structures or activities that are not dependent on use of, or location on, Civil Works lands and waters, such as schools, fire houses, and hospitals are prohibited unless no viable alternative is proven available. Permanent commercial ventures and private residences are prohibited. Any private exclusive use of Civil Works lands and waters not specifically authorized by ER 1130-2-406 is prohibited.

5. **Consideration.** In most instances, an applicant will be required to pay the fair market value or consideration for use of Civil Works lands and or waters. This consideration may be monetary or non-monetary. However, in-kind consideration is not authorized for leases or licenses granted under 16 USC 460d.

6. **Mitigation.** Mitigation guidelines can be found in Enclosure 3. Wherever possible, applicants requesting use of Corps fee-owned lands or waters generally will be required to mitigate for adverse impacts to ensure that public resources suffer no net loss of value, post-construction. This may include statutory and/or non statutory mitigation actions. However, only

non-statutory mitigation may be waived as defined in Enclosure 3, paragraph 4. Where required, a Mitigation Plan must be prepared and approved by the District Engineer prior to issuance of the outgrant instrument. Approved mitigation plans shall become a condition of and added as an addendum to the applicable real estate instrument.

7. **Administrative Expense.** In addition to consideration and mitigation, the applicant will be required to pay administrative expenses for the outgrant. Administrative cost for the evaluation of any application documents (preliminary, detailed, supporting) will be paid up front and prior to the start of the review process by project and district personnel in accordance with Civil Works Policy Memorandum, "Collection of Civil Works Appropriations," dated 2 October 2008.

8 **Storage Capacity.** By law, every Corps water resource project has designated missions (e.g., flood risk management reduction, hydropower, navigation, water supply, etc). To ensure compliance with law, the Corps is required to maintain the ability to store water to support these missions. The amount of water storage availability for each mission is identified in a congressionally approved Water Allocation Report. Changes to these amounts may not be done without a re-allocation study and an approved amended Water Allocation Report. Proposals that impact water storage availability for any mission will be required to offset the impact. This includes impacts up to the maximum storage of the reservoir (see Definitions Section 8d.).

9. **Definitions.**

a. **Consideration** - The fair market value received for the outgrant (monetary and non monetary, such as in-kind improvements or services). Administrative expenses and mitigation requirements cannot be applied towards consideration. Administrative expenses and mitigation cost are considered as an additional expense to the fair market value of the outgrant.

b. **Designated Corridors** - A parcel of land with fixed boundaries that has been identified in the Project Master Plan or operational management plan as being the preferred location for future outgrants (e.g., public utilities, roadways, pipelines, etc) or proposed modifications to existing outgrants suitable to accommodate compatible types of outgrants.

c. **Freeway** - A road that has controlled access and is designed to link urban areas. Freeways are designed for high volumes of traffic, use grade separations at all intersections, have design speeds of 50-65 miles per hour, and no median access. Freeways include expressways, interstates, and toll-roads.

d. **Maximum Storage** - The total storage space in a reservoir (in acre feet) below the maximum attainable water surface elevation (crest of the dam or top of the flood pool), including any surcharge storage (capacity above the maximum operating level of reservoir).

e. **Operational Management Plan -** A separate document from the Project Master Plan that outlines in detail the specific operation and administration requirements for natural resources and park management consistent with the approved Project Master Plan. Management strategies consistent with authorized project purposes, approved resource use objectives, and land designations will be established in the document. The document will be used as a working tool for the overall management of the project on a day to day basis.

f. **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 facilities.

g. **Outgrant** – A document which authorizes the right to use Civil Works lands and waters. It is a written legal document which conveys the right to use Army controlled real property. For the purposes of this policy, an outgrant is typically a lease, license, or easement generally authorized by 16 USC 460d, 10 USC 2667 or 10 USC 2668, and the general administrative authority of the Secretary of the Army (reference ER 405-1-12, Chapter 8 (Real Property Management), AR 405-80 (Management of Title and Granting Use of Real Property), and the forthcoming EC 405-1-80 (Management and Outgrant Programs).

h. **Project Level Representative –** Person responsible for operations at a project or area level, such as lake manager, operations project manager, park manager, resource manager, etc.

i. **Project Master Plan -** A conceptual document guiding Corps responsibilities pursuant to Federal laws and regulations to preserve, conserve, develop, restore, maintain, and manage project lands, waters, and associated resources. The primary goals of a Master Plan are to prescribe an overall land and water management plan, resource use objectives, land use classifications, and associated design and management concepts. The plan addresses all resources including, but not limited to, fish and wildlife, vegetation, cultural, aesthetic, interpretive, recreational, mineral, water, and commercial.

j. **Regional Arterial Road** – A road that links multiple communities within two or more counties, and provides continuous and mostly uninterrupted traffic flow. Regional arterial roads are designed for high volumes of traffic, design speeds of 45-50 miles per hour, and use partially controlled access, grade separation at isolated intersections and limited curb and median access controls to facilitate traffic flow.

k. **Statutory Mitigation** - Statutory mitigation is driven by regulations that require mitigation to correct negative impacts to the environment based on a proposed action. For example, § 33 CFR 320.4(r) and 33 CFR 332 detail the required mitigative actions when wetlands or navigable waterways (e.g., discharge of dredged or fill material into the water) are impacted.

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SUBJECT: Non-Recreational Outgrant Development Policy

l. **Viable Alternative –** Other lands or waters not under Corps management that meet the intended objective of the proposal. Factors such as cost or the appearance of unused Corps lands or waters will not affect the determination of viability.

10. Evaluation Criteria. All new requests for use or revisions to existing outgrants must be in writing and reviewed by a district team. Generally, the team will at a minimum consist of a Project Level Representative, Real Estate, Operations, and other legal/technical elements as appropriate (Counsel, Engineering, Planning, Regulatory, etc.). Final approval rests with the District Engineer unless such authority is specifically delegated to an appropriate subordinate level to accommodate a minor request. In the rare circumstance that exceptions to this policy may be warranted, proposals for non-recreational use will first be forwarded to the Division Commander. If the review for these exceptions is not resolved at the Division level, as a last resort, the request will be forwarded to Headquarters (CECW-CO-N, CEMP-CR, applicable headquarters Regional Integration Team, and the Director of Civil Works (if needed)) for resolution.

a. Although these evaluation criteria are integral to any land availability determination, the preparation of the Report of Availability (ROA) will follow the processes established in ER 405-1-12, Chapter 8 (Real Property Management), AR 405-80 (Management of Title and Granting Use of Real Property), the forthcoming EC 405-1-80 (Management and Outgrant Programs), ER 200-2-2 (Procedures for Implementing NEPA) and ER 200-2-3 (Environmental Quality-Environmental Compliance Policies). In addition, the evaluation will be consistent with ER 1130-2-540 (Environmental Stewardship Operations and Maintenance Policies), ER 1130-2-550 (Recreation Operations and Maintenance Policies), and ER 1130-2-406 (Shoreline Management at Civil Works Projects).

b. The team will evaluate requests using all of the following criteria:

- Consistent with project purposes
- Viable alternatives to utilization of public lands and waters
- Consistent with complete land use classifications and resource management objectives identified in the approved Project Master Plan (or supplement thereto)
- Consistent with applicable evaluation contained in the enclosures
- In the public interest
- Demonstrated need
- Technical capabilities
- Financial capabilities (consideration, mitigation and administrative expenses)

CECW-CO/CEMP-CR
SUBJECT: Non-Recreational Outgrant Development Policy

11. **Implementation.** This policy is effective immediately and supersedes any existing project, district, or MSC policy on evaluating proposed outgrants. This policy will remain in effect until incorporated into appropriate Engineer Regulations. District policies may be developed that supplement this policy in order to further define evaluation roles and responsibilities within the district. However, district policies will not be in conflict with this policy.

FOR THE COMMANDER:

Encls

MERDITH W. B. TEMPLE
Major General, USA
Deputy Commanding General
for Civil and Emergency Operations

GENERAL OUTGRANT APPLICATION INFORMATION
ENCLOSURE 1

1. Preliminary Information – The applicant must provide the preliminary information requested below (a-h) to the Project Level Representative. The initial submission will be evaluated by the Project Level Representative and district team to determine if a proposal is appropriate for location on Government property. Administrative cost for the evaluation of any application documents (preliminary, detailed, supporting) will be paid by the applicant prior to the start (up front) of the review process by project and District personnel, in accordance with Civil Works Policy Memorandum, "Collection of Civil Works Appropriations" dated 2 October, 2008.

a. Identify Applicant:

(1) Name, address, and phone number of applicant. The application must be submitted by the entity to whom the outgrant will be assigned.

(2) Point of contact for processing (e.g. City Manager, Mayor, Commissioner, etc)

b. Describe the structure or facility.

c. Identify the purpose, need and objective (benefits, enhancements, statutory requirements) for the structure or facility.

d. Justify placement of structure or facility on government property. The justification should include a description of all alternative locations and routes that were investigated, including routes and locations off of project lands. The description will also include rationale for why the other alternatives were not selected. Cost factors alone will not affect the determination of viability.

e. State the duration for which the proposed outgrant is requested. Include the duration of the temporary license if one is needed (usually 1 year).

f. Generally describe the location and dimensions of the requested outgrant area to include a preliminary site plan. NOTE: Outgrants should be placed in the footprint of existing project outgrants or within designated corridors where possible.

g. Provide basic construction methods and timeline.

h. Anticipated impacts (environmental, cultural resource, social, etc.).

2. Detailed Information - If upon review of an initial request, the Corps determines that the requested activity may be feasible and will be considered further, the information below must be provided as required. This information will be provided to the Project Level Representative and be evaluated by the district team. Additional information may be requested based on the nature of the proposed activity. A Corps determination will be made as to what environmental documentation is required for the proposed action. Preliminary information concerning administrative fees, consideration and mitigation will be provided to the applicant.

a. **Coordination**

(1) Provide concurrence from third parties who may be affected by the structure or facility (e.g. other existing outgrants)

(2) Provide other agency concurrence regarding legal or regulatory requirements where necessary (e.g. responsible State natural resources and utility entities).

NOTE - A temporary real estate instrument will be required prior to conducting any on-the-ground activities (for surveys, ground disturbance, soil and groundwater testing). An Archeological Resources Protection Act (ARPA) permit may also be required.

b. **Description of Proposal**

(1) Provide preliminary plans and specifications for the proposed outgrant. Include construction areas, if applicable.

(2) Provide a map(s) which includes the following:

(a) A legal description (location, identification of parcel) of the proposal. (reference to a known Corps of Engineers property monument is encouraged). This description can also be provided separately;

(b) The upper guide contours and elevation intervals appropriate to the terrain as applicable, if available;

(c) Identification of the project property line (Federal government property line) in relation to the proposal;

(d) Any structures that will be affected (e.g.: fences, roads, monuments, gates, intake structures, natural and environmental resources, etc.); and

(e) The estimated acreage of the proposed outgrant.

(3) Stake/flag the boundary or centerline of the outgrant if requested

c. **NEPA** - If NEPA documentation is required from the applicant, see Enclosure 2.

d. **Mitigation** – Non-statutory mitigation is generally required for impacted public resources. Mitigation often requires, but is not limited to, wildlife habitat improvement and vegetative plantings on the area of actual disturbance and on additional areas or other forms of restitution. Statutory mitigation may also be required if the proposed work involves applicable statutes, regulations, and guidance concerning impacts of a proposed action. For example, a discharge of dredged or fill material into waters of the U.S typically requires a Section 404 permit (Clean Water Act) and associated mitigation. See Enclosure 3 for additional mitigation guidance.

e. **Storm Water Requirements** – In accordance with State, County and/or local laws, various Districts within the Corps do not allow outgrants for storm water facilities. For those Districts that allow outgrants for storm water facilities, the applicant must also contact the applicable State, County and/or local agency responsible for storm water permits. The applicant must provide documentation of the contact, a Notice of Intent and evidence that a permit is being pursued (if required). In addition, the applicant shall provide a Storm Water Pollution Prevention Plan when required if earth-disturbing activities are to be performed. This plan shall include the means by which erosion and sedimentation will be controlled and monitored to protect the drainage courses.

f. **Storage Capacity** – In general, Corps policy is no net loss of maximum storage capacity. This generally includes calculating amounts of cut and fill which could impact storage capacity.

g. Landscaping and Revegetation - As part of site stabilization and restoration, the applicant in most cases will be required to reestablish vegetation after construction. The applicant must demonstrate that the seed and vegetative plantings proposed for revegetation are native species to the area and not listed as an invasive species on a Federal or applicable State list.

NOTE: Applicants, please review Enclosure 4 for guidance addressing additional requirements for specific types of outgrants.

NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) GUIDANCE
ENCLOSURE 2

For outgrant proposals requiring an Environmental Assessment (EA) the following information is generally required by NEPA. Additional information may be requested depending on the nature of the proposal. An EA facilitates the decision process regarding the proposed action and alternatives. Additional information concerning NEPA can be found at http://ceq.hss.doe.gov/.

NEPA documents may be completed by the Corps or the applicant. If completed by the Corps, the applicant must pay for the expenses incurred prior to the work being initiated. If completed by the applicant, the applicant must pay for the expenses to be incurred by the Corps prior to the Corps review in accordance with Civil Works Policy Memorandum, "Collection of Civil Works Appropriations" dated 2 October 2008.

a. SECTION 1	AUTHORITY, PURPOSE, AND SCOPE provides the authority for the proposed action, summarizes the project purpose, provides relevant background information, and describes the scope of the EA.
b. SECTION 2	ALTERNATIVES examines alternatives for implementing the proposed action.
c. SECTION 3	PROPOSED ACTION describes the recommended action.
d. SECTION 4	AFFECTED ENVIRONMENT describes the existing environmental and socioeconomic setting.
e. SECTION 5	ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION identifies the potential environmental and socioeconomic effects of implementing the proposed action and alternatives.
f. SECTION 6	MITIGATION PLAN summarizes mitigation actions required to enable a Finding of No Significant Impact for the proposed alternative.
g. SECTION 7	FEDERAL, TRIBAL, STATE, AND LOCAL AGENCY COORDINATION provides a listing of individuals and agencies consulted during preparation of the EA.
h. SECTION 8	REFERENCES provides bibliographical information for cited sources.
i. SECTION 9	APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS provides a listing of environmental protection statutes and other environmental requirements.

j. SECTION 10	LIST OF PREPARERS identifies persons who prepared the document and their areas of expertise.	
k. APPENDICES	A	Correspondence
	B	Section 404 Permit (if required)
	C	Fish and Wildlife Coordination/Correspondence
	D	Cultural Resources Coordination/Correspondence
	E	Public Comments (if applicable)
	F	Newspaper Public Notice (if applicable)
	G	Other

MITIGATION GUIDANCE
ENCLOSURE 3

1. **Statutory Mitigation.** Statutory mitigation must be done in accordance with applicable statutes, regulations and guidance. Statutory mitigation is generally defined as actions that reduce the severity or intensity of adverse impacts of other actions, to include:

a. Avoiding the impact by not taking a certain action or parts of an action or by moving the project location. Applicants are encouraged to consider avoidance as the preferred mitigation measure.

b. Minimizing impacts by limiting the degree or magnitude of the action and its implementation, for example, by adjusting site layout.

c. Rectifying the impact by repairing, rehabilitating, relocating, or restoring the affected public resources.

d. Reducing or eliminating the impact over time by monitoring, maintaining, and/or replacing equipment or structures to prevent future degradation from equipment or structural failure over the life of the action.

e. Compensating for the impact by replacing or providing substitute resources or environments. With the exception of unique habitats under imminent threat of destruction, a mere change in ownership of existing habitat is generally not considered mitigation. Habitat improvement must be implemented in addition to long-term protection of the habitat.

Statutory Mitigation requirements vary somewhat under the environmental laws, regulations, and executive orders. For Corps of Engineers Regulatory Program mitigation guidance see 40 CFR Part 230 "Compensatory Mitigation for Losses of Aquatic Resources", 33 CFR 320.4 paragraph R, and 33 CFR 332. It is recommended that for actions on Civil Works lands and waters that require mitigation under these regulations, the mitigation occur on site where feasible.

2. **Non-Statutory Mitigation**: The definition of mitigation is broadened to include "all measures necessary to make the Corps project whole". Not all of the adverse impacts to a site will be required to be mitigated by a federal statute or regulation, but for outgrants, all adverse impacts must be mitigated unless a waiver is issued (see paragraph 4). The applicant for the outgrant will be advised of the impact and required mitigation. An example of impacts that may not be covered by existing authorities is a proposal that is categorically excluded from NEPA documentation but may still result in the destruction of a small wooded area containing twenty trees. There are no threatened or endangered species or any wetlands involved. Another instance may entail the destruction of 20 campsites resulting from a road expansion. In each case, the impacted resources must be restored or otherwise mitigated.

3. **Real Estate Outgrant Documentation.**

a. Where mitigation is required as a result of an outgrant, it will be addressed as a condition of the real estate instrument. A copy of the mitigation plan, use restrictions, and/or Memorandum of Agreement (MOA) will be included as an attachment to the outgrant document. If a mitigation plan, restrictions or an MOA is required, the outgrant instrument must be modified to incorporate compliance with the terms of the plan, restrictions or MOA as a condition of the outgrant. The outgrant instrument must be modified to incorporate a specific termination clause to address failure to comply with mitigation requirements.

b. In addition, action may also be required under the specific statute(s) that required the mitigation. A clear timetable must also be provided if mitigation requirements extend beyond the execution date of the outgrant agreement. Coordination with the office(s) which are responsible for these requirements must be completed to ensure the requirements are in place before the outgrant document is executed.

4. **Waiver of Non-Statutory Mitigation Requirements**. When only "Non-Statutory Mitigation" is required, the Corps may choose to waive this mitigation requirement in cases where the requested activity will further an authorized project purpose and/or meet a public demand that the Corps is unable to meet. However, the Corps does not have the authority to waive mitigation requirements when such mitigation is required by a law, regulation, or statute.

5. **Responsibility for Expenses.** In most cases, all costs associated with processing the mitigation aspect of the outgrant and initiating and maintaining mitigation requirements over the life of the mitigation action are the responsibility of the outgrant applicant and will be agreed upon and documented in the real estate outgrant instrument. These administrative costs are in addition to the fair market value consideration, if applicable, of the property to be outgranted and any other purely administrative expenses incurred as a result of this outgrant request in accordance with Civil Works Policy Memorandum, "Collection of Civil Works Appropriations" dated 2 October 2008.

6. **Future Ownership and Management of Mitigation Properties**. On-site mitigation should be achieved wherever possible. If on-site mitigation is not possible, off-site mitigation should be undertaken, as follows:

a. Acquisition of Real Property. To the maximum extent possible, any additional lands or other real property interest required to be purchased by the applicant for mitigation purposes will be contiguous with existing project lands or waters. The NEPA decision document will clearly address any requirement for the acquisition of non-statutory mitigation lands. In no instance will the Corps take title to real property prior to receiving approval of the Director of Civil Works. Management of mitigation properties will be accomplished in accordance with 33 CFR 332.7. Typically, a Real Estate Plan (REP) will be prepared to support this type of action. However, there may be circumstances that require the preparation and approval of a Real Estate Design Memorandum (REDM) where acquisition of the land is tantamount to implementation of the project and approval of a decision document is required prior to commencement of the acquisition effort (e.g., some fish and wildlife mitigation projects). In addition, an REDM may

be appropriate when there is a new acquisition requirement for an existing project for which a REDM was previously utilized.

b. Other Mitigation Services.

1) Mitigation services generally consists of restoration, creation, relocation, or improvements of the same type (i.e., three acres of existing wildlife habitat destroyed and replaced with three or more acres of new wildlife habitat lands) to offset the damaged resource base. In other circumstances, it may be more appropriate to accept other types of services (i.e., three acres of existing wildlife habitat destroyed and mitigated by rip rapping 1,000 linear feet of shoreline to protect nearby wildlife habitat). Entering into agreements for the replacement of impacted wildlife habitat with recreation facilities is generally not appropriate.

2) In the absence of specific authority, the Corps may not accept cash in lieu of mitigation services. In some limited instances, however, it is possible for the Corps to directly perform the mitigation work by entering into agreements with states or others and then to be reimbursed by the state or others for such work. Approval from the Assistant Secretary of the Army (Civil Works) (ASA-CW) may be necessary prior to entering into such an agreement. In some cases, a real estate instrument or a management plan may be required in accordance with 33 CFR 332.7 if a land acquisition is part of the mitigation service.

ADDITIONAL GUIDANCE FOR SPECIFIC OUTGRANT APPLICATIONS
ENCLOSURE 4

1. Requirements for Specific Structures and Applicable Legal Compliance - In addition to the requirements listed in Enclosures 1 through 3, the following information may be required as appropriate for specific types of outgrants. This list is not intended to be all inclusive but an illustrative example of additional requirements that exist for specific types of outgrants. The construction, operation and safety of these outgrants will require compliance with all applicable Federal, state, and local laws, codes, and standards. While it is not the responsibility of the Corps to inspect these facilities for safety compliance, the Corps reserves the right to halt the construction and or operation of the structure if a safety issue creates a danger to the life of project visitors or the ability of the Corps to carry out project missions. All of these specific outgrant applications must include a safety point of contact. Also note that the application must be submitted by the entity to whom the outgrant will be assigned.

a. **Electric Power and Communication Lines, and Structures and Facilities for Radio, Television, and other Communication Services**

(1) Specify line heights, voltage, cutoff locations and elevations

(2) Submitted plans must be certified by a state certified professional engineer as being in compliance with the National Electric Safety Code requirements, ER-1110-2-4401, 30 May 97 (Clearances For Electric Power Supply Lines and Communication Lines Over Reservoirs), American National Standard ANSIC2, National Electric Safety Code (NESC), American National Standard ANSI/NFPA 70, and the National Electric Code NEC.

b. **Sewer and Water Lines**

(1) A state certified professional engineer must certify plans as being in compliance with all applicable Federal, State, and local government regulations.

(2) Additional requirements may apply pertaining to flood-proofing and impacts to public resources.

(3) Submit documentation demonstrating coordination with the applicable Corps of Engineers District Real Estate Office concerning the format for water pipeline easements contained in Real Estate Policy Guidance Letter No. 26, Easements to Support Water Supply Storage Agreements and Surplus Water Agreements, 10 June 2008.

c. **Water Intake Structure**

(1) Submit plans and specifications showing any effects on Corps facilities, as well as current and future water volume needs that may impact water storage/surplus water contracts, etc.

(2) Submit documentation demonstrating coordination with the applicable Corps of Engineers District Real Estate Office concerning requirements contained in Real Estate Policy Guidance Letter No. 26, Easements to Support Water Supply Storage Agreements and Surplus Water Agreements, 10 June 2008.

(3) Provide written documentation showing permission has been procured from the water contract holder if required.

(4) Provide approval/permit from appropriate regulatory agency (state/local) if applicable. Also provide water supply contract, authorizing document, or decision document based on statute, for authorizing a water supply intake.

(5) Provide documentation of review and approval from Corps of Engineers Dam Safety Committee

d. **Outfalls (e.g. stormwater, sewage, etc.)**

(1) A copy of the National Pollutant Discharge Elimination System (NPDES) permit must be provided for approval of any outfall that is placed on Corps administered lands and waters. Also furnish any other state/local approvals as applicable.

(2) A plan to prevent erosion, and to prevent litter, trash, and pollutants from being deposited on Corps administered lands and waters must be provided.

(3) Submitted plans must be certified by a state certified professional engineer.

(4) Submitted plans must be in compliance with Project Shoreline Management Plan if applicable.

e. **Major Oil, Natural Gas and Fuel Carrying Pipelines (Under USC 30 Section 185 for pipelines 24"and greater in diameter)**

(1) Disclosure of Ownership - If a partnership, corporation, association, or other business entity applies for an easement, the application shall disclose, where applicable:

(a) Name and address of each partner

(b) Name and address of each shareholder owning 3 percent or more of the shares; the number and percentage of any class of voting shares of the entity; and

(c) Name and address of each affiliate of the entity. If the entity controls the affiliate, include the number of shares and percentage of any class of voting stock of that affiliate; if, however, the affiliate controls the entity, include the number of shares and percentage of any class of voting stock of the entity.

(2) If this information is already on file, and current, in the District Engineer's office, or local Bureau of Land Management or Federal Energy Regulatory Commission offices, references may be made to it; the applicant need not file repetitious disclosure documents with successive applications.

(3) Submit documentation demonstrating coordination with the applicable Corps of Engineers District Real Estate Office concerning requirements contained in Real Estate Policy Guidance Letter No. 27, Issuance of Fuel Carrying Pipelines that are 24 inches or more in diameter, 29 October 2008.

NOTE: For oil, natural gas and fuel pipelines smaller than 24" in diameter, please refer to requirements contained in General Outgrant Application Information (Enclosure 1).

f. **Roads**

(1) Generally, Civil Works lands will only be made available for roads that are considered regional arteries or freeways (See Definitions in the Guidance). All other types of roads, including driveways and alleys, are generally not permitted on these lands. The expansion of existing roads on Civil Works lands will be considered on a case by case basis.

(2) Indicate whether or not Federal Highway Administration funds are being used for this road.

(3) A state certified professional engineer must certify plans as being in compliance with all applicable Federal, State, and local government Regulations.

g. **Telecommunications.** Authorities applicable to issuing outgrants for telecommunication purposes depending on the type of instruments desired are referenced in the Telecommunications Act of 1996, which is codified at 47 USC 332 and implementing regulations are provided in 41 CFR 102-79.70 to 79.100. In addition the applications must be in compliance with forthcoming Engineering Circular 405-1-80 (Management and Outgrant Programs), Section XIX, Procedures for Sitting of Communications Facilities on Army Controlled Lands. Proposals must include documentation to ensure the outgrant would not create the following problems:

(1) Impair, interfere, or degrade the Federal missions of the project or its operations.

(2) Interfere with existing radio frequency (RF) activities.

(3) Documentation of coordination with Federal Aviation Administration (FAA) and/or Department of Defense (DoD) and sitting approval for any proposed telecommunication facility that will be located within proximity to an existing FAA facility or DoD system.

h. **Hydropower facilities.** Any request to construct/develop hydropower facilities will be an unusual request that will be handled on a case by case basis per ER 1110-2-1454 as amended.

APPENDIX A3:
LAND DEVELOPMENT PROPOSALS AT CORPS RESERVOIR PROJECTS

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
333 Market Street, Room 923
San Francisco, California 94105-2195

REPLY TO
ATTENTION OF:

CESPD-MT-E (1110-2-1)

18 DEC 2001

MEMORANDUM FOR

Commander, Albuquerque District
Commander, Los Angeles District
Commander, Sacramento District
Commander, San Francisco District

SUBJECT: SPD Regulation 1110-2-1, Land Development Proposals at Corps Reservoir Projects

1. References:

a. Memorandum, CESPD-PD-R, 7 May 1992, subject: Policy of Corps Reservoir Lands.

b. Policy Guidance Letter No. 32, 28 April 1993, subject: Use of Corps Reservoir Flowage Easement Lands.

c. Memorandum, CESPD-ET-EW, 20 May 1999, subject: Hydrologic and Hydraulic Evaluation of Balancing Cut and Fill Volumes for Land Development Proposals at Corps Reservoir Projects.

2. Enclosed is the completed CESPD Regulation 1110-2-1, Land Development Proposals at Corps Reservoir Projects. This regulation accounts for previously issued USACE regulations, interim policy guidance, SPD memorandums, internal correspondence and the latest analysis of impacts by land developments proposals under consideration. It is a valuable tool. It establishes SPD policy and procedures, including checklists and diagrams your districts must use in evaluating land development proposals at Corps reservoirs within SPD.

3. Land development within Corps reservoir projects continue to present new challenges. They require a thorough analysis of negative impacts on flood storage space especially those that effect critical features of the Spillway Design Flood and the Probable Maximum Flood. There are an increasing number of developments being proposed within Corps project lands. There is a balance between the requirements to adhere to established policy guidance, while at the same time working with the developers.

CESPD-MT-E
SUBJECT: SPD Regulation 1110-2-1, Land Development Proposals at Corps Reservoir Projects

4. This regulation will also be made available on the SPD Internet Homepage at http://www.spd.usace.army.mil. Questions regarding the above or enclosed may be directed to Ms. Theresa Mendoza or Mr. Boni Bigornia of my staff at (415) 977-8106/8102.

Encl

FOR ROBERT L. DAVIS
COL (P), EN
Commanding

CESPD R 1110-2-1

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
333 Market Street, Room 923
CESPD-MT San Francisco, California 94105-2195

CESPD REGULATION
NO. 1110-2-1 November 2001

Engineering and Design
LAND DEVELOPMENT PROPOSALS AT CORPS RESERVOIR PROJECTS

1. Purpose. This regulation establishes South Pacific Division (SPD) policy for evaluating land development proposals within reservoirs and flood basins of the Corps, and for documenting the results of the evaluation. Land development proposals are those by companies, organizations, private parties, governments, agencies, or any other entities to construct buildings, roads, or other facilities or in any other way to modify the landforms, vegetation, surface characteristics, or use of lands within a reservoir or basin operated by the Corps for flood control. The Corps has responsibility to assure that the project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with project lands are not harmed. The points and procedures for evaluation of development proposals in this regulation are to assist in meeting these responsibilities and complying with applicable laws and directives.

2. Applicability. This regulation is applicable to all SPD Districts and other field operating activities within this command.

3. References.

a. EO 11988, Floodplain Management, 42 F.R. 26951, 24 May 1977.

b. ER 1165-2-26, Implementation of Executive Order 11988 on Floodplain Management,

30 March 1984.

c. ER 405-1-12, Real Estate Handbook, 20 November 1985.

d. ER 200-2-2, Procedures for Implementing NEPA, 4 March 1988.

e. ER 1110-2-240, Water Control Management, 24 May 1990.

f. EP 1165-2-314, Flood Proofing Regulations, 31 March 1992.

This regulation supercedes: CESPD-DE Memorandum, Subject: Interim Guidance for Evaluating Development within Corps Reservoir Projects; Dated 7 May 92 and CESPD-ET-EW Memorandum, Subject: Hydrologic and Hydraulic Evaluation of Balancing Cut and Fill Volumes for Land Development Proposals at Corps Reservoir Projects; Dated 20 May 99.

g. Policy Guidance Letter No. 32, Use of Corps Reservoir Flowage Easement Lands, 28 April 1993.

h. ER 1130-2-530, Flood Control Operations and Maintenance Policies, 30 October 1996.

i. ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 15 November 1996.

j. ER 1130-2-550, Recreation Operations and Maintenance Policies, 15 November 1996.

4. Delegation of Responsibilities. The water control authorities and responsibilities of all commands are executed through the Districts' Water Control Operations Centers or Reservoir Control/Regulation Sections.

a. Commander, South Pacific Division will:

(1) Establish Division-wide policies and procedures concerning evaluation of land development proposals;

(2) Establish and maintain close contact with the District staff relative to the land development project and provide advisory assistance as required; and

(3) Conduct review of land development proposals prior to approval by the District Commander to insure national and regional consistency in policy application.

b. District Commanders will:

(1) Establish and execute the reservoir operations program in accordance with policies;

(2) Establish and maintain liaison with SPD personnel in Water Control, Operations Division and Real Estate and Environmental relative to the land development project;

(3) Conduct an internal review by all pertinent offices within the District, including the District's Water Control, Engineering, Operations, Real Estate, Planning Divisions, Environmental and Counsel;

(4) Prior to approval, submit land development proposals to SPD for review to insure national and regional consistency in policy application; and,

(5) Approve or disapprove development proposals and retain the evaluation package on which the decision was based.

5. Factors To Be Considered for Developments in SPD Reservoirs. A formula cannot be developed to calculate the acceptability of a development project but numerous factors should be considered in the evaluation of land development proposals.

a. Real Estate Requirements. Proposed developments need to be evaluated to ensure they do not conflict with the terms of real estate interests held for the project or constrain future operational flexibility of the project. Provisions to be put into new real estate outgrant instruments should include recognition of the fact that the water control plan is expected to change in the future and that flood releases are based on the most current water control plan. A decision to limit developments on project lands must be consistent with the underlying provisions of the applicable real estate interest held by the Government or the project sponsors. Before making a final determination on the proposed development, the Offices of Real Estate and Counsel should be consulted.

b. Reservoir Storage.

(1) Developments that occur within an SPD reservoir (i.e., on either lands held in fee or on lands in which USACE or local sponsors may have real estate interests) will not be allowed to reduce the reservoir's project storage space. This requirement includes the space for the Spillway Design Flood (SDF). The Probable Maximum Flood (PMF) design space is a critical feature in the operation of a Corp reservoir project. The primary consideration in approving excavations or landfill placements is the preservation of " project storage capacity" of the project. "Project storage capacity" is herein defined to include all hydrologic and hydraulic needs of the project, which encompasses the volume for the entire project, i.e., sedimentation, hydropower, recreation, agriculture, water supply, and spillway design flood.

(2) Most developments require cut and fill operations that change the original topography of the flood control basin. Even if there is a balance of cut and fill, there may be an adverse effect on flooding frequency within the basin due to the change in the area-capacity curve. The cut and fill operations must not cause any property to be flooded more frequently than before the development was in place. This can be done by ensuring that for every elevation on the modified area-capacity curve, an equal or larger reservoir volume would be created by the development, i.e., for any "fill" volume, an equal or greater volume of "cut" must be removed at an elevation below the fill. Impoundment areas such as lakes or spreading basins should be evaluated as "fill" if they are not designed to release their water from the reservoir (i.e., gravity flow, pumping or recharge) prior to a flood.

(3) Cumulative degradation of project storage through land development that does not mitigate for this lost volume has an insidious effect on the hydrologic design and operation of the project. Therefore, proposals for excavation and grading of the flowage easement that result in loss of project storage will not be approved unless substitute flood storage is provided.

(4) Normally, to account for losses in volumetric space caused by vertical development, the best engineer practices would require developers to balance cut and fill up to the elevation at Maximum Reservoir Level (MRL). Unfortunately, from the point of volumetric calculations and legal control, real estate rights are not generally acquired for land between the elevation of the guide acquisition line (or take line) and the elevation of the top of the dam. Clearly, for land developments beyond our acquisition line we have no legal authority to regulate incursions in the vertical space that would otherwise be available for floodwaters in a design flood event. This acquisition policy represents an attempt in balancing hydrologic design requirements and political realities of real estate acquisition.

(5) When reviewing proposed developments that at least partially occur on project-owned lands, best engineering practices should be taken into account in considering any adverse impacts to dam safety during a design flood. In such instances, when the proposed development would interfere with the purpose for which the project easement or fee interest was acquired, the Government has the authority to require volumetric mitigation for that portion of the development proposal over which the Corps has real estate rights to the top of the MRL. (See Appendix A, figure 1)

(6) The Government has no jurisdiction for vertical space above land over which no real estate interests exist. However, as stewards of the project, the Corps can encourage the developer to mitigate for that volumetric area (storage space) that is removed from the project storage space above the project acquisition line by the proposed development. (See Appendix A, figure 2 and 3).

(7) In cases where there is a new development on lands that would be inundated by the PMF, but over which the Corps has no real estate interests, or when a new PMF has been developed, there exists a need to ascertain the integrity of the Corps project and any dam safety issues resulting from the routing of the PMF. In such cases, the following analysis should be performed, in coordination with the Dam Safety Assurance Program. The PMF inflow flood should be (mathematically) routed through the reservoir making the assumption that over such lands, the storage space is not available. This assumption should reflect actual and reasonably projected development throughout the life of the project. Such an analysis would relieve the District from a need to seek volume mitigation over lands over which we have no control, and also ensure that 100 percent of the PMF can be safely passed over the spillway. This new routing may result in a higher water surface elevation, and may indicate a deficient spillway. In such cases, the Dam Safety Assurance Program should be engaged resulting in a study to determine appropriate corrective action. Corrective action might take the form of either enlarging the spillway, raising the dam, use of a parapet wall on top of the dam to meet freeboard deficiencies, re-operation of spillway gates, acquiring rights over private land between the elevation of the dam's spillway and the elevation of the top of dam, or a combination of these alternatives. In some cases, it may prove more acceptable to purchase easement rights, as opposed to raising the dam (or some other combination of solutions).

c. Flood Damage to Property. In general, where land developments occur, it should be susceptible to period flooding. Buildings that contain utilities, records and/or equipment should either be flood proofed or should have contingency plans developed for evacuation of moveable items before the flood. A modified version of the Los Angeles District's Minimum Criteria for Reservoir Land Use Projects has been adopted for regional use and is presented as Appendix B. Use of this table will provide consistent criteria for developers upon which to base their conceptual plans.

d. Flood Damage to the Reservoir.

(1) Floatables. If the development has storage tanks, vehicles, or any other article that could float during a flood, each item must be adequately anchored to prevent it from becoming dislodged due to buoyancy and/or swift currents. A floating object could get drawn into the intake structure (act as a plug) and potentially cause loss of control of the project. They also could get swept over the spillway, creating the potential for serious damage to structures or property downstream.

(2) Release of Pollutants. The water quality of water stored or released from Corps reservoir projects is the responsibility of the Corps. If a development stores or handles pollutants, leakage or accidental discharge into the flood waters could lead to environmental problems, both within and downstream of the project. Operational constraints during this event could include a need to hold polluted floodwaters until they can be treated or recovered. This could create a dangerous situation in which scheduled releases cannot be made. This additional operation constraint would narrow the range of options for water control decisions. Need to evaluate risk of releases and where necessary take corrective actions.

(3) Debris Build-up and Cleanup within the Flood Control Basin. Some development proposals are large enough to affect the natural flow of sediment into the reservoir. This could cause larger quantities of sediment and/or debris to deposit in the reservoir where it had not been anticipated. If debris impinges on inflow into the reservoir, the problem could cause additional flooding. Also, the designs of the outlet works, spillway and embankment are based on the net area-capacity curve, which is developed based on the sediment distribution. Extreme changes in sediment distribution may affect the operation of the project as designed. Additionally, the build-up of debris or sediment in an area that used to be free flowing could lead to redirection of flows that produce detrimental erosive forces. If the redirected flows were to impinge upon the dam embankment, the safety of the dam could be compromised. Cleanup of the development could be very costly. Therefore, flow paths must be examined to avoid these problems.

e. Existing and Planned Project Use. Many projects have Master Plans that guide the use of resources and the orderly development of project lands. All development proposals should be reviewed for consistency with the Master Plan to assure that the proposed development will not conflict with existing or planned uses. If the review indicates that the proposed development is

either inconsistent with the Master Plan or may conflict with existing or planned uses, the Master Plan will be updated or supplemented prior to approval of the proposed development.

f. Induced Constraints to System Flexibility. Reservoir projects need operational flexibility in order to deal with forecast errors, operational inefficiencies, and delays in meeting operational objectives, emergencies, and unique situations. Flexibility is needed to allow the water control manager to adapt the water control plan to special circumstances that may arise in the river system. If a rising pool level in the reservoir were to approach a development where damages could result, the water control manager should not be placed under pressure to release flood waters that otherwise may have been held back to prevent further flooding of the downstream system. In most cases, one of the primary purposes of the project is to provide flood protection for these downstream areas. Real-time flexibility gives the water control manager the ability to make modifications to the water control plan, and, if necessary, to make best use of the reservoir and the overall reservoir system. Therefore, the proposed development must not adversely affect the system operations.

g. Constraints to Future System Flexibility. Water control managers must also deal with future changes in the watershed (physiography and development), new hydrologic data and technology, operational experience, changed downstream conditions (increased/decreased channel capacity), changing emphases (e.g. environmental concerns, water quality, water conservation, recreation, etc.). Many Corps reservoir projects are no longer able to provide the degree of protection for which they were originally designed, due to one or more of the above reasons. Re-regulation studies are undertaken to try to optimize the operational objective function, i.e., to determine how the project can best be operated to maximize the public benefit. Developments that may appear to be acceptable under present conditions may not be acceptable when considering future needs for operational flexibility. The future flexibility of the project and the entire river system to meet authorized purposes should not be compromised by inappropriate reservoir development.

h. Public Safety Problem. Some development proposals result in an increase in the number of people or animals within the reservoir. The size of a proposed development should be evaluated. Facilities that can hold a large number of people might be denied for safety reasons. Examples of large facilities that might not be allowed in flood control basins are: hospitals, schools, libraries, museums, theaters, shopping centers, and amusement parks. A development may also attract a larger number of people than it was designed for. For example, an underground parking lot may attract children as a play area or may attract transients as a sleeping area. Because these developments were not originally intended to have people playing in, or occupying them, contingencies would likely not have been set up to evacuate the people in the event of a flood. Therefore, public safety would be at risk. Part of the liability could be attributed to the Corps, adding risk and potential delays to water management decisions. Flooding of electrical circuits and wiring may create special hazards to evacuation procedures. Some developments create hidden dangers and must be carefully evaluated for potential public safety problems.

i. Environmental Stewardship. Environmental ramifications of any proposed development must be fully explored and all requirements for assessing, coordinating, and reporting possible impacts must be followed. Some of the basic responsibilities for environmental stewardship at Corps-operated reservoirs are described in reference 3i, though there are numerous other pertinent directives dealing with requirements relating to NEPA, the Endangered Species Act, the Fish and Wildlife Coordination Act, the Clean Water Act, the Clean Air Act, the National Historic Preservation Act, etc. Any land development proposal should be coordinated as soon as possible with the Operations and Environmental elements so that the necessary steps to gather information and to deal with environmental requirements and procedures can be planned out, as some of these might be expensive and time consuming.

6. Contingency Plan. A Contingency Plan should be developed for any development within the flood control basin that is subject to hazardous conditions and damages from a flood event. A thorough technical analysis by the developers will force them to consider what emergencies could arise within a flood control basin and determine what contingency measures are required to deal with them. The agreement, which allows development, should state that it is the sole responsibility of the developer to evacuate the area. At projects where monitoring exists, the District would attempt to make notifications to affected interests. The agreement should further state that: "Prior to commencement of construction, the developer will produce and finalize an evacuation contingency plan." This will ensure that a procedure has been worked out beforehand. The plan shall not be reviewed or require approval from the Corps; however, its contents should include standard operating procedures for: regular patrols of the area (if warranted); warning systems, their triggering mechanisms, their thresholds and minimum warning times based on the hydrology of the watershed; mobilization of equipment and manpower for evacuation of humans, animals and/or records, utilities and equipment; emergency notifications (phone number and personnel lists); access roads and escape routes; and clean-up and repair.

7. Reporting. The evaluation of any land development within a flood control basin must be well documented. The report must explain what factors were evaluated and what the results of the evaluations were. The level of detail appropriate in the documentation will vary depending on the specifics of the proposal, but must be sufficient to explain and support the recommendation and decision. The completed evaluation package, including the proposal and environmental documentation, is to be submitted to SPD for review to insure national and regional consistency in policy application, prior to approval action by the District Commander. A checklist of minimum requirements for a report is outlined in Appendix C, Evaluation Criteria Checklist for Land Development Proposals.

ROBERT L. DAVIS
COL (P), EN
Commanding

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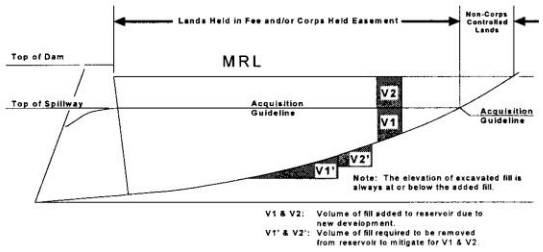
CESPD R 1110-2-1
November 2001

4 Appendices
App A – Typical Cut and Fill Volumes for Land Development Proposals (Figures 1 thru 3)
App B – Minimum Criteria for Reservoir Land Use Projects
App C – Evaluation Criteria Checklist for Land Development Proposals
App D – Glossary

Appendix A – Typical Cut and Fill Volumes for Land Development Proposals

Figure 1

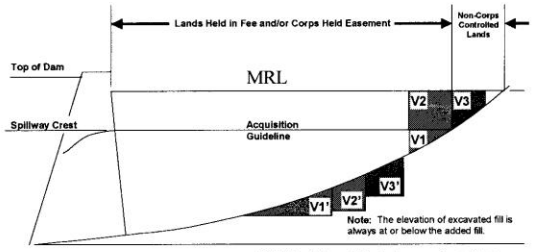
Projects entirely on Corps controlled lands



MRL: Maximum Reservoir Level

Figure 2

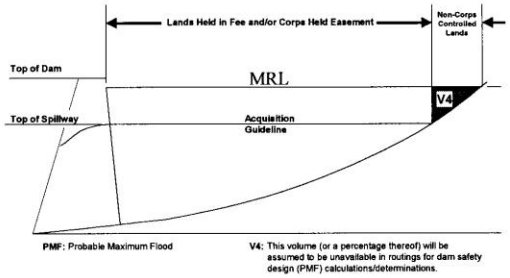
Projects that straddle Corps and non-Corps controlled lands



MRL: Maximum Reservoir Level

Figure 3

Volumes to be excluded from consideration in PMF computations



MRL: Maximum Reservoir Level

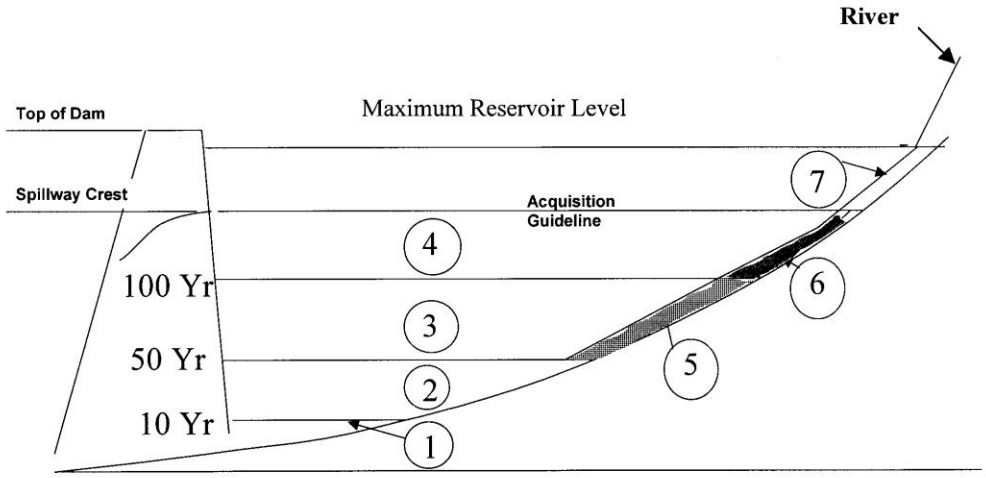
Appendix B -Minimum Criteria for Reservoir Land Use Projects

Location	Figure Level	(*)Elevation Frequency Range	Development Constraints	Acceptable Land Uses
Reservoir	1	Up to 10-yr flood	Subject to prolonged inundation, sedimentation, and wave erosion	Structures are not recommended. Nature trails and open play fields are acceptable.
	2	10-yr flood to the 50-yr flood	Subject to frequent flooding, sedimentation, and wave erosion	Open or floodable structures and field facilities that can sustain inundation with acceptable maintenance costs. Concession stands with portable contents, bridle trails, shade and picnic armadas, backstops, goalposts, etc. are considered appropriate.
	3	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 costs. Floodable restrooms and picnic area are considered appropriate.
	4	100-yr flood to the Reservoir Design Flood	Subject to infrequent flooding, sedimentation, and wave erosion	Flood-proofed, closed structures are permitted. Structures conducive to human habitation are prohibited.
River floodplains	5	Below the reservoir 100 yr flood elevation and up to the 100-yr river flood	Subject to frequent flooding, sedimentation, and wave erosion	Open-type or floodable structures and field facilities that can withstand flood-flow velocities for 100-yr conditions and will not impede the passage of flood flows.
	6	Above the reservoir 100 yr flood elevation and up to the 100-yr river flood	Subject to frequent flooding, sedimentation, and wave erosion	Structures are not recommended. This area must be reserved in an open manner to provide for conveyance of the 100-yr flood.
	7	Above the reservoir 100 yr elevation and above the 100-yr river flood	Subject to variable flooding, sedimentation, and wave erosion	Flood-proofed, closed structures are permitted along the floodway fringe. All development must meet Federal regulatory floodway regulations and be approved by the District Engineer.

* Frequency criteria shall be for a reservoir and watershed conditions of at least 50 yrs in the future. Most current frequency curve may be used as guidance in estimating future conditions. Note: Land uses at lower elevations may be developed at higher elevations

Before making a final determination on the proposed development, the Offices of Real Estate and Counsel should be consulted.

Appendix B - Minimum Criteria for Reservoir Land Use Projects



Note: Refer to Table B of Minimum Criteria for Reservoir Land Use Projects for description

Appendix C –Evaluation Criteria Checklist for Land Development Proposals

Each Question that is answered contrary to the guidance should have an explanation.

1. Corps Reservoir or Basin: _____

2a. Name of Development Proposal: _____ 2b. Project No.:_____

2c. Project Manager: _____ Telephone No. _____

2d. District Reviewers:

Environmental: _____ Counsel: _____

Real Estate: _____ Operations: _____

Engineering: _____ Reservoir Regulation: _____

3. General Project Description:

4. Summary comment/recommendation for the proposed development:

5. Materials Reviewed: ☐Report(s) ☐Plan(s) ☐Other(s)

6. Titles and Date of Reviewed Materials:

7. Will the proposed development be located within the reservoir (defined as all land below the Maximum Reservoir Level?) ☐Yes ☐No ☐Cannot be Determined

8. Do any of the potentially affected easements conflict with the approved water control plan?
☐Yes (explain)☐No ☐Cannot be Determined

9a. Will there be any "cut and fill" operations in preparation for the proposed development?
☐Yes ☐No ☐Cannot be Determined

9b. If "Yes", would they allow drainage by gravity?
☐Yes ☐No ☐Cannot be Determined

10. Is there any loss of storage at any elevation below the Maximum Reservoir Level?
☐Yes (Explain)☐No ☐Cannot be Determined

Appendix C –Evaluation Criteria Checklist for Land Development Proposals

11. Do any buildings, ponds, etc. remove or have the potential to remove (e.g., by sandbagging to save expensive property) flood control volume from the Corps project?

☐Yes ☐No ☐Cannot be Determined

12. If located within the reservoir, what is the elevation frequency range (currently) associated with the location?

☐ below 10 Yr ☐ 10-50 Yr ☐ 50-100 Yr ☐ greater than 100 Yr

13. Do the facilities/structures of the proposed development comply with the attached Appendix B "Minimum Criteria for Reservoir Land Use Projects?"

☐Yes ☐No (If No, explain)

14.a. Do you have a copy of the title, leasehold, or easement?

☐Yes ☐No

14b. Will the proposed development conflict with the Corps flowage easements or other Real Estate interests? ☐Yes(explain) ☐No ☐Cannot be Determined
(explain why)

15. Is there a proposal for sale or exchange of land, or change in easement between the Government and the Developer? ☐Yes ☐No

16. Is a Categorical Exclusion (CATX) Required per ER 200-2-2?

☐Yes ☐No

17. Has the review been coordinated with Fish and Wildlife Service or the State Fish and Game Department? ☐Yes ☐No

18. Are there any existing or potential endangered species identified? (If Yes, provide list)

☐Yes ☐No

19. If Yes, what steps have or are being taken to mitigate for issues related to endangered species (present or future)?

Appendix C –Evaluation Criteria Checklist for Land Development Proposals

20. What other environmental compliance requirements, if any, are to be met and what actions have been taken to satisfy the requirements? (For example, cultural resources, water quality, air quality, permit requirements, FAA coordination, non-source pollutant discharges, etc.)

21. Can any potential hidden constraints or dangers be identified (e.g., submergence of electrical wiring, underground parking, etc.)? ☐Yes ☐No ☐Cannot be Determined

22. Will there be impacts to reservoir operations or potential impacts regarding operation constraints as a result of the proposed development (e.g., loss of reservoir storage capacity, increase of inflow volume into the reservoir, etc.)?

☐Yes ☐No

23a. Are there any possibilities of damage to the Corps project as a result of the proposed development due to floatable objects/structures?

☐Yes ☐No

23b. If "Yes", is there a plan in place to mediate the problems with floatables?

☐Yes ☐No

24a. Will there be any pollutants stored within the proposed development?

☐Yes ☐No

24b. If "Yes", what steps are being taken to minimize or eliminate contamination by pollutants?

25a. Will there be an increase in the quantity of debris/sediment inflow to the flood control reservoir as a result of the proposed development?

☐Yes ☐No ☐Cannot be Determined

25b. If Yes, how much (what rate?)

26. Will the proposed development include facilities/structures that can hold large number of people (e.g., hospitals, schools, libraries, museums, theaters, shopping centers, amusement parks)? ☐Yes ☐No ☐Cannot be Determined

27. What are the proposed development's impacts to the future operational flexibility of the dam?

28. Does the proposed development have any potential impact on ongoing studies (in-basin, downstream, or re-operation studies)? ☐Yes ☐No ☐Cannot be Determined

29. Will any part of the proposed development conflict with Corps' project Master Plans for the area of proposed development? ☐Yes ☐No ☐Cannot be Determined

C-3

Appendix C –Evaluation Criteria Checklist for Land Development Proposals

30. Recommendations:

31. Other Comments?

Submitted By: _____ Date: _____.

Appendix D - Glossary

Acquisition Guideline - Often referred to as the Take Line or Guide Acquisition Contour, is the contour line established with a reasonable freeboard allowance above the top pool elevation for storing water for flood control, navigation, power, and irrigation.

Corps Controlled – Used to refer to lands held in fee and/or Corps held easements

Fill – Any earth, water, or man-made structure that, when placed on the reservoir land, reduces the storage capacity of the reservoir.

Floodplain - The lowland and relatively flat areas adjoining inland and coastal waters, and including, at a minimum, that area subject to flooding in any given year.

Maximum Reservoir Level (MRL) – The Maximum Reservoir Level is the elevation resulting from the routing of the Spillway Design Flood.[1]

Probable Maximum Flood (PMF) - Is the flood that may be expected from the most severe combination of critical meteorological and hydrologic conditions that are reasonably possible in the region. The PMF is calculated from the Probable Maximum Precipitation (PMP). The PMP values encompass the maximized intensity-duration values obtained from storms of a single type. Storm type and variations of precipitation are considered with respect to location, area coverage of a watershed, and storm duration. The probable maximum storm amounts are determined in much the same way as are standard project flood amounts, except the precipitation amounts are first increased to correspond to maximum meteorological factors such as wind speed and maximum moisture content of the atmosphere. [1]

Project Storage Capacity - As defined in this reference, project storage refers to the hydrologic and hydraulic needs of the project, which encompasses the volume of the entire project, i.e. sedimentation, hydropower, recreation, agricultural, water supply, reservoir design, and spillway design.

Reservoir Design Flood (RDF) – The Reservoir Design Flood is that flood, along with associated antecedent conditions, that was originally used to determine the design benefits and level of flood protection provided by the project. In most cases this is the event that determined the original spillway crest, or the boundary between the flood control pool and storage provided primarily for dam safety issues.

Spillway Design Flood (SDF) – Spillway Design Flood is the flood hydrograph used in the design of a dam and its appurtenant works particularly for sizing the spillway and outlet works, and for determining maximum temporary storage and height of dam requirements.[1]

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[1] Reference EM 1110-2-1420, Hydrologic Engineering Requirements For Reservoirs, dated 31 October 1997.

APPENDIX A4:
CORPS POLICY ON FILMING AND PHOTOGRAPHY IN OPERATIONS AREA

1. Filming within recreation areas leased to the City of Los Angeles (City) and open to the public should be coordinated with the City. Filming within Corps operations areas, including the Dam and spillway, require a right-of-entry permit from the Corps, which constitutes a "Federal action" requiring compliance with environmental laws including NEPA.
2. Certain types of filming activities within operations areas have been assessed under the Draft Environmental Assessment (DEA) associated with this Master Plan. Filming activities meeting the following conditions will generally not require a request-specific Environmental Assessment (EA):
    a. Filming is limited to two (2) consecutive days.
    b. Activities to be filmed are limited to walking, talking, and slow vehicle driving (not to exceed 25 mph).
    c. No major equipment (heavy cranes, etc.) may be used. Limited equipment such as a camera dolly is allowed.
    d. No stunts, pyrotechnics, weapons, firearms, fire, special effects, aircraft, animals, set construction, and/or water contact is/are permitted. No ground disturbance or physical alteration of the property (cutting of vegetation, moving rocks, etc.) is permitted.
    e. Activities including setup and takedown are limited to 2 hours before sunrise to 2 hours after sunset.
    f. A safety review must be completed by the Corps.
    g. The Corps must confirm there will be no effect on endangered species.
    h. Trailers for actors, crew, craft services, etc. shall generally be located outside Operations Areas. Use of the spillway or other operations areas may be granted during dry season only. Trailers and equipment placed within operations areas overnight may be monitored by a security guard, during dry season only.
    i. No vehicles may be driven on turfed or vegetated areas. Actors may be driven to the filming location.
    j. Upon completion of filming, the permittee must remove/properly dispose of all trash and restore the area to pre-filming condition.
    k. An evacuation plan is required.
3. Requests for film permits that propose to meet the above restrictions shall provide the required documentation to demonstrate compliance along with the film permit application, no less than 30 days before the proposed filming date. The Corps shall review and confirm that the request complies with the restrictions above.
4. Requests for filming that do not meet the conditions above are subject to a more detailed request-specific review including an EA for NEPA compliance. All requests not meeting the above restrictions must be received no less than 90 days before the proposed filming date.
5. All filming requests are subject to Corps requirements regarding liability, insurance, and consideration. All filming requests are subject to a clear weather forecast of [ ] days. Use of certain areas may be limited by the season and current weather conditions.
6. Processing of all requests and required management/monitoring has associated fees and changes to be borne by the applicant. Please contact the Corps for the fee schedule and further information on the film application process.

APPENDIX 5:
CORPS POLICY ON SPECIAL EVENTS
AT HANSEN DAM BASIN

1. Under Corps regulations, special events are subject to the review and approval of the Corps. At Hansen Dam Basin (Basin), events less than 1,000 people, subject to the restrictions included in the Master Plan, are within the authority of the City of Los Angeles as stated in paragraph 38(d) of the Lease. Events over 1,000 people are subject to specific review and approval by the District Commander.
2. The approval of special events over 1,000 people is a "Federal action" requiring compliance with environmental laws including NEPA. Through the Environmental Assessment associated with this Master Plan, the Corps has assessed impacts associated with special events subject to the conditions and limitations below and determined the impacts are less than significant. Generally, no event-specific Environmental Assessment will be required for events that meet these conditions and limitations, after verification by the Corps.
    a. Events must be held at one of the following locations:
        i. Hansen Dam Park with parking onsite
        ii. Hansen Sports Center with parking onsite
        iii. Alternative parking within the Basin may also be approved by the Corps
    b. Events must be assessed on an event-specific basis.
    c. Events may not obstruct use or access to any other area of the Basin. Recreational users of the adjacent areas may not be impeded.
    d. Events may not exceed 5,000 people.
    e. Events may not exceed two days of the event plus two days (48 hours) setup and two days (48 hours) cleanup/takedown. Event areas must remain open to the public during setup and cleanup except where safety and/or logistics is/are a concern.
    f. No stunts, weapons, firearms, fires, aircraft, animals other than dogs, and/ or water contact is/are permitted. No ground disturbance (digging, leveling, etc.) or physical alteration (cutting of vegetation, moving rocks, etc.) is permitted.
    g. No vehicles may be parked on grassy areas outside designated parking. Vehicles may be used at the site for setup and takedown only.
    h. Events may not include sound above 100 db.
3. Requests for events meeting the above limitations must be submitted to the Corps no less than 30 days prior to the proposed event date for review and confirmation that the event complies with applicable requirements.
4. Events not meeting the above limitations are subject to a more detailed event-specific evaluation by the Corps, including an Environmental Assessment for NEPA compliance. Requests for such events must be submitted to the Corps no less than 90 days prior to the proposed event date.
    a. Walk/runs, marathons, races etc. must be assessed on an event-specific basis.
    b. Car shows must be assessed on an event-specific basis.
5. All Special Events, including those assessed in the Master Plan EA, must meet the following requirements:
    a. The right to charge is subject to the event proponent providing parking assistance, adequate policing for crowd supervision, and other services required for the health and welfare of event participants.
    b. The event proponent must meet bonding, insurance, and other requirements under local laws.
    c. No costs shall accrue to the Government.

d. Use of Basin lands will not preempt public use of the Basin's recreational resources. All other Basin areas must remain accessible to non-event Basin users.
e. The event proponent shall provide a plot plan showing the proposed layout of the event. A Parking Plan (including plan for disabled parking), Traffic Plan, and Evacuation Plan shall be required. No vehicles may be parked on grassy areas outside designated parking. Event proponents shall encourage the use of public transit, carpooling, and bicycling to the event. Parking limitations shall be posted one week prior to the event.
f. Event proponents must coordinate security requirements with the City. Generally, events over 1000 people should have 1 security guard/person for each 500 people.
g. The site shall be fully restored to prevent conditions by the event proponent within 48 hours of event closure. The City may require a bond from the event proponent.
h. Events longer than four days or over holidays are generally disfavored, requiring a special exception by the District Commander.
i. Either the City or the event proponent must submit a Post-Event Report within 30 days following the event containing the number of attendees, funds received (see collection cost analysis below), any problems encountered, any damage to the property, and any other issues of concern.
j. Collection of any funds in connection with the event, including for admission and parking, must be approved by the District Commander prior to the issuance of the City's permit. Collection of entry fees in excess of actual total costs will be paid to the Corps for legal disposal unless surplus proceeds are used for benefit to the project (Hansen Basin). A collection cost analysis will be provided by the event proponent within 30 days following the event. The Corps reserves the right to audit the City's or event proponent's records.
k. Adequate public restrooms (portable) and first-aid facility (e.g., tent), as applicable, must be provided although publicly available facilities may not be closed to the public during the event.
l. Alcohol sales (e.g., beer and wine garden) must be licensed and comply with applicable local laws.
m. The event proponent is required to hold the government harmless, accept liability and provision of indemnity and insurance are required.
n. The Corps must have access to the special event site at all times.

6. In addition, the Corps recognizes that certain large scale events are planned on a recurring basis. Specifically, the Corps has evaluated the environmental impacts of the Hansen 4th of July Spectacular and the American Heroes special events, which typically expect public participation to exceed 25,000. Through the Environmental Assessment associated with this Master Plan, the Corps has assessed impacts associated with these special events subject to the conditions and limitations below and determined the impacts are less than significant.
    i. Events must be held at one of the following locations:
        i. Hansen Dam Park with parking onsite
        ii. Hansen Sports Center with parking onsite
        iii. Alternative parking within the Basin may also be approved by the Corps
    j. Events may not obstruct use or access to any other area of the Basin. Recreational users of the adjacent areas may not be impeded.
    k. Events may not exceed two days of the event plus two days (48 hours) setup and two days (48 hours) cleanup/takedown. Event areas must remain open to the public during setup and cleanup except where safety and/or logistics is/are a concern.
    l. No stunts, weapons, firearms, fires, aircraft, animals other than dogs, and/ or water contact is/are permitted. No ground disturbance (digging, leveling, etc.) or physical alteration (cutting of vegetation, moving rocks, etc.) is permitted.

m. No vehicles may be parked on grassy areas outside designated parking. Vehicles may be used at the site for setup and takedown only.

APPENDIX A6:
CORPS POLICY ON TRAINING IN OPERATIONS AREAS

Training in Operations Areas
(e.g., fitness, safety training by police and fire departments, ROTC, and Army groups).

1. Training activities within recreation areas leased to the City of Los Angeles (City) and open to the public should be coordinated with the City. Training within Corps operations areas, including the Dam and spillway, requires a right-of-entry permit from the Corps, which constitutes a "Federal action" requiring compliance with environmental laws including NEPA.
2. Certain types of training activities within operations areas have been assessed under the Draft Environmental Assessment (DEA) associated with this Master Plan. Training activities meeting the following conditions will generally not require a request-specific Environmental Assessment (EA):
    a. Training may not exceed 2 consecutive days.
    b. Training groups shall not exceed 100 individuals.
    c. No major equipment shall be used.
    d. No stunts, pyrotechnics, weapons, firearms, fire, aircraft, animals, building of structures, and/or water contact is/are permitted. No ground disturbance or physical alteration (cutting of vegetation, moving rocks, etc.) is permitted.
    e. Activities including setup and takedown are limited to 2 hours before sunrise to 2 hours after sunset.
    f. A safety review must be completed by the Corps.
    g. The Corps must confirm there will be no effect on endangered species.
    h. No equipment may be left in the operations area overnight.
    i. Upon completion of training, the permittee must remove/properly dispose of all trash and restore the area to pre-filming condition.
    j. An evacuation plan is required.
3. Requests for training activities that propose to meet the above restrictions shall provide the required documentation to demonstrate compliance along with the request no less than 30 days prior to the proposed training activity. The Corps shall review and confirm that the request complies with the restrictions above.
4. Requests for training that do not meet the conditions above are subject to a more detailed request-specific review including an EA for NEPA compliance. All requests not meeting the above restrictions must be received no less than 90 days before the proposed training date.
5. All training requests are subject to Corps requirements including acceptance of liability. All training requests are subject to a clear weather forecast.

APPENDIX A7:
CORPS POLICY ON BIOLOGICAL SURVEYS IN OPERATIONS AREAS

1. Non-invasive biological surveys within recreation areas open to the public can be undertaken without additional review and approval from the Corps; survey requestors should coordinate with the lessee as appropriate (City of Los Angeles).
2. Biological surveys within operations areas require a right-of-entry permit from the Corps, which is a "Federal action" requiring review under NEPA. The potential impacts associated with certain types of biological surveys within operations areas have been evaluated under the Draft Environmental Assessment (DEA) associated with this Master Plan and determined to be no more than minimal when the conditions below are met. All other requests for rights-of-entry to operations areas to conduct biological surveys will require a request-specific Environmental Assessment (EA).
3. Vegetation surveys (e.g., botany classes learning sampling methods, etc.):
    a. Surveys must occur outside the breeding season (1 March-15 August).
    b. Surveyors may leave established trails and roads.
    c. Surveyors may take small samples of vegetation, excluding any species subject to protection under Federal or state law.
    d. Requestors shall provide a brief description of the proposed survey, including number of attendees, length of activity, methods, etc., for review and confirmation by the Corps that it meets the conditions above.
4. Animal species surveys:
    a. Surveys must be non-invasive and must remain on existing trails, roads, or in open areas (no breaking new trails or creating pathways through tall vegetation).
    b. For example, surveys may not involve banding, netting, clipping, trapping, transects that involve leaving existing roads, trails or open areas, or stratified random sampling that involves leaving existing roads, trails or open areas.
    c. Surveys must have no effect on endangered species under the Endangered Species Act.
    d. Surveys that require a Section 10(a)(1)(a) permit or California Department of Fish and Game (CDFG) permit are excluded.
    e. Surveys may occur at any time of the year.
    f. Requestors shall provide a proposal for review and confirmation by the Corps that it meets the conditions above and accepted standards for surveys.
5. Requests for training activities that propose to meet the restrictions in one of the categories above shall provide documentation to demonstrate compliance with the restrictions along with the request no less than 30 days prior to the proposed survey activity. The Corps shall review and confirm that the request complies with the restrictions above.
6. Surveys that do not fall within one of the categories above will require a request-specific EA. The applicant should contact the Corps for detailed information on the review process including NEPA requirements. For all surveys that do not meet the conditions above (including, but not limited to, listed species surveys, surveys requiring a permit from the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Game (CDFG), or animal surveys that require leaving existing trails, roads and open areas or vegetation surveys within the breeding season), applicants shall submit a proposal for review by the Corps no less than 90 days prior to the proposed survey date.
7. Water sampling and similar requests generally are not dependent on access to operations areas and should be conducted in publicly accessible areas. Access to operations areas for such activities will only be granted in exceptional circumstances.

APPENDIX B:

LEASES

Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

FOR PUBLIC PARK AND RECREATIONAL PURPOSES

HANSEN FLOOD CONTRCL BASIN, LOS ANGELES COUNTY, CALIFORNIA PROJECT AREA

THE SECRETARY OF THE ARMY under authority of Section 4 of the Act of Congress approved 22 December 1944, as amended (16 U.S.C. 460d), hereby grants to the CITY OF LOS ANGELES, a municipal corporation of the State of California, hereinafter called the lessee; *a lease for a period of* fifty (50) *years commencing on* the date of/ execution hereof ~~, and ending on~~ , *to use and occupy approximately* 1351.84 *acres of land and water areas under the primary jurisdiction of the Department of the Army in the* Hansen Flood Control/Basin *Project Area, as shown on Exhibit* B, Drawing , *numbered* 219-K-40 , ~~dated attached hereto and made a part hereof~~ *for public park and recreational purposes*, and as described in Exhibit C, legal description, dated 20 December 1967, File No. 219-K-40, both exhibits being attached hereto and made a part hereof.

THIS LEASE is granted subject to the following conditions:

1. The lessee shall conform to such rules and regulations as may be prescribed by the Secretary of the Army to govern the public use of the said project area, and shall comply with the provisions of the above cited Act of Congress. The lessee shall protect the property from fire, vandalism, and soil erosion, and may make and enforce such rules and regulations as are necessary, and within its legal authority, in exercising the privileges granted in this lease, provided that such rules and regulations are not inconsistent with those prescribed by the Secretary of the Army or with provisions of the above cited Act of Congress.

2. The lessee shall administer and maintain the leased property, for the purposes of this lease, in accordance with the U.S. Army Engineers' Master/Recreational Plan and the implementing General Development Plan for said property and with an Annual Management Program to be mutually agreed upon between the lessee and the U.S. Army District Engineer, in charge of the administration of the property, which may be amended from time to time as may be necessary. Such Annual Management Program shall include, but is not limited to, the following:

a. *Plans for management activities to be undertaken by the lessee or jointly by the U.S. Army Engineers and the lessee, including buildings, improvements and other facilities to be constructed thereon.*

b. *Budget of the lessee for carrying out the management activities.*

c. *Personnel to be used in the management of the area.*

3. The lessee shall provide the facilities and services necessary to meet the public demand for the use of the area for public park and recreational purposes either directly or through concession agreements with third parties. All concession agreements shall expressly state that they are granted subject to all of the terms and conditions of this lease and that the concession agreement will not be effective until the terms and conditions thereof are approved by the District Engineer.

4. Admission, entrance or user fees may be charged by the lessee for the entrance to or use of all or any part of the leased premises or any facilities constructed thereon, PROVIDED, prior written approval of the District Engineer is obtained.

ENG Form 1 SEP 66 **1736** (ER 405-1-830) PREVIOUS EDITIONS ARE OBSOLETE

Incl 2

5. The amount of any fees to be charged by the lessee and all rates and prices charged by the lessee or its concessionaires for accommodations, food (except packaged goods), and services furnished or sold to the public shall be subject to regulations and the prior approval of the District Engineer. The lessee shall, not less than 15 days prior to 30 April and 31 October of each year that this lease remains in effect, submit to the District Engineer for approval a list of the fees, rates and prices proposed for the following 6 months. The lessee shall furnish justification for any proposed fee, rate or price increase or decrease. The District Engineer will give written notice to the lessee of his approval of or objection to any proposed fee, rate or price and will, if appropriate, state an approved fee, rate or price for each item to which an objection has been made. The lessee and/or its concessionaires shall keep a schedule of such fees, rates or prices posted at all times in a conspicuous place on the leased premises.

6. All monies received by the lessee from operations conducted on the leased premises, including, but not limited to, entrance and admission fees and user fees and rental or other consideration received from its concessionaires, may be utilized by the lessee for the administration, maintenance, operation and development of the leased premises. Any such monies not so utilized by the lessee, or programmed for utilization within a reasonable time, shall be paid to the District Engineer at the expiration of each 5-year period of this lease. The lessee shall establish and maintain adequate records and accounts and render annual statements of receipts and expenditures to the District Engineer, except for annual or weekly entrance fees which also are honored at other recreational areas operated by the lessee.

NOT APPLICABLE

7. All structures shall be constructed and landscaping accomplished in accordance with plans approved by the District Engineer.

NOT APPLICABLE

8. The right is hereby expressly reserved to the United States, its officers, agents, and employees, to enter upon the said land and water areas at any time and for any purpose necessary or convenient in connection with river and harbor and flood control work, and to remove therefrom timber or other material required or necessary for such work, to flood said premises when necessary, and/or to make any other use of said land as may be necessary in connection with public navigation and flood control, and the lessee shall have no claim for damages of any character on account thereof against the United States or any agent, officer or employee thereof.

9. Any property of the United States damaged or destroyed by the lessee incident to the exercise of the privileges herein granted shall be promptly repaired or replaced by the lessee to the satisfaction of the District Engineer.

10. The United States and the Los Angeles County Flood Control District *shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the exercise of the privileges herein granted, or for damages to the property of the lessee, or for damages to the property or injuries to the person of the lessee's officers, agents, servants, or employees or others who may be on said premises at their invitation or the invitation of any one of them, arising from or incident to the flooding of said premises by the Government or flooding from any other cause, or arising from or incident to any other governmental activities on the said premises, and the lessee shall indemnify and save the United States harmless from any and all such claims.*

11. That at the time of the commencement of this lease the lessee will obtain from

12. This lease may be relinquished by the lessee at any time by giving to the Secretary of the Army, through the District Engineer, at least ~~thirty (30)~~ one hundred and eighty (180) days' notice in writing.

13. This lease may be revoked by the Secretary of the Army in the event the lessee violates any of the terms and conditions of this lease and continues and persists therein for a period of ~~thirty (30)~~ ninety (90) days after notice thereof in writing by the District Engineer.

14. On or before the date of expiration of this lease or its relinquishment by the lessee, the lessee shall vacate the said Government premises, remove all property of the lessee therefrom, and restore the premises to a condition satisfactory to the District Engineer. If, however, this lease is revoked, the lessee shall vacate the premises, remove said property therefrom, and restore the premises aforesaid within such time as the Secretary of the Army may designate. In either event, if the lessee shall fail or neglect to remove said property and so restore the premises, then said property shall become the property of the United States without compensation therefor, and no claim for damages against the United States or its officers or agents shall be created by or made on account thereof.

NOT APPLICABLE

15. The lessee or its concessionaires shall not discriminate against any person or persons because of race, creed, color or national origin in the conduct of its operations hereunder. The grantee furnishes as part of this contract an assurance (Exhibit D) that he will comply with Title VI of the Civil Rights Act of 1964 (78 Stat. 24) and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations.

16. All notices to be given pursuant to this lease shall be addressed, if to the lessee, to the City of Los Angeles, Department of Recreation and Parks, Room 505, City Hall, Los Angeles, California 90012; if to the Government, to the District Engineer, U. S. Army Engineer District, Los Angeles, Corps of Engineers, P. O. Box 2711, Los Angeles, California 90053; or as may from time to time be directed by the parties. Notice shall be deemed to have been duly given if and when inclosed in a properly sealed envelope or wrapper, addressed as aforesaid and deposited postage prepaid (or, if mailed by the Government, deposited under its franking privilege) in a post office or branch post office regularly maintained by the United States Government.

17. This lease is subject to all existing easements, and easements subsequently granted, for roadways, and utilities located or to be located on the premises, provided that the proposed grant of any easement will be coordinated with the lessee and easements will not be granted which will interfere with developments, present or proposed, by the lessee.

44. For Conditions Nos. 18 - 43 see Exhibit A, attached hereto and made a part hereof.

IN WITNESS WHEREOF I have hereunto set my hand this 21st day of January, 1969, by direction of the Assistant Secretary of the Army.

Approved as to Form
1965
ROGER ARNEBERGH
City Attorney
By _____ Deputy

Sherry B. Myers
Chief, Real Property
Division, OASA (I&L)

The above instrument, together with the provisions and conditions thereof, is hereby accepted this 25th day of April, 1968.

ATTEST:

CITY OF LOS ANGELES

By Mrs Harold C Morton

Title: PRESIDENT

U. S. GOVERNMENT PRINTING OFFICE : 1966 O—230-168

18. That the areas initially made available to the lessee for public park, recreational, and incidental purposes by this lease, and the additional areas similarly to be made available to it from time to time hereafter as provided in Condition No. 23 hereof, shall be known as the "Hansen Dam Park," and said areas shall hereinafter be referred to as the "recreational areas."

19. That all monies received by the lessee (except as noted in Condition No. 20) from operations conducted on the leased premises, including, but not limited to, entrance and admission fees and user fees and rental or other consideration received from its concessionaires, may be utilized by the lessee for the administration, maintenance, operation, and development of the leased premises, the Sepulveda Flood Control Basin, and/or any other flood control lands leased by the Secretary of the Army to the lessee for public park and recreational purposes. Any such monies not so utilized, or programmed for utilization in a reasonable time, by the lessee shall be paid to the District Engineer at the expiration of each 5-year period of this lease. The lessee shall establish and maintain adequate records and accounts and render annual statements of receipts and expenditures to the District Engineer.

20. That the lessee may charge a fee for parking in a fenced and guarded area providing security for users of the facility (provided the public has the option of parking without charge in unattended parking areas made available by the City) and the lessee may charge a fee for launching of boats (other uses of the water, such as for swimming, shall be without charge) provided all monies received shall be used by the City to purchase water from other sources for maintaining the recreational lake level in water short years for boating purposes.

21. That all structures shall be located, constructed, and landscaping accomplished in accordance with plans approved in advance in writing by the District Engineer. No permanent type of recreational building or accessory facilities shall be erected on the land below elevation 1030 M.S.L., except that open-type structures may be erected between elevation 1030 M.S.L. and elevation 1010 M.S.L. upon written approval of plans of such structures by the said District Engineer. The lessee shall have the right to construct and maintain upon the premises the accessory facilities normally incidental to public park and recreational improvements. It is expressly understood and agreed that in case of flood or damage to initial improvements and continuing improvements installed by the lessee, construction of the original installations shall be considered to be a full and complete compliance with the provisions of Condition No. 22, and reconstruction thereof shall be optional with the lessee.

22. That within six (6) months after additional lands are made available to lessee for public park and recreational purposes, and purposes incidental thereto, in accordance with Condition No. 23 hereof, the lessee

Hansen Flood Control Basin
City of Los Angeles

shall likewise commence and continue with reasonable diligence, construction and development of said additional lands in accordance with the U. S. Army Engineers' Master Recreational Plan and the implementing approved General Development Plan. If the lands so made available are not substantially developed for recreational purposes within one (1) year after date of availability, they may be withdrawn from the lessee's jurisdiction and utilized for whatever purpose the District Engineer may determine. The lessee shall continue the development of the recreational areas initially and hereafter made available to it pursuant to Condition No. 23 hereof, with the object of accomplishing a progressive completion of the improvements as shown on the U. S. Army Engineers' Master Recreational Plan and the implementing General Development Plan.

23. That the right is hereby reserved to the United States to renew existing agricultural leases, or to enter into new leases covering agricultural use of lands, pending the lessee's written request to the District Engineer prior to 1 May of any given year, for additional land areas to be generally contiguous to existing recreational areas. The District Engineer shall terminate or modify said agricultural leases, effective 31 October of the year application is made, and the lands applied for shall be made available to the lessee on 1 November of said year, for public park and recreational purposes and purposes incidental thereto. The lessee shall not grant any concession privileges, permits, or leases of any portion of the recreational areas covered by this lease for private farming or private agricultural use.

24. That in order to protect the United States and the Los Angeles County Flood Control District and the City of Los Angeles against claims for damages which might arise out of the use and occupation of said recreational areas by persons to whom the lessee may grant concessions, or licenses, the lessee herein agrees to insert a condition in such concession, or license, which it grants pursuant to Condition No. 3 hereof, which shall be in substantially the following form:

> The concessionaire or licensee, in consideration of the granting of this concession or license, agrees to hold the United States, the Los Angeles County Flood Control District, and the City of Los Angeles harmless for any and all claims or rights of action for damages which may or might arise or accrue to said concessionaire or licensee, his officers, agents, servants, employees, or others who may be on the licensed premises at his invitation or the invitation of any one of them, by reason of injury to the property, or the persons of any of them resulting from the entry upon or the use of the licensed premises, by the United States, the Los Angeles County FloodControl District, the City of Los Angeles, or any of them, at any time, for any purpose necessary or convenient in connection with river and flood

control work, or for the removal of timber required or necessary for such work, or by reason of the flooding of the licensed premises, or any part thereof, when in the judgment of any of them, such flooding is necessary in connection with flood control work.

Signed copies of each concession, or license granted by the lessee herein shall be furnished to and filed with the District Engineer.

25. That the lessee shall remove all debris, including logs, brush, and driftwood within the perimeter of this lease, at its own expense, and shall maintain the property at all times in a clean condition, free from weeds, brush, gullies, and floatable material so determined by the District Engineer.

26. That the Government reserves the right to make water studies and surveys, or cause or permit said studies or surveys to be made. These surveys and studies shall include, among other things, the right to make well measurements, install well points, gauge surface streams, and do all necessary work in making an intensive study of water conditions; also to construct and maintain channels for low water flow.

27. That the lessee shall not remove any trees or cut timber, except in furtherance of the plans for the public park and recreational area approved in writing by said District Engineer, and shall conduct no mining or drilling operations, remove no sand, gravel, or kindred substances from the ground, except such sand, gravel, or kindred substances as may be used in connection with buildings, filling, landscaping, and improvement operations on the leased premises by the lessee in accordance with the plans approved in writing by said District Engineer, and shall commit no waste of any kind or in any manner substantially change the contour or condition of the leased premises except in accordance with the plans approved in writing by said District Engineer, but the lessee may salvage such fallen or dead timber as may be required for use as firewood.

28. That the lessee shall not permit on the recreational areas any gambling or games of chance, or install and operate, or permit to be installed or operated, any devices or concessions which, in the opinion of said District Engineer, are contrary to good morals or are otherwise objectionable.

29. That the lessee shall exercise control of the area to insure compliance with all laws, ordinances, and regulations of the State, county, and municipality wherein said premises are located, including the Fish and Game Commission laws of the State of California, and shall maintain supervision over the water area, including boating, swimming, bathing, fishing, and other recreational facilities, but the water areas

of the reservoir shall be open to the public generally, without charge, (except as noted in Condition No. 20) for boating, swimming, bathing, fishing, and other recreational purposes, and ready access to and exit from such water areas along the shores of said reservoir shall be maintained for general public use, when such use is determined by the Secretary of the Army not to be contrary to the public interest.

30. That any and all taxes which may be lawfully imposed by the State or any of its subdivisions upon the recreational areas, the concessions or other improvements placed upon the recreational areas by the lessee or by third parties under agreements with the lessee, shall be promptly paid by the lessee or such third parties as their interests may appear.

31. That for the purpose of maintaining attendance records, the lessee shall obtain public use visitation data to said leased premises. The collection of such visitation data shall be accomplished by on-site surveys and by use of mechanical traffic counters, supplemented by information obtained from other reliable sources. The lessee shall submit this data to this District by the 10th day of each month following the month being reported on, in accordance with procedures outlined in instruction manual, "Procedures for Obtaining Public Use Visitation Data at Civil Works Projects," dated 3 December 1962, or subsequent revisions thereof.

32. That the said lessee's records and accounts shall be subject to inspection and audit at any time by the said District Engineer or his duly authorized representative.

33. That in the event of revocation, termination, or expiration of this lease, the lessee shall terminate all concession and license agreements with third parties, and the lessee and said third parties shall vacate the recreational areas and remove within ninety (90) days, or within such additional time as the Secretary of the Army may authorize, such part of the buildings, structures, equipment, and/or personal property of the lessee therefrom as the lessee may elect, and restore the premises where removal of property is made, to a condition satisfactory to the District Engineer, damages beyond the control of the lessee and due to flooding and to fair wear and tear excepted. In the event the lessee shall fail or neglect to remove any buildings, structures, equipment, and/or personal property and to restore the premises within ninety (90) days, or such additional time as the Secretary of the Army may authorize, then, at the option of the Secretary of the Army, said buildings, structures, equipment, and/or personal property shall either become the property of the United States without compensation therefor, or the Secretary of the Army may cause same to be removed and the premises to be restored at the expense of the lessee and no claim for damages against the United States or its officers or agents shall be created by or made on account of such removal and restoration work. It is expressly understood, however, that the lessee shall not be required

to restore to its original condition the land in recreational areas with respect to landscaping, planting, grading, or paving of roadways, or be responsible for the restoration thereof. Lessee may, but shall not be required to, remove or be responsible for the removal of swimming pools and accessories, underground or exposed irrigation or utility pipes where such improvements or installations have been made in accordance with the U. S. Army Engineers' Master Recreational Plan and the implementing General Development Plan.

34. That it is understood that this instrument is effective only insofar as the rights of the United States in the property covered by this lease are concerned, and the lessee shall obtain such permission as may be necessary on account of any other existing rights.

35. That no member of or delegate to Congress or resident commissioner shall be admitted to any share or part of this lease or to any monetary benefits to arise therefrom. Nothing, however, herein contained shall be construed to extend to any incorporated company, if the lease be for the general benefit of such corporation or company.

36. That the lessee shall not discharge waste or effluent from the leased property in such a manner that such discharge will contaminate streams or other bodies of water or otherwise become a public nuisance.

37. That the lessee shall have the right and privilege, subject to the approval of the District Engineer in writing, of adopting shoreline grades to seasonable conditions so that a shallow shoreline may at all times be created for the safety of swimmers and visitors to the area.

38. That the right is hereby reserved to the United States, its officers, agents, and employees to construct, or to permit the construction of, facilities suitable for communications, electrical distribution or transmission, water supply, flood channels, sewage disposal, and similar purposes on the premises, and the lessee shall have no claim for compensation or damages of any character on account thereof.

39. That the lessee is granted permission to use the Government-owned property as described in Inventory and Condition Report, marked Exhibit E, and located on Drawings, File Nos. 114/111 and 114/112, marked Exhibit F and Exhibit F-1, respectively, all three exhibits attached hereto and made a part hereof. The use of these additional properties by the lessee shall be subject to restoration in conformity with Condition No. 33.

40. That the lessee shall be permitted, subject to approval in writing by the District Engineer in advance, to landscape the downstream slope of the dam, but the acreage below said slope must be developed so that at all times there will be space available for a fill, in the event the Hansen Flood Control Basin might be desilted, and that all improvements or landscaping thereon shall be of such a character that the area could be readily converted to meet desilting requirements.

41. That the lessee shall have the right, subject to approval in writing of the District Engineer and subject to such controls as he shall deem necessary, to use the top of the dam for service vehicles, and as a promenade for the general public, and to install illumination on one or both sides of said dam.

42. That this lease supersedes and cancels unnumbered license dated 13 April 1948, Amendment No. 1 dated 23 March 1950, and Amendment No. 2 dated 22 May 1957, thereto, to the City of Los Angeles, which are terminated as of the date of execution hereof by the Government. The facilities constructed on the premises by the licensee under said license shall be and remain the property of the City of Los Angeles, which shall continue the administration, operation, and maintenance of said facilities under the terms and conditions of this lease.

43. That before the execution of this lease, conditions were revised, deleted, and added in the following manner:

Revised: Granting clause and Conditions Nos. 2, 10, 12, and 13
Deleted: Conditions Nos. 6, 7, 11, and 14
Added: Conditions Nos. 18 through 44.

Hansen Flood Control Basin
City of Los Angeles
Lease No. DACW09-1-69-45

Lease No. DACW09-1-69-45
Department of the Army
City of Los Angeles
Hansen Flood Control Basin
Los Angeles County, California

SUPPLEMENTAL AGREEMENT NO. 1

THIS SUPPLEMENTAL AGREEMENT NO. 1, entered into by and between the SECRETARY OF THE ARMY, representing the United States of America, hereinafter called the Government, and the CITY OF LOS ANGELES, a municipal corporation of the State of California, hereinafter called the lessee, WITNESSETH:

WHEREAS, on 21 January 1969 Lease No. DACW09-1-69-45 was entered into between the Government and the lessee to use and occupy, for a term of fifty years, beginning 21 January 1969, 1351.84 acres of land located within the boundaries of Hansen Flood Control Basin, Los Angeles County, California, for park and recreational purposes; and

WHEREAS, the 3.5 acre site, located within the said flood control basin, assigned to the 6th U. S. Army as a site for a U. S. Army Reserve Center, is no longer required for that purpose; and

WHEREAS, the lessee has requested that its lease be amended to include the 3.5 acres, more or less, of the former U. S. Army Reserve Center, for recreational development, and the Government is agreeable thereto.

JH WEF FAK CRG

NOW THEREFORE, in consideration of the premises, the parties hereto do mutually agree that, effective upon the date of execution hereof, Lease No. DACW09-1-69-45 is modified in the following particulars:

1. That 3.5 acres, more or less, located within tract No. 249, at the southeast corner of Terra Bella Street and Dronfield Avenue, are hereby added to Lease No. DACW09-1-69-45 thereby increasing the total leased acreage from 1351.84 acres, to 1355.34 acres, more or less.

2. That Drawing No. 219-K-40, marked Exhibit B, and legal description, dated 20 December 1967, File 219-K-40, marked Exhibit C, are hereby deleted, and inserted in lieu thereof, are Drawing No. 219-K-40.1, marked Exhibit B-1 and legal description, dated 20 December 1967, revised 6 January 1972, File No. 219-K-40, marked Exhibit C-1, both exhibits being attached hereto and made a part hereof.

Lease No. DACW09-1-69-45
City of Los Angeles
Hansen Flood Control Basin
Supplemental Agreement No. 1

3. That in all other respects the terms and conditions of the basic lease remain unchanged.

IN WITNESS WHEREOF, I have hereunto set my hand by direction of the Assistant Secretary of the Army, this 16th day of August 1972.

Gordon M. Hobbs
Acting Assistant for Real Property
OASA(I&L)

THIS SUPPLEMENTAL AGREEMENT NO. 1, together with the provisions and conditions thereof, is hereby accepted this 13th day of July 1972.

CITY OF LOS ANGELES
By James Madrid
PRESIDENT
Board of Recreation & Park Commissioners
Title:

ATTEST: Lettie B. Wilson
SECRETARY
Board of Recreation
& Park Commissioners

Approved as to Form
Date 7-12-72
ROGER ARNEBERGH
City Attorney
By

Lease No. DACW09-1-69-45
Department of the Army
City of Los Angeles
Hansen Flood Control Basin
Los Angeles County, California

SUPPLEMENTAL AGREEMENT NO. 2

THIS SUPPLEMENTAL AGREEMENT NO. 2, entered into by and between the SECRETARY OF THE ARMY, representing the United States of America, hereinafter called the Government, and the CITY OF LOS ANGELES, a municipal corporation of the State of California, hereinafter called the lessee, WITNESSETH:

WHEREAS, on 21 January 1969, Lease No. DACW09-1-69-45 was entered into between the Government and the lessee to use and occupy, for a term of 50 years, beginning 21 January 1969, 1,351.84 acres of land located within the boundaries of Hansen Flood Control Basin, Los Angeles County, California, for park and recreational purposes; and

WHEREAS, by Supplemental Agreement No. 1 dated 16 August 1972, a 3.5 acre portion of Tract No. 249, located at the southeast corner of Terra Bella Street and Dronfield Avenue, was added to the said lease, thereby increasing the total leased acreage from 1,351.84 acres to 1,355.34 acres, more or less; and

WHEREAS, the word "sex" is omitted in Exhibit D, Assurance of Compliance with the Department of Defense Directive Under Title VI of the Civil Rights Act of 1964, and the Government desires that it be inserted therein, and the lessee is agreeable thereto; and

WHEREAS, the 0.09 acre site located within the said flood control basin, assigned to the Department of Water and Power, City of Los Angeles, for use as the Osborne Pumping Station, and the building erected thereon are no longer required for that purpose; and

WHEREAS, the lessee has requested that its lease be amended to include the 0.09 acre, more or less, and the building thereon, formerly the Osborne Pumping Station, for maintenance and storage purposes in connection with its recreational program, and the Government is agreeable thereto.

NOW, THEREFORE, in consideration of the premises, the parties hereto do mutually agree that, effective upon the date of execution hereof, Lease No. DACW09-1-69-45 is modified in the following particulars:

Lease No. DACW09-1-69-45
Supplemental Agreement No. 2

1. That the following wording, beginning on line 7 of Exhibit D, Assurance of Compliance with the Department of Defense Directive Under Title VI of the Civil Rights Act, is hereby deleted:

"* * * on the ground of race, color, or national origin be excluded from participation in, * * *."

and the following wording is inserted in lieu thereof:

"* * * on the ground of race, color, sex, or national origin be excluded from participation in, * * *."

2. That 0.09 acre, more or less, located within Tract No. 333 (south side of Osborne Street at Fenton Avenue), is hereby added to the said lease thereby increasing the total leased acreage from 1,355.34 acres to 1,355.43 acres, more or less.

3. That Drawing No. 219-K-40.1, marked Exhibit B-1, and legal description, dated 20 December 1967, revised 6 January 1972, File No. 219-K-40, marked Exhibit C-1, are hereby deleted and inserted in lieu thereof are Drawing No. 219-K-40.1, revised 27 September 1973, marked Exhibit B-2, and legal description dated 20 December 1967, revised 6 January 1972 and 20 August 1973, File No. 219-K-40, marked Exhibit C-2, both exhibits being attached hereto and made a part hereof.

4. That in accordance with an understanding with the Department of Water and Power, City of Los Angeles, all interests and obligations in the building known as the Osborne Pumping Station, vested in the Department of Water and Power, City of Los Angeles, by easement dated 9 July 1951 and quitclaimed to the United States, (recorded) 20 June 1973, are hereby transferred to the lessee, together with the installed property as shown on the Joint Inventory and Condition Report, marked Exhibit E, attached hereto and made a part hereof. Said Osborne Pumping Station building being located on the 0.09 acre added to the lease in paragraph No. 2 above.

5. That in all other respects the terms and conditions of the basic lease remain unchanged.

Lease No. DACW09-1-69-45
Supplemental Agreement No. 2

IN WITNESS WHEREOF, I have hereunto set my hand by direction of the Assistant Secretary of the Army this 4TH day of JUNE 1974.

Gordon M. Hobbs
Assistant for Real Property
OASA(I&L)

THIS SUPPLEMENTAL AGREEMENT NO. 2, together with the provisions and conditions thereof, is hereby accepted this 12th day of March 1974.

CITY OF LOS ANGELES

By: Brad Ryle

Title: President

ATTEST:

Secretary

Board of Recreation
& Park Commissioners

Approved as to Form and Legality
March 13 1974
BURT PINES
City Attorney

By J M
Deputy

3

HANSEN FLOOD CONTROL BASIN
LOS ANGELES COUNTY, CALIFORNIA
LEASE No. DACW09-1-69-45

SUPPLEMENTAL AGREEMENT NO. 3

THIS SUPPLEMENTAL AGREEMENT, made and entered into between the SECRETARY OF THE ARMY of the first part, hereinafter called the Government and the CITY OF LOS ANGELES, DEPARTMENT OF RECREATION AND PARKS a municipal corporation of the State of California, of the second part, hereinafter called the lessee, WITNESSETH:

WHEREAS, on January 21, 1969, Lease No. DACW09-1-69-45 was entered into between the Government and Lessee to use and occupy, for a term of 50 years 1351.84 acres of land located within the boundaries of Hansen Flood Control Basin, Los Angeles County, California for park and recreational purposes: and

WHEREAS, by Supplemental Agreement No. 1 dated 16, August 1972, 3.5 acres from Tract No. 249, located at the southeast corner of Terra Bella Street and Dronefield Avenue, was added to said lease, thereby increasing the total leased acreage from 1,351.84 acres, more or less; and

WHEREAS, by Supplemental Agreement No. 2 dated June 4, 1974, That Osborne Pumping Station Building located on 0.09 acre, more or less, located within Tract No. 33 (south side of Osborne Street at Fenton Avenue), was added to said lease increasing the total leased acreage from 1,355.34 acres to 1,355.43 acres, more or less; and

WHEREAS, the Lessee has requested in order to qualify for grant funds, that the term of the lease be extended an additional 25 years; and

WHEREAS, it has been administratively determined that amendment of the lease to extend the term is in the public interest.

Hansen Flood Control Basin
Supplemental Agreement No. 3
Lease No. DACW09-1-69-45

NOW THEREFORE, in consideration of the premises, and the mutual benefits to be derived, the parties hereto do mutually agree that lease No. DACW09-1-69-45 is amended on the date of execution hereof on behalf of the Secretary of the Army as follows:

1. Delete that portion of the granting clause which states: "a lease for a period of 50 years commencing on the execution date of/ execution here of to use " and substitute therefore a "lease for a period of 75 years commencing on January 21, 1969 and ending on January 20, 2044."

2. At the end of Condition 4. add: "Fees may be charged by the Lessee for entrance to or use of the premises or any facilities, however, no user fees may be charged by the Lessee if federal funds were used in whole or part to develop the facility if a user charge by the Corps of Engineers for the facility would be prohibited under law. The lessee may charge for any facility or services provided without federal assistance or funding."

3. Add the following new conditions to the lease beginning with No. 45 and ending with No. 51.

45. DEVELOPMENT PLANS

a. The lessee shall administer and maintain the leased property for purposes of this lease in accordance with the U.S. Army Corps of Engineers Master Plan, Rules and Regulations, Title 36, Section 327.

b. The lessee shall submit an Annual Feasibility Plan for future projects.

c. The Lessee shall submit an Annual Updated Organizational Chart.

d. The Lessee shall obtain written approval from the District Engineer on all projects, improvements and large events with gatherings over 1,000 people.

46. ENVIRONMENTAL PROTECTION

a. The Lessee's and the Corps of Engineers' environmental staffs shall meet annually to review the status of all mitigation commitments on the leased area.

b. An Environmental Review Guide for Operations (ERGO) environmental compliance inspections shall be conducted on the leased property on a minimum cycle of every fifth year. The leased property shall be evaluated following all currently applicable, relevant and appropriate environmental laws and regulations. The most stringent requirements identified among the various environmental laws and regulations shall be applied to the leased property.

The following manuals serve as tools for conducting environmental compliance inspections: The Environmental Assessment and Management (TEAM) Guide, the California Supplement to the TEAM Guide, and the California Air Districts Supplement to the TEAM Guide. This list is not intended to be all encompassing.

47. COMPLIANCE, CLOSURE, REVOCATION AND RELINQUISHMENT

a. Lessee and/or its sublessees, concessionaires or assignees are charged at all times with full knowledge of all the limitations and requirements of this lease, and the necessity for corrections of deficiencies, and compliance with any reasonable request by the District Engineer or his representative. This lease may be revoked in the event the Lessee violates any of its terms or conditions and continues and persists in such non-compliance. The Lessee will be notified of any non-compliance, which notice shall be in writing or shall be confirmed in writing, giving a period of time in which to correct the non-compliance. Failure to satisfactorily correct any substantial or persistent non-compliance within the temporary specified time is grounds for closure of all or part of the premises, temporary suspension of operation, or revocation of the lease, after notice in writing of such intent. Decisions by the District Engineer concerning the future request by the lessee to extend the lease, expend the premises, modify authorized activities, or assign the lease shall reflect the lessee's past performance and compliance with the lease terms.

b. Lessee shall keep the premises in good order and in a clean, sanitary and safe condition by and at the expense of the Lessee. In addition to the right of revocation for non-compliance stated in Condition Nos. 46. b. 47 and 50d. The District Engineer or his duly authorized representative, upon discovery of any hazardous condition on the premises that present an immediate threat to health or danger to life or property, will so notify the lessee and will require that the affected part or all of the premises be closed until such condition is corrected and the danger eliminated. If the condition is not corrected the District Engineer or his representative will have the option to (1) correct the hazardous condition and collect the cost of repairs from Lessee, or (2) revoke the lease. The Lessee shall have no claim for damages against the United States, or any officer, agent or employee thereof on account of action pursuant to this condition.

48. TRANSFERS, ASSIGNMENT, SUBLEASES

There shall be no assignments or subleases without prior written approval of the District Engineer. Assignments or subleases may be authorized after coordination with the District Engineer or his duly authorized representatives.

Hansen Flood Control Basin
Supplemental Agreement No. 3
Lease No. DACW09-1-69-45

49. INDEMNITY

The Lessee along with its concessionaries, sublessees and assignees shall indemnify, and hold harmless the United States of America and its authorized officers, employees, agents and volunteers from any and all claims, actions, losses damages, and /or liability arising out of this lease from any cause whatsoever incurred by the City or United States of America on account of any claim therefore, except where such indemnification is prohibited by law.

50. INSURANCE

At the commencement of this lease, the lessee, unless self-insured, and its sub-lessees, concessionaires, volunteers and assigns at the commencement of operating under the terms of this lease as third parties, shall obtain from a reputable insurance company or companies contracts of liability insurance which names the United States Army Corps of Engineer as additional insured. The insurance shall provide an amount not less than that which is prudent, reasonable and consistent with sound business practices or a minimum Combined Single Limit of $2,000,000, whichever is greater, for any number of persons or claims arising from any one incident with respect to bodily injuries or death resulting there from, property damage, or both suffered or alleged to have been suffered by any person or persons, resulting from the operations of the Lessee, sub-lessees, concessionaires, volunteers, film licensees and assigns under the terms of this lease. The Lessee shall require its insurance company to furnish to the District Engineer a copy of the policy or policies, or, if acceptable to the District Engineer, certificates of insurance evidencing the purchase of such insurance. The District Engineer shall have the right to review and revise the amount of minimum liability insurance required.

b. The Insurance policy or policies shall specifically provide protection appropriate for the types of facilities, services and products involved; and shall provide that the District Engineer be given thirty (30) days notice of any cancellation or change in such insurance.

c. In the event the Lessee is self-insured, the Lessee shall certify such self-insurance in writing in the minimum amount specified above to the District Engineer. The Lessee's insurance status shall not eliminate the requirement for its sub-lessees, and concessionaires to have insurance from a reputable insurance carrier as set out above.

d. The District Engineer may require closure of any or all of the premises during any period for which the Lessee and/or its sub-lessees, concessionaires and film licensees do not have the required insurance coverage.

51. HISTORIC PRESERVATION

The Lessee shall not remove or disturb, or cause or permit to be removed or disturbed, any historical, archaeological, architectural or other cultural artifacts, relics, remains or object of antiquity. In the event such items are discovered on the premises, the Lessee shall immediately notify said officer and protect the site and the material from further disturbances until said officer gives clearance to proceed.

In all other respects the terms and conditions of the basic lease remain unchanged.

IN WITNESS WHEREOF, I have hereunto set my hand by authority of the Secretary of the Army, this 25th day of February 2002.

Theresa M. Kaplan

THERESA KAPLAN
Chief, Real Estate Division
Los Angeles District,
U.S. Army Corps of Engineers

THIS SUPPLEMENTAL AGREEMENT is also executed by the lessee this 24th day of September 2002.

CITY OF LOS ANGELES
DEPARTMENT OF RECREATION AND PARKS

By _____
Title Commission President

By _____
Title Commission Executive Assistant

Approved as to Form

9-24, 2002
ROCKARD J. DELGADILLO, City Attorney
By _____

APPENDIX C:

PUBLIC PARTICIPATION

Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

APPENDIX C:
PUBLIC PARTICIPATION

Public participation was an essential element in the development of this Master Plan. Community involvement offers an opportunity for the public to voice their concerns and desires for activities permitted in the Basin and also enriches the process with local knowledge of the Basin area.

The goal of public involvement and coordination is to open and maintain channels of communication with the public in order to give full consideration to public views and information in the planning process. The objectives of the public involvement are to:

- Provide information about proposed Corps activities to the public;
- Make the public's desires, needs, and concerns known to decision-makers;
- Provide for consultation with the public before decisions are reached; and
- Consider the public's views in reaching decisions.

The public has increasingly expressed a strong desire for public spaces to meet the diverse and evolving needs of the surrounding communities. Reaching consensus among user groups takes a balanced approach that recognizes all parties and allows for all voices to be heard, but manages the process in such a way that the limitations of capital improvement and maintenance budgets are recognized, and within the context of the regulations of the Corps and the original purpose of the Basins to manage flood risk. The approach taken in conducting the community workshops has been to chart a course that realistically manages expectations by making clear from the outset the framework in which the Corps and other land managers of the property must operate.

In the development of Hansen Dam Basin (Basin) Master Plan, three community workshops were held to encourage dialogue between project managers and the communities surrounding the Basin. Input was recorded via written comments by participants and on maps during the workshop process. All verbal comments were recorded and later transcribed.

Three community workshops were held at the Lake View Terrace Recreation Center. The first community workshop was held on Saturday, 21 November 2009 and a second meeting was held on Thursday, 28 January 2010. Approximately 60 people attended the first two workshops. Approximately 20 people attended the third workshop which was held on Thursday, 29 April 2010.

Workshop attendees' views may not necessarily reflect the views of the broader public, and comments should be interpreted in that light. A number of "comment sheets" were filled out during the meetings and turned in to the team. Comments were also received via email and incorporated into the comments. A graph showing the top 5 comments from all the workshops is shown in Figure 3.1 in the main body of the Master Plan. There were not enough comments to generate a "Top 5 Comments" chart from the third workshop

Community Workshop 1: Saturday, 21 November 2009

Summary This was the first of the community workshops. Approximately 60 people, including equestrians on horseback attended the workshop.

A Power Point presentation was given to introduce the Corps Master Plan process. Since many people came later than expected, the meeting was restarted and the presentation began again shortly after 10:00 am.

After the presentation, people worked in groups writing down their concerns and comments on maps of the Basin. The equestrians on horseback were solicited for their comments outside during this part of the meeting.

The participants could be categorized into three groups: equestrians, model airplane field users, and members of the community with general concerns and interests in the future of the Basin. People were attentive and polite to each other, genuinely listening to each other's concerns. The equestrians were sympathetic to the model airplane flyers, stating that there had never been a conflict between them and pledging their support for taking down the new restrictive signs.

After working on the maps, a spokesperson for each group presented the groups' comments. In addition to the maps, all comments throughout the meetings were recorded. The comments and concerns were echoed back to the group and the next steps explained.

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 needed or 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.
    - 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.
- All new development should stay at the periphery where the active recreation and children's areas are located.
- Enforce existing laws.
- Create biking/hiking trails.
- Create an off-leash area for dogs.
- No paint-ball areas.

<u>Transcription of Workshop 1 Notes</u>

Participants broke up into 4 separate groups and wrote their issues down on maps.

Group 1: Little Tujunga Wash

- Keep natural and for flood control.
- Use natural bank stabilization.
- Keep and enhance as a major wildlife connection.
- Overall: keep development at the old park entrance, museum, and library and away from other areas.

Group 2: Model Airplane Area

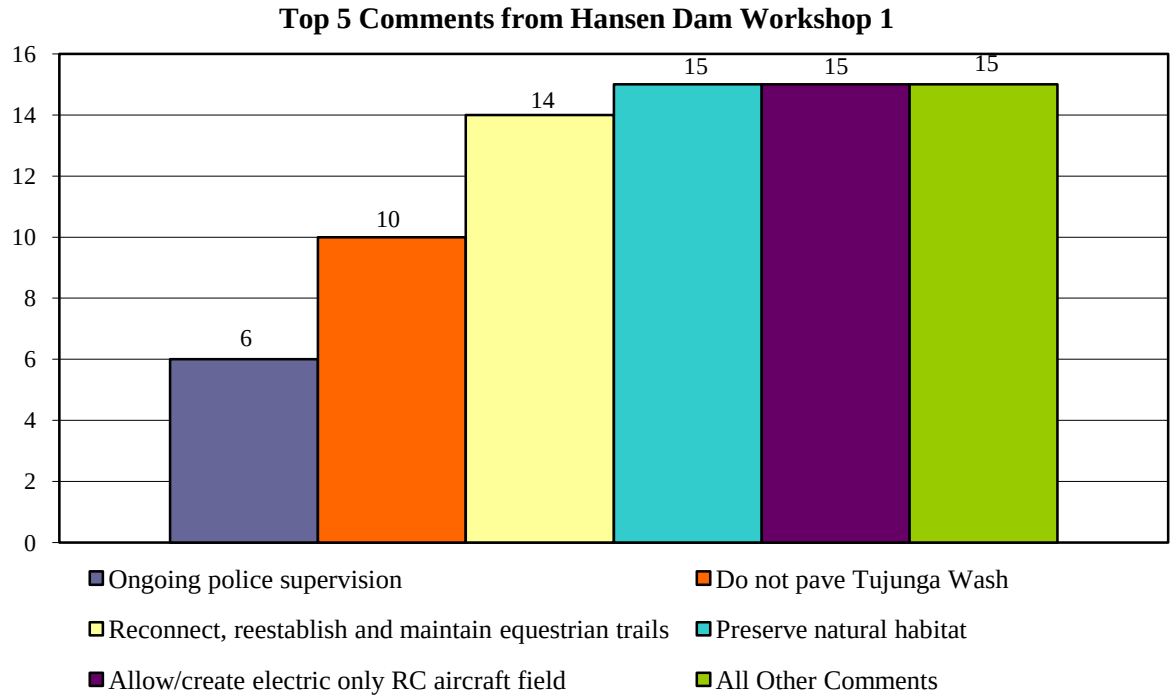
- Overflow Parking and fire staging - traditionally model airplane area.
    - Area should be flying area only.
- Sign put up for no flying - who put up? Why?
    - Will get support from community and equestrians.
    - In CD 7 (Alarcon).
    - Keeps out motorcycles and quads not compatible with horses.

- Conveniently adjacent to recreation.

    - Better to have in one designated area and keep separate from equestrians.
    - Keep that an undeveloped area.
    - Allows for watching/viewing/engaging others.
- Users are members of AMA of Academy of Model Aeronautics.
    - Academy knows regulations and rules of flying.
    - All electronic - no flammable planes.
    - Never exceeded 400'.
    - Taking care of the land.
    - Like to have own secured space.
- CA highway - no accidents in 20 years caused by airplanes.
- Whiteman Airport is ok with model planes.
    - No concerns about remote.

Group 3: Los Angeles Equestrian Community

- Trails: Safer to have dedicated trails and signs for horses only.
    - Rim of the Valley Trail - State Law.
        - Over 200 miles long and encircles valley.
        - City never adopted State Rim of the Valley Trail Corridor Plan.
- History:
    - 1948 - 15 miles of trail to 3 today.
    - 1950's - Trail converted in DG and accessible by ranger trucks. State lost safety and emergency vehicles.
    - No master plan to reconnect trails.
    - Master Trail Plan needed to re-establish trails to encircle dam.
    - Restoration of Master Trail Plan would provide a major wildlife connection for Los Angeles.
    - Trails were never dedicated in plan - Must be done by City.
    - Recreation and Parks - once dedicated is it responsible for maintenance?
    - Does historical use give rise to legal rights and prevent conversion?
        - Move trail outside Aquatic Center.
    - Re-configure fences so that when Aquatic Center is closed, trail is still open.
- Equestrians and model plane flyers bring money to area.
    - Booked 50-52 weekends/year brings in $100K's/year $400/year contribution.
    - Economics: boarding, vets, etc. training and recreation will lose if less safe for equestrians.
- Other concerns:
    - Active restoration should not be expanded into wildlife areas.
    - Campground - Equestrian trail maintained for camp.
    - Below Lopez outfall - homeless; large fire started several years ago.
    - Least Bell's Vireo - all done with CAT Exempt.
    - Further up raptor area habitat with passive recreation reclaimed from disturbed state.
    - No feedback or info about burns area this winter.
    - ACOE become involved with City EMD.
    - "Rattle Snake condos" - 20' long concrete road debris paintball.
- Appointed Committee: Equine Advisory Committee- Kevin Reager/Mary Bensen. Next meeting: December 1st at LA Equestrian Center 6:30.



Group 4: General Community

- Keep the natural areas untouched.
- Many rumors - until proved not: Don't asphalt or concrete Tujunga Wash.
- Move the fence in Aquatic Center to re-open equestrian trail.
    - Losing trail - losing community.
- Proposed campground: needs to carefully monitored.
    - Children? Bring in park rangers and police.
- Homeless aggressive - released from police department, drug addicts, etc.
    - Trim up trees so they are visible.
    - Lankershim paintballs.
    - GET SECURITY IN HERE!!!
    - Getting too dangerous.
    - Be careful about children and the homeless.
    - Homeless cooking with fires.
    - Call but no response to incident reports.
- Alluvial scrub is even more endangered than riparian.
    - Restoration needed.
    - No soccer fields or lake in alluvial scrub.
    - May not be Federally listed, but in trouble.
    - Recognized by Audubon.
- Any plans for dog off-leash areas?
    - Dogs can be damaging to nesting areas.
    - Permits for voice-controlled dogs?
    - Some people are using areas to train dogs to be attack dogs.
- Need to license horses so they know how many there are and have a voice.
    - There are 7-8 boarding facilities and they should require licensing.
    - Undercounting of horses means lack of proper emergency planning.
    - Every complaint to Corps and City results in closing areas and non-usage areas, don't want areas closed.

Community Workshop 2: Thursday, 28 January 2010

Summary This was the second of the community workshops held for the Basin. Many of the original participants were in attendance. A Power Point presentation reviewed the Corps Master Plan process, a summary of the input of the first meeting and an introduction of the resource and ecosystem objectives. There was also general discussion on the objectives, and recording issues on the maps.

Concern was expressed about the recent rains which followed the Station Fire in the fall of 2009. Some participants expressed the desire for the lake to include recreation activities such as boating and fishing and for it and Holiday Lake to be dredged. It was pointed out that this was unlikely to happen since currently the sedimentation is not at a level to impair flood risk management.

There was also some disagreement about the level of impairment of equestrian trail access but one member specifically pointed to areas on the map where trail obstructions could be removed.

Generally there was agreement on the Resource and Ecosystem Objectives with no major changes to report. Issues and Comments raised by attendees at the second workshop included the following:

- Concern about the effects of the 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.

Transcription of Workshop 2 Notes

Tujunga Wash:

- Wash is black from fire, it goes into the lake.
- There are cement slabs on site – can they be removed?
    - Cement slabs could be used as helicopter landing in pads in the desert.
- There is quicksand after rain, and is dangerous. How do we alert visitors?
    - Permanent signage needed.
    - Perhaps place rock on top of the sand to alert people.
    - People have to learn how to use the area.
    - Interpretive signage is desirable; how can we get funding for this? (Answer: Elected officials)
        - Once Master Plan is in place, funding can be designated in the budget.
        - Contact local congressmen to earmark funding.

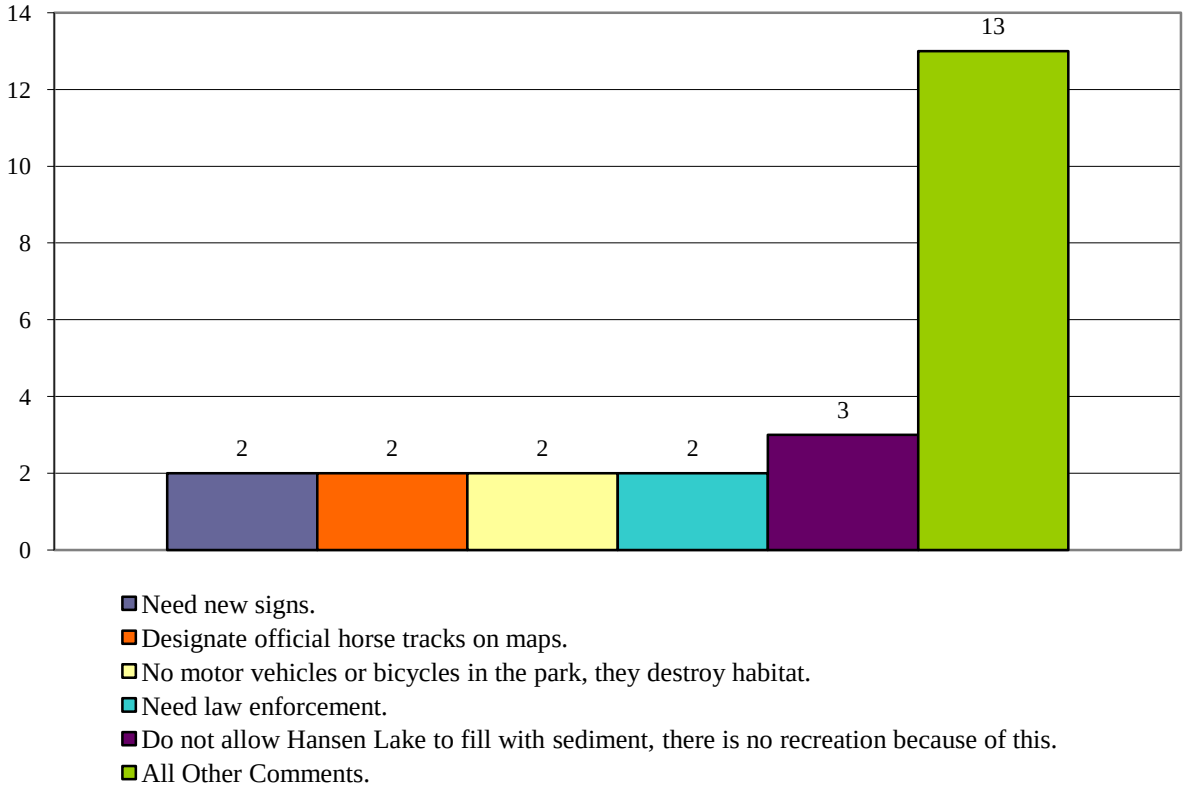
Hansen Lake:

- Is there a possibility of boats or water recreation on the Lake?
    - Answer: not likely since it is environmentally sensitive.
- Bike paths are preferred over bike trails.
- City maintains dirt trails around borrow pit.
    - It is locally known as Borrow Pit Lake, but officially as Holiday Lake.
    - Sedimentation filled the lake in 1983.
- Big lake – Hansen Lake
    - Depth reduced to 14’-15’; 40’ moved boundary.

- Primary function is flood risk management and safety.
- There are no plans to remove sedimentation as it does not impair function of flood risk management.

- Aquatic Center Trail follows sun-up to sun-down.
  - Can we get designated horse trails on map?
  - Master plan should create a layer of horse-trails, connections, bike paths.

Top 5 Comments from Hansen Dam Workshop 2



Community Workshop 3: Thursday, 29April 2010

Summary This was the third and final community workshop held for the Basin. A much smaller group was present, but most of the participants had attended one or both of the previous meetings. After introductions, a Power Point was presented that reviewed the Corps Master Plan process, a summary of the resource and ecosystem objectives and the land use classification map. Color maps were handed out along with the comment sheets.

The participants that attended the workshop expressed many of the same concerns raised at previous meetings: the need for better patrols, controls on uses, and restrictions on adding more active recreation. In addition, areas designated for low density recreation were suggested to be environmentally sensitive since these areas contain alluvial fan sage scrub, an increasingly rare habitat. Note: this comment came from a biologist from the County Natural History Museum who attended the meeting and from subsequent letters from the California Native Plant Society and other environmental organizations.

A major topic of discussion was also the desire for access and fishing in the main lake. It was felt that it would provide a high quality outdoor recreation experience for families as it once did in the past, and

would provide a higher level of protection in the basin by having authorized legal uses of these areas by those people who will provide good stewardship of the land. One individual found the lease between the City and the Corps that stated that fishing was a permitted activity and that there are state regulations about allowing such uses. Note: it was subsequently discovered that there was a change in fishing in the lake when the aquatic center was built.

As expressed in previous meetings, people also voiced the desire to bring back "Holiday Lake" which has been filled with sediment through the years. The Corps pointed out that while the Basin has filled with sediment it still meets its flood risk management goals and is thus unlikely to have the sediment removed.

Some of the participants were also concerned about the designation of inactive or future recreation since it seems to hold open too much possibility for high density recreation in the future.

Major comments and concerns included:

- The desire for access and fishing on the wildlife lake.
- Conversion of the low density designation to environmentally sensitive in areas around Tujunga Wash and next to the ball fields.
- Designation of vegetative management or low density recreation instead of inactive or future recreation in the areas near ranches.
- Better patrols and maintenance.
- Camping 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.

The meeting was adjourned at approximately 7:00 pm.

Transcription of Workshop 3 Notes

Safety:

- Equestrians and homeless conflicts - are we getting rangers? Answer: A ranger station is slated to be built along with the campground.
- Vegetation such as the pepper trees needs to be pruned; the homeless are camping underneath there.
- Pepper trees are non-native. What are the native shade trees of this area? Answer: Sycamores, oaks, bay laurel, cottonwoods, among others.
- Orcus Park is not safe (water balloons, drinking) - Someone should close off access to the park.
- The City of Los Angeles Recreation and Parks Department doesn't take responsibility for safety.
- Can the lease be revoked from the City? Answer: It is unlikely that the Corps would revoke the lease from the City and it does not operate recreation amenities on its own.
- Safety has been an issue with overgrown vegetation.
- An adequate trail system is needed for horses and bikes - enough people on trails will ensure safety.
- Fishing and boating can provide safety. Directly related to City's lack of managing the area.
- City has to better manage the Basin.

Environment:

- Is the map cast in concrete in environmentally sensitive? Answer: No, that is part of what this meeting is about.
- Wildlife designation: LA County and LA City have not provided adequate habitat corridors.
- Any vegetation analysis for Master Plan? Answer: Yes. Participant response: That can make it easier to rank environmentally sensitive areas degraded areas.
- If non-native trees were to be taken out, is that trouble for the user of the Basin (if the person took it out themselves)? Answer: Since it is the responsibility of the City for safety and maintenance, individuals should not take on such responsibilities unilaterally. However the City partners and works with volunteers and volunteer organizations for clean-ups, beautifications, etc.
- Flood control is the primary purpose of the Dam - how is it compatible with environmentally sensitive area? Answer: the plants in these riparian areas are adapted to flood conditions and can lie down during floods and withstand inundation for long periods of time.

Land use classification:

- Why is the ranch and neighbors in the purple area? Answer: private property should not be within the boundary; we need to investigate.
- The black line is boundary of the Corps land? Answer: Yes.
- Is the Corps Federal? Answer: Yes.
- Will the City be able to change/put uses such as race tracks on Federal land? Answer: No. Commercial operations are not permitted on Federal land managed by the Corps.
- City of LA doesn't have lease over entire Basin right? Answer: Correct. There are some areas not within the lease.
- Purple area next to Tujunga Wash should be green, Multiple Resource Management -Vegetative Management.
- If areas are environmentally sensitive areas then they should be changed to green.
- Lease to City - is that Federal land? Answer: Yes.

Mapping:

- What are project operations? What is the small red area? Answer: project operations are lands set aside for the Corps for flood risk management.
- Where is the ranger station? Campground? Answer: Pointed to on map.
    - All those improvements are within the 10 year flood line - what is the effect of that campground being there? Answer: the campground will have no permanent structures and camping is limited to the dry season only. Any other structures must be floodable.
- Where is the lake on the map? Answer: Pointed to on map.
- Did they take off the skate board park off the map? Answer: unaware of the plans for a skate park.
- What is the purple? Answer: Purple indicates inactive or future recreation.
- Purple should be low density recreation since there are a lot of houses and ranches nearby.

Concerns:

- Plan to create any more wetland areas? Answer: there are some bioswales slated for the area next to the parking lot near the old "Holiday Lake.
- This land was not always Federal land but transferred? So is this Federal land? Answer: This is Federal land.
- Water quality of lake is covered. But definitely high fish population.
- Ranches (homeowners) on edge of purple area do not want to see the Skate Park or high density playgrounds/ area next to the ranches.

- Between 2-5 am some of the roads become wildlife corridors.
- Before any new improvements - Will they need a public hearing? Answer: Yes.
- Flood control - in addition to this water conservation (LA County) diverts water to spreading grounds. Should consider it too behind the dam.
- Is water conservation part of NEPA process and considered future usage? Answer: Water conservation could be considered in the future and would need to go through the NEPA process.
- How can we assure that the plan is friendly to the local people? Answer: You are already part of the process and have influenced formation of the plan. In addition, if you write your name and address on the back of the comment sheets and indicate whether you would like a hard copy or CD of the plan the Corps will send it to you at the appropriate time.
- What is life of the Dam? (Removal of the sediment.) The life of the Dam can't be predicted, but it still has capacity to take sediment and still meet its flood risk management objectives.
- Even with the station fire issue? Answer: yes.
- We have done due diligence regarding our electric model airplane hobby - when we stopped coming, the park deteriorated.
    - Where there are electric fliers - there is no drag racing, no horse racing.
    - It's a shame that electric fliers were cast away.
- Station Fire - Tujunga Canyon is now devoid of anything.

Management of the Area:

- Can City be held accountable for big events such as rodeo in low density recreation?
- Who stocks the fishing lake? Answer: We don't know and will find out.
    - Since the first meeting, researched - lease says City to provide fishing. State says that cannot be devised. Is there anything that the Corps can do about this? Answer: We will review the leases.
    - City superintendant - life guard in the summer to prohibit fishing and bathing- blames Corps for prohibiting swimming and bathing.
- Both the Corps and City gave us a hard time to clear off weeds for fire abatement and neither was clear of the actual jurisdictional boundaries.
- Who is building the campground? Answer: A partnership among the MRCA, City and Corps.
- Small scale removal to improve the lake? Answer: No plans at this time.
- Is this being set up to bring more people? Answer: No.
- Some years ago it was shut off because they cannot control public.
- No one is taking responsibility when more people come in. You are just encouraging them.
- Cement slabs near the Dam, timber supporting is rotting - who is responsible for cleaning them up?
- Paintball too. Clean up that area. Who puts that there? City?
- We need proper management in the park.
- Need to see a trail system in the environmentally sensitive area.
    - It should benefit the area. Environment is being trashed (look under the bushes) without trails. There can't be an environmental reason to not manage it.

Public Proposals:

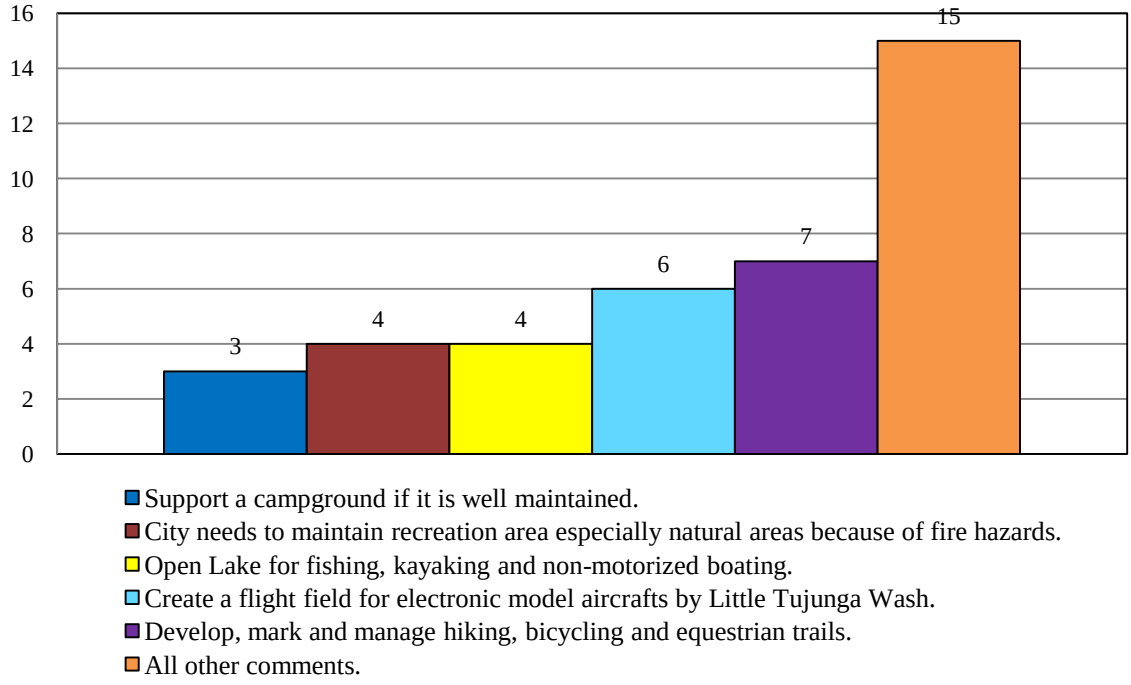
- Are there any plans for lake or pond expansion? Answer: No.
- Campground - Is it a campground where we can take our families to? Answer: Our understanding it will be accessed by non-profits with camping programs. But it can't be limited to a particular group.
- What about public access to lake itself? Hiking trails? Public fishing?

  - Fishing should be allowed. Answer: This is under the City's jurisdiction, although we can make recommendations.
- Note: One community member proposed a low cost plan to the local community with pond areas, trails, fishing lake where big Tujunga Wash and Little Tujunga wash meet and commercial operations. He presented his ideas but the community was not in agreement. Further, the project team pointed out the Federal regulations that would come into play before such a plan could be implemented. The entire transcript is not repeated here.
- There is a wonderful lake and natural area but no public access. Can there be any other agency to run it and open it up? Answer: Not likely due to budget restrictions everywhere.
- Lake is beautiful in part because people do not know about it - very natural with hawks and other birds.
  - But we need to see nature groups and clubs by walking through it and that will make it safer. They all have cell phones.
- Whole area from lake to pond should be for hiking and horses.
- But do not want motorized boats - too noisy.
- When was fishing last allowed? Answer: 1980's.
  - Why was fishing prohibited in the lake in 1980's? Answer: Not known.
  - How do we get fishing and boating back in here? Answer: Consult with the City. In addition, Debbie Lamb pointed out that Sepulveda has committees that advise the City on wildlife and recreation and they may wish to form such a committee.
  - There is a Hansen Park advisory board already and they meet once a month.

Timeline:

- What is the time frame for the Master Plan? Answer: A Preliminary Draft Final Plan is submitted in August, and then it receives technical review. That is responded to, and it is put out for public comments. A final plan is then drafted and it would likely be approved next summer.
- Can we contact you on the status of the Master Plan? Answer: Yes. The contact information is on the last slide of the Power Point and was shown.

Top 5 Comments from Hansen Dam Workshop 3



Comments Summary

Sheet #	Comment
1	Wants a field for model airplanes
2	Wants fishing, kayaking, walking, biking
3	Thinks City is mis-managing the area
	Wants camping (because it would bring revenue, appreciation for the area)
	Wants horse trail system built (but not exclusive to equestrians), wants bike trails,
	Wants 'sensitive wildlife areas' to be opened up for hiking [around lake] and birding,
	wants lake area land designation changed to allow recreation
	Thinks fishing and boating are allowed (cites some laws)
	Wants small boat access,
	Wants lake stocked with catfish and crappie,
	Wants lake area understory cleared and non-natives removed (to decrease the fire hazard & make the area safer)
	Wants mobile sanitation facilities
	Wants Off Highway Vehicle use allowed (it may bring revenue) in "purple area to Osborne side of L. Tujunga Cr."
4	Wants trails, recreation areas, "wildlife", fishing/boating in lake, a campground
5	Wants the MRM-Inactive or Future Recreation area for model airplanes field (wants no building)
6	Wants MRM-Inactive or Future Recreation area to be classified as environmentally sensitive
	"The trail there is the oldest existing trail in the area"
7	Wants better mapping
	Wants areas classified environmentally sensitive
	Wants invasives management plan in Master Plan and from City of LA
	Wants the planting of invasives to be prohibited
8	Wants interpretive/educational signage
	Wants pepper trees removed [because it will deter squatting]
9	Wants public access to/around lake for biking, hiking, birding, and fishing
	Suggests a floating pier/walkway for lake access
	Wants bike trails in the park
	Thinks new fishing lake is a "joke"
	Thinks the lake is park's biggest asset
10	Wants MRM area west of tujunga creek for model airplane field
11	Wants camping near the dam [to happen soon]
	Wants water recreation such as fishing and swimming
	Wants horse trails to be maintained
	Wants fishing lake to be stocked more often
12	Suggests the Master Plan consider water conservation operations
	(Judging handwriting, this person may have drawn on a map requesting some area be classified environmentally sensitive)

APPENDIX D:

DRAFT ENVIRONMENTAL ASSESSMENT

Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

DRAFT
FINDING OF NO SIGNIFICANT IMPACT
Master Plan for Hansen Dam Basin
Los Angeles County, California

I have reviewed the Environmental Assessment (EA) that has been prepared for the proposed Hansen Dam Basin Master Plan located in Los Angeles County, California. The EA has been prepared in compliance with applicable laws, regulations, and executive orders.

Coordination with the City of Los Angeles (City) has resulted in the identification of proposed changes to land use classifications for Hansen Dam Basin lands in conformance with Corps policies and guidelines. The updated Master Plan would provide guidance for stewardship and management of the recreation, cultural, paleontological, and natural resources of the Basin. The EA includes a comprehensive description of the proposed changes, a discussion of factors influencing resource management, an identification and discussion of special problems, descriptions of development and resource objectives and needs, and a summary of public involvement and input into the planning process.

The EA analyzes the impacts of two alternatives for the Master Plan; the No Action Alternative and the Proposed Action Alternative, which is the approval of the updated Master Plan. Resource categories that were evaluated included, but were not limited to, sedimentation and erosion, water quality, fish and wildlife, sensitive taxa, exotic plants, cultural resources, recreation, and socioeconomic characteristics of the market area.

Under the No Action Alternative, the 1991 Master Plan would not be updated. The Corps would continue to manage the Basin as described in the current Master Plan. The Basin would continue to be managed without an updated framework guidance document. The No Action Alternative would not comply with Corps regulations, policies, and guidelines.

The Proposed Action Alternative recommends a land use classification plan, which represents a change to the 1991 Master Plan land use classification plan. The updated Master Plan would provide guidance for future decision making by the Corps, County, and stakeholders which optimizes Basin uses and fosters the Corps missions of flood risk management, recreation, and environmental stewardship now and for the protection and welfare of future generations. The EA has determined that the updated Master Plan would not result in significant adverse impacts to any resources.

This project is in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800) as there are no proposed development or physical land changes that would impact cultural resources, that would be slated for implementation as a result of the approval of the updated Master Plan. Approval of the Recommended Plan (Proposed Action) would not implement any development. Should development be proposed in the future in compliance with the updated Master Plan, additional compliance measures would be initiated at that time.

This project also complies with Section 7 of the Endangered Species Act. The Recommended Plan (Proposed Action) would not implement any development that would adversely impact Federally protected species found within the Basin, potentially including coastal California gnatcatcher, least Bell’s vireo, and Santa Ana sucker. Should development be proposed in the future in compliance with the updated Master Plan, additional compliance measures would be initiated at that time.

No significant short or long-term adverse impacts to local or regional air quality are anticipated from the approval of the updated Master Plan (Proposed Project). Should development be proposed in the future in compliance with the updated Master Plan, additional compliance measures would be initiated at that time.

I have considered the available information contained in the EA, and it is my determination that there are no impacts resulting from the Proposed Action (Approval of the Recommended Plan) that would have a significant effect upon the quality of the human environment. There are no unresolved environmental issues. Preparation of an Environmental Impact Statement (EIS), therefore, is not required.

_____ _____

Date

R. Mark Toy
Colonel, U.S. Army Corps of Engineers
District Commander

COVER SHEET
Hansen Dam Basin Master Plan and Draft Environmental Assessment

Los Angeles County, California

The responsible lead Federal agency for this study is the U.S. Army Corps of Engineers (Corps). This report is the Hansen Dam Master Plan and Draft Environmental Assessment (DEA) complying with requirements of the Corps and the Council on Environmental Quality (CEQ), and is intended to reduce duplication and paperwork.

This DEA is an Appendix to the updated Hansen Dam Basin Master Plan. Its purpose is to provide sufficient information on the potential environmental effects of the Action Alternative, which is approving the updated Master Plan, as well as the No Action Alternative, which is retaining the current 1991 Hansen Dam Master Plan, to determine whether to prepare an EIS or FONSI.

Hansen Dam was authorized by the Flood Control Act of 1936 (Public Law (P.L.) 74-738) for flood risk management. The Hansen Dam Basin is a 1,507.2 acre area located in the San Fernando Valley of Los Angeles, California, along the foothills of Angeles National Forest and near the Verdugo Mountains. Releases from the Dam enter the Tujunga Wash, which joins with the Los Angeles River. The area under purview of the Hansen Dam Master Plan includes the Dam and associated operations structures, and all Federally owned lands around the Basin. A total of 1,355.4 acres of the Basin are leased to the City of Los Angeles through 2044.

The updated Master Plan has three primary objectives; 1) to provide a current and accurate description of existing conditions, 2) to prescribe revised land use classifications, and 3) to provide guidance for potential future actions within the Basin. The proposed updated Master Plan is not anticipated to result in adverse impacts to the natural and human resources within Hansen Dam Basin. However, beneficial impacts are anticipated to resource areas including erosion and sedimentation, water quality, vegetation, fish and wildlife populations and habitat, status of Federally protected species, recreation resources, public health and safety, and sustainability.

Under the no action alternative, failure to implement the updated Master Plan would not result in immediate adverse impacts. Over time, however, the lack of a comprehensive guiding document for management of the Basin may inhibit development of the Basin in a way that meets the needs of the community and fosters sustainability.

Please forward comments on the Draft Environmental Assessment by [ ] 2011 to:

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Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

Hansen Dam
Basin Master Plan

Draft Environmental Assessment

City of Los Angeles, Los Angeles County, California

MARCH 2011

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Hansen Dam Basin
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1 INTRODUCTION

In accordance with the requirements of the National Environmental Policy Act (NEPA) (42 USC 4321 et seq.), Council on Environmental Quality (CEQ) regulations published in 42 Code of Federal Regulations (CFR) part 1500, and the U.S. Army Corps of Engineers (Corps) regulations published at 33 CFR part 230, the purpose of this Draft Environmental Assessment (DEA) is to provide sufficient information on potential environmental effects of the proposed update to the Hansen Dam Basin (Basin) Master Plan and alternatives for the purpose of determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

The Master Plan is the document guiding Corps responsibilities pursuant to Federal laws and regulations to preserve, conserve, develop, restore, maintain, and manage the project lands, waters, and associated resources. The primary goals of a Master Plan are to prescribe an overall land and water management plan, resource objectives, and land use classifications.

The updated Master Plan addresses resources including but not limited to fish and wildlife, vegetation, cultural, esthetic, interpretive, recreation, mineral, commercial and outgranted lands, easements, and water. Specific development plans, requests for approval of actions by lessees, and changes in management actions will require supplemental environmental documentation.

1.1 Project Location

Hansen Dam Basin is a 1,507.2 acre area located on the northeastern edge in the San Fernando Valley in the City of Los Angeles, California, along the foothills of Angeles National Forest and near the Verdugo Mountains (Map 1)[1]. The San Gabriel Mountain Range forms the northern drainage divide of the Tujunga Wash watershed, and on the east is a high ridge that forms the divide with the upper San Gabriel River watershed. Nearby cities include Burbank and San Fernando (Map 2). The Dam lies at the confluence of the Little Tujunga and Big Tujunga Washes, south of the Foothill Freeway (State Route 210). The outflow of the Dam continues downstream in the Tujunga Wash and flows into the Los Angeles River approximately 9 miles downstream. A small portion of the Basin including the Little Tujunga Wash lies north of the 210 Freeway and Foothill Boulevard, while Glenoaks Boulevard and Montague Street mark the southeastern boundary. The Basin extends beyond Osborne Street to the west and follows Wentworth Street along the east. The area under purview of the Hansen Dam Master Plan includes the Dam and associated operations structures, and all Federally owned lands associated with the Basin (Map 3).

1.2 Authorized Purpose

Flood Risk Management A U.S. Army Corps of Engineers (Corps) Master Plan for an authorized civil works project is a conceptual document guiding Corps responsibilities pursuant to Federal laws and regulations to manage the project lands, water, and associated resources and to preserve, conserve, develop, restore, and maintain those resources. 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.

[1] Maps are provided in Appendix E and numbered according to their reference in the Master Plan. Not all maps are referenced in this DEA.

The Flood Control Act (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. P.L. 75-761 amended the 1936 Act by providing for the acquisition by the United States of land, easements, and right-of-way for flood risk management projects, channel improvements, and channel rectification. The FCA of 1936 (P.L. 74-738), authorized civil works projects for flood risk management measures through the Corps and other Federal agencies. 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). Construction was completed on 5 September 1940 at a cost of over $11,000,000.00.

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. Consequently, several recreation amenities have been developed within the Basin by the recreation lease holder.

The Corps granted a lease of 1,351.8 acres to the City of Los Angeles (City) for a term of 50 years commencing on 21 January 1969 and terminating on 20 January 2019. On 16 August 1972, Supplement 1 to the lease was executed which increased the lease by 3.5 acres by adding a parcel that was no longer required by the 6th U. S. Army as a site for a U. S. Army Reserve Center. This increased the total leased acreage to approximately 1,355.3 acres. On 4 June 1974, Supplement 2 was signed which added 0.09 acres to the lease for a parcel that the City of Los Angeles, Department of Water and Power no longer required. This increased the total leased acreage to approximately 1,355.4 acres. Supplement 3 to the lease, 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.

Water Conservation Although water conservation is not a Congressionally authorized purpose of Hansen Dam, the water control plan has provisions to operate the Dam to increase water conservation by coordinating Dam releases with Los Angeles County Department of Public Works (LACDPW) operation of downstream groundwater recharge basins.

1.3 Need for Updated Master Plan

A need exists to ensure that Federal lands are managed in a way that conforms to current Corps regulations, policy and guidance. A Master Plan is intended to capture the Corps' assessment of land management needs, expressed public desires, and provides guidance for evaluation of specific developments, uses and activities. A Master Plan designated appropriate land use classifications and provides guidance and foresight that allows the Basin to be managed in a way that balances the needs and desires of the public with legal, policy and resource constraints.

Over the past several years, Corps policy and guidance has come to recognize a greater need for environmental stewardship. The updated Master Plan must reflect this policy in order to guide future development within the Basin. Federal laws, regulations, and Executive Orders (EO) have changed in response to increasing needs for environmental protection and conservation. These changes in Corps environmental regulations and policy must be considered in the management of the Basins' land and water resources.

The updated Master Plan provides a review of existing land and resource uses within the Basin, describes the needs and desires of the surrounding community and other stakeholders, prescribes land use

classifications for Basin land based on Corps guidance, offers resource and land use objectives for guidance in land management, and identifies recommendation for future development as well as preserving and conserving the Basin's natural resources.

1.4 Purpose of Updated Master Plan

The purpose of the updated Master Plan is to provide a current framework guidance document to guide the management and operation of Hansen Dam Basin. The proposed updated Master Plan provides a much needed revision and update to the existing 1991 Master Plan, as well as appropriate and sustainable revisions to the land use classification plan for the Basin. The outdated and inadequate conditions description within the current 1991 Master Plan will be remedied through implementation of the updated Master Plan.

2 PROPOSED ACTION AND ALTERNATIVES

This section describes the alternatives considered that would meet the purpose and need of the proposed action. NEPA requires that Federal agencies consider a reasonable range of alternatives that may meet this need and, for alternatives eliminated from detailed study, provide a brief discussion of the reasons for their having been eliminated. In the following section, the proposed Action Alternative, No Action Alternative, and the reason for elimination of other alternatives are described.

ACTION ALTERNATIVE

Approval of the updated Hansen Dam Basin Master Plan and Appendices.

Includes recommended revised land use classification plan, updated review of Basin conditions, recreation needs analysis, and guidance for future development.

NO ACTION ALTERNATIVE

Retention of existing 1991 Hansen Dam Basin Master Plan.

Contains outdated information regarding Basin conditions, recreation needs, and future development guidance.

2.1 Proposed Action Alternative

The Proposed Action Alternative is the approval of the updated Hansen Dam Basin Master Plan, to which this DEA is an appendix. The updated Master Plan provides a resource inventory update for the Basin, including a review of current social, economic, recreation, and natural resources within the Basin. Using these updated descriptions, the existing set of land use classifications for the Basin was analyzed and found to be in need of revision. This updated Master Plan provides a set of recommended land use classifications for immediate implementation at the Basin. These land use classifications are designed to create a Basin land use plan that guides optimum recreation use and natural resource protection while fostering sustainability and meeting the needs of the community. The updated Master Plan also offers a set of recommendations to continue to meet Basin resource and land use objectives in the future. A summary description of each component is provided below.

2.1.1 Updated Master Plan Components

2.1.1.1 Updates

Federal Laws, Regulations, and Executive Orders, and Corps Guidance and Policies Since the previous Master Plan was developed, guidance and policies developed by the Corps have changed as a result of new Federal legislation, advancing scientific findings, evolving principles in environmental stewardship, and improved understanding of environmental conditions through additional data collection. The updated Master Plan includes a review of historic conditions and regulations for Hansen Dam Basin and summarizes current regulatory and guidance policies.

Existing Conditions The updated Master Plan reviews the existing conditions within and around the Basin using current and best available data. Environmental and resource conditions, demographic analysis of the market area, compatibility analysis of Basin uses, and a review of stakeholder interests are provided for operation and management of the Basin. In addition, this DEA provides additional detailed review of existing natural, cultural, and social resources and conditions.

Resource Objectives As the vision and mission of the Corps evolves, it must be reflected in appropriate water and land management objectives. Over the past several decades, the Corps has adopted a more environmentally conscious approach to managing project lands. The updated Master Plan presents extended and detailed resource objectives for environmentally sound and sustainable management practices. It indicates a move toward environmental stewardship and a responsibility for ensuring the sustainability of the natural resources within the Basin.

2.1.1.2 Recommended Land Use Classifications

Following the analysis completed in the updated Master Plan, a number of modifications have been recommended to the existing land use classification plan. Under the existing Master Plan, there are four land use classifications, including Project Operations, Recreation, Environmentally Sensitive, and Multiple Resource Management (MRM) – Inactive and/or Future Recreation. The recommended land use classifications under the updated Master Plan include two additional categories for MRM land, and an expansion in the acreage of Environmentally Sensitive areas. Map 20 shows the types and extents of proposed classification. The recommended land use classifications in the proposed updated Master Plan include a total of 7 land use classifications, including Project Operations, Recreation, Environmentally Sensitive, MRM – Recreation – Low Density, MRM – Vegetative Management, MRM – Inactive and/or Future Recreation, and Easement land.

Project Operations Lands identified under this land use classification are recommended to increase in the updated Master Plan to include the entire Dam embankment. The existing Master Plan identified only the outlet works as Project Operations, but under current Corps policy, all operations infrastructure and access areas should be identified as such. The spillway and existing dam-tender house will continue to be classified under Project Operations. The total area of operations land is 197.8 acres, which includes 35.1 acres of roads within the Basin.

Recreation The updated Master Plan recommends a reduction in Recreation land. The existing Master Plan identified nearly 500 acres (based on current calculations from previous land use plates provided in the 1991 Master Plan) of Recreation land. The recommended revised land use plan includes only 229.9 acres of Recreation. Recreation land occurs only where high intensity use occurs, including Hansen Dam Park, Lake View Terrace Recreation Center, the Aquatic Center, amphitheater, equestrian centers, and sports fields. Lands previously classified as Recreation that would be converted to other uses include the golf course (MRM – Recreation - Low Density) and the Dam embankment (Project Operations).

Environmentally Sensitive Hansen Dam Basin is home to native, though disturbed, riparian habitat that stretches along the Big and Little Tujunga Washes and around old Holiday Lake. Due to the presence of relatively native habitat in comparison to surrounding urbanized areas, and its proximity to the San Gabriel Mountains, Hansen Dam has become host to several Federally protected species. Sensitive habitats include vegetation communities, such as the critically imperiled Alluvial Fan Sage Scrub, and wildlife such as the Federally endangered least Bell's vireo, and Federally threatened coastal California gnatcatcher and Santa Ana sucker. As a result, this vital habitat was classified as Environmentally Sensitive in 1991. The updated Master Plan recommends a significant expansion of this area. The area of Environmentally Sensitive land is proposed to increase by 241.2 acres, providing an even larger protected area within the Basin and extending those protections along the Big and Little Tujunga Washes. A total of 721.2 acres of Environmentally Sensitive land within the Basin will continue to foster environmental sustainability.

MRM – Recreation – Low Density Multiple Resource Management (MRM) land use classifications are those that are managed primarily for a specific use, but have other compatible and acceptable uses. MRM – Recreation – Low Density lands are primarily managed for low impact recreation activities, such as

hiking, primitive camping, picnic areas, open play areas, and wildlife observation. However, it is also necessary to manage the area to ensure sustainability of the qualities that make it suitable for passive uses. As a result, these lands may be managed for vegetation or wildlife, in a manner that continues to allow low density recreation. A total of 223.7 acres are classified under MRM – Recreation – Low density and include the Hansen Dam Golf Course. This is a new land use classification for the Basin, and better reflects the current recreation uses.

MRM – Vegetative Management An area of 10.2 acres of MRM – Vegetative Management has been proposed in the updated Master Plan. This includes a single continuous parcel of land west of Holiday Lake that is currently used for parking and picnic grounds. Due to its development as low density recreation land, it was determined that its proper classification would be for MRM, rather than extending the proposed Environmentally Sensitive land use classification to include this area. The area may be managed for the maintenance of a native vegetation assemblage where possible, including native plantings, exotic plant removal, and restriction of activity within these areas to low density recreation use. This area will serve as a buffer between Environmentally Sensitive lands and future potential high intensity recreation use areas (classified as MRM – Inactive and/or Future Recreation), which will also contribute to fostering environmental sustainability.

MRM – Inactive and/or Future Recreation The updated Master Plan proposes a reduction in the area of MRM – Inactive and/or Future Recreation land. The 1991 Master Plan included large portions of the Basin under this classification in anticipation of future development projects. In some cases, these areas have been developed and are now appropriately classified as Recreation. In most cases, however, recreation development has not occurred and according to current community and stakeholder input, is no longer desired. As a result, much of the previous extent of MRM – Inactive and/or Future Recreation land has been reclassified for other uses. Several smaller areas are now designated for future recreation, including parcels adjacent to the recommended Recreation land and east of the Dam embankment. Each of these areas will remain inactive until such time as the Corps or stakeholders determine that they should be developed for high intensity recreation uses or reclassified. There are a total of 78.5 acres of MRM – Inactive and/or Future Recreation lands within the Basin. This reflects a decrease in this land use classification of 381.5 acres.

Easement Lands There are a total of 45.9 acres of Easement land within the Basin. An easement has been granted to the Corps from Southern California Edison, who owns the land where the power transmission line traverses the Basin. The easement gives the Corps the right to inundate the land, as necessary for flood risk management, and is referred to as a flowage easement.

Outgrant policies for special events, filming and photography, biological surveys, and training within the Basin are provided in Appendices A4 through A7. These policies are intended to standardize and regulate the process by which entities are given permission to use the Basin area for particular activities.

2.1.1.3 Recommended Future Actions

The final component of the updated Master Plan is the development of guidance for future actions in the Basin. The updated Master Plan includes development of future management practices and/or actions that could be taken that would best reflect the vision and mission of the Corps, as well as the expressed desires of the public and would result in the improved sustainability of the Basin.

Working together with the neighboring communities, Basin visitors, Basin lessee (City), and other stakeholders, the Corps identified a number of measures that are desired for ongoing improvement and management of the Basin. These measures have been listed in Table 2.1 and divided into actions for

which there is a demonstrated immediate need and measures that could be taken throughout each land use classification to improve safety and sustainability within the Basin, at any time in the future. The associated measures described for each action are preliminary in nature and intended only to suggest possible courses of action.

The approval of the updated Hansen Dam Basin Master Plan would not result in the implementation of any measures; no modifications, expansions, developments, or changes to the infrastructure of the park will be approved as a result of the updated Master Plan.

These future recommended measures are included as guidance for the future development and ongoing management of the Basin. In the event that any of the recommended future uses described are formally proposed for implementation, site specific review and studies in compliance with Corps regulations and guidelines, and Federal laws would be required.

Though it is recommended that Master Plans be updated as regularly as every 5 years, this is often not possible. For this reason, the updated Master Plan for Hansen Dam Basin provides guidance for the long-term future. In order to continue to provide best possible management and guidance for the Basin, the updated Master Plan recommends that essential resources and conditions be reviewed periodically. In particular, it is recommended that Basin stakeholders be continuously encouraged to participate in workshops to ensure that the needs of the community are being met regarding recreation use, environmental protection, and environmental justice. It is also recommended that ongoing efforts be maintained to collect data regarding visitation numbers, the condition of recreation land, and the overall environmental condition of the Basin. Results from these data collections would be utilized to make decisions regarding recreation modifications, adaptive management, and environmental management and restoration.

Table 2.1 Recommended Future Measures	
Action	**Associated Measures**
Immediate Recommended Measures	
Native Plant Landscaping and Exotic Plant Removal	• Exotic plant eradication program for species such as giant reed, tree tobacco, castor bean, salt cedar must be developed in conjunction with the Adaptive Habitat Management Plan (AHMP); intended to improve the natural environment. • A system of replacing non-natives with native species should be implemented. • Develop a plant palette for replacing non-natives with native species.
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	• Enhancement of hiking trails and other low-density recreation features in conjunction with restoration management measures will increase accessibility to the public and facilitate more awareness of the biological resources found in the Basin, particularly in areas of heavy equestrian use. • Structure trails to discourage homeless encampments.
Implement Sustainable Resources Management	• Employ green waste management, smart irrigation, and Best Management Practices (BMP). • Develop an Integrated Pest Management (IPM) program for the 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. • Proper management of special events to ensure no inappropriate use of Environmentally Sensitive and MRM- Vegetative Management Areas. • Management of fugitive dust at denuded areas.
Potential Immediate or Future Actions Specific to Land Use Classification	
Project Operations	• Include education about flood risk management and Basin operations in interpretive signage.
Recreation	• Develop BMPs for implementation at the Orcas-Gabrielino Equestrian Center. • Rehabilitate and investigate improving the Pacoima Little League Fields.
Environmentally Sensitive	• Include education about flood risk management and the operations of the Dam in interpretive signage. • Restoration of native upland, riparian, riverine, and wetland habitats. • Conduct periodic biological surveys, particularly to determine presence of Federally protected species. • Manage trails and vegetation to limit homeless camps.
MRM – Low Density Recreation	• Install signage with educational information regarding the Dam and watershed.
MRM – Vegetative Management	• Invasive species eradication and replanting with natives.

2.2 No Action Alternative

Under the No Action Alternative, the proposed updated Master Plan would not be approved. Instead, the 1991 Master Plan would continue to provide the only framework management documents for the Basin. The existing Master Plan is based on outdated information regarding recreation demand and availability within the region, current qualities and characteristics of the Basin, national objectives, and other state and regional goals and programs.

Existing land use classifications do not reflect current uses and, in some cases are no longer sustainable or no longer recognized as a land use classification by the Corps. The land use and resource suitability and analysis in the updated Master Plan proposes the reclassification of several acres of land in order to reflect actual uses of these lands and to improve environmental, social, and economic sustainability in the Basin. If the updated Master Plan is not approved, outdated land use classifications that do not reflect current use would remain in effect and unsustainable land use would continue. In particular, lands classified as Environmentally Sensitive would not benefit from added protection and management.

Without the approval of the updated Master Plan, the Corps Master Plan goal of "providing the best possible combination of responses to regional needs, resource capabilities and suitabilities, and expressed public interest and desires consistent with authorized project purposes" cannot be achieved. The No Action Alternative would not meet the purpose and need of the project, but is carried forward in this DEA for comparison purposes.

2.3 Alternatives Eliminated From Consideration

Of the three primary components of a Master Plan (Updates, Recommended Land Use Classifications, and Recommended Future Actions), only the recommended land use classifications could be divided into multiple alternatives for analysis.

The array of proposed recommended future actions is intended as conceptual guidance for the future. Although they have been evaluated for conceptual impacts, none of the recommended proposed future actions are slated for implementation. Therefore they have not been evaluated under in this DEA.

The component that could potentially result in multiple alternatives includes only the designated land use classifications. The potential alternatives for land use classifications are constrained by several factors, including; 1) existing development and use, 2) meeting Corps guidance requirements, and 3) meeting the expressed desires of Basin stakeholders and facility operators

Existing Development and Uses It is necessary to identify current land uses within the Basin as defined by Corps guidance, and assign land use classifications based on use and guidance. For example, if an area is currently developed for athletic fields, that land must be identified as Recreation, per Corps Master Plan guidance.

Meeting Recreational Demand and Community Needs Areas designated for recreational use has been identified through recreational demand analyses, identified in the updated Master Plan, and identified through stakeholder input. Based on these analyses, Recreation and MRM – Recreation – Low Density land use classifications were required to remain in place and additional areas of Recreation land were identified to meet Basin lessee and community recreation demand.

Under the proposed action, lands not currently under a specific use could have been identified as a number of possible alternatives. These areas were designated as MRM – Inactive and/or Future Recreation and include agricultural areas, which are considered an interim use. These lands could also be

an overused recreational facility closed for refurbishing, fallow, or slated for development. Except in areas where development is slated by the current lessees, lands classified as MRM – Inactive and/or Future Recreation under the updated Master Plan would remain open for development (or reclassification) in the future. These areas are defined by current use or future needs and are not subject to division into multiple alternatives.

Corps Guidance Following Corps guidance for development of a Master Plan required a land use sustainability analysis. This analysis indicated where lands were overused or where adjacent land uses were incompatible, identified areas could be classified that would foster future sustainability. At Hansen Dam Basin, the areas around the Big and Little Tujunga Washes have been identified as important riparian habitat in need of restoration and protection. As a result all creeks within the Basin have been classified as Environmentally Sensitive.

Corps management, lessees, and interested stakeholders have identified a single land use classification plan for the updated Hansen Dam Basin Master Plan that fulfills needs within the given constraints. No additional alternatives were deemed practicable.

3 BASELINE CONDITIONS

3.1 History and Development of Basin Resources

The need for flood risk management in the coastal drainages of Los Angeles County was recognized before 1900, but increased after the floods of January and February 1914. On 12 June 1915, Los Angeles County Flood Control District (LACFCD) was created. This new County agency worked with the Corps on various minor flood risk management projects. It was not until two decades later that major flood risk management projects were given serious consideration. The flood of 1 January 1934 emphasized the need for flood control projects in southern California, and 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 plan for Los Angeles County for the Santa Ana, San Gabriel, and Los Angeles Rivers and their tributaries. The Definite Project Report for the control of Los Angeles River was submitted in December 1936. The severe storm and flood of February-March 1938 provided additional impetus for a comprehensive flood risk management program in southern California. It also provided rainfall and runoff data for use in new design criteria and as verification for existing design criteria.

Hansen Dam is a major component of the Los Angeles County Drainage Area (LACDA) system of flood risk management structures located on the San Gabriel and the Los Angeles Rivers and their tributaries. The analysis of design, completed in 1939, established the location and design of the Dam and appurtenant flood control facilities. Construction of the Dam, spillway, and outlet works that exist today was completed in September of 1940 at a Federal first cost of over $11,000,000. Hansen Dam was named after horse ranchers Homer and Marie Hansen, who established a ranch in the vicinity of the Dam in the 1800s. In 1939 the Corps acquired the horse ranch's land via eminent domain to build the Dam.

On 10 July 1946, a preliminary report outlining recreation possibilities at the Hansen Dam Basin was published. In this report it was noted that the site was already popular for recreation and attracted approximately 75,000 visitors annually. The California Department of Natural Resources, Division of Fish and Game had voluntarily stocked fish in the water remaining in the borrow pits so the site was already being used for fishing and picnicking. In April 1948, the City of Los Angeles (City) leased 1,450 acres within the Basin for recreation purposes and began a phased program for overall development of the Basin. The initial recreation development at the Basin by the City began in 1952 with the development of the area around the former Holiday Lake. The City continues to develop, operate, and maintain recreation amenities at the Basin in conjunction with the Corps.

One of the popular features of the Basin for many years was Holiday Lake, created where materials were excavated and used for the construction of the Dam. Originally, Holiday Lake measured 130 acres, but by 1975 the lake was reduced to 80 acres due to sediment accumulation. By 1982 it was abandoned as a recreation facility and in 1983 measured at only 30 acres.

3.2 Physical Land Resources

3.2.1 Topography

Approximately 140 square miles of the 152 square mile drainage area above Hansen Dam consists of steep, mountainous terrain, dissected by deep, narrow ravines containing numerous tributary watercourses

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, the highest point in the watershed, to 950 feet at the Dam (Corps 1990) (Map 14). Topographically, the Basin lies in a depression formed by a series of tiered bluffs descending from the San Gabriel Mountains south to the Dam. Elevations within the Basin range from approximately 950 feet at the downstream toe of the Dam embankment to 1,100 feet at the upstream boundary of the Basin (Map 14).

3.2.2 Geology, Soils, and Sediment

The foothills surrounding the San Fernando Valley were formed by the folding and faulting of tertiary marine sediments (Corps 1940). This tectonic action has broken up rock formations of the region into structural blocks or units which are now separated by faults. Physiographic features of the region are the result of this structural condition, which has subsequently been modified by erosion. Foundation conditions within the Basin consist of alluvium materials of sand, gravel and boulders within the floodplain (Map 15), while overbank materials adjacent to the floodplain consist of similar materials but with a higher concentration of silts and clays. These are the materials over which the majority of the Basin has been developed. The Dam itself has been constructed between two outcrops of Modelo sandstone.

3.2.2.1 Soils

Soils in the mountains tend to be shallow, stony, and poorly developed. Soils at the Dam tend to be well-graded alluvial materials receptive to the growth of vegetative cover (Corps 1990). The Natural Resources Conservation Service (NRCS) uses national standards to construct soil maps in the Soil Survey Geographic (STATSGO-SSURGO) database. This database is the most detailed level of soil Mapping done and is designed for use by landowners, townships, and county natural resource planning and management. NCRS STATSGO-SSURGO soils are grouped by hydrologic characteristics. Within the Basin, the majority of soils are classified as Hydrologic Group B, having moderate infiltration rates (Map 16) (NRCS 2006). Small areas of the Basin have high (Group A) or slow (Group C) infiltration rates and a large portion of the Basin is not classified under this system (Map 16).

3.2.2.2 Sediment

Sediment production within the Basin watershed varies considerably, depending on terrain. Sediment production is at a minimum. In the steep, mountainous segment of the watershed, sediment production can be quite high, particularly following periods in which wildfire impacts the watershed and after periods of high intensity rainfall (Corps 1990).

The Basin watershed is reported to have burned over 95% of its area between 1878 and 1975 in a series of wildfires (Corps 1990). On September 9-12, 1968, the Limerock Fire burned 2,846 acres which included the entire western side of Little Tujunga Creek. This burn contributed sediment and debris to the January 24-28, 1969 storm runoff. Subsequent smaller fires in the watershed also occurred along the Little Tujunga Creek and Lopez Canyon drainages making the northwest edge of Basin watershed the most likely source of much of the debris and sedimentation in the Basin. On November 23-27, 1975 the Mill Fire burned 6,370 acres along a stretch from Hansen Dam Basin watershed to Pasadena. This fire burned 95% of the area between Hansen Dam and Big Tujunga Dam as well as acreage upstream of Big Tujunga Dam. Subsequent rain events in 1978, 1980, and 1983 produced large quantities of debris and sediment with runoff. Big Tujunga Dam and Basin initially intercepts much of the sediment produced by the 82.3 square mile drainage area upstream of Hansen Dam Basin (Corps 1990).

Surveys for Basin sedimentation conditions were performed in September 1940, July 1941, October 1943, November 1945, January 1962, August 1969, October 1978, July 1982, and April 1983. Analysis of these surveys showed an average sedimentation rate of 255 acre-feet per year for the period 1940-1978. An average sedimentation rate has not been determined after 1978 because of the difficulty in estimating sediment quantities excavated over the years and inconsistencies with the 1982 survey (Corps 1990).

As of April 1983 the loss in storage capacity due to sediment deposition within the Basin area amounted to 28.9% of total gross storage capacity available in 1940. This figure would exceed 31% had it not been for excavation performed since 1982 to restore capacity (Corps 1990). Based on the November 2004 survey, the area upstream of Hansen Dam had a capacity of 33,348 acre-feet, which is slightly greater than the original allocation of 33,100 acre-feet of net flood storage capacity (not including sediment storage allocation).

3.2.3 Seismicity

The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 in order to identify hazard areas along active faults, or fault zones, that should be avoided when planning areas of human occupancy (CADC 2010). The Hansen Dam Basin does not lie within a fault zone, however two active Quaternary faults can be found in the immediate area and an unnamed concealed fault runs through the Basin (USGS 2010) (Map 15). The Tujunga Fault (Sierra Madre Fault Zone San Fernando Section) is 14 miles in length, runs in a northwesterly direction, and is located less than 0.5 miles north of Hansen Dam Basin. The Verdugo Fault is 13 miles in length, runs in a northwesterly direction, and is located approximately 0.75 miles south of Hansen Dam Basin.

Both faults are classified as reverse faults, or faults whose displacement is vertical. The most recent surface rupture activity for these faults is estimated to be in the Late Quaternary period, most likely less than 130,000 years ago. Though the interval between major ruptures is unknown, the probable magnitude of previous ruptures is estimated to be between 6.0 to 6.8 for the Verdugo Fault and 6.0 to 7.0 M_L (Richter Scale) for the Tujunga Fault (SCEDC 2010).

The Hansen Dam Basin lies within the state of California's designated Seismic Zone based on historic occurrences of liquefaction, or local geological and groundwater conditions that indicate the potential for permanent ground displacements (CDCDMG 1999).

3.2.4 Dam Safety

During storm and flood events inflow to the Basin can create hazardous conditions related to flowing water, erosion of soil from streambanks, and inundation of Basin lands. Hansen Dam is a massive zoned earthfill embankment of compacted soils with stable slopes, and rock revetment for slope protection on both the upstream and downstream sides. The Dam is a designed to safely withstand the hydraulic loading that occurs when floodwaters inundate the Basin. If a failure of Hansen Dam were to occur, it is the areas downstream of the Dam that would be affected by the sudden uncontrolled outflow of water.

In 1978 the Corps reviewed the hydrologic and hydraulic design and functional adequacy of Hansen Dam using the latest hydrologic criteria available at the time and found no deficiency (Corps 1978). The Corps recently performed a risk-based safety evaluation of Los Angeles District Dams in accordance with Corps engineering guidelines (EC 1165-2-210). Corps' dams are classified into one of five Dam Safety Action Classes (DSAC) based on individual Dam safety risk, with DSAC 1 being the highest risk level. DSAC classifications consider event probability, probability of failure, and consequences, given the physical properties of a Dam. Hansen Dam was rated DSAC 3 (Chitwood 2010).

The Corps has prepared a formal plan to address the actions to be taken during emergency situations at the Dam resulting from earthquake, large flood, or security alert. The Emergency Action and Notification Subplan for Hansen Dam prescribes notifications necessary for: 1) prompt evacuation of downstream residents; 2) ensuring safety; 3) vacating project areas where emergency operations may be conducted; and 4) coordination with Federal agencies and non-Federal units of government (Corps 2008). The Emergency Action and Notification Subplan for the Dam provides information regarding the likely downstream areas that would be inundated as a result of a Dam failure as well as the agency contact information essential for a coordinated response to a Dam failure incident. Safety within the Basin is discussed below in the Public Health and Safety section.

3.3 Water Resources

3.3.1 Tujunga Wash Watershed

The San Gabriel Mountain Range forms the northern drainage divide of the Tujunga Wash watershed, and on the east is a high ridge that forms the divide with the upper San Gabriel River watershed (Map 5). The watershed above Hansen Dam Basin is 152 square miles. Big Tujunga Dam is located 14 miles upstream of Hansen Dam and controls 82 square miles of this drainage area. Big Tujunga Dam is a water conservation and flood risk management facility owned and operated by Los Angeles County Department of Public Works (LACDPW). To the south, Tujunga Wash flows across a broad alluvial fan and urbanized valley area before emptying into the Los Angeles River 9.3 miles downstream of the Dam. 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 has a length of 31.5 miles, and an average slope of 148 feet per mile (Corps 1990*).*

Approximately 140 square miles of the 152 square mile drainage area above Hansen Dam Basin consists of steep, mountainous terrain, dissected by deep, narrow ravines containing the numerous watercourses tributary 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 (the highest point in the watershed) to 950 feet at the Dam site (Corps 1990). Much of the watershed is within National Forest land, which is almost completely undeveloped (Corps 1990).

Hansen Dam outflows into Tujunga Wash which flows south in a rectangular reinforced concrete channel with a hydraulic capacity that varies from 20,800 cubic feet per second (cfs) to 28,200 cfs to the Los Angeles River. Immediately downstream of Hansen Dam are the Hansen Spreading Grounds which are owned and operated by LACDPW.

3.3.2 Hydrology

The climate of the drainage area above Hansen Dam Basin is generally 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 are the general winter type, 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. There is great year-to-year variability in monthly and annual precipitation (Corps 1990).

All of the major inflow and impoundment events in the history of Hansen Dam Basin have been the result of general 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 U.S. Geological Survey (USGS) streamgage record for Big Tujunga Creek below Hansen Dam (#11097000), the long-term average outflow from Hansen Dam for the period 1948 through 2009 is 17,927 acre-feet per year (or 24.8 cfs). 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 downstream of the Dam is characterized by water 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 especially following wildfires that burn substantial portions of the watershed. The original estimate of sedimentation in Hansen Dam was 5,000 acre-feet over a 50-year period (1940 to 1990). However by 1977, sedimentation at Hansen Dam (approximately 10,000 acre-feet) had greatly exceeded the original estimate. Based on the historical average annual sedimentation rate for Hansen Dam, approximately 84% (272 acre-feet per year) of all sediment entering into the Hansen Dam Basin area remains behind the Dam. Approximately 16% (52 acre-feet per 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 Hansen Dam in 1984. This operation has restored much of the original Basin flood capacity (Corps 1999).

3.3.3 Dam Operation

The primary objective of Hansen Dam is flood risk management, specifically the minimization of flood damages for portions of the San Fernando Valley along Tujunga Wash and the Los Angeles River. Water is temporarily stored behind Hansen Dam during periods of high inflows and is released slowly downstream into the Tujunga Wash Channel. The water control manual (Corps 1990) describes the Basin storage space (33,348 acre-feet) in conjunction with the outlet release capability (maximum of 20,800 cfs) to control flood inflow events to the conveyance capacity of the downstream Tujunga Wash. Table 3.1 presents a summary of pertinent information regarding the physical characteristics of the Dam.

The current operation schedule for Hansen Dam includes controlled releases up to 500 cfs until the surface water elevation reaches 1,010.5 feet. Above this elevation Dam releases up to 20,800 cfs are made provided the downstream channel capacity on Tujunga Wash will not be exceeded (Corps 1990). The available conveyance capacity of the downstream channels varies 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.

Table 3.1 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	1060 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	265ft

Table 3.1 Hansen Dam and Basin Pertinent Data	
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.	

3.3.3.1 Basin Filling Frequency

The frequency and areal extent of flood inundation is considered in the management and appropriate use of Basin lands. The operation of the Dam to control flood inflows for flood risk management results in periodic storage of flood waters within the Basin. Statistical analyses of water surface elevations reached over the historical period of time the Dam has been operational enables the determination of filling frequency. This refers to the relationship between the elevations that waters reach within the Basin and how frequently those elevations are reached.

The Dam has a water surface elevation gage which produces a continuous record of the Basin stage. This historical operation record of the Basin water surface elevation is the principal information used to develop a statistical relationship between water surface elevation and frequency. Figure 3.1 presents the historical record of Hansen Dam water surface elevation from October 1941 to September 2007 (65 years) (Corps 2009b). In the period between 1941 and 1969, water surface elevations were recorded that were periodically lower than the invert of the outlet works (990 feet). These low water surface elevation readings occurred because the borrow pit excavation to obtain material for the Dam embankment left topographic depressions within the Basin that were not filled in with sediment deposits until 1969.

Corps filling frequency values for Hansen Dam are presented in Table 3.2 (Corps 2010b).The filling frequency relationship was derived by performing a partial duration graphical frequency analysis of the historical monthly maximum Basin water surface elevations. 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 3.2,% chance exceedance means, for example, that every year there is a 1% (1 out of 100) chance for the indicated water surface elevation (1,043.4 feet) 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.

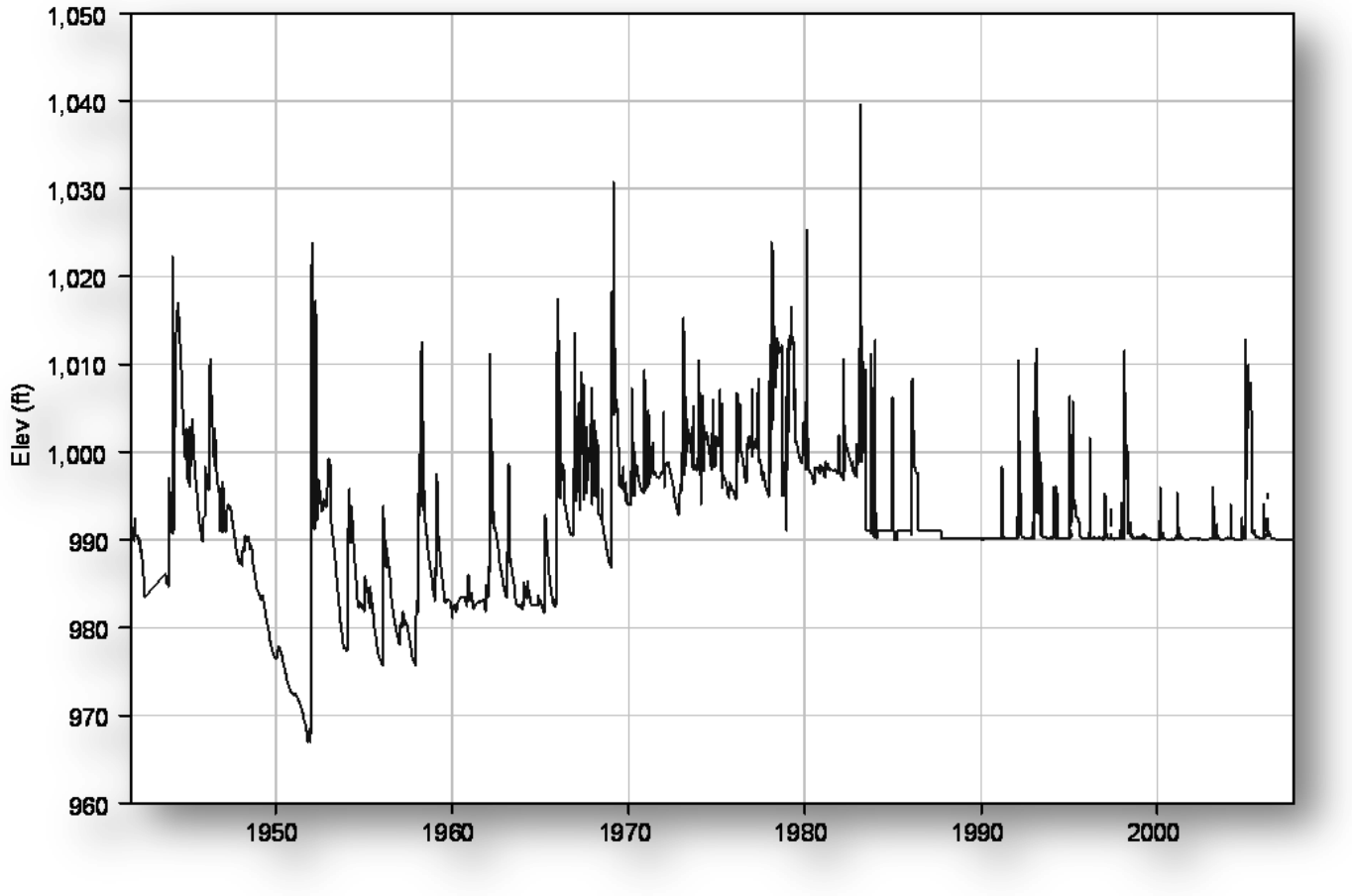


Figure 3.1 Water Surface Elevations

Table 3.2 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

3.3.4 Jurisdictional Waters

On 25 June 2008 the Corps approved a jurisdictional waters determination [File name and number: I-5 HOV Lane Project (SPD-2008-31-VEN)] for a portion of Tujunga Wash within Hansen Dam Basin. The Corps found the 3.65 mile reach of Tujunga Wash extending from the confluence with Little Tujunga Wash (located within the Basin) downstream to the confluence with Pacoima Wash Diversion Channel met the Clean Waters Act (CWA) requirements to be classified as "relatively permanent waters" that flow directly or indirectly into "Traditionally Navigable Waters."

In July 2010 the Environmental Protection Agency (EPA) declared the entire Los Angeles River "traditional navigable waters," a designation that means that CWA protections apply throughout most of the 834-square-mile urban watershed. Therefore the watercourses within the Basin that are upstream of the Corps 2008 jurisdictional waters determination would also be categorized as jurisdictional waters.

"Jurisdictional waters" are water bodies subject to the CWA regulation per the definition of the phrase "waters of the United States" in the Act, and codified by subsequent agency determinations and court decisions. Jurisdictional waters determinations are broadly defined in 33 CFR 238.3(a), and include consideration of hydrologic, environmental, commercial, and historical use aspects of the water body as related to the goal of improving water quality nationwide. Wetlands are also included under the definition of "waters of the United States."

3.3.5 Floodplain Management

Executive Order (EO) 11988, Flood Plain Management, requires Federal agencies to recognize the significant values of floodplains and to consider the public benefits that would be realized from restoring and preserving floodplains. The objective is avoidance, to the extent possible, of long- and short- term adverse impacts associated with the occupancy and modification of the base (100-year) floodplain and the avoidance of direct and indirect support of development in the base floodplain wherever there is a practicable alternative.

In order to properly address development proposals at Corps Basins within the South Pacific Division (SPD) of the Corps, SPD issued a regulation, SPD R 1110-2-1, Land Development Proposals at Corps Reservoir Projects, in November 2001. This regulation considered all pertinent Corps guidance and EO 11988 in establishing specific methodology for evaluating development proposals at SPD Basins "to assure that the project purposes are not compromised, that the public is not endangered, and that natural and cultural resources associated with project lands are not harmed."

Application of the evaluation procedure in SPD R 1110-2-1 Appendix B (Minimum Criteria for Reservoir Land Use Projects) requires knowledge of the elevation-frequency relationship (or filling frequency) for the Basin. The Basin elevations corresponding to the 1% (100-year), 2% (50-year), and 10% (10-year) annual exceedance probability events must be known. The Corps developed those filling frequency values (1043.4 feet for 100-year; 1034.0 feet for 50-year; and 1022.8 feet for the 10-year) for the Basin as described in section 3.3.3.1 of this DEA (Corps 2010a) (Map 7). Map 13 clearly demonstrates that baseline Basin development is consistent with EO 11988 and Corps guidance for floodplain management. Map 13 shows the presence of recreation amenities within the Basin in relation to the elevation-frequency contours. There is no human habitation permitted within the Basin, and existing structures and improvements are either floodable, flood-proofed, or located above the base flood (100-year) elevation.

3.3.6 Surface Water Quality

Hansen Dam Basin receives runoff from the Big Tujunga Wash (perennial) and the much smaller Little Tujunga Wash (ephemeral). Overall, surface water quality in the Hansen Dam Basin area is poor. High turbidity levels from excessive upstream sediment loads occur on the Big Tujunga Wash, while coliform bacteria, copper, and trash issues are also present (Corps 1990).

Impoundment of water within the Basin during flood risk management operations, or for the purpose of groundwater recharge, has not been reported to result in decreased water quality. The short duration impoundments do not provide time for changes in water quality due to biological activity (Corps 1990).

Water Quality throughout the state of California is protected by the State Water Resources Control Board's (SWRCB) Water Quality Objectives. Water Quality Objectives are designated to protect Beneficial Uses, which determine the degree of water quality protection needed to support current and future human and wildlife utilization (LARWQCB 1995). The Los Angeles River Water Quality Control Board (LARWQCB) Region 4 has designated Beneficial Uses for the Hansen Dam Basin and tributaries including water used for the following purposes:

- Municipal (MUN) – Water used for military, municipal, individual water systems, and may include drinking water.
- Ground Water Recharge (GWR) – Natural or artificial Ground Water Recharge for future extraction, to balance natural hydrologic processes, and to maintain navigable channels.
- Recreation Contact 1 (REC1) – Recreation Contact 1 is protective of activities where body with water contact or possible ingestion may occur. Examples of these activities include: wading, swimming, diving, surfing, white water rafting, etc.
- Recreation Contact 2 (REC2) – Recreation Contact 2 is protective of activities near water, but not occurring in water. Examples of these activities include: picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool exploration, etc.
- Warmwater Habitat (WARM) – Water used for the support of warm water ecosystems for the preservation and maintenance of aquatic habitat and wildlife species (flora and fauna).
- Coldwater Habitat (COLD) – Water uses that support cold water ecosystems for the preservation and maintenance of aquatic habitat and wildlife species (flora and fauna).
- Rare, Threatened or Endangered Species (RARE) – Habitat types that are necessary for the survival and livelihood of plant and animal species listed by the state/Federally as rare, threatened, or endangered.

Table 3.3 describes the types and extent of beneficial uses within the Hansen Dam Basin (LARWQCB 1995).

Table 3.3 Surface Water Quality Beneficial Uses.

Basin	Surface Streams	MUN	GWR	REC1	REC2	WARM	COLD	RARE
Hansen Dam	Hansen Dam Basin and Lakes	P	E	E	E	E	I	E
Hansen Dam	Tujunga Wash (LA River To Hansen Dam)	P	I	Pm	I	P	-	-

I= Intermittent Use, P=Potential Use, E=Existing Use, m= Access Prohibited by the LACDPW in concrete lined channels. Source: LARWQCB 1995.

3.3.6.1 Impairments

Surface water quality at Holiday Lake is poor. Since the 1970s, Holiday Lake area has exhibited high counts of coliform bacteria and substantial concentrations of iron, manganese, and mercury. When Hansen Dam Basin was originally constructed, the lake covered 130 acres behind the Dam embankment. Currently, the remnant of the lake is a small pond area between the Lopez Channel and the Dam embankment. During the flood season, large amounts of flood inflow to Hansen Dam tend to dilute the small amount of poor quality water in the vicinity of the former Holiday Lake (Corps 1990).

As required under section 303(d) of the CWA, states, territories, and tribes are required to develop a list of impaired waters (EPA 2006). Baseline water quality monitoring assessments conducted by watershed stakeholders and the state have characterized the Tujunga Wash as not being in compliance with state Water Quality Objectives established to protect designated Beneficial Uses. Accordingly, the Tujunga Wash between Hansen Dam and Los Angeles River was listed as impaired on the 2006 Federal 303(d) list (EPA 2006). Water quality contaminants causing impairment include coliform bacteria and copper.

Coliform Bacteria Coliform Bacteria is categorized by the EPA as a "Pathogen" and is conveyed into watersheds via urban run-off and readily propagates in degraded in-stream habitat conditions. Coliforms can cause illnesses in recreation water contact (swimming, kayaking, surfing, etc.).

Copper A majority of copper is introduced to streams and water bodies from copper deposition on highways and roads originating from vehicle brake pads; during rainy weather, copper is washed into streams, creeks, and rivers. Copper may damage gills, liver, and kidneys of aquatic organisms. It can also interfere with aquatic organisms' sense of smell which is crucial in finding good mates, or their way back to mating areas.

The law requires that jurisdictions responsible for 303(d) listed waters develop a Total Maximum Daily Load (TMDL), which quantifies the amount of pollutant that a water body can receive and still safely meet established Water Quality Objectives. Plans for future development of coliform and copper TMDLs are under way for Tujunga Wash. Currently, though trash does not fall under the 303(d) impairment list, a trash TMDL has been developed and was approved for the Tujunga Wash by the EPA in 2002 (EPA 2010a).

3.3.7 Groundwater

Hansen Dam Basin sits on top of the San Fernando Valley Groundwater Basin (SFVGB). The 226 square mile water bearing-sediment basin boundaries include the Tujunga Valley, Brown's Canyon, and the alluvial areas of the Verdugo Mountains close to La Crescenta and Eagle Rock. The basins groundwater is confined and bounded in the south by the Santa Monica Mountains and the Chalk Hills, in the west by Simi Valley, and in the North by the Santa Susana Mountains.

Although the Basin is not considered a groundwater recharge area, two groundwater recharge areas are located downstream of Hansen Dam Basin. Diversion structures have been constructed in the Tujunga Wash channel to transfer water to these recharge areas. The LACDPW Hansen Spreading Grounds are located immediately downstream of Hansen Dam; and the Los Angeles County Department of Water and Power (LACDWP) Tujunga Spreading Grounds are located approximately 2.5 miles downstream of the Hansen Spreading Grounds (Corps 1990). Each of the spreading grounds are operated by LACDPW. The Hansen Spreading Grounds encompass approximately 156 acres and have an intake capacity of 400 cfs. The Tujunga Spreading Grounds encompass approximately 188 acres and have an intake capacity of 400 cfs. The long-term average intake capacity of both spreading grounds is approximately 220 cfs (Corps 1990).

Groundwater quality monitoring efforts in the SFVGB are conducted by the Upper Los Angeles River Area Watermaster (ULARAW) and include testing for water levels and water quality. The number of measurements taken over all measured wells is noted in Table 3.4 along with the frequency that these measurements are collected.

Table 3.4 Active Groundwater Monitoring Data

Agency	Parameter	Number of Wells/measurement frequency
Upper Los Angeles River Area Watermaster (ULARAW)	Water Levels and Water Quality	19/Daily, monthly, and quarterly
EPA	Water Levels	1,379/ Daily, monthly, yearly and quarterly
EPA	Water Quality	2,366/ Daily, monthly, yearly and quarterly
Department of Health Services	Title 22	126 wells
Source: CDWR 2003.		

Groundwater quality is under the jurisdiction of the LAWQRB 4, which has designated Beneficial Uses for the SFVGB including (LARWQCB 1995):

- Municipal (MUN) – Water used for military, municipal, individual water systems, and may include drinking water.
- Industrial Service Supply (IND) – Water supply for industrial uses that do not depend on water quality.
- Industrial Process Supply (PROC) – Uses of water for industrial activities that depend primarily on water quality.
- Agricultural (AGR) – Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

3.3.7.1 Groundwater Quality

The eastern portion of the SFVGB can be characterized as calcium sulfate-bicarbonate dominated groundwater supply, while the western part is characterized as calcium bicarbonate dominated (ULARAW 1999). Calcium sulfate-bicarbonate and calcium biocarbonate are naturally occurring solutions created by carbon dioxide from the atmosphere entering a water body and mixing with different types of minerals found in a groundwater basin. A more common name for this is “water hardness.” Hardness levels in the SFVGB do not have an appreciable effect on the Hansen Dam Basin, and are measured to characterize a water body and rate the quality for water supply.

Well monitoring data taken from 125 public supply wells shows an average Total Dissolved Solids (TDS) content of 499 mg/L and a range from 176 to 1,160 mg/L. TDS are the amount of all organic and inorganic substances contained within a volume of water. High levels of TDS indicate that sources of pollutants like agricultural and residential runoff, leaching of soil contamination, and point source water pollution discharge from industrial or sewage treatment plants may exist in the water body. TDS in the Basin range from 326 to 615 mg/L (ULARAW 1999). TDS levels of 326 to 615 mg/L in the SFVGB meet Water Quality Objectives of 700 mg/L (LARWQCB 1995).

Electrical conductivity is used to measure dissolved solids in a water body and is usually used as an indicator of the presence of salinity due to agricultural and sewage contaminants. The LARWQCB does not have a Water Quality Objective set for electrical conductivity, but the EPA states that the average conductivity levels for water bodies in the United States is between 50 and 1500 µmhos/cm, while levels of 10,000 µmhos/cm or more may indicate industrial sources of pollution. Levels in the SFVGB range from 540 to 996 µmhos/cm, which is indicative that dissolved solids in Hansen Dam Basin are not at abnormal levels.

3.3.7.2 Impairments

Water quality in public supply wells has been used to characterize groundwater quality in the SFVGB. Table 3.5 displays constituent groups, number of wells sampled, and number of wells sampled in exceedance with water quality standards (CDWR 2003). The number of wells sampled represents the distinct number of wells sampled as required under the California Regulatory Compliance Title 22 program from 1994 through 2000. The program requires the monitoring of drinking supply wells to ensure compliance with drinking water standards for public health.

Table 3.5 Water Quality in Public Supply Wells

Parameters Measured	Number of Wells Sampled	Number of Wells with concentration above MCL
Inorganics-Primary	129	6
Radiological	122	13
Nitrates	129	44
Pesticides	134	3
VOCs and SVOCs	134	90
Inorganics-Secondary	129	17

Source: CDWR 2003.

As seen in Table 3.5, all constituent groups listed were in exceedance of the Maximum Concentration Levels (MCL) at least once. It should be noted that each well confirmed with a concentration above MCL was confirmed with a second detection above MCL and that this does not indicate the type of water quality that is delivered to the consumer, but the characteristics of contamination in the groundwater basin.

Additional groundwater impairments reported by Setmire (1985) include elevated concentrations of sulfate in the western part of the groundwater Basin, while the eastern portion is impaired by TCE, PCE, and nitrates (ULARAW 1999). Hansen Dam Basin is located in the eastern part of the SFVGB.

Inorganics (Primary) Primary inorganics include antimony, asbestos, barium, beryllium, mercury, chromium, cyanide, and thallium. Primary inorganics have a wide variety of health effects in humans and aquatic wildlife including kidney problems, cancer, nervous system disorders, and circulatory problems.

Radiological Radiological constituents naturally occur at extremely low levels in groundwater basins. High levels of radiological constituents could indicate that industrial or mining pollutants are present within a water body. Naturally occurring radiological constituents primarily include radon, gross alpha,

and uranium. Although radiological constituents are not considered a significant contaminant statewide, it can be important locally (CDWR 2003).

Nitrates Though nitrates are classified as inorganic, they are separated because they are one of California's leading contaminants. In high levels, nitrates can cause serious drinking water health risks to humans and can impair aquatic ecosystems. Natural levels of inorganic nitrogen are found in surface waters, however the majority of nitrogen impairment originate from mismanaged agricultural land use (crowded livestock, over allocation of fertilizer). When nitrogen percolates its way down from the surface water to groundwater it becomes nitrate. Based on data in Table 3.5 the SFVGB drinking water is impaired by the nitrates constituent group, likely due to agricultural land use upstream. Currently, the nitrates constituent group is not a 303(d) impairment for surface drainages into the Hansen Dam Basin, or within the Basin itself (EPA 2006).

Pesticides Pesticides are used for a variety of reasons and once released into the environment they can have damaging effects on plants and aquatic life that were not originally targeted for their use (LARWQCB 1995).

Volatile Organic Compounds and Semi-Volatile Organic Compounds (VOCs and SVOC) VOCs are chemical compounds that vaporize at normal temperature and pressure, typical of the lighter fuels and gasoline (benzene). SVOCs are heavier hydrocarbon compounds/oil products, which are less mobile in the environment and tend to cling to soils. SVOCs and VOCs are introduced into the environment by industrial activities, are carcinogenic and hazardous in drinking water, and detrimental to the health of aquatic organisms. Based on Table 3.5 VOCs and SVOCs are persistent in the SFVGB and are likely impacting surface water resources. Based on the data, it is unclear to what extent this constituent group is impacting resources within the Hansen Dam Basin.

Tetrachloroethylene (PCE) PCE is categorized as "Toxic Organics" by the EPA and is primarily used as a metals degreaser and in dry cleaning. PCE readily evaporates in soil, but if introduced to groundwater it persists and may break down very slowly. PCE is a central nervous system depressant in animals and may cause cancer (EPA 2010c).

Trichloroethylene (TCE) TCE is categorized as "Toxic Organics" by the EPA. TCE makes its way into the environment via wastewater from metal finishing, paint and ink formulation, electrical/ electronic components, and rubber processing industries. TCE readily evaporates in soil, but if introduced to groundwater it persists and may break down very slowly. Animals exposed to TCE over several years may develop liver problems and/or cancer (EPA 2010d).

Though these impairments are present in the eastern SFVGB, it is unclear in how they will affect the Basin; there is no current listing for 303(d) impairments of nitrates, TCEs or PCEs within the Basin (EPA 2006). Currently, the VOCs and SVOCs constituent group is not 303(d) listed for surface drainages into the Hansen Dam Basin or within the Basin itself, and it is unclear what these impacts to the Basin would be (EPA 2006). It is unknown based on the data in Table 3.5 if radiological constituents in the SFVGB would have a negative impact on aquatic resources within the Hansen Dam Basin. Few exceedences of pesticide MCL within the SFVGB occur and this level of pesticide concentrations within the SFVGB would have very little impact on Hansen Dam Basin resources.

3.3.8 Wetlands

The Los Angeles River and its tributaries and wetlands are considered jurisdictional waters of the United States, and all are subject to the CWA. The National Wetland Inventory (NWI) reports the presence of lacustrine, riverine, and palustrine wetlands, including open water areas, emergent and scrub-shrub

wetlands, forested wetlands, and intermittent and permanent riverine channels (Coastal Conservancy 2000, NWI 2010). The report estimates the approximate area of the wetlands within the Basin at 60 acres and notes that this acreage includes baccharis scrub, riparian woodland, and freshwater marsh wetlands. Table 3.6 shows the wetlands and deepwater habitats classification reported by the Coastal Conservancy taken from NWI data (Coastal Conservancy 2000, NWI 2010). It is important to note that the current classification system used by NWI no longer recognizes W, Y, or Z modifiers, or a "flat" riverine system. Furthermore, the lack of digital data results in unknown acreages for each wetland.

Table 3.6 Wetland Types and Acreages

NWI Designation	Description
L1OWKZ	Lacustrine, Limnetic, Open Water, Artificially Flooded, Intermittently Exposed/Permanent
PEMKY	Palustrine, Emergent, Artificially Flooded, Saturated/Semipermanent/Seasonal
PEMY	Palustrine, Emergent, Saturated/Semipermanent/Seasonal
PFOKY	Palustrine, Forested, Artificially Flooded, Saturated/Semipermanent/Seasonal
PSS/EMY	Palustrine, Scrub-Shrub/Emergent, Saturated/Semipermanent/Seasonal
PSSKY	Palustrine, Scrub-Shrub, Artificially Flooded, Saturated/Semipermanent/Seasonal
PSSW	Palustrine, Scrub-Shrub, Intermittently Flooded/Temporary
R4FLW	Riverine, Intermittent, Flat, Intermittently Flooded/Temporary
R4FLY	Riverine, Intermittent, Flat, Saturated/Semipermanent/Seasonal
R4SBY	Riverine, Intermittent, Streambed, Saturated/Semipermanent/Seasonal
Source: NWI 2010.	

3.4 Air Quality

The Hansen Dam Basin lies within the boundaries of the South Coast Air Basin (SCAB), which is managed by the South Coast Air Quality Management District (SCAQMD). The SCAB, which covers an area of approximately 6,745 square miles, is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east, and encompasses all of Orange County, Riverside County, Los Angeles County (except for Antelope Valley), and the non-desert portion of San Bernardino County.

3.4.1 Regional Climate

The primary factors that determine air quality in a particular area include the types of pollutants released to the atmosphere, the locations of air pollutant sources, and the amounts of pollutants emitted. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The SCAB is primarily a coastal plain with interconnected valleys and low hills progressing into high mountain ranges on the perimeter. The region is located within a semi-permanent high-pressure system that lies off the coast. As a result, the weather is mild, tempered by a daytime sea breeze and a nighttime land breeze. This mild climate is infrequently interrupted by periods of extremely hot weather, winter storms, and Santa Ana winds. Rainfall in the SCAB mainly occurs from November through April, with rainfall totals usually within a range of 15 to 18 inches.

The SCAB has a low average wind speed of 4 miles per hour (mph). As a result, air contaminants in the SCAB do not readily disperse. On spring and summer days, most pollution is moved out of the SCAB through mountain passes or is lifted by the warm vertical currents produced by the heating of the

Table 3.7 Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	State Standard	National Standard	Health Effects, Pollutant Characteristics and Major Sources
Ozone (O_3)	1 Hour	0.09 ppm	NA	Short term exposures to high concentrations can irritate eyes and lungs. Long-term exposure may cause permanent damage to lung tissue. Ozone is a secondary pollutant that is formed in the atmosphere through reactions between reactive organic gases (ROGs) and nitrogen oxides (NO_x) in the presence of sunlight. Major sources of ROGs and NO_x include combustion processes (including motor vehicle engines) and evaporative solvents, paints and fuels.
	8 Hour	0.07 ppm	0.075 ppm	
Carbon Monoxide (CO)	1 Hour	20 ppm	35 ppm	Classified as a chemical asphyxiant, CO interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen. Exposure to high CO concentrations can cause headaches, dizziness, fatigue, unconsciousness, and even death. CO is an odorless, colorless gas that is formed by incomplete combustion of fuels. The primarily source of CO is the internal combustion engine, primarily gasoline-powered motor vehicles.
	8 Hour	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	1 Hour	0.18 ppm	NA	Irritating to eyes and respiratory tract. NO_2 is a reddish brown gas that is a by-product of combustion. Motor vehicles and industrial operations are the main sources of NO_2.
	Annual	0.03 ppm	0.053 ppm	
Sulfur Dioxide (SO_2)	1 Hour	0.25 ppm	NA	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight. SO_2 is a colorless acid gas with a strong odor. Fuel combustion, chemical plants, sulfur recovery plants, and metal processing are the main sources of this pollutant.
	3 Hour	NA	0.5 ppm	
	24 Hour	0.04 ppm	0.14 ppm	
	Annual	NA	0.03 ppm	
Respirable Particulate Matter (PM10)	24 Hour	50 $\mu g/m^3$	150 $\mu g/m^3$	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility. Solid or liquid particles in the atmosphere. Sources include dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual	20 $\mu g/m^3$	50 $\mu g/m^3$	
Fine Particulate Matter (PM2.5)	24 Hour	NA	35 $\mu g/m^3$	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling. Solid or liquid particles in the atmosphere. Major sources include fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning. PM2.5 may also be formed from photochemical reactions of other pollutants, including NO_x, SO_2, and organics.
	Annual	12 $\mu g/m^3$	15.0 $\mu g/m^3$	
Lead (Pb)	Monthly	1.5 µg/m3	– 1.5	Disturbs the nervous system, kidney function, immune system, reproductive and developmental systems, and the cardio vascular system. Present source: lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	NA	µg/m3	

Source: CARB 2010; EPA 2010e.

mountain slopes. From late summer through the winter months, lower wind speeds and the earlier appearance of offshore breezes combine to trap pollution in the SCAB. Strong, dry, north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. These conditions tend to last for several days at a time.

The SCAB experiences a persistent temperature inversion as a result of the Pacific high, a large subtropical high pressure system, which holds air contaminants relatively near the ground. Under normal atmospheric conditions, temperature decreases with altitude. During an inversion condition temperature increases with altitude. As the air pollutants rise in the atmosphere they reach an altitude where the ambient temperature exceeds the temperature of the pollutants. This causes the pollutants to sink back to the earth's surface, where they become trapped and concentrated. In summer, the longer daylight hours and bright sunshine combine to cause a reaction between hydrocarbons and oxides of nitrogen to form ozone. In winter, the greatest pollution problems are carbon monoxide and nitrogen oxides, which are trapped and concentrated by the inversion layer.

Periodically, the SCAB experiences an intermittent weather condition known as El Niño-Southern Oscillation (ENSO) and its counterpart La Niña. During El Niño years, the SCAB experiences warmer air and ocean temperatures, and higher than normal precipitation. ENSO occurs in the tropical Pacific Ocean on an average of every 5 years, but varies from 3 to 7 years. The driving factor in ENSO conditions is warmer-than-normal ocean surface temperatures in the tropical Pacific, which causes the reversal, or in milder years the slowing or stopping, of circulation patterns between Asia and the Americas. This change in circulation patterns shifts the "normal" pattern of rising warm wet air and rainfall from Southeast Asia to South and North America. La Niña is the counterpart to El Niño and usually has an opposite effect on weather patterns; wetter than normal conditions across the Pacific Northwest and dryer and warmer than normal conditions across much of the southern tier. La Niña brings dry weather to the SCAB and the southwest, usually prevailing strongest from November to January (CDFG 2010a).

3.4.2 Local Climate

The climate of the San Fernando Valley has characteristics similar to that of the Mediterranean region; warm dry summers and moderately cool winters. Temperature records range from the low 20º F to well in excess of 100º F. Precipitation is distributed through the winter and spring months reaching its maximum rainfall in the months of December through February. The San Fernando Station (closest weather station to the Basin) reports an average annual precipitation of 17.66 inches, generally confined to the period of November through April (WRCC 2010).

3.4.3 Air Quality Standards

Regulation of air pollution is achieved through both national and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the Federal Clean Air Act, the EPA has identified criteria pollutants and has established national ambient air quality standards (NAAQS) to protect public health and welfare. The NAAQS are defined as the maximum acceptable concentration that may be reached, but not exceeded more than once per year. The EPA has established the NAAQS for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM10, PM2.5), and lead (Pb). These pollutants are called "criteria" pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

The California Ambient Air Quality Standards (CAAQS) are more restrictive than the national standards in some cases. Table 3.7 presents the national and state ambient air quality standards and provides a brief description of the related health effects and principal sources for each pollutant.

3.4.4 Local Air Quality

The California Air Resources Board (CARB) coordinates and oversees state and Federal air pollution control programs in California; oversees activities of local air quality management agencies; and maintains air quality monitoring stations throughout the state in conjunction with the EPA and local air districts. The air quality monitoring station closest to the Hansen Dam Basin is station number (state ID) 70069. This station monitors most criteria pollutants including O_3, CO, PM2.5, PM10, NO_3, and SO_2. The ambient air quality data from this station for 2006, 2007, and 2008 is shown in Table 3.8.

Table 3.8. Ambient Air Quality in the Basin Vicinity

Pollutant	Averaging Time	Maximum Concentration by Year			Number of Days State Standard Exceeded		
		2006	2007	2008	2006	2007	2008
Ozone	1-hour (ppm)	.17	.116	.133	25s	13s	20s
	8-hour (ppm)	.128	.096	.109	23s	19s	35s
Carbon Monoxide	1-hour (ppm)	4	4	3	-	-	-
	8-hour (ppm)	3.5	8	2.6	-	-	-
Nitrogen Dioxide	1-hour (ppm)	.10	.09	.11	-	-	-
	24-hour (µg/m^3)	.05	-	-	-	-	-
Sulfur Dioxide	1-hour (ppm)	-	.01	.01	-	-	-
	24-hour (ppm)	-	.003	.003	-	-	-
PM 2.5	24-hour (µg/m^3)	50.7	56.5	57.5	6F	9 F	2F
PM 10	24-hour (µg/m^3)	71	109	66	10s	11s	7s

Source: AQMD 2006; 2007; 2008. S:State Standards, F:Federal Standards

Table 3.9. Attainment Status of Criteria Pollutants

Pollutant	State[1]	Federal
Ozone	Nonattainment	Severe 17 Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Serious Nonattainment[2]
Carbon Monoxide	Attainment	Unclassified/Attainment[2]
Nitrogen Dioxide	Attainment	Unclassified/Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	Attainment	Not Available
Lead	Attainment	Attainment

[1]2006 State Area Designations. [2]2008 National Area Designations. Source: CARB 2006, EPA 2010e.

The existing levels of criteria pollutants in the project area summarized in Table 3.8 show regular exceedance of state standards for O_3 in all three monitoring years and consistent below-the-relevant state standards for CO, NO_2, and SO_2. The sampling station for all three years (2006, 2007, and 2008) showed consistent Federal and state exceedences for PM 2.5 and PM 10.

Data collected at monitoring stations are used by the CARB to classify air basins as "attainment" or "nonattainment" with respect to each pollutant and to monitor progress in attaining air quality standards. Table 3.9 identifies the attainment status for the criteria pollutants in the SCAB.

3.4.5 Greenhouse Gas Emissions

Greenhouse gases are compounds in the atmosphere that absorb infrared radiation and re-radiate a portion of that back toward the earth's surface, thus trapping heat and warming the earth's atmosphere. The most important naturally occurring greenhouse gas (GHG) compounds are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone, and water vapor. CO_2, CH_4, and N_2O are produced naturally by respiration and other physiological processes of plants, animals, and microorganisms; by decomposition of organic matter; by volcanic and geothermal activity; by naturally occurring wildfires; and by natural chemical reactions in soil and water. Ozone is not released directly by natural sources, but forms during complex chemical reactions in the atmosphere among organic compounds and nitrogen oxides in the presence of ultraviolet radiation. While water vapor is a strong greenhouse gas, its concentration in the atmosphere is primarily a result of, not a cause of, changes in surface and lower atmospheric temperature conditions.

Although naturally present in the atmosphere, concentrations of CO_2, CH_4, and N_2O also are affected by emissions from industrial processes, transportation technology, urban development, agricultural practices, and other human activity. The Intergovernmental Panel on climate change (IPCC) estimates the following changes in global atmospheric concentrations of the most important greenhouse gases (IPCC 2001; 2007):

- Atmospheric concentrations of CO_2 have risen from a pre-industrial background of 280 ppm by volume (ppm) to 379 ppm in 2005.
- Atmospheric concentrations of CH_4 have risen from a pre-industrial background of about 0.70 ppm to 1.774 ppm in 2005.
- Atmospheric concentrations of N_2O have risen from a pre-industrial background of 0.270 ppm to 0.319 ppm in 2005.

The IPCC has concluded that these changes in atmospheric composition are almost entirely the result of human activity, not the result of changes in natural processes that produce or remove these gases (IPCC 2007).

CO_2, CH_4, and N_2O have atmospheric residence times ranging from about a decade to more than a century. Several other important GHG compounds with long atmospheric residence times are produced almost entirely by various industrial processes; these include sulfur hexafluoride (SF_6) and a wide range of fluorinated hydrocarbons (HFCs). Fluorinated compounds typically have atmospheric residence times ranging from a few decades to thousands of years.

The overall global warming potential of GHG emissions is typically presented in terms of carbon dioxide equivalents (CO_2e), using equivalency factors developed by the IPCC. The IPCC has published sets of CO_2e factors as part of its periodic climate change assessment reports issued in 1995, 2001, and 2007. The latest IPCC data assign global warming potential multipliers of 1 to CO_2, 25 to CH_4, and 298 to N_2O

(IPCC 2007). The global warming potential multiplier for SF_6 is 22,800; global warming potential multipliers for HFCs vary widely according to the specific compound.

3.4.5.1 Federal Policies and Measures

The following outlines near-term policies and measures undertaken by the U.S. government to mitigate GHG emissions.

Through the American Recovery and Reinvestment Act (ARRA), signed into law in February 2009, the United States allocated over $90 billion for investments in clean energy technologies to create green jobs, speed the transformation to clean, diverse, and energy-independent economy, and help combat climate change. In June 2009, the U.S. House of Representatives passed the landmark American Clean Energy and Security Act, which includes economy-wide GHG reduction goals of 3% below 2005 levels in 2012, 17% below 2005 levels in 2020, and 83% below 2005 levels in 2050. In September 2009, the EPA announced its plan to collect GHG emission estimates from amenities responsible for 82.5% of the GHG emissions across diverse sectors of the economy, including power generation and manufacturing. In October 2009, the President issued an EO requiring Federal agencies to set and meet strict GHG reduction targets by 2020. In December 2009, following an extensive comment and review period, the EPA Administrator issued a finding under the Clean Air Act that the current and projected GHG concentrations in the atmosphere threaten the health and welfare of current and future generations (U.S. Department of State 2010).

In addition to the major new 2009 initiatives highlighted above, the U.S. government is making important progress toward reducing GHG emission through some 80 energy policies and measures that promote increased investment in end-use efficiency, clean energy development, and reductions in agricultural GHG emissions (U.S. Department of State 2010). The U.S. government is also committed to reducing emission from the most potent GHGs; more than a dozen initiatives across five executive agencies target these potent gases (U.S. Department of State 2010).

3.4.6 Global Climate Change

Global Climate Change (GCC) is a shift in the average weather patterns observed on earth, which can be measured by such variables as temperature, wind patterns, storms, and precipitation. Scientific research to date indicates that observed GCC is most likely a result of increased emission of GHGs associated with human activity (IPCC 2007). In California, the transportation sector is the largest emitter of GHGs (accounting for 40.7% of the total GHG emissions in the state in 2004), followed by electricity generation (California Energy Commission 2006). If California were a country, it would rank between the 12th and 16th largest emitters of CO_2 in the world. California produced 492 million gross metric tons of CO_2 equivalents in 2004 (California Energy Commission 2006).

The many effects of GHG emissions are still being researched and are not fully known, but are expected to include increased temperatures, which could reduce snowpack, which in most areas is a primary source of fresh water. GCC is expected to exacerbate air quality problems and adversely affect human health by increasing heat stress and related deaths; increase the incidence of infectious diseases, asthma and respiratory health problems; cause sea level rise threatening urban and natural coastal areas; cause variations in natural plant communities affecting wildlife; and cause variations in crop quality and yields. GCC is also expected to result in more extreme weather events and heavier precipitation events that can lead to flooding as well as more extended drought periods.

3.4.6.1 Water Resources

Water supply can be described in terms of indices such as precipitation, snow pack, and runoff. Analysis of data and weather records are studied to determine the trend and the variability in the indices (e.g., precipitation and runoff), which affect water availability.

Most precipitation events in California occur between October and April. An analysis by the U.S. National Weather Service (USNWS) using data from 1931 through 2005 indicates a long-term trend of increasing annual precipitation (i.e., increase of up to 1.5 inches per decade) in California, especially in northern California. A second investigation completed by the California Department of Water Resources (CDWR) indicated a statistically significant increasing trend in total precipitation in northern and central California since the late 1960s (CDWR 2006). An investigation by Bardini *et al.* (2001) showed a trend of potentially decreasing annual precipitation in California; however, this result is probably related to the specific subset of data that the Bardini study relied upon, wherein extremes at the beginning or end of time series data can substantially impact the identified trend (CDWR 2006). Rainfall data from November through March of 1930 through 1997 indicated significant increases in California rainfall (Mote 2005).

There is also evidence that the amount of precipitation that occurs on an annual basis is becoming more variable (i.e., periods of both high and low rainfall are becoming more common). Specifically, a study performed by CDWR (2006) indicates that present day variability in annual precipitation is about 75% greater than that of the early 20th century. As stated above, precipitation across California appears to have increased over the past century, and individual water years have become more variable in terms of the amount of precipitation that occurs. It follows, therefore, that similar trends would be observed for runoff. Annual runoff (i.e., runoff measured from October 1 through September 30) and peak runoff (i.e., typically measured for individual storm events) include flows derived from precipitation events, snowmelt, and river base flow. However, most of the water mass present during a peak runoff event is typically derived from concurrent precipitation and/or snowmelt.

A study by CDWR (2006) compares pre- and post-1955 annual average water year unimpaired runoff for 24 watersheds across northern, central, and southern California. The study indicates an annual increase in runoff of up to 27% for 21 of the 24 watersheds, with an overall average increase of 9%. However for summer months the runoff from April to July is decreasing.

3.4.6.2 Flooding

As discussed above, it is anticipated that GCC will have a substantial effect on the timing and magnitude of snowfall, rainfall, and snowmelt events in California. Large annual variations in winter rainfall and runoff, which are normal in California, create uncertainty surrounding potential increase in flooding as a result of GCC.

3.4.6.3 California Wildlife

Rising temperatures, increase in punctuated storm events, prolonged droughts, and sea level rise will likely change the makeup of entire ecosystems, increasing adaptation pressures that would shift wildlife distributions and in some cases, increase the frequency of local extinctions (Moser *et al.* 2009, Midgly *et al.* 2010). While some species adapted to arid environments may increase their ranges or densities or both, species closely tied to the dwindling natural water resources in southern California may be particularly at risk. Stream systems supporting aquatic species such as salmonids would be degraded by loss of cold-water habitat and reduced stream flows for spawning, incubation, and rearing. Furthermore, increased scouring of stream channels by surges of storm runoff would damage eggs and egg laying habitat (Battin *et al.* 2007). Amphibians may also be directly impacted by these changes, although

secondary effects related to GCC such as increases in infectious diseases and increased input of pollutants and sediments through storm runoff may have the greatest impacts (Davidson *et al.* 2001, Carey and Alexander 2003). Other wildlife such as bird species that rely on remnant patches of riparian habitat in southern California may also be at risk from GCC. Shifts in timing and rate of migration (summarized by Marra *et al.* 2005), habitat loss, increased frequency of punctuated storm events (Preston *et al.* 2008), loss of prey base, and shifts in plant species regimes (Kerns *et al.* 2009) are all predicted to occur and would negatively impact local populations. In many cases, the severely degraded riparian habitat currently present in southern California has already led to some riparian bird populations to be depressed or even threatened, making them increasingly susceptible to future environmental changes brought upon by GCC.

GCC, at a regional level, could contribute to more frequent and intense El Niño events, triggering a number of large-scale environmental changes. Warmer waters drive toxic algae blooms in bays and estuaries and depress offshore ocean productivity, affecting wildlife throughout the food web. The frequency of environmental catastrophes such as those caused by the 1997-98 and 2009-2010 El Niño events would be expected to increase. During those events, primary production precipitously declined along the Pacific Coast, causing large die-offs of primary and secondary consumers. In inland areas, the frequency and intensity of droughts and wildfires increased, substantially altering upland vegetation. Subsequent heavy rains triggered extensive erosion in the burned areas, which removed topsoil from the upper reaches of local watersheds. Powerful storm runoff events moved high sediment loads downstream where they scoured and buried riparian vegetation and physically altered floodplains, fundamentally impacting local ecosystems.

The heavily altered natural environment of the Hansen Dam Basin and its geographic location within an arid, water-stressed biome, make it particularly susceptible to future impacts from GCC. These impacts would undoubtedly stress local wildlife populations, and in particular, further impact sensitive species already susceptible to environmental shifts and stochastic events.

3.5 Noise

Noise can be defined as unwanted sound or combination of sounds that may interfere with conversation, work, rest, recreation, and sleep, or in the extreme may produce physiological or psychological damage. Sound travels from a source in the form of wave, which exerts a pressure on a receptor such as a human ear. The amount of pressure a sound wave exerts is referred to as sound level, commonly measured in decibels (dB). As a reference, a sound level of zero dB corresponds roughly to the threshold of human hearing, and a sound level in the range of 120 to 140 dB can produce human pain.

Sound has two main components to a human ear; pitch and loudness. While the pitch of a sound is generally associated with an annoyance, sound loudness can interfere with activities such as conversation, sleep, and learning, and can even have lasting physiological effects, such as hearing loss. Those who are more sensitive to noise such as children and the elderly are at higher risk of being adversely affected by excessive noise levels. Table 3.10 lists some of the sources and effects associated with a range of noises.

Noise can be one of the most widespread environmental pollutants affecting communities. “Community noise,” or environmental noise, in any given area varies continuously over a period of time depending on the contributing sound sources within and surrounding the area. This community noise is typically made up of a combination of relatively stable background noise, where individual contributors are not identifiable, and the periodic addition of short duration noise sources such as aircraft flyovers, motor vehicles, sirens, etc. Some land uses can be considered more sensitive to community noise levels than others, and are often referred to as sensitive receptors. These include residences, schools, hotels, hospitals, nursing homes, churches, libraries, and cemeteries. Shopping centers, commercial parks, strip malls, industrial areas, and active recreation areas can be considered less noise-sensitive receptors.

In addition, wildlife may be sensitive receptors to noise and vibrations. Animals rely on sounds for communication, navigation, avoiding danger and finding food. Noise may be defined for wildlife as "any human sound that alters the behavior of animals or interferes with their functioning" (Bowles 1995). The level of disturbance may be qualified as damage, which may harm health, reproduction, survivorship, habitat use, distribution, abundance or genetic distribution, or disturbance which causes a detectable change in behavior. Behavioral and physiological responses of wildlife to noise have the potential to cause injury, energy loss, decrease in food intake, habitat avoidance and abandonment, and reproductive losses (National Park Service 1994).

Table 3.10 Sources and Effects of Common Noise Levels

Noise Level	Effects	Evidence	Source
130	Hearing Loss	Pain Threshold	Hard Rock Band Thunder
120		Deafening	
110			Jet Take-Off
100			Loud Auto Horn at 10 feet
90		Very Loud	Noisy City Street
85			
80			School Cafeteria
75			
70	Physiological Effects	Loud	Vacuum Cleaner at 10 Feet
65			
60	Interference with Conversation		Normal Speech at 3 Feet
55			
50	Sleep Interruption	Moderately Loud	Average Office Dishwasher in Next Room
45			
40	Sleep Disturbance		Soft Radio Music Quiet Residential Area
35			
30		Faint	Interior of Average Residence
20			Average Whisper at 6 Feet
10			Rustle of Leaves in Wind
5		Very Faint	Human Breathing
0		Hearing Threshold	

Source: Los Angeles County 2008.

3.5.1 Existing Noise Environment in Hansen Dam Basin

The predominant noise source within the City of Los Angeles is transportation, including railroad, airport, and motor vehicle sources. Traffic volume, average speed, vehicular fleet mix (i.e. combination of automobiles, motorcycles, buses, and trucks), roadway steepness, distance, characteristics of the pathway between generator and receptor, and weather all influence the level of noise near roadways. For example, as the roadway traffic volume, speed, proportion of fleet mix represented by trucks, and roadway grade increase, so do the composite noise levels at the locations affected by the traffic noise (City of Los Angeles 2006). However, as the roadway volume increases beyond a certain point, congestion increases, in turn causing reduced traffic speeds, which can, to some extent, offset noise from traffic volume increase (City of Los Angeles 2006).

Sources of ambient noise in the Hansen Dam Basin include freeway traffic, traffic on adjacent local roads, and recreation-related activities within the Basin. Two major freeways are located in the vicinity of the Basin. The Foothill Freeway (I-210), north of the Basin, provides access from the east, north, and northwest; the Golden State Freeway (I-5), approximately 4 miles southwest of the Basin, provides access from the southwest and northwest. Major roads bordering the Basin include the Foothill and Glenoaks Boulevards, and Osborne and Wentworth Streets. The Whiteman Airport is located approximately 2 miles west of the Basin in the City of Pacoima. Recreation activities within the Basin also contribute to the existing noise levels in the area. Special events, such as concerts, and sporting activities, such as soccer or baseball games, are the primary recreation noise sources at Hansen Dam Basin.

Development surrounding the Basin area is predominantly residential with supporting commercial development. Sensitive uses located within 1 mile from the Basin include schools, places of worship, a library, and community parks. Environmentally sensitive habitats and Federally protected species are also present within the Basin and are sensitive noise receptors.

3.5.2 Relevant Noise Regulations

Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set testing guidelines and regional noise standards for mobile sources such as aircraft and motor vehicles. Local agencies typically regulate stationary sources, mainly through municipal policies and local noise ordinances.

Under the authority of the Noise Control Act of 1972, the EPA established noise emission criteria and testing methods that apply to interstate rail carriers and some construction and transportation equipment such as portable air compressors and medium- and heavy-duty trucks (40 CFR Part 204). The EPA has also issued guidance levels for the protection of public health and welfare in residential land use areas. The Noise Control Act of 1972 was amended by the Quiet Communities Act of 1978, which provides guidance for the development of noise control programs through the Quiet Communities Program.

Under the Occupational Safety and Health Act of 1970 (29 USC §1919 et seq.), OSHA has adopted regulations designed to protect workers against the effects of occupational noise exposure.

3.6 Biological Resources

3.6.1 Plant Resources

A reconnaissance-level vegetation survey was performed within Hansen Dam Basin in January 2010. The vegetation survey was intended to capture sufficient detail to fully describe vegetation communities and any other dominant vegetation features present within the Basin. However, surveys were not exhaustive and not all species within the Basin were inventoried. Vegetation features were determined in the field using tools such as current aerial photography, regionally appropriate plant identification keys, the classification system provided by Sawyer *et al.* (2009), and data from other available sources. All areas of the Basin within the Basin boundaries were surveyed, including all Federally owned lands and flowage easements (Map 4). Common plant species were identified and listed in Appendix D1 and vegetation alliances were determined and mapped using Sawyer *et al.* (2009). Non-native habitat types, which are defined here as human-altered areas dominated by non-native vegetation features, were also identified and mapped.

Native vegetation alliances identified in the Basin included *Salix exigua* Shrubland Alliance, *Artemisia californica* Shrubland Alliance, *Salvia mellifera* Shrubland Alliance, and *Lepidospartum squamatum* Shrubland Alliance, as defined by Sawyer *et al.* (2009). Non-native habitat types are present in the Basin

and include ornamental tree/maintained lawn, disturbed upland, and ruderal land. Map 19 shows the distribution of each vegetation alliance and non-native habitat type found in the Basin.

Vegetation in Hansen Dam Basin was altered from its historic condition by the construction of the Dam and associated works. Since construction, vegetation communities have been further altered by several factors, including drought (CDWR 2009), natural and human-caused erosion, planting of non-native species, and ongoing maintenance of lawn and ornamental trees (Los Angeles County 2010). At the time of surveys, California was in its third year of drought, causing many of the species to be in a drought-induced dormancy (CDWR 2009). In May 2007, fire burned the majority of vegetation in the Hansen Dam Basin (Los Angeles Times 2007). Many mature willows were burned, reducing the availability of mature wet-forest habitat. However, most trees survived the burn and have subsequently reestablished in the Basin. In addition, many large fire-killed snags are now present, increasing available wildlife habitat. Disturbances have allowed invasive plant species to become established, and these have become widespread. Overall, native plant communities remain fragmented, degraded, frequently dominated by invasive species, and small in size. All other areas are dominated by urban landscaping and non-native plant species.

3.6.1.1 Vegetation Communities

Salix exigua Shrubland Alliance This alliance is composed of dense, broadleafed, winter-deciduous riparian thickets dominated by several willow species including red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), and sandbar willow (*Salix exigua*) with scattered emergent Fremont cottonwood (*Populus fremontii*) and western sycamore (*Platanus racemosa*) (Sawyer *et al.* 2009). Most stands are too dense to allow much understory development. Soils in this vegetation community are loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. This early seral type requires repeated flooding to prevent succession to southern cottonwood-sycamore riparian forest. Other native plant species common to this community include mule fat (*Baccharis salicifolia*) and Southern California black walnut (*Juglans californica*); and invasive species such as giant reed (*Arundo donax*), tobacco tree (*Nicotiana glauca*), and castor bean (*Ricinus communis*). Disturbance in the Hansen Dam Basin from the 2007 fire facilitated the replacement of southern cottonwood willow riparian areas with this alliance. Currently, *Salix exigua* Shrubland Alliance is common throughout the Big and Little Tujunga streambeds including the Hansen Dam Basin. This vegetation community comprises approximately 493.9 acres or 34.0% of the Basin (Map 17).

***Salix exigua* Shrubland Alliance**

***Artemesia californica* Shrubland Alliance**

Artemesia californica Shrubland Alliance No single species or pair of species dominates this community comprised of mixed sage scrub; instead, three or more species are typically common and provide equal

cover in this mostly upland habitat (Sawyer *et al.* 2009). Mixed sage scrub is dominated by mixed evergreen-deciduous shrubland that occurs across a range of altitudes from 0 to 3,937 feet (1,200 meters) and maintains a continuous or intermittent canopy that rarely exceeds 6 feet (2 meters) in height. California sage-brush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), white sage (*Artemisia ludoviciana*), coyote brush (*Baccharis pilularis*), black sage (*Salvia mellifera*), laurel sumac (*Malosma laurina*), coastal prickly pear cactus (*Opuntia littoralis*), valley cholla (*Cylindropuntia californica*), and California yerba santa (*Eriodictyon californicum*) all intermix within this vegetation community (Kirkpatrick and Hutchinson 1977; Sawyer *et al.* 2009). This alliance is a common upland vegetation community on the eastern end of the Basin, appearing on upland terraces above the Little Tujunga and Big Tujunga Washes. Although some areas of mixed sage scrub are high quality, most have been degraded by disturbance and invasion of weedy species. This vegetation community comprises approximately 146.4 acres or 10.1% of the Basin (Map 17).

Salvia mellifera Shrubland Alliance This alliance is found in upland areas; often on steep slopes where soils are shallow and well drained (Sawyer *et al.* 2009). Common species found in this vegetation community include black sage, California sagebrush, California buckwheat, laurel sumac, California brittlebush (*Encelia californica*), chaparral yucca (*Yucca whipple*i), coastal prickly pear cactus, valley cholla, scalebroom (*Lepidospartum squamatum*), and white sage. This alliance is only found in one area on the eastern end of the Basin, adjacent to Summer Hawk Ranch and comprises approximately 4.3 acres or 0.3% of the Basin (Map 17).

Lepidospartum squamatum Shrubland Alliance This vegetation community is a diverse vegetation community with a species composition that differs greatly among stands; disturbance may account for the high variation (Sawyer *et al.* 2009). Though small trees may be prevalent in some stands, this community is shrub dominated. Dominant species include scalebroom, California sagebrush, mulefat, brittlebush (*Encelia farinose*), California yerba santa, California buckwheat, deer weed (*Lotus scoparius*), laurel sumac, coastal prickly pear cactus, western sycamore, Fremont cottonwood, lemonade berry (*Rhus integrifolia*), poison oak, and chaparral yucca. A small patch of this community is found on the eastern end of the Basin and west of the patch of the *Salvia mellifera* alliance location. This vegetation community comprises approximately 4.6 acres or 0.3% of the Basin (Map 17).

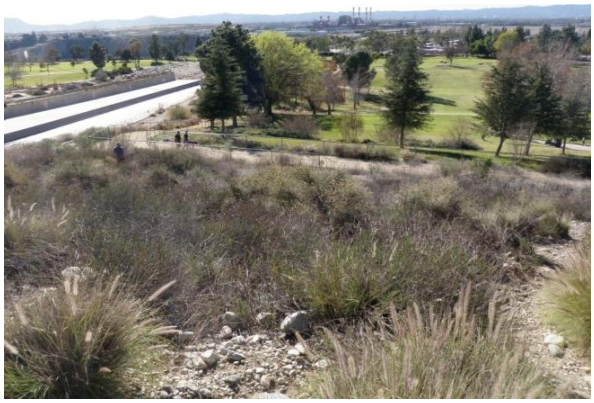
***Salvia mellifera* Shrubland Alliance**

***Lepidospartum sauamatum* Shrubland Alliance**

Ornamental Trees and Lawn Ornamental tree/maintained lawn is found throughout the Basin in areas that include the urban park spaces located within Hansen Dam Park, Golf Course, Aquatic Center, and Equestrian Center. This area is dominated by a planted and maintained lawn interspersed with a mostly

even distribution of ornamental trees. Dominant tree species include Canary Island pine (*Pinus canariensis*), Peruvian pepper tree (*Schinus molle*), eucalyptus (*Eucalyptus* sp.), various palms (*Washingtonia* sp.), common olive (*Olea europaea*), toyon (*Heteromeles arbutifolia*), western sycamore, sweetgum (*Liquidambar styraciflua*), and Chinese elm (*Ulmus parvifolia*). Invasive weedy species such as common ice plant (*Mesembryanthemum crystallinum*), castor bean, English ivy (*Hedera helix*), English holly (*Ilex aquifolium*), and black locust (*Robinia pseudoacacia*) are also present. Tree canopy is partly open and large gaps exist around open water, golf course features, and various park infrastructure. Some park areas with sports fields are dominated entirely by maintained lawns. All areas of ornamental tree/maintained lawn appear to be regularly maintained, resulting in virtually no native plant species or habitat currently being present. This non-native habitat comprises approximately 317.0 acres or 21.9% of the Basin (Map 17).

Ornamental Trees and Lawn



Disturbed Upland

Disturbed Upland Disturbed upland includes all upland habitats located within the Basin which have been disturbed (often frequently) in the recent past, altering the native vegetation communities. A few of these areas have some ruderal land characteristics, but because they host relatively high densities of plants, they are considered to be disturbed upland. Vegetation found in disturbed upland includes a mix of native and introduced species such as black mustard (*Brassica nigra*), telegraph weed (*Heterotheca grandiflora*), tobacco tree, castor bean, prickly Russian thistle (*Salsola tragus*), and giant wildrye (*Elymus condensatus*). Other species occur in lower densities and include native upland species such as California buckwheat and California sagebrush, and introduced invasive species such as sacred thorn-apple (*Datura wrightii*), perennial pepperwood (*Lepidium latifolium*), and cocklebur. Disturbed upland is found on the downstream face of Hansen Dam and on the western end of the upstream toe. This non-native habitat comprises approximately 102.0 acres or 7.0% of the Basin (Map 17).

Ruderal Land Ruderal lands are areas that have been substantially altered by maintenance or construction causing them to be generally devoid of vegetation. In the Hansen Dam Basin, ruderal land is found throughout the Basin in areas surrounding the Dam, near residential and commercial developments, and wherever undeveloped areas receive heavy use. High frequency of disturbance and poor quality soils found in these areas prevents most plants from becoming established; however, hardy herbaceous invasive species such as prickly Russian thistle and cocklebur are both present. This non-native habitat comprises approximately 134.6 acres or 9.3% of the Basin (Map 17).

Ruderal Land

3.6.1.2 Non-native and Invasive Plants

Significant non-native plant infestations are considered to be areas where ≥50% of the total vegetation cover dominated by a non-native plant species or taxa. One area of infestations occurs within Hansen Dam Basin just upstream of the confluence of the Big and Little Tujunga Washes and is dominated by giant reed (*Arundo donax*) (Map 17). Other non-native plant species are also found within the Basin, but at densities below infestation level. These include tobacco tree, castor bean, poison hemlock, stinging nettle, cocklebur, giant wild rye prickly Russian thistle, and white nightshade.

3.6.2 Animal Resources

The mixed habitat found in the Basin, which is composed of native and altered upland scrub and riparian communities, ornamental trees and lawns, ruderal land, recreation lands, and urbanization, is a disturbed and highly altered community. However, despite the disturbed nature of the landscape, many wildlife species can still be found in the Basin. Species observed during field vegetation surveys are listed in Appendix D2 though no formal wildlife surveys were conducted in preparation of this DEA. Not all species common to the Basin are provided in the Appendix.

The previous Master Plan described the wildlife within the Basin as occupying various habitats, including flood plain, riparian, pond, and alluvial scrub. These habitats were reported to support many common species of bird, reptiles and mammals, including many animals that typically immigrate to wash environments from the southern California coastal foothills. Riparian areas were reported to generally contain the highest wildlife diversity, though much of the habitat in the Basin, and vicinity, has been modified and adversely impacted by human activities. The reconnaissance-level survey performed for the current Master Plan was not intended to quantify changes in wildlife densities or species diversity since the previous Master Plan.

Species common to the Basin include native and non-native fishes, amphibians, reptiles, mammals, and birds. Several bird species use the Basin for breeding, wintering, or are residents (Corps 1991). The open water areas found in the Basin attract waterfowl and shorebirds. Riparian and upland habitats host a diversity of passerine species. Bat species are also present and use the Basin for roosting, breeding, or are year-round residents. Only two amphibians are common, including the California toad and Pacific treefrog. Dry upland areas host common lizard and snake species. Non-native species such as feral cats and dogs are also found in the Basin.

Stream flow through Big Tujunga Wash is year round, while Little Tujunga Wash has only ephemeral flow. The limited flows and existing barriers to fish passage severely constrain habitat that would support fish in the Basin. Data on fish populations was not collected during field surveys within the Basin. Native freshwater fishes historically found in the Basin include arroyo chub, Santa Ana speckled dace, Santa Ana sucker, threespine stickleback, and rainbow trout (Moyle 2002). Access to Big Tujunga and Little Tujunga Washes by native fish species is now severely restricted and their presence is unlikely. Common non-native species that have been introduced into streams in the Los Angeles River watershed and potentially the Basin include largemouth bass, bluegill, western mosquitofish, channel catfish, fathead minnow, common carp, and goldfish of unknown origin. The fishing lake is regularly stocked with non-native fish for consumptive uses.

3.6.3 Special Status Listed Taxa

In order to assess the likelihood of the presence of Federally protected species within an area that may be impacted by the approval of the Master Plan, a prescribed set of standard data-gathering steps were taken. These steps are particularly necessary in cases where on-site biological surveys are not conducted to

determine conclusively whether a species is present. The purpose of these steps is to ensure that all special-status species that have been reported as either occurring in the area, possibly occurring in the area, or for which habitat may be found in the area, are described in the existing environment section of this NEPA document.

First, it was necessary to obtain the USFWS list of species Los Angeles County (USFWS 2010). Species that could clearly be ruled out based on a lack of available habitat are eliminated from further discussion. For example, species that are known to occur in Los Angeles County, but only along coastal habitats, have been eliminated from further discussion.

When it is less clear whether a species may be present, it is valuable to discuss the habitat preferences of the species and then make a determination about the likelihood of the habitat being available within the Basin, and therefore the likelihood of the species being present. The California Natural Diversity Database (CNDDB), maintained by the CDFG, provides assistance in determining if species are currently, or have historically, been present in the project area. However, a reported observation of a species on the CNDDB does not necessarily indicate presence of the species, and a lack of reported observations does not necessarily indicate the absence of the species.

The following sections discuss; 1) each species that cannot be clearly ruled out as potentially being present in the Basin, 2) each species that has historically been present in the Basin or who's historical range would have included the Basin, and 3) the likelihood that the species would have a continued presence in the Basin.

The CNDDB has recorded observations of the Santa Ana Sucker, coastal California gnatcatcher, and least Bell's vireo within the Basin (CDFG 2010b). However, the Basin does not have any land designated as critical habitat for Federally protected species.

3.6.3.1 Plants

Braunton's Milk-vetch Braunton's milk-vetch (*Astragalus brauntoni)* was listed as endangered under the ESA in January 1997. Critical habitat for the species was designated in 2006. Braunton's milk-vetch is a short-lived perennial herb that may reach a height of over 5 feet and is covered with wooly hairs. It has compound leaves with up to 33 leaflets and pale purple flowers (NatureServe 2010). Braunton's milk-vetch is endemic to the mountains surrounding the Los Angeles Basin, where it is currently known from 4 general areas. Currently, fewer than 100 individual plants are known, but the species' seed bank could generate larger populations following wildfire events. The species may be restricted to limestone, which is a rare substrate within the limits of its known distribution. This vetch is dependent on a regular fire regime to ensure sustainability of populations. Plants are only visible for 2-3 years following a fire, and the existing seed bank lies dormant until a subsequent fire. The frequency of fires necessary to sustain populations is estimated to be between 20 and 100 years. Due to this special dependence on wildfire, plant populations are only visible every 20 to 50 years and are especially susceptible to other causes of degradation. This species is threatened mostly by the increase in fire frequency, resulting from arson (CNPS 2001). Other threats include urban development, fragmentation of habitat and reduced capability for sustained ecologic processes, fragmented ownership of single populations resulting in different landscape treatments, and extinction from naturally occurring events due to small population sizes and low individual numbers (CNPS 2001). Due to the unique fire regime requirements and possible limestone restriction, it is not expected that Braunton's milk-vetch is found in or adjacent to the Basin.

Nevin's Barberry *Berberis nevinii* is a rhizomatous evergreen shrub 3 to 12 feet tall. It is found in gravelly wash margins in alluvial scrub, and on coarse soils in chaparral (CDFG 2010b). This species typically is found between 900 and 2,000 foot elevations. The native range of this barberry currently

extends from the San Gabriel Mountains foothills to the Peninsular Ranges of southwestern Riverside County. The total number of individuals is reportedly fewer than 1,000, but may be fewer than 500 (USFWS 2009). The largest remaining cluster of native populations, which collectively contains about 200 individuals, occurs in Riverside County in the Vail Lake/Oak Mountain area. Critical habitat was designated in 2008, but does not include any area within the Basin. There are no recorded occurrences of this species in the CNDDB for areas within the Basin and only a single plant has been observed within the region since 1935 (CDFG 2010b). Though it is possible that suitable habitat exists within the Basin, it is very unlikely that Nevin's barberry occurs here.

Table 3.11 Potentially Occurring Federally Protected Plants

Common Name Scientific Name	Federal Status	Critical Habitat[1]	CNDDB[2]	Federal Register, Year Listed
PLANTS				
Braunton's milk-vetch *Astragalus brauntonii*	E	2006	na	62:4172, 29-Jan-97
California Orcutt grass *Orcuttia californica*	E	na	na	58:41384, 3-Aug-93
Lyon's pentachaeta *Pentachaeta lyonii*	E	na	na	62:4172, 29-Jan-97
Nevin's barberry *Berberis nevinii*	E	2008	na	63:54956, 13-Oct-98
San Fernando Valley spineflower *Chorizanthe parryi* var. *fernandina*	C	na	1920	64:57533, 25-Oct-99[4]
Santa Monica Mountains dudleya *Dudleya cymosa* subsp. *ovatifolia*	T	na	na	62:4172, 29-Jan-97
Slender-horned spineflower *Dodecahema (Centrostegia) leptoceras*	E	na	na	52:36265, 28-Sep-87
Thread-leaved brodiaea *Brodiaea filifolia*	T	2005 (2009)[3]	na	63:54975, 13-Oct-98

[1]Year designated, [2]Last observed in Basin, [3]Proposed revised critical habitat year, [4]Year proposed, Source: USFWS 2010, CDFG 2010b.

Thread-leaved Brodiaea Thread-leaved brodiaea (*Brodiaea filifolia*) was listed as threatened under the ESA in October 1998. Critical habitat for the species was designated in 2005. Thread-leaved brodiaea is a perennial herb which blooms between March and June with violet to red-purple flowers. The species grows in heavy clay soil (Munz 1959) and in grasslands, often in association with vernal pools and in floodplains. The thread-leaved brodiaea is endemic to Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties. There are several primary threats to this species including loss and degradation of habitat, invasive species which alter the vegetation composition and structure of its habitat, recreation use of the land, mowing, discing and sewage dumping (USFWS 2005). In places where plowing has occurred and land has been left fallow, populations do persist, though in reduced and declining numbers (USFWS 1998a). Brodiaea primarily occurs where significant development is taking place, including San Diego, Orange, and Riverside Counties. Natural areas in these counties are often surrounded by urban areas. Development removes existing vegetation and also alters the clay soils this species requires (USFWS 2005). Non-native species can also alter the vegetative structure and composition of its habitat and can directly compete with the species for light and water (USFWS 2005). Recreation activities such as hiking and off-road vehicle use may change the vegetation composition and alter the soil. Mowing may reduce the number of seeds produced and dispersed, and can alter the vegetation such that the pollinators

are less available. Finally, sewage sludge application can cover the plants and the soil and alter the soil chemistry (USFWS 2005). Thread-leaved brodiaea has not been documented to be present in or adjacent to the Hansen Dam Basin (CDFG 2010b) and is unlikely to occur as there are no grasslands or vernal pools present.

San Fernando Valley Spineflower *Chorizanthe parryi* var. *Fernandina* is a California endemic species that is currently a candidate for Federal listing. This spineflower was commonly observed in the Little Tujunga Wash up until 1922 (CDFG 2010b). Map 18 shows the historic recorded locations of spineflower in the northern portion of the Basin, though these plants are no longer there. Only two populations are currently known to exist, neither of which are now within or near Hansen Dam Basin. The San Fernando Valley spineflower is found in coastal scrub habitats with sandy soils. Habitats have been degraded throughout Hansen Dam Basin, and it is very unlikely that the spineflower occurs there.

Slender-horned Spineflower *Dodecahema leptoceras* or *Centrostegia leptoceras* is found on old sandy benches or floodplain terraces containing alluvial fan scrub vegetation in Los Angeles, San Bernardino, and Riverside Counties (Munz 1974). Currently, there are less than 10 acres of known existing spineflower habitat in San Bernardino and Riverside Counties (USFWS 1986a). Flood flows through alluvial fan scrub appears to provide the scouring action that maintains this plant community. Factors influencing the decline of this species have included cattle grazing, urbanization, floodplain development, sand and gravel mining, and off-road vehicle use. No critical habitat has been designated for this spineflower, due to fears that it would be sought after by collectors. There are no known occurrences of the slender-horned spineflower in the Basin or the vicinity, and the CNDDB reports that the species has possibly been extirpated from the area (CDFG 2010b). It is very unlikely that this plant would be present within the Basin.

Santa Monica Mountains Dudleya *Dudleya cymosa* ssp. *ovatifoli* was listed as threatened under the ESA in January 1997. Critical habitat has not been designated for this species. This dudleya is a perennial herb that requires north-facing slopes and cliffs in chaparral communities. It is also found in deep canyon bottoms, typically on sedimentary conglomerate rock (NatureServe 2010). The species is known from disjunct locations in the Santa Monica and Santa Ana Mountains around the Los Angeles Basin, with fewer than 2,000 individuals at 8 or fewer extant sites. Populations are threatened by residential and commercial development, as well as recreation activities and road maintenance (NatureServe 2010). The Santa Monica Mountains dudleya is unlikely to occur in the Hansen Dam Basin due to the lack of chaparral communities.

California Orcutt Grass *Orcuttia californica* is a member of the grass family and is associated with vernal pools. This small, hairy annual grass reaches 4 inches in height, is bright green and aromatic, and has a sticky exudate (Jepson 1993). Once extending from Baja through California, this grass is now limited throughout its range and threatened by grazing, development, and global warming. Vernal pool habitat is increasingly rare throughout southern California, and there are no known vernal pools within the Basin. In addition, there are no recorded occurrences of this grass within or near the Basin according to the CNDDB (CDFG 2010b). California orcutt grass is not likely to occur within the Basin.

Lyon's Pantachaeta Also known as Lyon's pygmydaisy, Lyon's Pentachaeta (*Pentachaeta lyonii*) is a native annual herb endemic to California (Calflora 2010). Habitat of this plant is characterized by a lowpercentage of total plant cover and exposed soils and generally occurs where there are chaparral, coastal scrub, or valley grassland habitats (USFWS 1997). This species is threatened by development, alteration of fire regimes, trampling, vehicles, non-native plants, and recreation activities. There are no recorded observations of this species within the project area (CDFG 2010b), and the lack of chaparral or coastal scrub makes it unlikely that this species is present.

3.6.3.2 Animals

Santa Ana Sucker The Santa Ana sucker (*Catastomus santaanae*) was listed as threatened under the ESA in April 2000. Critical habitat for the species was designated in 2005 and includes a portion of the Big Tujunga Wash from the east end of the Basin up to the confluence with the Little Tujunga Wash within the Basin (Map 18). The Santa Ana sucker is generally less than 6 inches in length and feeds primarily on invertebrates, algae, and organic matter. Historically, they were found in upper watershed areas of the San Gabriel and San Bernardino Mountains down to the Pacific Ocean. The Santa Ana sucker has lost about 75% of its historic habitat as a result of modifications to streams from diversions, dams, flood risk management features, and effects of urbanization. It has been found in both highly urbanized streams (channelized and culverted) and streams with natural channels (Brown *et al*. 2005). However, it has also been documented that these fish can only complete their lifecycles in streams with an earthen substrate (Moyle 2002). It is thought that the Santa Ana sucker does not compete well with introduced competitors (Moyle 2002) that also inhabit these stream sites. According to the CNDDB, 12 individuals of this species were collected approximately 1 mile downstream of the Foothill Freeway (Interstate 210) within the Big Tujunga Wash in 2002 (CDFG 2010b). It is possible that this species is present within the Basin.

Southwestern Arroyo Toad The southwestern arroyo toad (*Bufo californicus B. microscaphus c*.) was listed as endangered under the ESA in December 1994. Critical habitat for the species was designated in 2005, but does not include areas of the Basin. The southwestern arroyo toad prefers riparian habitats with sandy streambeds and cottonwood, sycamore, and willow trees. Some populations occur in streams within coniferous forests. The stream setting usually has adjacent shallow pools where the toad may sit in the water while partially exposed (SDNHM 2009). The southwestern arroyo toad breeds in open sandy and gravelly streams and lives in a variety of upland habitats associated with loose sandy soils for burrowing. Population declines are due to habitat loss, hydrologic alteration, and human activity in streambeds. Preferred habitat features of the southwestern arroyo toad do exist in or adjacent to the Hansen Dam Basin and it is possible that this toad is present. However, no occurrences have been documented by the CNDDB and the area has been significantly disturbed (CDFG 2010b).

California Red-legged Frog The California red-legged frog (*Rana aurora draytonii*) was listed under the ESA as threatened in May 1996 and critical habitat was designated for this species in March 2003. Most recently, revised critical habitat for the California red-legged frog was submitted in September 2008 and is currently under review. The California red-legged frog is California's largest native frog. This species usually occurs in or near quiet permanent water of streams, marshes, ponds, and lakes (Stebbins 2003, NatureServe 2010) typically 2.3 feet deep, in habitats characterized by dense, shrubby riparian vegetation (Hayes and Jennings 1988). Individuals may range far from water along riparian corridors and in damp thickets and forests, and often disperses to upland habitat after rains (Stebbins 2003). The native historical range for the California red-legged frog extended from southern Mendocino County south (primarily west of the Cascade-Sierra crest) to northwestern Baja California (Shaffer *et al*. 2004). Historical populations on the floor of the Central Valley may not have persisted due to extensive natural flooding (Fellers, in Lannoo 2005). The range is now much reduced in the Sierra Nevada and in southern California, but the species is still present throughout much of its former range in the central California coast range and Baja California (Shaffer *et al*. 2004). Factors contributing to local declines include wetland destruction and degradation/fragmentation, urbanization, residential development, Basin construction, stream channelization, livestock grazing of riparian vegetation, off-road vehicle activity, drought, overharvesting, exotic fishes and bullfrogs (NatureServe 2010). Habitat characteristics and good leaping ability may render the California red-legged frog less vulnerable to bullfrog predation than other native species (NatureServe 2010). Conversion of habitat to more permanent ponds is a major threat, as this allows breeding waters to be invaded by non-native predators. There is no designated critical habitat within the Basin and if the preferred habitat features of the California red-legged frog do exist here, they are only in

very limited areas. Furthermore, the CNDDB has no recorded occurrences of this frog in the vicinity. It is possible but very unlikely that the California red-legged frog is present within the Basin (CDFG 2010b).

Table 3.12 Potentially Occurring Federally Protected Animals

Common Name Scientific Name	Federal Status	Critical Habitat[1]	CNDDB[2]	Federal Register, Year Listed
FISH				
Santa Ana sucker *Catostomus santaanae*	T	2005 (2009)[3]	2002	65:19686, 12-Apr-00
AMPHIBIANS				
Arroyo toad (a. southwestern t.)[3] *Anaxyrus californicus (B. microscaphus c.*)	E	2005 (2009)[3]	na	59:64866, 16-Dec-94
California red-legged frog *Rana draytoni*	T	2006 (2008)[3]	na	61:25832, 23-May-96
BIRDS				
California condor *Gymnogyps californianus*	E	na	na	61:54057, 16-Oct-96
Coastal California gnatcatcher *Polioptila californica californica*	T	2007	2008	58:16757, 30-Mar-93
Least Bell's vireo *Vireo bellii pusillus*	E	1994	2003	51:16482, 2-May-86
Southwestern willow flycatcher *Empidonax traillii extimus*	E	2005	na	60:10715, 27-Feb-95
Yellow-billed cuckoo *Coccyzus americanus*	C	na	na	66:38611, 25-Jul-01[4]
MAMMALS				
San Bernardino kangaroo rat *Dipodomys merriami parvus*	E	2008	na	63:51005, 24-Sep-98

[1]Year designated, [2]Last observed in Basin, [3]Proposed revised critical habitat year, [4]Year proposed, Source: USFWS 2010, CDFG 2010b. T=threatened, E=endangered, C=candidate for listing.

Yellow-billed Cuckoo The yellow-billed cuckoo (*Coccyzus americanus*) is a medium-sized bird of about 12 inches in length. Western cuckoos breed in riparian habitats, primarily in woodlands with cottonwoods (*Populus fremontii*) and willows (*Salix* sp.). Dense understory foliage appears to be an important factor in nest-site selection, while cottonwood trees are important indicators of foraging habitat (USFWS 2001). In California prior to the 1930s, the species was widely distributed in suitable river bottom habitats and was locally common. Yellow-billed cuckoos nested primarily in coastal counties from San Diego County near the Mexico border to Sonoma County in the San Francisco Bay region. The yellow-billed cuckoos that occur in the western United States as are considered a distinct population segment (DPS) and are retained in the most recent Federal Register documents as Listing Priority Number 3, indicating a significant imminent threat exists to these birds (USFWS 2001). The threats to the yellow-billed cuckoo include habitat loss, overgrazing, and pesticide application. The CNDDB reports that cuckoos are extirpated from the region (CDFG 2010b), and they are not expected to be found within the Basin.

Southwest Willow Flycatcher The southwestern willow flycatcher (*Empidonax traillii extimus*) was listed as endangered under the ESA in February 1995. Critical habitat for the species was designated in 2005. This flycatcher is a late spring and summer breeding resident that migrates south for fall and winter. It inhabits riparian woodlands and thickets, associated with the presence of surface water and/or very moist soil conditions and understory vegetation. Population declines are due to urban and agricultural development, hydrologic and habitat alteration of rivers and streams, and brood parasitism by the brown-headed cowbird. Preferred habitat features and the historic range of the southwestern willow flycatcher do occur in or adjacent to the Hansen Dam Basin. However, the CNDDB does not report any occurrences of the flycatcher in or near the Basin (CDFG 2010b). It is possible, but unlikely, that the southwestern willow flycatcher is present.

California Condor Usual habitat of the California condor (*Gymnogyps californianus*) includes mountainous country at low and moderate elevations, especially rocky and brushy areas with cliffs available for nest sites, with foraging habitat encompassing grasslands, oak savannas, mountain plateaus, ridges, and canyons (AOU 1983). Condors often roost in snags or tall open-branched trees near important foraging grounds (Matthews and Moseley 1990). Egg laying occurs mainly in February-March (sometimes through early May). Condors become sexually mature in 5-7 years and may live 45 years. Condors feed on carrion, primarily on small, medium and large mammal carcasses of a wide variety (Collins *et al.* 2000, Terres 1980). The California condor was one of the first species listed following passage of the ESA. Though it once ranged throughout North American, it is currently extirpated throughout all but a few small areas in California, where only introduced populations are present. There are no wild condors remaining. Reintroductions in California, northern Arizona, and the Sierra San Pedro Martir in northern Baja California have led to very limited renewed nesting in each area. There are no historic recorded observations of the California condor within the Basin or its vicinity, wild populations no longer occur, and no condors would be present (CDFG 2010b).

Coastal California Gnatcatcher The coastal California gnatcatcher (*Polioptila californica californica)* is a small, long-tailed member of the thrush family. This species is restricted to coastal southern California and occurs almost exclusively in the coastal sage scrub plant community, and less often in chaparral habitat (USFWS 2003, 2007). This gnatcatcher is non-migratory and breeds from late February through July. Home ranges vary from as little as 13 acres to as many as 39 acres. Population decline is widely attributed to habitat destruction and as few as 30 pairs were estimated to exist in Los Angeles County (none in San Bernardino County) in 1992 (USFWS 1993). A single individual coastal California gnatcatcher was recently observed within the Basin in 2008 by an experienced ornithologist after regular visits to the Basin for over 10 years (CDFG 2010b). Earlier records show occurrences recorded for this species near the east end of the Basin (Map 18). It is possible that this species is present within the Basin.

Least Bell's Vireo The least Bell's vireo (*Vireo bellii pusillus*) was listed as endangered under the ESA in May 1986 (USFWS 1986b). Critical habitat for the species was designated in 1994, though it does not extend into the Basin. The least Bell's vireo is a spring and summer breeding resident, migrating south for fall and winter. It primarily inhabits riparian woodlands, scrublands, and thickets for breeding. Population declines due to urban and agricultural development, habitat alteration, and brood parasitism by the brown-headed cowbird. Preferred habitat features of the least Bell's vireo do exist in or adjacent to Hansen Dam Basin. Most recently, an estimated 4-5 singing males were detected in riparian willow-dominated areas near old Holiday Lake in July of 2003 (CDFG 2010b). It is possible that least Bell's vireo is present within the Basin.

San Bernardino Kangaroo Rat The San Bernardino kangaroo rat (*Dipodomys merriami parvus*) occurs primarily in habitats on sandy loam substrates characteristic of alluvial fans and floodplains, where they are able to dig simple, shallow burrows (USFWS 1998b). The historical range of this subspecies extends from the San Bernardino Valley in San Bernardino County to the Menifee Valley in Riverside County.

The three largest remaining blocks of occupied habitat (i.e., Santa Ana River, Lytle/Cajon Creeks, and San Jacinto River) occur where alluvial soils are dominated by sage scrub and chaparral (USFWS 1998b). The historic range of this species has been reduced by approximately 96% and remaining populations are threatened by habitat loss, degradation, and fragmentation. The San Bernardino kangaroo rat has a body length of about 3.7 inches and a total mature length of 9 to 9.3 inches. San Bernardino kangaroo rats breed February through October, and have young April through September. Critical habitat was designated for this species in 2002, but does not include the Basin or its immediate vicinity. There are no recorded occurrences of the San Bernardino kangaroo rat within the Basin (CDFG 2010b) and given its limited range, is unlikely to be present.

3.6.4 Wildlife Corridors

Habitat connectivity is an important factor for the health of fish and wildlife populations (Krebs 1994). The minimum range that a species needs varies. A larger suitable habitat range allows for more abundant and diverse plant and animal 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. The Hansen Dam is located near the San Gabriel Mountains; an area of relatively high biological diversity and abundance. The connectivity of the Basin with these mountains determines the species diversity and abundance found within the Basin.

Movement of wildlife between two areas varies by species and each species may require differing corridor characteristics. Spencer (2005) identifies 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 ground-dwelling species will not pass over a busy roadway, particularly if it has several lanes of traffic, retaining walls, a large area with no vegetation, fences, or other physical barriers. In general, smaller ground-dwelling species, such as amphibians, reptiles, and small mammals, are more reluctant to pass over barriers or through filters, and are therefore less mobile than other species. Large mammals and birds are less sensitive to barriers. Fish barriers include low or no streamflow, culverts, dams, concrete channels, high water flows, felled trees and other natural and man-made obstacles.

Hansen Dam Basin is connected to the San Gabriel Mountains via the Big and Little Tujunga Washes, which passes beneath Interstate 210 and provide both an aquatic and terrestrial habitat corridor. This is a pathway that plants, fish and wildlife may use to for movement between habitats. Aquatic passage through this corridor is extremely limited due to low flows and the presence of the Dam. Terrestrial species are able to pass into the stream corridors from Angeles National Forest and then into the Basin beneath Interstate 210. The highway bridge is sufficiently large to allow physical passage of all species.

The Basin is not connected to any other significant natural habitats other than the San Gabriel Mountains. Movement in or out of the Basin is restricted by the Dam embankment, surrounding urbanization, and roadways. As a result, it is important to maintain open and unrestricted passage within the stream corridors for both aquatic and terrestrial species. This requires maintaining good river water quality for passage during suitable flow levels, maintaining suitable riparian habitat conditions, and restricting human activities to focused trail usage.

Within the Basin, species movement is unrestricted between natural habitat areas, as they are concentrated together in the center of the Basin and generally not where human uses are occurring. The stream corridors are connected to riparian and upland habitats, including the areas of environmentally sensitive land in the center of the Basin and the manmade lakes.

3.7 Cultural Resources

Cultural resources are locations of human activity, occupation, or use. They include expressions of human culture and history in the physical environment, such as archaeological sites, historic buildings and structures, or other culturally significant places. Cultural resources can also be natural features, plants, and animals or places that are considered to be important or sacred to a culture, subculture, or community. Resources may be important individually or as part of a grouping of complementary resources, such as a historic neighborhood. Cultural resources that may be present include three general categories: archaeological resources, historic buildings and structures, and traditional cultural properties.

Archaeological resources refer to surface or buried material remains, buried structures, or other items used or modified by people. Prehistoric archaeological resources date to the time before the European presence in the planning area and can include village or campsites, food remains, and stone tools and tool-making debris. Ethnohistoric or protohistoric archaeological resources are relatively rare but include evidence of European contact, such as trade beads in a site that otherwise appears to be prehistoric. Historic archaeological sites are those deposits that post-date European contact. Examples of historic archaeological sites are structural ruins, trash deposits, agricultural features, water control, and privies. Archaeological sites can have components from multiple time periods and are typically discovered and recorded through pedestrian survey. A pedestrian survey is a method of examining an area for archaeological artifacts and features in which surveyors, spaced at regular intervals, systematically walk over the area being investigated. In urban or other disturbed areas, archival research, selective trenching, and construction monitoring are often the only way to determine archaeological presence or sensitivity.

Historic buildings and structures are architecturally, historically, or artistically important individual and groups of residential, commercial, industrial, transportation or water control properties. Historic building and structures are typically identified through archival and library research, followed by field reconnaissance and recordation.

Traditional cultural properties are places associated with the cultural practices or beliefs of a living community. The significance of these places is derived from the role the property plays in a community's cultural identity, as defined by its beliefs, practices, history, and social institutions. Examples include natural landscape features, plant gathering places, sacred sites, and Native American burial locations. They can also include urban neighborhoods whose structures, objects, and spaces reflect the historically rooted values of a traditional social group. Identifying any traditional cultural property or sacred site requires direct consultations with potentially affected communities.

Consideration of "important historic, cultural, and natural aspects of our natural heritage" is required through NEPA and principally regulated by the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC Section 470).

Under Section 110 of the NHPA, Federal agencies are required to fully integrate the management of cultural resources in ongoing programs and to proactively identify, evaluate, nominate and protect historic properties. Historic properties are cultural resources that meet specific criteria for listing on the National Register of Historic Places (NRHP). Agencies are not required to preserve all historic properties, but agencies must follow a process to ensure that their decisions concerning the treatment of these places result from meaningful consideration of cultural and historic values and the options available to protect the properties.

Section 106 of the NHPA describes the procedures for identifying and evaluating historic properties, for assessing the effects of Federal actions on historic properties, and for project proponents consulting with

appropriate agencies, including the State Historic Preservation Officer (SHPO), to avoid, reduce, or minimize adverse effects.

3.7.1 Cultural Resources within the Basin

At the time of Spanish contact, the Tongva or Gabrielino Indians occupied most of the greater Los Angeles Basin; the Los Angeles, San Gabriel and Santa Ana River watersheds; coastal regions from Topanga Canyon in the north to Aliso Creek in the south; and San Clemente, San Nicholas and Santa Catalina Islands. The Tongva utilized an extensive inventory of tools and implements to gather, collect and process food resources (McCawley1996).

The Tongva communities of *Muuhonga* and *Tohuunga* and have been documented at the base of the San Gabriel Mountains in the northern San Fernando Valley. Both villages were associated with washes and ephemeral streams. A native informant indicates that the territory claimed by these villages included the adjacent mountain canyons. Muuhonga was located west of the Hansen Dam Basin, approximately 2.5 miles from the San Fernando Mission at a mesa further up the canyon. The site of Tohuunga is believed to have been at the mouth of Tujunga Canyon and includes lands managed by the Corps (McCawley1996).

Throughout most of the nineteenth century much of the San Fernando Valley was used for grazing. In 1874, Charles Maclay bought the northern half of the rancho that had been established on the lands of the San Fernando Mission. The arrival of the Southern Pacific Railway and the promotional efforts of people like Maclay started a residential and agricultural boom in the north valley. The boom continued with the importation by the City of Los Angeles of water from the Owens Valley in 1904 and extension of the city boundaries into the valley. Growth and agriculture required a greater control of the river to protect life and property. In 1938 a major flood in Big Tujunga Canyon destroyed a famous mountain lodge built by physician Homer A. Hansen along with 447 homes and cabins (Corps 2009a). As a result of several devastating floods in the San Fernando Valley, concrete channels, flood control Basins, and debris basins were constructed throughout the 20th century. Construction of the Hansen Dam, spillway and outlet works was completed in 1940. Dam construction and flood pools required the acquisition of land and structures from private landowners.

A literature review and records search of the Hansen Dam Basin and vicinity was conducted in 1977 (Martz 1977). This was followed by an intensive field survey of land surfaces that had not been altered to the degree that all cultural materials would have been destroyed. Survey methods employed are not known. This work was updated in 1986 and 1989 (Corps 1991).

The village site, Ca-LAn-167 believed to be *Tohuunga*, was first discovered by the former landowner in 1945. Excavations and tests performed on the site indicate that it is the remnant of a large, complex Tongva village site with cultural deposits spanning perhaps 2,500 years. Radiocarbon dates show dates from AD 435 through 1800. Human remains have been found that are believed to be associated with a Tongva memorial rite known as the Mourning Ceremony where the deaths of prominent members of the community are commemorated during a ceremony involving exhumation. A cemetery containing primary burials has not been found, but may be present. Ca-LAn-167 is formally listed on the NRHP (Corps 1991).

In 1977 Martz relocated previously recorded sites and recorded a newly discovered deposit that she considered as part of the village. In 1986, the site was reevaluated and recorded as a separate site, Ca-LAn-1535. The site is located in disturbed grassland on property owned or managed by the Corps, Caltrans and a private party. The site has not been tested or evaluated for significance. A third site CA-LAn-300 is a large campsite believed to also be related to the village. The site was recorded by Martz in 1977 and NRHP documentation was prepared, but not submitted. Archaeological testing was conducted

by field school classes in 1985 and 1989, but reports or subsequent SHPO consultations were not completed. Much of the site apparently was destroyed during construction of Hansen Dam. There is evidence to indicate that the village complex may contain additional valuable information on the Tongva culture and important archaeological research issues (Martz 1977, Corps 1991). No additional information was available in the previous Master Plan regarding historic structure evaluations, SHPO concurrence with Corps findings or Native American consultation.

3.8 Hazardous Materials and Wastes

A preliminary hazardous and toxic waste and materials (HTWM) investigation was conducted to determine the presence of current or historical contamination within Hansen Dam Basin. The preliminary investigation was based on a database review of relevant environmental information maintained by Environmental Data Resources, Inc. (EDR 2010). The EDR database search included lists compiled by the EPA and the state of California for sites within or near to the Hansen Dam Basin that have had recent or historical unauthorized releases of hazardous materials or hazardous waste, may store and use hazardous materials, or be generators and/or transporters of hazardous wastes. The following government databases were included in the EDR search in accordance with ASTM Standard E 1527-05 search distances:

- Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) – This is a nationwide database of sites identified by EPA as abandoned, inactive, or uncontrolled hazardous waste sites that may require cleanup.
- National Priorities List (NPL) – This is a database maintained by EPA under the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA). Those CERCLIS sites that contain the greatest potential risk to human health and the environment become part of the NPL.
- Resource Conservation and Recovery Information System (RCRIS) – In this database, EPA maintains information on those sites across the Country that may generate, transport, store, treat, and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act.
- Emergency Response Notification System (ERNS) – This database is maintained by EPA that covers reported unauthorized releases of oil and hazardous substances.
- ENVIROSTOR – The California Department of Toxic Substance Control (DTSC) manages information on this list of known hazardous waste sites that are present throughout California. This list is California's equivalent of EPA's CERCLIS. On this list, priority sites planned for cleanup; to be paid either by the state or by potentially responsible parties.
- CERCLIS-NFRAP – This database tracks those sites where EPA has determined that no further action is needed. However, hazardous material may still be present but in a manageable form.
- CAL FID UST – This system, maintained by the California Water Resources Control Board (WRCB), keeps track of active and inactive underground storage tanks.
- Leaking Underground Storage Tanks (LUST) – Information is maintained by the WRCB on reported leaking underground storage tank incidents. The information is typically collected quarterly by regional offices of the WRCB.
- Solid Waste Information System (SWIS) – The California Integrated Waste Management Board (IWMB) maintains a list of, and information on solid waste amenities and landfills in the state. Data maintained include location, type and age of landfill, if it is a permitted facility, and the status of its permit.
- CAL Voluntary Cleanup Program (VCP) – These are sites listed by DTSC that have confirmed or unconfirmed releases where a project proponent has requested the state to oversee investigation and/or cleanup activities at the proponent's expense.

- National Pollutant Discharge Elimination System (NPDES) – The WRCB maintains a listing of all NPDES permits within the state, including stormwater.

3.8.1 Sites of Interest

Two preliminary sites of interest were identified. These were reported in the ENVIROSTOR database as sites of known contamination or sites that may need to be investigated further, including the Ledger Landfill and an aerospace company, HR Textron, both in Pacoima, California.

Ledger Landfill This site is located at 10403 Glenoaks Boulevard, Pacoima, CA. The EDR report information is very limited; no information is provided in the database as to the years of operation, size and capacity, type of wastes allowed, actual contents, daily throughput, the nature of potential contamination, and whether or not the landfill is still in operation. As of January 2001 the site was listed as "Inactive – Needs Evaluation." Based on the minimal information provided in the EDR database report regarding the site, discussion with knowledgeable personnel (e.g., DTSC) regarding this site is recommended in order to obtain the above-listed information and to characterize the types and quantities of waste materials in the landfill.

HR Textron This site is located at 12137 Montague, Pacoima, CA. The EDR report does not indicate the nature of potential contamination, though the Textron website indicates the company is part of the aerospace, military, and homeland security industry (Textron 2010).

Based on the minimal information provided in the EDR database report regarding the site, although no incidents have been reported in the database search, discussion with knowledgeable personnel regarding the extent and nature of business operations is suggested in an effort to identify and characterize the types and quantities of hazardous materials and wastes that potentially may be or have been stored and/or generated on site.

3.9 Socioeconomics and Environmental Justice

Federal agencies are required, by Executive Order 12898, Environmental Justice, 59 FR 7629, 1994, to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations."

The CEQ identifies minority groups as Asian, American Indian or Alaskan Native, Pacific Islander, Black not of Hispanic origin, and Latino (CEQ 1997). It defines a minority population as any group of minorities that exceed 50% of the existing population within the market area or where a minority group comprises a meaningfully greater percentage of the local population than in the general population. Additionally, the CEQ (1997) identifies low income using 2000 Census data for "individuals living below the poverty level." For the purposes of this study, a low income population will be defined similarly as a local or market area population with more than 50% of people living below the poverty level.

Therefore, providing environmental justice means ensuring that existing local and market area minority and low income populations must be actively protected from adverse human health or environmental effects of any management strategy undertaken or authorized in the updated Master Plan. Detailed demographics and socioeconomic data and their descriptions are provided in Section 2 of the updated Master Plan and data applicable to assessing environmental justice are provided in Table 3.13.

The adjacent communities of the Hansen Dam Basin are mostly white and Latino with large populations of Asian, Black, and other races. Though the larger market area does not have a minority population that

exceeds 50%, the community of San Fernando has a much larger Latino community than in the general population of the larger market area. The Latino community of San Fernando is therefore a significant minority population under the CEQ guidelines.

The number of individuals living below the poverty level is less than 20% for the larger market area of Los Angeles County, and none of the local communities exceed a total of 25% of the total population. The market area does not have a significant low income population.

Table 3.13 Market Area Demographics.

Census Data	Los Angeles County	City of Los Angeles	Burbank	San Fernando
Asian	11.9%	10.0%	9.2%	1.1%
Black	9.8%	11.2%	2.1%	1.0%
Latino	44.6%	46.5%	24.9%	89.3%*
Native American	0.8%	0.8%	0.5%	1.7%
Native Islander	0.3%	0.2%	0.1%	0.1%
White	48.7%	46.9%	72.2%	42.8%
Other	23.5%	25.7%	9.9%	49.4%
Individuals Living Below Poverty Level	17.4%	22.1%	10.5%	19.1%

[1]Local Communities include the City of Los Angeles, San Fernando, and Burbank. [2]Mixed-race ethnicities reported resulting in a total greater than 100%. *Communities that qualify for environmental justice protections. Source. U.S. Census Bureau 2000.

3.10 Traffic and Transportation

Access Travel to Hansen Dam Basin occurs through a multi-modal network of transportation alternatives in and around Los Angeles County, including car, train, bicycle, and pedestrian (Map 19). Visitors from outside Los Angeles County can connect to State Route 210 via Interstate 5. Los Angeles County is serviced by numerous airports including LAX, Orange County (John Wayne), Ontario, Burbank (Bob Hope), and Long Beach.

Access into the Basin and recreation areas can be attained via multiple gated entrances around the park. The main entrance and parking area is located off of Dronfield Avenue on the west side of the Basin, Hansen Dam Aquatic Center access is from north of the park at Foothill Boulevard, Hansen Dam Municipal Golf Course access is from south of the park at Montague Street via North Glenoaks Boulevard, and the Gabrielino Equestrian Center access is from northeast of the Basin at Orcas Avenue via Foothill Boulevard. Additional secondary access points include a Dam overlook entrance on Osborne Street, and a secondary park entrance at Wentworth Street.

Roadway Linkages The Basin is surrounded by high-capacity boulevards and arterials, as well as State Route 210. Major roads include Foothill Boulevard, a major east-west arterial and frontage road to State Route 210, and North Glenoaks Boulevard and Wentworth Street, which are both local arterials. The Basin is surrounded by Foothill Boulevard to the north and northwest, Osborne Street to the west, Glenoaks Boulevard to the southwest, Montague Street to the south, Wentworth Street to the southeast, and State Route 210 to the north, parallel to Foothill Boulevard. Traffic volumes for major roads in the vicinity of the Basin are shown in Table 3.14.

Transit Linkages The Van Nuys Metrolink is the nearest transit hub to the site, which is serviced by Amtrak, Metrolink and Metro bus lines. Once in Van Nuys, both bus and train passengers would need to make a bus connection north on route 166, 290 or 364. There are numerous bus stops around the Basin along North Glenoaks and Foothill Boulevards (Metrolink 2010).

Pedestrian and Bikeway Linkages Visitors traveling to the Basin on bicycle can make use of a network of designated bikeways and trails. Los Angeles County has developed a bicycle Master Plan and maintains a bikeways map online, which differentiates between the following three types of bike paths:

- Class I – Separate off-road paved bike path.
- Class II – On-road bikeway with lane striping.
- Class III – On-road bikeway with signage only.

Glenoaks Boulevard is identified as Class II. Wentworth Street is classified as Class III (Metro 2010). Bikers who prefer less, and slower moving, traffic have the option of taking side streets through adjacent suburban neighborhoods. For visitors who prefer to walk to the Basin, there is continuous sidewalk access from Van Nuys to the Basin. Equestrian trail linkages are also available from the park into a network of trails in both Little Tujunga Wash and Big Tujunga Wash (Pleasant 2010).

In-Park Roadways and Trails Approximately 2 miles of roadway, and several parking lots throughout the Basin provide access to recreation amenities. The 2.5 mile long "Lakeview Terrace" bicycle path allows cyclists to travel between Wentworth Street and Foothill Drive via a path across the top of Hansen Dam and vehicle access roads. There are currently no looping bicycle trails within the park (Pleasant 2010). The Gabrielino Equestrian Center in the northeastern portion of the Basin provides access to several miles of equestrian trails, with various loop options available. The park does not currently offer designated pedestrian-only trails, but the network of bicycle and equestrian paths are available for pedestrian use. Roadways and trails in the Basin are maintained by the City (Pleasant 2010).

Emergency Access Emergency vehicles can access the Basin through the main entrance on Dronfield Avenue, or through the additional access points such as the two Foothill Boulevard entrances, North Glenoaks Boulevard, Osborne Street, or Wentworth Street. Approximately six emergency access points exist throughout the Basin. Pedestrian access is available from most points around the park perimeter (Pleasant 2010).

Table 3.14 Average Daily Traffic for Basin Access Roads

Roadway Name	Average Daily Two-way Traffic (Thousands of Cars)	Roadway Designation	Number of Lanes
North Glenoaks Boulevard	4,000	Arterial	4
State Route 210	123,000	Freeway	8
Wentworth Street	8,000	Arterial	4
Foothill Boulevard	8,000	Arterial	4

Source: Caltrans 2008, Los Angeles County 2009.

3.11 Utilities

A variety of utilities such as water, electrical power, heating fuel, and sanitary sewerage services are provided within the Basin to amenities, including restrooms, picnic areas, the aquatic center, golf course, and retail shops (Map 23).

The City, Southern California Edison, and Verizon own utilities within the Basin. The City's Bureau of Sanitation owns the sewer lines, while LADWP owns the potable water and electrical power. Verizon runs underground and above ground telephone and internet lines through the Basin. Data regarding alignments for these lines were not available. Southern California Edison owns and operates the overhead lines visible within the Basin.

Energy use within the Basin includes lighting, heating, and air conditioning. Limited street lighting is present at major parking lots, and outdoor recreation lighting is also available for a driving range at the golf course (Pleasant 2010).

3.12 Esthetics

The visual resources within and around the Basin are moderately natural. The dominant esthetic features include the San Gabriel Mountains to the north, the Verdugo Mountains to the east, and southeast, disturbed, unmanaged vegetation, well maintained lawns and trees, and the Dam itself.

The rugged foothills of the San Gabriel Mountains rise rapidly from the valley floor and comprise the entire viewshed north from the top of the Dam. The Verdugo Mountains comprise a smaller portion of the view. The Dam is the dominant visual feature to the south from all points within the Basin, when not obscured by vegetation. Together, these ranges and the Dam provide a sense of enclosure and separation from the urbanized surroundings.

Panoramic Views from Top of Dam

Within the Basin, manicured lawns dotted with ornamental trees give way to equestrian trails, foot trails, and un-manicured riparian vegetation growing along the Tujunga Washes and the Basin's lakes. This mixture of native and non-native riparian vegetation varies in density and cover, but gives an overall visual look of natural forest.

The Tujunga Washes are alluvial with a large erosion scar through the upper area of the Basin, where they pass beneath the 210 Freeway. Vegetation is scarce in these upper areas and areas of disturbed upland and bare dirt are common. There are two constructed lakes within the Basin, an unnamed large lake in the center of the Basin area, and Holiday Lake, which is a small and slowly aggrading lake that once comprised a much larger area. The larger lake has a gently undulating shoreline, and is well vegetated with mature and immature trees. Holiday Lake is less visible from trails, if at all, and has dense vegetation growing on its banks and filling it in.

From the crest of the Dam, it is possible to see urban and residential development in nearly all directions, particularly to the south. The 210 Freeway is visible from most points within the Basin, except when obscured by vegetation. A large escarpment runs along the southeast boundary of the Basin, which has a heavily eroded face and clearly visible homes along its rim. Anchored at this escarpment and running through the eastern area of the Basin, are clearly visible power utility transmission towers and lines (owned by Edison), which degrades esthetic quality where it can be seen from a large portion of the Basin.

3.13 Recreation Resources

Recreation lands and amenities are managed by the City, per a lease through 2044 which is for a total of 1,355.4 acres. Not all leased acres are currently developed for recreation by the City; but can still be passively used for hiking, equestrian use, and other low density activities. Developed recreation amenities are shown on Maps 9, 10, and 11.

Hansen Dam Park is an approximately 37 acre park, located north of the intersection of Osborne Street and Dronfield Avenue. It includes amenities such as barbecue pits, picnic tables, a group picnic area, and an expanse of maintained lawn. There is also an unlighted baseball diamond, a children's play area, and an unlighted soccer field.

The Aquatic Center Offers a Natural Beach, Recreation Lake, and Swimming Pool

Aquatic Center is a 40-acre water recreation facility located in the northwest side of Hansen Dam Basin. The facility consists of a 9-acre recreation lake and a 1.5-acre swimming lake. The facility has 50 public restrooms, 20 dressing rooms, 25 showers and several picnic areas.

Golf Course An 18-hole 211-acre golf course is located below the downstream face of Hansen Dam. The golf course includes the Hansen Dam Golf Pro Shop, a driving range, and a Clubhouse with a restaurant and snack bar.

Sports Center is an approximately 26-acre park, located north of the intersection of Osborne Street and Dronfield Avenue. The park includes four baseball diamonds, two soccer fields and an amphitheater.

Hansen Dam Equestrian Center is an approximately 35-acre facility located south of the intersection of Foothill Boulevard and Orcas Avenue, situated between Little Tujunga Wash and Orcas Park. The amenities include stables with 12’x12’ box stalls (fully covered pipe corral) for about 100 horses, larger covered pens, 12 arenas with sand footing for both dressage and jumping, 8 turnouts, and longeing arena areas. There is easy access to equestrian trails within the Basin, and ample parking for both vehicles and horse trailers.

Lake View Terrace Visitors Center is approximately 22-acres in size and has a variety of recreation features. It is located north of Foothill Boulevard and West of Orcas Avenue. It is equipped with an indoor gym and meeting room. Additional outdoor amenities include lighted outdoor basketball courts, a children's play area, picnic tables, barbecue pits, and lighted tennis courts.

Recreation Amenities Include Playgrounds, Lake Access, Equestrian Stables and Trails, and Golf Courses

Orcas-Gabrielino Equestrian Center is an approximately 22-acre equestrian center located east of the Hansen Dam Equestrian Center.

Trails Hansen Dam is frequented by hikers and bicyclers who also utilize the trail at the top of the Dam. Hikers and bikers are joined by equestrians using the trail along the base of the Dam.

3.14 Public Health and Safety

Public health and safety focuses on the potential risks to the public and personnel from hazards that may occur within the Basin itself, or which may impact public services adjacent to the Basin. Health and safety hazards to the public can arise from recreation uses, plants and wildlife, flooding, hazardous materials, and criminal activity. Nearby public services, such as law enforcement, fire protection, hospitals and schools, may be designated as respondents to health and safety issues within the Basin, may be impacted by activities in the Basin, or may depend on access through the Basin. Public health and safety measures are intended to protect the public, to maintain public services, to ensure compliance with applicable Federal and state laws, to prevent waste contamination, and to minimize hazards resulting from actions on Corps-managed lands and amenities. Safety issues specific to the Dam itself were previously discussed above in the Physical Land Resources section.

The City is the recreation lease holder for Hansen Dam Basin and public safety is a primary concern. The Basin is usually dry, but heavy rainfall has, and may, result in flooding throughout the Basin. In the event of flood, hazards could occur both within the Basin itself, and downstream of the Basin.

Public health and safety issues associated with recreation include vehicle accidents, use conflicts, intoxication, and a variety of sports and activity-related accidents and injuries. Public services that respond to Basin emergencies are listed in Table 3.15. Onsite law enforcement is provided by the City of Los Angeles, Department of General Services, Office of Public Safety. General Services Park Rangers are dedicated exclusively to patrolling the city's parks, beaches, libraries and other city facilities. They are backed up by the Los Angeles Police Department in Pacoima who also patrol the surrounding area. Criminal activity has included trespass, property crime, vandalism, gangs, alcohol use, transient camps,

dumping, and unauthorized fire arm use. Fire Protection and EMT services are provided by the Los Angeles Fire Department, Fire Station 98 in Pacoima. The City maintains mutual aid agreements with other local cities and agencies for police, fire, and EMT services. Emergency Room and Hospital Services are found at Providence Holy Cross Medical Center, approximately 4.5 miles west.

Foothill Boulevard, Osborne Street, Wentworth Street, Glenoaks Boulevard and the 210 Freeway are major roads that pass along the edge or through the Basin. Alternative access is available for all public services in the event the Basin is closed for safety purposes. There are multiple options for timely exit from the Basin during an emergency.

Table 3.15 Public Services in the Vicinity of the Hansen Dam Basin

Service	Name and Address	Phone Number	Primary Server
Law Enforcement (Hansen Dam Recreation Area)	City of Los Angeles, Department of General Services Office of Public Safety (Park Rangers) Griffith Park Sub-Station 3740 Crystal Springs Drive, Los Angeles, CA	(213) 978-4670	Y
Law Enforcement	Pacoima Police Footh	-	Y
Fire/EMT	Los Angeles Fire Department, Fire Station 98 13035 Van Nuys Boulevard, Pacoima, CA	(213) 485-5971	Y
Hospital	Providence Holy Cross Medical Center 15031 Rinaldi Street, Mission Hills, CA	(818) 365-8051	Y
Hospital	Valley Presbyterian Hospital, 15107 Vanowen Street, Van Nuys, CA	(818) 782-6600	N
School	Fenton Avenue Elementary School	-	N/A
School	Sara Coughlin Elementary School	-	N/A
School	Charles MacLay Middle School 12540	(818) 686-3800	N/A

3.14.1 Evacuation Plan

There is no formal evacuation plan for Hansen Dam Basin because the primary hazard is flood inflows which can be forecast with sufficient lead time to clear the Basin of recreation users. However, the Corps has a formal notification process in which the Reservoir Regulation Section contacts any known entity likely to be affected by flood inflow to the Basin, based on forecasted runoff and estimates of how high surface waters will rise; these notifications are updated on a continuous basis as hydrologic and Basin conditions change (Corps 2008). Overall, the potential rate of water levels rising would be slow enough that anyone could readily walk to safety by moving to higher ground. Furthermore, the City would ensure that public use of the Basin during a potential flood condition would be curtailed through erecting roadway barriers and signage, and by having authorities in place to redirect traffic. The City maintains close coordination with law enforcement and the Corps as well as fire, medical, and emergency response agencies in the area.

3.15 Sustainability

Sustainability can be broadly defined as "meeting the needs of the present generation without compromising the ability of future generations to meet their own needs." This definition takes into account that there are three "spheres" comprising sustainability (environmental, economic, and social) that need to be considered when developing and evaluating projects and management systems. The three spheres of sustainability are described in Figure 3.3. For the Corps, applying the goals inherent in this definition to the development and implementation of Corps led and Corps co-sponsored projects involves approaching the planning, design, construction, and operation phases of these projects with the intention of sustaining natural resources, protecting the environment, achieving economic viability, and promoting a high quality of life.

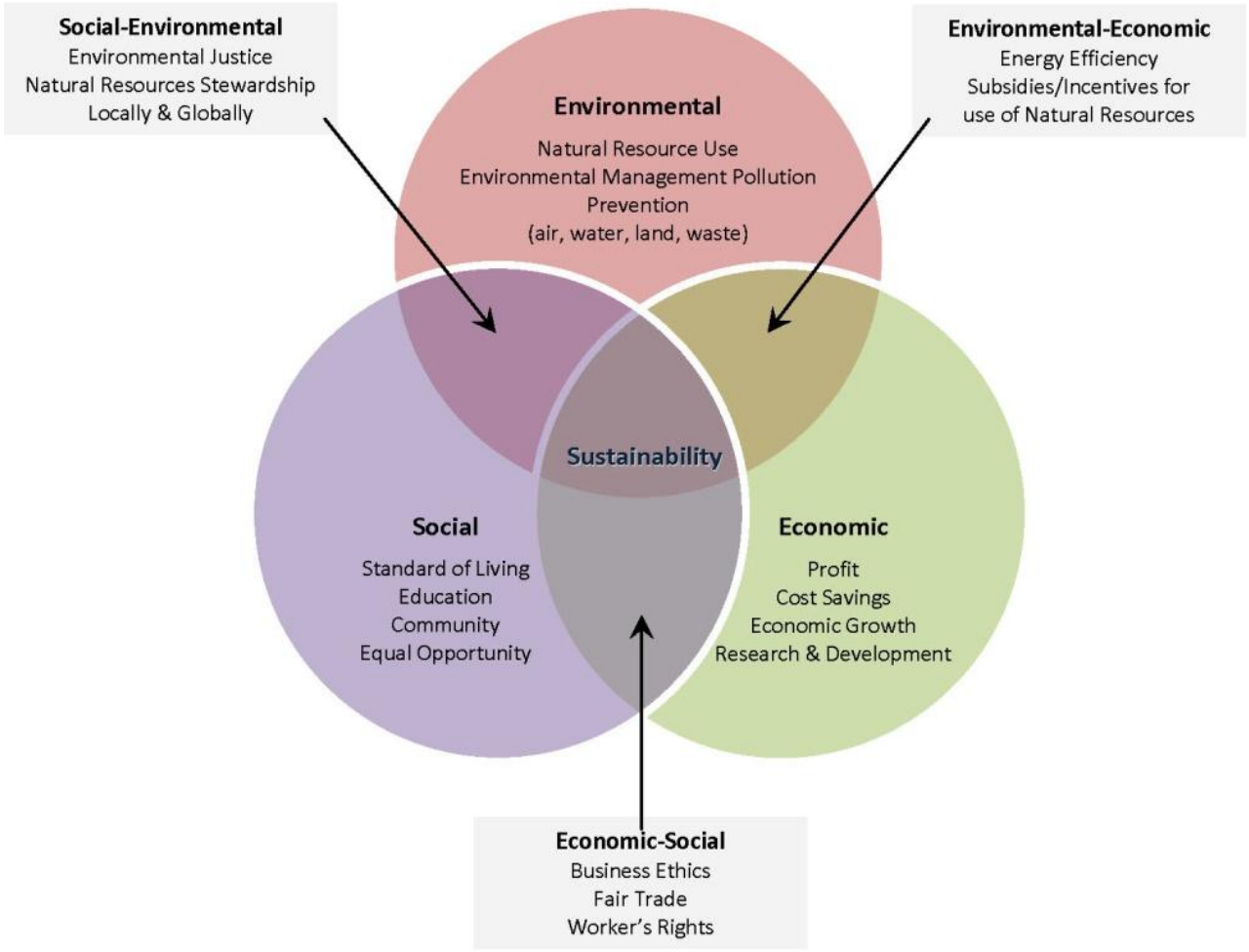


Figure 3.2 The Three Spheres of Sustainability

With the passing of the Water Resources Development Act (WRDA) in 2007, Congress directed the Corps (and other Federal agencies such) to put environmental protection and restoration first when planning water resources projects. This emphasis complements the sustainability approach taken by the Corps in developing and implementing water resources and ecosystem restoration projects such as those being considered in this integrated document. Moreover, sustainability as a practice for the Corps has become increasingly important as rising population continues to place greater pressure on land

development and competition for natural resources and land use, especially in and near urban areas such as the Los Angeles and San Gabriel River watersheds.

In the following paragraphs the three spheres of sustainability (environmental, economic, and social) are discussed with respect to the baseline opportunities afforded by the alternative sites being considered in achieving the inherent goals of sustainability (sustaining natural resources, protecting environment, achieving economic viability, and promoting high quality of life).

Under ideal environmental sustainability conditions an ecosystem would maintain functionality and biodiversity over time. Characteristics of this ideal ecosystem would include a steady (equilibrium) state, the ability to recover from disturbance (resilience), and evolving plant communities (succession). Because the landscape within and around the study area has been altered, ideal ecosystem function does not exist, and achieving it may be no longer possible. However, the premise going forward is that with intervention, some of the critical ecosystem functions within the Basin can be maintained, enhanced, or even to some extent restored. In all cases, it is assumed that an adaptive management program can be developed and implemented that will help support environmental sustainability. Sustainability is best achieved through implementation of practices that are known to conserve and protect the resources within the Basin. Within the Basin, the implementation of measures to ensure sustainable use of resources may include developing a green waste and recycling plan. This plan should extend throughout the Basin and include specific measures for accommodating additional waste during special events.

Similar to environmental sustainability, which is based on the ability of an ecosystem to maintain functionality over time, economic sustainability involves creating economic value (in terms of capital and monetary exchanges) from managing the Basin in a way that would also be sustainable over time. Currently, no fees are collected for use of the Basin in general. Fees are currently collected for use of the aquatics center. It is necessary to consider the need for capital in maintaining and operating the Basin for recreation activities and that in the future, striving for economic sustainability may involve developing programs and activities that generate revenue for the maintenance and upgrade of amenities. Therefore, in the planning, design, construction, and operation phases, the usage and potential waste of resources in the generation of economic activity would be accounted for, and the use of green technology and materials and renewable resources maximized.

Social sustainability is based on the concept that sustainable ecosystem restoration projects in the Hansen Dam Basin that maintain and enhance healthy natural environment and involve the development of sustainable (and revenue-generating) on-site and area activities would also result in ongoing high quality of life for area residents. It is also based on the above definition of sustainability whereby future generations should have the same or greater access to these quality of life benefits as the current generation. This concept encompasses human rights and environmental justice. Social sustainability applies not only to the provision of recreation and other social amenities but also to the protection of environmentally sensitive areas in the Basin. Future generations deserve the opportunity to have a high quality experience with the natural areas of the watershed while perpetuating our collective responsibility of environmental stewardship. Finally, a healthy ecosystem that treats all people fairly with access to high quality amenities (both built and natural) is the best assurance of sustaining a vibrant economic system.

4 ALTERNATIVES IMPACTS ASSESSMENT

This DEA has been prepared in part to determine the potential for significant impacts arising from the proposed action. In the event that potential significant adverse impacts are identified that cannot be mitigated, the Corps would either revise the project description to minimize the potential for significant impacts or prepare an EIS.

This DEA has been prepared to document compliance with the NEPA and other Federal environmental laws that may be applicable for this project. The NEPA process includes preparing an analysis of the impacts of the proposed action, in this case the approval of an updated Master Plan for Hansen Dam Basin and comparing those impacts to the No Action Alternative and other viable alternatives. It has been determined through the planning process as described in the Master Plan that there are no other viable alternatives other than the Recommended Plan that meet the goals and objectives of the Corps Master Plan requirements for land use classification. The approval of the Master Plan with the proposed land use classifications or the No Action Alternative, which would mean no approval of the Recommended Plan, are the only two alternatives that have been carried forward for analysis of impacts on natural and human resources in and around the Hansen Dam Basin.

Since approval of the Master Plan would not result in any physical implementation of a project, the impact analysis of the Proposed Action Alternative and the No-Action Alternative are in most cases very similar and each resource category analysis identifies the need for compliance with NEPA and other Federal environmental laws that must be complied with when, in the future the lessee proposes new development within the Basin.

To determine the potential for significant impacts, typical significance thresholds have been identified through application of Federal laws, Corps policy, published research, professional judgment, and in some cases through state and local regulations. In general, significance thresholds may be exceeded if project features will negatively affect:

- Public safety or health;
- Wetlands, floodplains, or ecologically sensitive areas;
- Important scientific, cultural, or historic resources; and/or
- Threatened or endangered species or their habitat.

Project impacts are assessed to determine if they are:

- Likely to be highly controversial or its impact analysis highly debated;
- Likely to involve highly uncertain impacts or unique or unknown risks;
- Likely to pave the way for future actions;
- Part of a larger proposal;
- Likely to violate any Federal law or requirement imposed to protect the environment; and/or
- Likely to cause effects to resources which fall outside of the project area but which are covered by state or local regulations These may include air quality, water resources, noise, public health and safety, and biological resources.

4.1 Alternatives

4.1.1 Proposed Action Alternative

The Proposed Action Alternative (Recommended Plan) under evaluation for this DEA is the approval of the updated Hansen Dam Basin Master Plan, which would result in the reclassification of land use within the Basin. This would provide the Basin managers, lessees, and users with an updated comprehensive document for the current and future operation, maintenance, and management of the Basin and its associated lands. Map 20 shows the proposed recommended land use classification plan.

Under the proposed Action Alternative to update the existing Master Plan, land use classifications have been identified that are in compliance with Corps regulations and policies, provide for future sustainability of the Basin lands and are compatible with existing recreation use in the Basin. The updated Master Plan presents a land use and resource objectives plan that identifies increased protection of Environmentally Sensitive lands, provides recommended actions for the continued sustainability of recreation and natural features, and meets the community's expressed needs and desires.

The updated Master Plan increases the area of Project Operations (197.8 acres), Environmentally Sensitive (721.2 acres), MRM – Recreation - Low Density (223.7 acres), and MRM – Vegetative Management lands (10.2 acres), while reducing the amount of Recreation (designated for high intensity uses, 229.9 acres) and MRM – Inactive and/or Future Recreation land (78.5 acres). The total area of Easement land has remained at 45.9 acres. The most significant benefits to the Basin come from the designation of a larger Environmentally Sensitive area, reclassification of Recreation to MRM – Recreation – Low Density, creation of MRM – Vegetative Management buffer areas, identification of baseline conditions and issues within the Basin, development of standardized guidance for management of the Basin, and identification of a smaller area of MRM – Inactive and/or Future Recreation than in the previous Master Plan.

The increase in Environmentally Sensitive land reflects the Corps increased awareness of the need for environmental stewardship and protection, and complies with Corps policy for protecting areas known to host Federally protected species. No development is permitted in Environmentally Sensitive land, and human uses are restricted. This policy will extend into the foreseeable future, preventing any further disturbance of Environmentally Sensitive land and potentially increasing its habitat value through eradication of non-native species.

The reduction in the amount of Recreation land, though it will have no immediate effect on the existing conditions at the Basin (no changes will be made to existing recreation amenities) and the reclassification of several acres into low density recreation uses will protect these areas into the future, since they will not be available for the development of high intensity recreation uses, such as athletic fields or sporting ranges.

Benefits to the Basin are also anticipated through the establishment of standardized guidance for determining what kind of special events, filming and photography, training, and biological surveys are allowed in the Basin, and the regulations they must follow. The updated Master Plan includes policies to guide special events in recreation areas and limited use of operations areas for filming and photography, training, and biological survey activities, provided in Appendices A4 through A7.

Finally, awareness of the existing resource conditions within the Basin aids in identifying problems and issues, which provides the basis for addressing these issues efficiently and effectively.

4.1.2 No Action Alternative

Under the No Action Alternative, the existing 1991 Master Plan for the Basin would continue to be the guiding document for current management and future development. The current land use classifications would remain the same, and the Master Plan would not be updated to reflect current Corps regulations and policies. No policies to guide special events, filming, training activities, or biological surveys would be provided with the existing Master Plan, although they could be provided separately.

4.1.3 Action and No Action Impacts by Resource Area

The impacts to each resource area are presented for both the Proposed Action and the No Action Alternatives. The thresholds of significance are identified first, followed by the potential sources of impacts, then the specific impacts that may be expected to occur, followed by a determination of impacts of the Proposed Action. A summary of the impacts has been provided in Tables 4.1 and 4.2.

4.1.3.1 Physical Land Resources

Thresholds of Significance

A significant impact would occur to physical land resources if the proposed project;

- Results in substantial adverse effects to people or structures from geologic conditions including expansive soils, liquefaction, earthquakes, landslides, substantial erosion, depletion of groundwater supplies or interference with groundwater recharge;
- Results in the direct or indirect destruction of a unique geologic feature;
- Results in the loss of availability of a known mineral resource of local, regional, or state value;
- Significantly increases wind or water erosion of soils or loss of topsoil, either on or off site;
- Significantly alters the physical or chemical quality of sediments or soils; and /or
- Substantially alters topography beyond that which would result from natural erosion and deposition; and /or
- Triggers or accelerates geologic processes such as erosion or sedimentation brought about by disturbance of landforms.

Potential Sources of Effect

Sedimentation occurs naturally as a result of flood inflows to the Basin. Anthropogenic practices may also exacerbate sedimentation rates. Introduction of heavy machinery, increased foot, horse, bicycle, or vehicular traffic, or changes in water control management (which may alter bank erosion patterns along the Big of Little Tujunga Washes) may all result in erosion or increases in sedimentation.

Proposed Action Alternative

Under the Proposed Action Alternative, existing topography and sedimentation rates would remain unchanged. Major landforms would remain and areas subject to erosion are expected to continue to erode at current rates. Current seismic activity, earthquake fault zones, and areas of liquefaction within the Basin would remain unchanged.

If the updated Master Plan is approved, water management practices would be retained as is and managed through the guidance of the water control manual (Corps 1990). Sediment removal would continue to occur as needed. No substantial increase in foot, bicycle, horse or vehicular traffic is anticipated as a

result of the approval of the Master Plan, although use of bicycles and pedestrian access to the Basin are encouraged for special events, in order to reduce vehicular traffic. No additional land clearing or development would be implemented as a result of the updated Master Plan.

The updated Master Plan acknowledges and emphasizes the need to engage in invasive species removal, which is the responsibility of the lessee. As a result, removal of debris and weeds by the lessee is anticipated to occur regardless of whether the updated Master Plan is approved. However, it is possible that under the Proposed Action, invasive species removal would be more consistently considered in the evaluation of future development proposals. Invasive species removal would result in clearing of areas and individual plants of invasive species within the Environmentally Sensitive and MRM – Vegetative Management land use classifications. Erosion would be controlled through proper Best Management Practices (BMPs) and active native vegetation plantings would curtail erosion issues.

Under the Action Alternative, special events would be expected to be held primarily in the Sports Complex area as described in Appendix A5. This area is designed for large groups. Appendix A5 would provide for use of the Sports Complex for special events under certain general requirements. Use of the area for special events with attendance under 5,000, fewer than two days long, without vehicles parked on grassy areas outside designated parking, would have only minor effects on soil compaction and erosion, and restoration of the site to pre-event conditions would be required. Special events for groups over 5,000 attendees or in areas other than the Sports Complex would receive event-specific analysis in a separate EA. Regardless of whether the Proposed Action Alternative is approved, two large special events are generally held every year, a Fourth of July celebration and an air show. Each of these events would continue to require event-specific review.

No Action Alternative

Under the No Action Alternative, existing topography and sedimentation rates would remain unchanged. Major landforms would remain and areas subject to erosion are expected to continue to erode at current rates. Current seismic activity, earthquake fault zones, and areas of liquefaction within the Basin would remain unchanged.

If the updated Master Plan is not approved, water management practices would be retained as is and managed through the guidance of the water control manual (Corps 1990). Sediment removal would continue to occur as necessary. No additional foot or vehicular traffic is anticipated as a result. No additional land clearing or development would be approved that would not be in compliance with the existing Master Plan.

Since the maintenance of the Basin is the responsibility of the lessee which includes removal of debris and weeds, the lessee is responsible for maintaining an invasive species removal management program. Whether or not the updated Master Plan is approved or not, removal should be implemented and vegetation management within the Environmentally Sensitive and MRM – Vegetative Management land use classifications would result in clearing of areas and individual plants of invasive species. Erosion would be controlled through proper BMPs and active native vegetation plantings would curtail erosion issues.

Under the No Action alternative, special events would continue to be held in the Basin after event-specific review occurs. Special events would be likely to continue to be held primarily in the Sports Complex area. Special events over 1,000 attendees would require event-specific review. The two major annual events, the Fourth of July celebration and the air show, would continue to be evaluated on an event-specific basis.

Determination of Impacts

Based on the significance criteria above, there would be no significant impacts to physical land resources as a result of the implementation of the updated Master Plan. Any proposal for future development in the Basin would need to be analyzed for potential impacts on the physical land resources in the Basin.

4.1.3.2 Water Resources

Thresholds of Significance

A significant impact would occur to water resources if the proposed project:

- Caused substantial interference with groundwater supplies, recharge or direction and rate of groundwater flow;
- Caused a violation of any water quality standard or waste discharge requirement, or otherwise substantially degrades water quality;
- Changed streambed scour or long-term channel degradation that occurs as a result of operation and maintenance would result in buried utilities being exposed to air or flowing water;
- Substantially altered the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in substantial increase in erosion or siltation on or off site;
- Substantially altered the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, in a manner that would result in a substantial reduction in the quantity of surface water;
- Substantially altered the existing drainage pattern of the site or area, including the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site or provide substantial additional sources of polluted runoff;
- Exposed people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a Dam;
- Increased erosion or sedimentation in relation to existing conditions; and/or
- Released chemicals such as oil and grease into the waters of the United States.

Potential Sources of Effect

Water quality impairments are typically caused by the introduction of pollutants into a water body, either by direct dumping of pollutants into the water, urban runoff during storm events, or urban runoff not associated with a storm event.

Pollutants may be introduced directly through construction activities adjacent to the water body, which could contribute oils and grease from machinery and release sediments into the water body as a result of clearing vegetation or the use of heavy machinery. Direct pollution also occurs as a result of public dumping of household chemicals or trash into the water body. During storm events, as water makes its way toward a stream or lake, it may pass through heavily urbanized areas, where it collects oils, grease, and gas from roadways, and pesticides, fertilizers, and other chemicals in residential and commercial areas. Non-storm event runoff occurs when residential or commercial activities result in excess water being discharged, such as from watering lawns or washing cars. Urban runoff is generally captured before it reaches the Basin and is not considered a significant contributor to water quality issues.

Water quality impairments may also occur in the form of thermal pollution, resulting from minimal flow or lack of shading from overstory vegetation. Algae blooms or waterfowl kills have not been reported for water bodies within the area, but could potentially occur as a result of high water temperatures that promote pathogen growth. A CWA 303(d) listing could become necessary if the proposed land use classifications resulted in increased water temperatures or other types of pollution.

Groundwater recession occurs on a seasonal basis, as a result of drought, or through artificial pumping. Diminished groundwater levels could affect groundwater dependent riparian vegetation, and in turn diminish habitat quality.

Proposed Action Alternative

Under the Proposed Action Alternative, existing water quality protection programs administered at the state and local levels will continue to address issues as they arise, including those at the Basin.

No physical changes are proposed for implementation at the Basin as a result of the Proposed Action Alternative. No land clearing activities are proposed. Human use and maintenance activities within the Basin are not expected to change as a result of this plan. Groundwater usage and recharge would not change as a result of the proposed action. There are no significant adverse effects anticipated to result from implementation of the updated Master Plan. However, several areas throughout the Basin have been designated for placement into land use classifications that facilitate greater environmental stewardship, which is intended to provide increased protection of water quality.

This DEA details the current water quality within the Basin, and as it is integrated into the updated Master Plan, would provide for increased awareness of water quality issues. This may assist in the ability to address water quality problems in the future.

Special events as identified in the policy in Appendix 5A would not be anticipated to impact water resources. Under the special events policy, special events would be focused at the Sports Complex area, not directly adjacent to washes or lakes. Events outside this area or events that would impact water resources through pollutant discharge, alter drainage patterns, or create any other impacts as identified as significant above, would require event-specific review. Training, filming and photography, and biological survey activities within operations areas would not be anticipated to have impacts to water quality. No discharges of pollutants would be allowed within the operations area.

No Action Alternative

Under the No Action Alternative, existing water quality protection programs administered at the state and local levels will continue to address issues as they arise, including those at the Basin.

No physical changes are proposed at the Basin as a result of the No Action Alternative. Human use and maintenance activities within the Basin are not expected to change as a result of the No Action Alternative. Groundwater usage and recharge would not change as a result. Without the approval of the updated Master Plan, the ability of Corps and Basin stakeholders to address water quality issues may be limited.

Under the No Action Alternative, activities within operations areas and special events would continue to occur on an activity- or event-specific evaluation basis. Special events would not be directed to any specific area of the Basin, though they would be anticipated to continue to occur mostly in the Sports Complex area.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to water resources. Any proposal for future development in the Basin would need to be analyzed for potential impacts on the water resources in the Basin.

4.1.3.3 Air Quality

Thresholds of Significance

There could be significant impacts to air quality if the following were to occur:

- The project was inconsistent with the current approved Air Quality Management Plan;
- The project would result in non-compliance with the Federal General Conformity Rule (40 CFR Parts 6, 51, and 93) Requirements;
- The project would generate emissions of air pollutants that would exceed any SCAQMD regional air quality thresholds;
- The project would exceed 7,000 tons of CO2 ;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors);
- Expose the public (especially schools, day care centers, hospitals, retirement homes;
- convalescence amenities, and residences) to substantial pollutant concentrations;
- Create objectionable odors affecting a substantial number of people;
- Emissions on an individual day exceed 550 pounds per day for CO, 75 pounds per day for VOC, 100 pounds per day for N0x, 150 pounds per day for S0x, or 150 pounds per day for PM10, the project impacts would be considered significant; and/or
- Emissions on any pollutant exceed 100 tons per year of CO, 100 tons per year of VOC, 100 tons per year of N0x, 100 tons per year of S0x, or 70 tons per year of PM10.

Potential Sources of Effect

Water quality impairments are typically caused by the introduction of pollutants into a water body, either by direct dumping of pollutants into the water, urban runoff during storm events, or urban runoff not associated with a storm event.

Pollutants may be introduced directly through construction activities adjacent to the water body, which could contribute oils and grease from machinery and releases sediments into the water body as a result of clearing vegetation or the use of heavy machinery. Direct pollution also occurs as a result of public dumping of household chemicals or trash into the water body. During storm events, as water makes its way toward a stream or lake, it may pass through heavily urbanized areas, where it collects oils, grease, and gas from roadways, and pesticides, fertilizers, and other chemicals in residential and commercial areas. Non-storm event runoff occurs when residential or commercial activities result in excess water being discharged, such as from watering lawns or washing cars. Runoff may enter the San Gabriel River and Rio Hondo, and may enter the lakes, ponds, and drainages that pass through the Basin.

Water quality impairments may also occur in the form of thermal pollution, resulting from minimal flow or lack of shading from overstory vegetation. Algae blooms or waterfowl kills have not been reported for water bodies within the area, but could potentially occur as a result of high water temperatures that

promote pathogen growth. A CWA 303(d) listing could become necessary if the proposed land use classifications resulted in increased water temperatures or other types of pollution.

Groundwater recession occurs on a seasonal basis, as a result of drought, or through artificial pumping. Diminished groundwater levels could affect groundwater dependent riparian vegetation, and in turn diminish habitat quality.

Proposed Action Alternative

Over time, population growth would likely result in an increase in vehicle use and emissions in the area. Local cities are implementing traffic reduction measures and programs to encourage alternate transportation and researching clean fuel alternatives. Local and regional planning agencies are also focusing on land use planning to reduce travel needs. These efforts would reduce future air emissions and are anticipated to be implemented regardless of the approval of the updated Master Plan.

There are no measures under the updated Master Plan for development of the Basin that may result in air quality impacts, or result in directly increasing vehicular access to the Basin. Basin parking capacity is not proposed to change, and even incremental increases in Basin use are not anticipated to result in significant adverse effects on air quality, especially in comparison to ongoing vehicle use in adjacent urbanized areas. No more than minor indirect impacts to air quality are anticipated from the Proposed Action alternative. Reclassifications are not anticipated to draw in users from a different or larger service area than the current use.

Under the Proposed Action, special events would be focused in the Sports Complex although other sites would be considered on an event-specific basis. Events in the Sports Complex area with no more than 1,000 attendees, a parking plan, a traffic plan, and encouragement of use of public transit and bicycling would not have more than a temporary, insignificant impact on the basin. Special events with over 1,000 attendees would include an increased number of vehicles traveling to and from the Basin, and special events in other basin locations may not have sufficient parking or road capacity without additional measures. Two annual events, a Fourth of July celebration and an air show, are generally held at the Basin. Such events would require event-specific impact analysis in order to comply with the Federal Clean Air Act and state and local requirements as deemed necessary by the lessee in complying with its permit process. No change related to air impacts is anticipated from the training, filming, or biological survey policies.

No Action Alternative

Under the No Action Alternative, air quality would be similar to that under the Proposed Action in most respects. Over time, population growth would likely result in an increase in vehicle use and emissions in the area. Local cities are implementing traffic reduction measures and programs to encourage alternate transportation and researching clean fuel alternatives. Local and regional planning agencies are also focusing on land use planning to reduce travel needs. These efforts would reduce future air emissions and are anticipated to be implemented regardless of the approval of the updated Master Plan. Special events would continue to occur in the basin after event-specific analysis. The Fourth of July and air show events would be likely to continue to occur, but would continue to require event-specific analysis. Basin parking capacity is not proposed to change, and even incremental increases in Basin use are not anticipated to result in significant adverse effects on air quality, especially in comparison to ongoing vehicle use in adjacent urbanized areas.

Determination of Impacts

Based on the significance criteria above, the Proposed Action would not create any significant impacts on air quality. Any proposal for future development in the Basin would need to be analyzed for potential impacts on air quality in compliance with the Federal Clean Air Act and state and local laws and regulations.

4.1.3.4 Noise

Thresholds of Significance

For this analysis, the proposed project may result in significant impacts on noise quality if:

- Noise levels projected for a Proposed Action did not comply with the relevant Federal, state, and/or local standards or regulations; and/or
- There were an increase in noise levels above the existing ambient condition as a result of the introduction of a new source of noise.

Although extremely loud noises can cause temporary or permanent damage, the primary environmental impact of noise is annoyance. The objectionable characteristic of noise often refers to its *loudness*. Loudness represents the intensity of the sound wave or the amplitude of the sound wave height (measured in decibels). The degree of impact is hard to assess because of the highly subjective character of individuals' reactions to changes in noise. Empirical studies have shown people begin to notice changes in environmental noise level around five dBA (USEPA, 1974). Thus, average increases in noise levels less than five dBA cannot be definitively considered as producing an adverse impact. For increases in level above five dBA, it is difficult to quantify the impact beyond the obvious: the greater the noise level change, the greater the impact.

Noise impacts on the surrounding community are enforced through City Codes, supported by nuisance complaints and subsequent investigation. The City Code lists maximum allowable noise levels to be used as the baseline for determination of public nuisance on various land uses/zones. The California Occupational Safety and Health Administration (Cal-OSHA) enforces mitigation of noise impacts on worker safety and health, but effectiveness depends on the vigilance of supervisors in seeing that workers use protective gear in high noise environments.

Noise impacts to wildlife are discussed below in section 4.1.3.5 Biological Resources.

Potential Sources of Effect

Common sources of noise include automobile traffic, construction, large events, industrial practices, and recreation uses of the Basin.

Proposed Action Alternative

Under the Proposed Action, noise issues would continue to be managed by local ordinances and state laws, as applicable. The updated Master Plan would not result in the development of additional recreation amenities, roadways, or events that might increase noise levels within the Basin. If the recommendation for the eradication of invasive species is implemented, there may be intermittent increases in noise, but would not exceed local ordinances or state laws for noise restrictions.

Under the Proposed Action, special events would be encouraged to occur in the Sports Complex area rather than other areas of the Basin. Events held in the Sports Complex with fewer than 1,000 people, a parking plan, a traffic plan, encouragement of public transit and bicycling, and a noise limitation of 100 db, held for no more than two days at a time, would not be anticipated to have more than insignificant, temporary impacts to noise. Events anticipated to have noise over 100 db would continue to require event-specific review. Special events over 1,000 attendees or outside the designated special events area may have unassessed traffic or parking issues that could result in increased noise to surrounding areas. Such events would require an impact analysis in order to comply with the Federal Noise Control Act and state and local requirements as deemed necessary by the lessee in complying with its permit process. The event itself depending on its location may create a noise level which would exceed Federal, state and local standards and may be subject to analysis if any significant criteria would be exceeded.

No Action Alternative

Noise issues will continue to be managed by local ordinances and state laws, as applicable. The No Action Alternative is not anticipated to result in any increased noise impacts.

Since the maintenance of the Basin is the responsibility of the lessee which includes removal of debris and weeds, the lessee is responsible for maintaining an invasive species removal management program. Whether the updated Master Plan is approved or not, removal should be implemented and vegetation management within the Environmentally Sensitive and MRM – Vegetative Management land use classifications would result in clearing of areas and individual plants of invasive species. There would be intermittent increases in noise, but would not exceed local ordinances or state laws for noise restrictions. There are no anticipated significant adverse impacts to the noise condition within the Basin as a result of the No Action Alternative.

Determination of Impacts

Based on the significance criteria, the Proposed Action Alternative would not create any significant impacts on noise quality. Any proposal for future development in the Basin would need to be analyzed for potential impacts on noise quality in compliance with the Federal Noise Control Act and state and local laws and regulations.

4.1.3.5 Biological Resources

Thresholds of Significance

Impacts to biological resources are considered significant if one or more of the following conditions would result from implementation of the selected project:

- A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS (Endangered and threatened species referenced in this threshold are those listed by the USFWS and/or CDFG as threatened or endangered. Section 15380 of CEQA indicates that a lead agency can consider a non-listed species (e.g., CNPS List 1B plants) to be endangered, rare, or threatened for the purposes of CEQA if the species can be shown to meet the criteria in the definition of rare or endangered. For the purposes of this discussion, the current scientific knowledge on the population size and distribution for each special status species was considered in determining if a non-listed species met the definitions for rare and endangered according to Section 15380 of CEQA.);

- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFG or USFWS;
- A substantial adverse effect on Federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means;
- Interfered substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites;
- Conflicted with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflicted with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan;
- Increased substantially the ambient noise levels for adjoining areas that interfere with breeding behavior of listed species (LACDPW significance criteria). For the purposes of this impact analysis, "substantial adverse effect" is defined as the loss or harm of a magnitude which, based on current scientific data and knowledge, would: 1) substantially diminish population numbers of a species or distribution of a habitat type within the region; or 2) eliminate the functions and values of a biological resource in the region;
- Substantial loss of species diversity in natural vegetation and wildlife habitat;
- Substantial loss of habitat that is regionally unique designated sensitive;
- Loss of breeding areas of listed threatened or endangered species; and/or
- Significant disruption of wildlife corridors.

An evaluation of impacts on biological resources must consider the resource and how that resource fits into a regional or ecological context. Impacts are sometimes locally important but not regionally significant; although they may result in an adverse alteration of existing conditions at the project site, they may not substantially diminish, or result in the permanent loss of, that resource on a population-wide or region-wide basis.

Potential Sources of Effect

Possible sources of effect may include 1) changes to the lighting regime, which may affect foraging or breeding of nocturnal creatures, 2) water diversions that may affect the groundwater table or diminish aquatic habitat value, and 3) creating conditions that would increase noise in areas containing sensitive (i.e., nesting, breeding, or fledging) wildlife.

Proposed Action Alternative

Approval of the Recommended Plan would result in slight changes to biological resources management, as a larger area of the Basin would be classified as Environmentally Sensitive. This provides increased protection to sensitive vegetation communities, wildlife species, Federally protected species (such as the potentially occurring least Bell's vireo), and to the overall habitat quality of the area. Management of Environmentally Sensitive areas requires limiting human uses to passive recreation. Under this classification, the Corps and the City have greater authority in preventing human use of this area in ways that would impact the biological resources. These might include large events, such as marathons or group walks, or use outside designated areas, which may trample vegetation, disturb wildlife, and contribute to water pollution.

Since the maintenance of the Basin is the responsibility of the lessee which includes removal of debris and weeds, the lessee is also responsible for maintaining an invasive species removal management

program. Whether the updated Master Plan is approved or not, an invasive species eradication program should be implemented and vegetation management within the Environmentally Sensitive and MRM – Vegetative Management land use classifications would result in clearing of areas and individual plants of invasive species. However, invasive species management may be more consistently considered under the updated Master Plan due to inclusion of the recommendations. Though eradication could potentially result in increased noise, reduced air quality, or increased erosion, these effects would be temporary and ultimately remedied through passive or active restoration of native vegetation. The result would be an overall improvement to vegetation community conditions in the Basin, which may also provide improvements to their associated wildlife assemblages.

Under the Proposed Action, special events would be encouraged to occur in the Sports Complex area, the current location of most special events under the current operation of the Basin. Events within this area, with fewer than 1,000 attendees, a parking plan, a traffic plan, not impeding access to other areas of the basin, with noise limitations of 100 db, would not be anticipated to have more than minor impacts to biological resources. Events not complying with the conditions in the Appendix would require event-specific impact analysis in order to comply with the Federal Endangered Species Act, the Federal Migratory Bird Act, other Federal, state and local requirements as deemed necessary by the Corps and lessee in complying with each permit process. No special events would be allowed to occur in Environmentally Sensitive and MRM – Vegetative Management land use classifications, protecting biological resources from disturbance.

Under the Proposed Action, use of operations areas for filming, training, and biological surveys under the policies is anticipated to have no more than minimal impacts to biological resources. Biological surveys within operations areas would be non-invasive.

No Action Alternative

Under the No Action Alternative, vegetation and wildlife conditions could potentially decline as a result of inadequate habitat condition data within the existing Master Plan. Although Federal and local laws would continue to regulate some conditions, such as water quality and noise, there would be less direction for maintenance of vegetation and wildlife habitat within the Basin. Even if the lessee implemented a vegetation management plan without the approval of an updated Master Plan, the overall protection of environmentally sensitive habitats and species would be diminished, since no additional acreage would be classified as Environmentally Sensitive.

Since the maintenance of the Basin is the responsibility of the lessee which includes removal of debris and weeds, the lessee is responsible for maintaining an invasive species removal management program. Whether the updated Master Plan is approved or not, an invasive species eradication program should be implemented and vegetation management within the Environmentally Sensitive and MRM – Vegetative Management land use classifications would result in clearing of areas and individual plants of invasive species. Though eradication could potentially result in increased noise, reduced air quality, or increased erosion, which could impact biological resources, these effects would be temporary and ultimately remedied through passive or active restoration of native vegetation. The result would be an overall improvement to vegetation community conditions in the Basin, which may also provide improvements to their associated wildlife assemblages.

Determination of Impacts

No significant adverse impacts are anticipated to biological resources as a result of the approval of the updated Master Plan. Instead, slight improvements to vegetation and associated wildlife assemblages may result.

4.1.3.6 Cultural Resources

Thresholds of Significance

Criteria for the evaluation of effects to National Register properties are found in 36 CFR 800.9, *Criteria of Effect and Adverse Effect*. These include:

- An undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the National Register. For the purpose of determining effect, alteration to features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered;
- An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:
    - Physical destruction, damage, or alteration of all or part of the property;
    - Isolation of the property from or alteration of the character of the property's setting when that character contributes to the property's qualification for the National Register;
    - Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting;
    - Neglect of a property resulting in its deterioration or destruction; and/or
    - Transfer, lease, or sale of the property.
- Effect of an undertaking that would otherwise be found to be adverse may be considered as being not adverse for the purpose of these regulations;
    - When the historic property is of value only for its potential contribution to archeological, historical, or architectural research, and when such value can be substantially preserved through the conduct of appropriate research, and such research is conducted in accordance with applicable professional standards and guidelines;
    - When the undertaking is limited to the rehabilitation of buildings and structures and is conducted in a manner that preserves the historical and architectural value of affected historic property through conformance with the "Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings," and/or
    - When the undertaking is limited to the transfer, lease, or sale of a historic property, and adequate restrictions or conditions are included to ensure preservation of the property's significant historic features.

Potential Sources of Effect

Natural events and human activities both have the potential to impact cultural resources. Human activities that may affect cultural resources include land clearing, sediment removal, vegetation removal, construction, development, and any other activity that physically alters soils where cultural resources may be present, historic buildings, or structure or traditional cultural properties.

Proposed Action Alternative

Sites of cultural significance within Hansen Dam Basin include an historic village of the Tongva, which was believed to have been disturbed during construction of the Dam. Subsequent field studies have indicated additional cultural resources at the site. However, the updated Master Plan would not result in further alteration of existing land. Clearing of exotic vegetation occurs where disturbances have already occurred and, when conducted according to BMPs, should not further impact resources that may be buried.

In the event that cultural resources are discovered in the future, NEPA, NHPA and Corps policy would guide the approach to protection and preservation of the site. The potential for discovery or the need to reevaluate methods of any previous inventories would be addressed by the Corps for future actions on a case-by-case basis.

Special events in the Sports Complex area under the special events policy would have no effect on cultural resources. Special events outside of the Sports Complex area or beyond the scope of the Special Event policy restrictions, as well as filming, photography, training and biological surveys within operations areas outside of the restrictions set out by those policies, would require event-specific impact analysis in order to comply with NEPA, NHPA, Corps policy and state and local requirements as deemed necessary by the lessee in complying with its permit process.

No Action Alternative

Federal protections for cultural resources would continue under the No Action Alternative. For actions that could affect cultural resources on Federal land or actions that are funded, licensed, or permitted by the Federal government, compliance is required with the NHPA and other laws, statutes, and regulations. Consideration of the effects of actions on protected cultural resources would be required, and adverse effects would be resolved. There is potential for undiscovered or unevaluated resources to be present. In the event that cultural resources are discovered in the future, NEPA, NHPA and Corps policy would guide the approach to protection and preservation of the site. The potential for discovery or the need to reevaluate methods of any previous inventories would be addressed by the Corps for future actions on a case-by-case basis.

Determination of Impacts

The Proposed Action Alternative would not create any significant impacts on cultural resources. However any proposal for future development in the Basin would need to be analyzed for potential impacts cultural resources in compliance with NEPA, NHPA, Corps policy and state and local laws and regulations.

4.1.3.7 Hazardous and Toxic Waste Materials

Thresholds of Significance

Impacts associated with the existence of hazardous and toxic materials in the Basin and surrounding region would be considered significant if the proposed action resulted in:

- Soil contamination, including flammable or toxic gases, at levels exceeding federal, State and local hazardous waste limits established by 40 CFR Part 261 and Title 22 CCR 66261.21, 66261.22, 66261.23 and 66261.24;
- Mobilization of contaminants, creating potential pathways of exposure to workers, the public or other sensitive receptors to contaminated or hazardous materials and such exposure exceeds permissible exposure levels set by the California OSHA in CCR Title B, and Federal OSHA in Title 29 CFR Part 1910;
- Exposure of the general public to hazardous situations through the transport, use, storage or disposal of hazardous materials; and/or
- Creation of a significant hazard to the public or environment through release of hazardous materials into the environment.

Potential Sources of Effect

Hazardous or toxic materials such as oils, grease, fertilizers, or pesticides may be introduced into the Basin as a result of the use of these compounds for construction, development, agricultural or vegetation management. An increase of exposure to hazardous or toxic compounds already existing within the Basin may result from spillage or leakage of containment units if they are inadvertently damaged through Basin activities.

Proposed Action Alternative

No activities are proposed under the updated Master Plan that would increase the levels of or exposure to hazardous or toxic substances in the Basin. Corps policy guides the management of, and response to, spills of oils, grease, and other compounds that may be introduced into the Basin as a result of typical maintenance procedures. Two sites have been identified that may require additional investigation regarding hazardous or toxic materials.

Special events and other activities complying with the policies in Appendices would not be anticipated to have any impact on hazardous or toxic materials. Events not covered by the policies would require an impact analysis of the event to determine if there would be significant impacts to the Basin or event attendees from hazardous and toxic materials through the above criteria.

No Action Alternative

If the updated Master Plan is not implemented, the baseline conditions regarding the use of hazardous and toxic materials and the generation, storage, and disposal of hazardous and toxic wastes in the Basin would continue as at present into the foreseeable future. Corps policy guides the management of and response to spills of oils, grease, and other compounds that may be introduced into the Basin as a result of typical maintenance procedures. No significant immitigable impacts are anticipated as a result of the No Action Plan. Two sites that have been identified may require additional investigation regarding hazardous or toxic materials if new recreation development is proposed in the future in the Basin under the No Action Plan. Sites requiring additional investigation may continue to pose threats to the human environment if they are not investigated.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts on hazardous and toxic materials through contamination or human exposure. Any proposal for future development in the Basin would need to be analyzed for potential impacts to hazardous and toxic materials in compliance with Federal laws, Corps policy and state and local laws and regulations.

4.1.3.8 Socioeconomics and Environmental Justice

Thresholds of Significance

Impact on socioeconomics and Environmental Justice would be considered significant if the following were to occur:

- Impacts to a sector of the economy, productivity, competition, prices, or jobs; impacts on the welfare of minority or low income populations;
- The impact of project induced population changes on the availability of public services;

- Impacts on the fiscal and physical ability of the local governmental agencies to meet the needs of the public following the project related changes in the local population;
- A substantial long-term decrease in local employment due to direct loss of jobs or an adverse effect on the local economy that results in an indirect long-term loss of jobs;
- A shortage of temporary housing during project construction caused by construction workers seeking local accommodations that prevents normal users from being able to obtain temporary housing in the area (temporary housing would include motels, hotels, campgrounds, RV parks, dormitories, and similar lodging);
- Disproportionately high and adverse impacts on minorities, low income residents, or children.
- A substantial population growth in an area was induced by the project; and/or
- Substantial numbers of existing housing or people were displaced.

Potential Sources of Effect

An example of a disproportionate effect on a significant population might be the use of an economically repressed neighborhood for the development of a facility that contributes significant health hazards to the surrounding community. This would unfairly place the pressure of health hazards on a portion of the population that is less readily able to handle the additional pressures.

Proposed Action Alternative

There is a significant minority population within the market area of the Basin in the city of San Fernando where 89.3% of the population is Latino. The recommended land use classification plan and update in the updated Master Plan would not alter conditions within the Basin in a way that would impact this population. On the contrary, Hansen Dam Basin will offer continued recreation opportunities to this minority population, and the remaining market area population, free of charge. Continued reevaluation of population statistics will be required to ensure ongoing environmental justice for minority populations.

Under the Proposed Action, the special events and other policies would not be anticipated to cause significant impacts to socioeconomics. Special events would be encouraged to occur in the Sports Complex under the policy; events proposing to use other areas that may affect local general recreation users would require event-specific analysis. Fees charged for admission to an event may cause a hardship to some, but to date, most events have been free or only a nominal admission fee charged. Per Corps policy, fees must be approved by the District Commander and are to be in line with similar events in the area. Special events may provide limited temporary employment depending on the event. Events not addressed under the special events policy would require an impact analysis of the event to determine if there would be a significant impact to socioeconomic and environmental justice. Such events, depending on fee structure, cost, projected income and other factors, may create impacts to be determined through impact analysis.

No Action Alternative

As with the Action Alternative, increasing population and changing demographics will require periodic reevaluation to maintain compliance with environmental justice legislation under the No Action Alternative.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to local area socioeconomics and environmental justice issues, but continued reevaluation of population statistics would be required to

ensure ongoing environmental justice for minority populations. Any proposal for future development in the Basin would need to be analyzed for potential impacts in compliance with Federal laws, Corps policy and state and local laws and regulations.

4.1.3.9 Traffic and Transportation

Thresholds of Significance

An impact would be considered significant on transportation and traffic if:

- A major roadway (arterial or collector classification) would be closed to through traffic as a result of the Proposed Action's activities and there would be no suitable alternative route available;
- The Proposed Action's activities would restrict access to or from adjacent land uses and there would be no suitable alternative access;
- An increase in vehicle trips associated with additional commuter and truck trips would result in an unacceptable reduction in level of service of local jurisdictions on roadways in the vicinity of the Proposed Action or would result in safety problems for vehicular traffic, transit operations, or trains;
- An increase in roadway wear in the vicinity of the work zone would occur as a result of heavy truck or equipment movements, resulting in noticeable deterioration of roadway surfaces;
- The Proposed Action and its location would conflict with planned transportation improvements in the area;
- Project activities or operation of the project would result in safety problems for vehicular traffic, transit operations, or trains; and/or
- An increase in vehicle trips associated with additional commuter and truck trips would result in an unacceptable reduction in the level of service standards of local jurisdictions in the project vicinity.

Potential Sources of Effect

Expanded sports amenities, new roads, or new public venues could contribute to increased traffic, decreased accessibility to the Basin or its neighboring communities, reduction in the availability of transportation modes, or a reduction in the connectivity of the multi-modal transportation network within the Basin.

Proposed Action Alternative

Under the Proposed Action alternative, the current multi-modal transportation system within the Basin would not be anticipated to change. There are no proposed modifications to or development of the pedestrian, equestrian, bicycle, mass transit, and vehicular traffic network currently in place, although the Proposed Action would encourage use of public transit and bicycling to special events and would recommend improvements in wayfinding, which could result in minor increases in pedestrian, bicycle, and/or equestrian uses if implemented. Under the Proposed Action alternative, new maps showing trails and regional transportation links would be available to the public. No development is proposed that might create obstacles or cause diversions to the existing transportation system.

No Action Alternative

If implementation of the updated Master Plan does not occur, the transportation access to the Hansen Dam Basin would remain as currently exists, subject to influences such as economic conditions in

surrounding municipalities. Within the Basin and park area, the existing roads, trails, and access points currently available would not formally change. However, continued unmanaged use of unofficial trails within the Basin could result in public safety issues, trail erosion, vegetation damage, and prohibited activities such as shooting or vandalism.

Under the No Action alternative, special events would continue to be considered on an event-specific basis without a standard set of requirements to address traffic, parking, and alternative transportation, although similar requirements for traffic to those under the proposed action would be likely to be required on an event-specific basis.

Determination of Impacts

Based on the significance thresholds, the Proposed Action would not create significant impacts to Basin and local area traffic, transportation routes, access, or parking areas. There are no adverse impacts anticipated to occur as a result of the updated Master Plan. Any proposal for development in the future would require a separate impact analysis to determine significance.

4.1.3.10 Utilities

Thresholds of Significance

The proposed project would have a significant impact on utilities if it would:

- Require a substantial modification to existing utility facilities that would have an adverse environmental impact on sensitive resources or land uses; and/or
- Create a hazardous situation that could not be mitigated

Potential Sources of Effect

Development, construction, modification, or alteration of any features within the Basin may result in the inadvertent severing or damage of utility infrastructure. These actions may also overload utility capacity, causing damage or outages. Increasing demand or overburdening of utilities as a result of increased human use of an area may also cause significant impacts.

Proposed Action Alternative

Classification of land use categories under the updated Master Plan would not lead to substantially increased use of, or potential damage to, existing utilities.

No Action Alternative

Without an updated Master Plan, utilities condition and availability will be addressed on a case-specific basis. Currently, utility needs are met for usage within the Basin, and utilities that pass through the Basin are not known to endanger the public and are not in need of modification. As a result, under the No Action Alternative, utility condition and use, and energy consumption are not anticipated to change.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to utilities as a result of the updated Master Plan. Any proposal for development in the future would require a separate impact analysis to determine significance.

4.1.3.11 Esthetics

Thresholds of Significance

The factors considered in determining impacts on esthetic resources typically include:

- Direct, permanent changes to important existing scenic characteristics of a landscape that are enjoyed by a large number of viewers;
- Impairment of or obstruction of views from public gathering places of scenic resources;
- Viewing distance and degree to which the Proposed Action would dominate the view of the observer;
- Resulting contrast of amenities related to the Proposed Action with existing visual resources; and/or
- The level of public interest in the existing landscape characteristics and concern over potential changes.

Potential Sources of Effect

Long-range views may be negatively impacted by introduction of obstructions, such as tree plantings or construction developments. Local or short-range views may be negatively impacted through natural occurrences such as wildfire, flood, storm or establishment of exotic plant species, as well as human uses such as vegetation clearing, construction, large events, or overuse that results in worn amenities or trash dumping. Replacement of open or green space with developed areas would reduce the availability of esthetic resources, while increases in lighting would diminish esthetic value with increased light pollution.

Proposed Action Alternative

Esthetic value within the Basin is anticipated to improve with the implementation of the updated Master Plan, the resulting vegetation management, and additional protections to Environmentally Sensitive lands. As exotics are eradicated and natives are planted, the area would become incrementally more attractive to both humans and wildlife.

No Action Alternative

Esthetic quality is anticipated to remain as it exists under the No Action Alternative. It is expected that current Corps and lessee policy would address esthetic concerns. However, the absence of a guidance document may limit the ability of the Corps or the lessee to effectively and efficiently protect esthetic resources.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to Basin esthetic quality. Any proposal for development in the future would require a separate impact analysis to determine significance.

4.1.3.12 Recreation

Thresholds of Significance

Impacts to recreation may be significant if the Action Alternative reduces the availability or quality of a variety of existing recreation opportunities to a broad socioeconomic spectrum of the existing market area. Impacts may include those that have an effect on high intensity or low intensity recreation, and may impact support amenities associated with the recreation areas, such as restrooms, shelters, drinking fountains, barbeques or picnic tables. Impacts on recreation and the use of recreation amenities could be considered significant if the following were to occur:

- The creation of significant disruption to access of recreation amenities or areas;
- Construction or operational activities substantially conflict with recreation uses;
- The construction of support amenities associated with the recreation areas; and/or
- Impacts to recreation support amenities as a result of the action.

Potential Sources of Effect

Measures that may reduce the availability of recreation amenities to a broad socioeconomic spectrum may include the restriction of universal accessibility at existing amenities, or the introduction of costs or fees associated with use of the facility that may restrict those without sufficient financial resources. Recreation opportunities may also be reduced through the inactivation of recreation amenities for the purpose of rejuvenation or as a result of budget constraints. The quality of amenities may be diminished if greater numbers of people begin to visit the Basin, or if a greater number of teams are permitted to utilize existing amenities.

Proposed Action Alternative

There would be no immediate change to existing recreation amenities as a result of the updated Master Plan. No new recreation amenities are currently undergoing the approval process by the Corps and no existing recreation amenities are proposed for alteration or modification (though conceptual recommendations for future development have been made). No new fees or expenses are proposed for implementation within the Basin. No additional amenities or parking areas are proposed for development, which might increase the use of the area beyond its current capacity.

Special events would be encouraged to occur in the Sports Complex area. Events occurring in that area, with fewer than 1,000 attendees, a parking plan, a traffic plan, encouragement of public transit and bicycling, noise limitations of 100 db, and that avoid restricting access to adjacent areas would not be anticipated to negatively impact recreation users. The policy would be anticipated to have minor positive impacts for recreation users because adjacent areas would remain accessible for general users and traffic and parking impacts would be minimized. The Proposed Action, with inclusion of the special events evaluation policy, would be anticipated to have a minor beneficial impact to recreation users by encouraging special events proponents to comply with the restrictions rather than undergo lengthy event-specific review. Special events and other activities not covered under the policies would require event-specific analysis. Examples could include festivals and other events which would limit access to existing amenities, prohibit use of amenities by others, or cause excessive impacts to recreation support amenities.

No Action Alternative

Under the existing Master Plan, land use classifications that are no longer applicable to the Basin lands would remain in place. In the future, development could occur based on the existing land use classification plan, which identifies a significantly larger area of Recreation (high intensity use) and MRM – Inactive and/or Future Recreation (also potentially high intensity use) than the updated Master Plan. The effectiveness of the current Master Plan as a management document would continue to be compromised by outdated information and guidelines. If the updated Master Plan is not approved, new development would need to comply with existing Corps policies as well as with the conflicting direction within the existing Master Plan.

Determination of Impacts

The Proposed Action Alternative would not create any significant impacts to Basin recreation resources. Any proposal for development in the future would require a separate impact analysis to determine significance.

4.1.3.13 Public Health and Safety

Thresholds of Significance

An alternative would have a significant adverse impact on public health and safety if it:

- Increased exposure of people or structures to flooding hazards;
- Created conditions that would present potential dangers to the public or attract the public to a potentially hazardous area (e.g., attractive nuisances);
- Created wildlife habitat in a manner and amount that resulted in a substantial increase in the potential for aircraft collisions;
- Exceeded currently limited herbicide use restrictions;
- Created mosquito breeding conditions in an amount that would require increased levels of mosquito abatement programs to maintain mosquito populations at pre project levels;
- Impact public services or emergency services;
- Resulted in substantial adverse physical impacts associated with the provision of new or physically altered public services, need for new or physically altered public services, the construction of which could cause significant environmental impacts;
- Required additional fire protection or law enforcement staff and/or equipment to maintain an acceptable level of service;
- Substantially increased emergency service response times by fire and law enforcement;
- Required substantial changes to the daily schedule or calendar of a school, a major reorganization of students or classrooms, or other temporary or permanent disturbance to the school's activities; and/or
- Created unsafe or overcrowded conditions at schools.

Potential Sources of Effect

Hazards may be introduced into the Basin in the form of hazardous or toxic waste, unpatrolled isolated or unlit areas that would facilitate increased criminal activity, a reduction in security patrols or security stations, or increased risk to flood hazards. Allowing human use in areas where natural or man-made hazards occur may compromise public safety. These areas may include those with known poisonous plants or dangerous animals, where steep or unstable slopes occur, or adjacent to water hazards or Dam

infrastructure. Public services may be compromised if fire, medical, or police vehicles or personnel are obstructed from entering the Basin as a result of closures or inaccessibility to the entire Basin area. Services may be compromised if planned events result in a larger number of service calls than the fire, medical, or police personnel are able to attend to.

Proposed Action Alternative

The approval of the updated Master Plan would not result in any increase in public health or safety hazards within the Basin. Land use classification would not result in any changes to accessibility of the Basin. Therefore, public services such as fire, medical, and police would continue to have access into and through the Basin. No new amenities are proposed that would create isolated or unlit areas, or would create other dangerous conditions for Basin visitors.

No Action Alternative

The Corps and the lessee would continue to protect the public health and safety of users and identify public services that may be impacted by activities in the Basin or may impact the Basin under the No Action Alternative. Continued use of the existing Master Plan would not result in any increase in public health or safety hazards within the Basin. Existing land use classification would not result in any changes to accessibility of the Basin. Therefore, public services such as fire, medical, and police would continue to have access into and through the Basin.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to safety and public services. Any proposal for development in the future would require a separate impact analysis to determine significance.

4.1.3.14 Sustainability

Thresholds of Significance

An alternative would have a significant adverse impact on sustainability if it resulted in:

- Economic, ecological, or social changes in the use, visitation, or management of the Basin;
- Inability of ecosystems to maintain functionality and retain current levels of abundance and biodiversity over time;
- Inability to ensure future generations have the same or greater access to social resources as the current generation; and/or
- Inability of an area to retain its value, both in terms of capital and monetary exchanges over time.

Potential Sources of Effect

Ecological diversity and abundance may be impacted through reduction in size of protected natural areas within the Basin or the reduction in quality of natural areas. Quality of natural areas may be affected by the degradation of air quality, water quality, noise levels, soil condition, and vegetation condition. Social sustainability was previously addressed in the Recreation section and the Socioeconomics and Environmental Justice section above. Economic sustainability may be negatively impacted if financial viability were compromised as a result of the proposed action plan.

Proposed Action Alternative

Designation of sizeable areas of Environmentally Sensitive, as well as MRM – Vegetative Management buffers, allows for an increase to the environmental sustainability of the land. These land use classifications allow for the protection of native vegetation communities and their associated wildlife assemblages. There are no proposed changes to the financial management of the Basin as a result of the updated Master Plan. Overall, the updated Master Plan has been prepared in large part to address sustainability of the Basin and is expected to ensure the continued sustainability of ecological, economic, and social conditions. There are no negative impacts anticipated to Basin sustainability as a result of the Action Alternative; instead, the updated Master Plan is expected to expand environmental protections and provide a review of visitation data and community needs, which will allow more informed and efficient management of the resources within the Basin for the benefit of generations to come.

Special events and other activities not covered by the polices in Appendix A could need to provide an impact analysis if the event or activity would cause a significant impact as identified above. Examples could include festivals and other events which would impact energy, economic, or environmental resource sustainability through excessive use of an area, limit access or charge unreasonable fees, or drain existing energy sources that would be irreplaceable.

No Action Alternative

The updated Master Plan provides a recommended land use plan that is based on ecological, social, and economic sustainability. Without approval of the updated Master Plan, sustainability of environmental resources, community use, and economic viability may erode. In particular, without the updated Master Plan, there would be no update to the recreation needs assessment, no current review of socioeconomics and biological resources, and no updated land management plan based on best available data. As a result, there would be significant limitations to the ability to manage the Basin to the greatest benefit of both human interests and natural protections.

Determination of Impacts

The Proposed Action Alternative would not create significant impacts to Basin energy, environmental, or economic sustainability. Any proposal for development in the future would require a separate impact analysis to comply with the Executive Order 12898 and determine significance.

Table 4.1 Assessment of Action Alternative Impacts				
Resource Area	**Immitigable Negative Impacts**	**Mitigable Negative Impacts**	**Beneficial Impacts**	**No Significant Negative Impact**
Physical Land Resources				X
Geology				X
Earthquake Faults				X
Dam Safety				X
Soils and Sediment				X
Water Resources				X
Hydrology				X
Dam Operation				X
Water Quality				X
Groundwater Quality				X
Wetlands			X	X
Air Quality				X
Noise Quality				X
Biological Resources				X
Vegetation			X	X
Fish and Wildlife			X	X
Threatened and Endangered Species			X	X
Cultural Resources				X
Hazardous and Toxic Waste Materials				X
Socioeconomics and Environmental Justice			X	X
Traffic and Transportation				X
Utilities				X
Esthetics			X	X
Recreation Resources			X	X
Public Health and Safety			X	X
Sustainability			X	X

Table 4.2 Assessment of No Action Alternative Impacts				
Resource Area	**Immitigable Negative Impacts**	**Mitigable Negative Impacts**	**Beneficial Impacts**	**No Significant Negative Impact**
Physical Land Resources				X
Geology				X
Soils and Sediment				X
Earthquake Faults				X
Dam Safety				X
Water Resources				X
Hydrology				X
Dam Operation				X
Water Quality				X
Groundwater Quality				X
Wetlands				X
Air Quality				X
Noise Quality				X
Biological Resources				X
Vegetation				X
Fish and Wildlife				X
Threatened and Endangered Species				X
Cultural Resources				X
Hazardous and Toxic Waste Materials				X
Socioeconomics and Environmental Justice				X
Traffic and Transportation				X
Utilities				X
Esthetics				X
Recreation Resources				X
Public Health and Safety				X
Sustainability				X

4.2 Cumulative Impacts

Cumulative impacts of a proposed action must be assessed according to CEQ regulations for implementing NEPA (40 CFR Parts 1500-1508). A cumulative impact is an "impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time (40 CFR § 1508.7). CEQ's guidance for considering cumulative effects states that NEPA documents "should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant" (CEQ 1997).

4.2.1 Past Actions

Hansen Dam Basin was constructed in the San Fernando Valley, an area of continually increasing urbanization that has significantly altered the natural environment. The communities surrounding the Basin have become densely urbanized over the past century, marked by extensive automobile traffic, highly developed industrial and residential areas, numerous noise sources, and dense population. The construction of the Dam and development within the Basin have also contributed to cumulative environmental impacts to the area. Following construction, ongoing operation and maintenance of the Basin and its recreation amenities has continued to impact environmental conditions. As a result, the Tujunga Washes and floodplains have become highly altered, and along with surrounding urbanization, contributed to the overall physical alteration of the San Fernando Valley.

Cumulative impacts of development within and around the Basin have adversely affected water quality and quantity, air quality, noise levels, biological resources, recreation opportunities, esthetics, and social and environmental sustainability. Dense urbanization has adversely affected the presence of culturally valuable resources, as well as the native fish, wildlife and vegetative habitats that were historically present in the Basin. Development both within and around the Basin has increased the possibility for introduction of pollutants, toxic materials, wastes, and non-native plant and animal species to the Basin. The overall quality of the natural environment at the Basin has diminished significantly since industrialization and urbanization of Los Angeles County.

The construction of Hansen Dam in 1940 necessitated clearing the land that is now the Dam embankment and spillway. In contrast to the land surrounding the Basin, which has undergone an intense urbanization process, the native plant communities and wildlife habitats have re-established and the Basin is now an increasingly rare piece of naturalized open space in a highly urbanized region. In comparison with the surrounding area, sources of noise and air pollution within the Basin have remained fewer and of lower intensity, natural habitats have matured since construction of the Dam, and within the Basin traffic is much less than the surrounding area. The Basin's esthetic value is higher due to its natural character and environmental quality that has evolved over time while urbanization outside the Basin has destroyed much of the natural environment. The Basin offers a retreat from densely urbanized surroundings and provides the community a place to enjoy nature and recreate safely.

Though the creation of the Hansen Dam Basin initially contributed to cumulative adverse impacts on the natural and human environment of the San Fernando Valley, over time, it has become a valuable community resource, with natural habitats and much needed open space. As environmental conditions around the Basin have continued to worsen, Hansen Dam Basin has begun to provide benefits that temper urbanization.

4.2.2 Present Conditions

By tailoring management of the Hansen Dam Basin to its current conditions and needs, the approval of the updated Master Plan would continue to temper some of the effects of urbanization and may improve some of them to a small degree. The updated Master Plan (Proposed Action Alternative) provides a review of current conditions within the Basin, which allows the Corps and the City to manage the Basin in a way that fosters sustainability.

4.2.3 Future Actions

The updated Master Plan is intended to provide the baseline for future, sustainable management of the Basin. Approval of the updated Master Plan would result in the reclassification of several hundred acres of land within the Basin, but would not result in the construction of additional recreation amenities, roadways, structures, or utilities, nor does it advocate unnecessary development or development of natural areas.

As the updated Master Plan does not contain recommendations for specific projects to be constructed or implemented, there are no potential future impacts to assess in combination with impacts of other ongoing or future projects in the nearby vicinity.

The proposed land use classification plan prescribes a set of land uses that is intended to protect the natural and human environments for future generations. The land use classification plan set forth in the updated Master Plan proposes a reduction in high intensity land uses (Recreation) from nearly 500 acres to 229.9 acres. MRM – Inactive and/or Future Recreation acreage has been reduced from 460 acres to 78.5 acres. Reclassification of these lands would not result in immediate changes to land management. Changing the designation of high intensity recreation (Recreation) to low density recreation (MRM – Recreation – Low Density) will not necessarily alter the current activities taking place on that land. However, into the future, the potential development on MRM – Recreation – Low Density lands will be limited to recreation activities that have the least impact on Basin resources.

Many of those previous recreation use acres within the Basin will be reallocated to classifications that protect the environment to the greatest extent possible. The total area of Environmentally Sensitive land has increased from 480 acres to 721.2 acres. Environmentally Sensitive land has the greatest use restrictions and protection of resources. Establishment of protected habitats within the Basin may not cumulatively improve the condition of biological resources of the region, as the area is small in size and fragmented from larger natural habitats. However, it will not contribute to cumulative adverse impacts to the region's biological resources.

By continuing to restrict the potential for development in the Basin, it is anticipated that the approval of the updated Master Plan would contribute to reducing the overall cumulative adverse impacts of the continually developing areas surrounding Hansen Dam Basin into the future. Retaining the area as both a relatively naturalized open space area and recreation oasis will continue to mitigate the impacts of increasing traffic, noise, air and light pollution, loss of natural habitats and open space, to minority populations that may grow within the surrounding community, and that result from crowding associated with greater infill of surrounding urban areas over time.

The proposed land use classification plan would not impact the natural resources found within the Basin into the future and may provide some improvement to those resources, both through continued enforcement of existing laws and regulations and by reducing the acreage of land that may be developed for recreation amenities. Though Master Plans are intended to be updated as often as every 5 years, this is often not possible. Instead, it is anticipated that the reclassification of lands within the Basin, and

subsequent protection and management guidance under the updated Master Plan, will continue to temper the cumulative impacts of a growing population and increasing pressure on the Basin throughout the next 25 years.

5 COORDINATION AND CONSULTATION

5.1 Project Delivery Team

The Corps' Project Delivery Team (PDT) is made up of a variety of specialists from various backgrounds and sections of the Corps. They include project manager and recreation planners from Asset Management Division, plan formulators and environmental coordinator from Planning Division, engineers from the Hydrology and Hydraulics Section and the Reservoir Regulation Section of Engineering Division. Other specialists have been consulted with as needed during the preparation of this Master Plan.

Reservoir Regulation Section The Reservoir Regulation Section was consulted in preparing the filling frequency analysis, jurisdictional waters determinations, and use of historic photos for this Master Plan.

Hydrology and Hydraulics Section Staff in the Hydrology and Hydraulics Section was consulted in preparing Master Plan Section 2.8 Hydrology and Basin Operations. Data was obtained and analysis reviewed by this staff as part of the Master Plan preparation process.

Regulatory Division A general project description identifying the Master Plan process was discussed with the north region section of the Regulatory Division of the Corps. As there is no Federal action that implements a project, no bodies of water within the study area would be impacted, and there would be no discharge of material or fill into the waters of the United States, further coordination with Regulatory Branch and coordination regarding a Section 404(b)(1) analysis is not required at this time. Should any proposed recreation or restoration projects in the future involve diversion of the Tujunga Washes or other bodies of water within the boundaries of the purview of the Hansen Dam Basin Master Plan, then further coordination and compliance with the CWA would be pursued at that time.

5.2 Agency Coordination

U.S. Fish and Wildlife Service (USFWS) 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 USFWS. Since there are no recommendations for changes or modifications in Dam or Basin operations that would modify a stream or body of water, USFWS was not consulted in preparation of this Master Plan. This DEA will be sent to the USFWS.

Los Angeles Regional Water Quality Control Board (LARWQCB) In preparing the water quality section of this DEA, the LARWQCB was consulted on impairments to water bodies within the Basin. The findings are listed in Section 3.3.4 of the DEA. A 401 Certification would not be required since a 404 permit would not be required as no dredge or fill material would be discharged into waters of the United States unless warranted under further development of future proposed development and impact analysis.

5.3 Institutional Involvement

City Coordination During the preparation of the Master Plan and DEA, the PDT met with staff from the City several times during the preparation of this Master Plan. These meeting focused on existing and proposed projects, maintenance issues, public safety issues and concerns, and use policies. Topics included park visitation records and statistics, carrying capacity of the various amenities and parks, connectivity and accessibility, maintenance issues, green waste management and sustainability measures,

and future projects and projected future needs. These discussions provided valuable information from a day-to-day management and operation perspective for the development of the updated Master Plan.

5.4 Public Involvement

Public involvement is a process by which interested parties and affected individuals, organizations, and government agencies (Federal, state, and local), are consulted and included in the decision-making process of a planning effort. In providing public service, the Federal role in water resources planning is to respond to what the public perceives as problems and opportunities and to formulate and select alternative plans that reflect public preferences. NEPA and other Federal laws and regulations mandate public involvement. Federal planning policies, Corps practices and regulations have consistently required and encouraged this practice. All this must occur, however, with the awareness that the Corps cannot relinquish its legislated decision-making responsibility.

5.4.1 Community Workshops

The purpose of public involvement is to ensure that the Corps programs are responsive to the needs and concerns of the public. The objectives of public involvement are to provide information about proposed Corps activities to the public; make the public's desires, needs, and concerns known to the decision makers; to provide for consultation with the public before decisions are reached; and to take into account the public's views in reaching decisions. Public participation was an essential element in the development of this Master Plan. Community involvement offers an opportunity for the public to voice their concerns and desires for activities permitted in the Basin and also enriches the process with local knowledge of the Basin area.

Three community workshops were held at the Lake View Terrace Recreation Center to foster collaboration among the interested parties of the Hansen Dam Basin Master Planning process. The first community workshop was held on Saturday, 21 November 2009 and a second meeting was held on Thursday, 28 January 2010. Approximately 60 people attended the first two workshops. Approximately 20 people attended the third workshop which was held on Thursday, 29 April 2010.

5.5 Mailing List

This mailing list identifies Federal, state, and local agencies, libraries and other locations where the Master Plan and DEA will be available to review. A list of interested parties, mostly attendees at one or more of the workshops has also been included that requested a copy of the draft for review.

Federal Elected Officials and Agencies	
Honorable Barbara Boxer United States Senate 312 N. Spring St. Suite 1748 Los Angeles, CA 90012	Honorable Dianne Feinstein United States Senate 11111 Santa Monica Blvd. Los Angeles, CA 90025
Honorable Brad Sherman House of Representatives 24242 Rayburn House Office Building Washington, DC 20515	Honorable Howard Berman House of Representatives 2221 Rayburn House Office Building Washington, D.C. 20515
U.S. Environmental Protection Agency Region 9, NEPA Compliance Department 75 Conference St. San Francisco, CA 94105	U.S. Council of Environmental Quality 722 Jackson Pl., Northwest Washington DC 20503
U.S. Fish and Wildlife Service 2730 Loker Ave. West Carlsbad, CA 92008	
State Elected Officials and Agencies	
California Department of Fish and Game Southern California Region 4949 View Ridge Ave. San Diego, CA 92123	Los Angeles Regional Water Quality Control Board 320 W. 4th St. Suite 200 Los Angeles, CA 90013
State Office of Planning and Research State Clearinghouse 1400 10th St. Room 222 Sacramento, CA 95814	South Coast AQMD- CEQA Section 21865 E. Copley Dr. Diamond Bar, CA 491765
County and City Elected Officials and Agencies	
Honorable Richard Alarcon City of Los Angeles Council District 7 200 N. Spring St., Room 425 Los Angeles, CA 90012	City of Los Angeles Department of Public Works Bureau of Engineering 1149 South Broadway, Suite 700 Mail Stop 490 Los Angeles California 90015-2213
City of Los Angeles Department of Recreation and Parks Planning Department 201 N. Figueroa, 4th Floor Los Angeles, CA 90012	

Public Libraries	
Burbank Central Public Library 110 North Glenoaks Blvd. Burbank, CA 91502	Buena Vista Branch 300 North Buena Vista St. Burbank, CA 91505
Northwest Branch 3323 W. Victory Blvd. Burbank, CA 91505	San Fernando Public Library 217 North Maclay Ave. San Fernando, CA 91340
Other Interested Parties	
Vikki Brink 11128 Christy Ave. Lake View Terrace, CA 91342	Alma Fuentes County of Los Angeles 900 S. Fremont Ave Alhambra, CA 91803
Kurt Hathaway 6645 Day St. Tujunga, CA 91042	John Laue 11063 Eldora Place Sunland, CA 91040

6 ENVIRONMENTAL LAWS AND COMPLIANCE

The EA fulfills the requirements of NEPA and other pertinent laws and regulations discussed below.

6.1 National Environmental Policy Act (NEPA) (42 USC 4321 et seq.)

NEPA is the nation's primary charter for protection of the environment. It establishes national environmental policy which provides a framework for Federal agencies to minimize environmental damage and requires Federal agencies to evaluate the potential 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.

This project is in compliance with the Act.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the Act during the planning and implementation process.

6.2 U.S. Fish and Wildlife Coordination Act (16 USC 661)

This Act requires Federal agencies consult with the USFWS and the fish and wildlife agencies of States where the "waters of any stream or other body of water are proposed or authorized, permitted or licensed to be impounded, diverted . . . or otherwise controlled or modified" by any agency under a Federal permit or license. Consultation is to be undertaken for the purpose of "preventing loss of and damage to wildlife resources." The intent is to give fish and wildlife conservation equal consideration with other purposes of water resources development projects.

As the proposed project does not involve impoundment, diversion, or other modification to bodies of water within the Basin with the proposed reclassification of land use, no Fish and Wildlife Coordination Act Report is required.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with this Act during the planning and implementation process.

6.3 Endangered Species Act (ESA), as amended (16 USC 1531 et seq.)

The ESA protects threatened and endangered species, and their designated critical habitat, from unauthorized take. Section 9 of the Act prohibits such take, and defines take as to harm, harass, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct. Section 7 of the ESA requires Federal agencies to ensure that any action authorized, funded or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat.

Consultation with the USFWS or National Marine Fisheries Service is required if the Federal action may affect a Federally-listed species or designated critical habitat.

Since the proposed project is limited to the reclassification of land use within the Basin only, with no project to be physically implemented, consultation was not required, and the project complies with the ESA.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the ESA during the planning and implementation process.

6.4 Migratory Bird Treaty Act (MBTA) (16 USC 715- 715s)

The MBTA prohibits the taking or harming of any migratory bird, its eggs, nests, or young without an appropriate Federal permit. Almost all native birds are covered by this Act and any bird listed in wildlife treaties between the United States and several countries, including Great Britain, Mexican States, Japan, and countries once part of the former Soviet Socialist Republics. A "migratory bird" includes the living bird, any parts of the bird, its nest, or eggs. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreation purposes and requiring harvest to be limited to levels that prevent overutilization. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take. Disturbance of the nest of a migratory bird requires a permit issued by the USFWS pursuant to Title 50 of the Code of Federal Regulations (CFR).

Since the proposed project is limited to the reclassification of land use within the Basin only, with no project to be physically implemented, the project complies with the Act.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the Act during the planning and implementation process.

6.5 Clean Water Act (CWA) (33 USC 1251 et seq.)

Section 401 of the CWA requires that every applicant for a Federal license or permit for any activity that may result in a discharge into navigable waters must obtain a State Water Quality Certification or waiver that the proposed activity will comply with state water quality standards (*i.e.*, beneficial uses, water quality objectives, and anti-degradation policy). The Los Angeles RWQCB issues section 401 Water Quality Certifications for activities within Los Angeles County.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project does not result in any discharge into navigable waters; therefore Certification is not required.

Section 402 prohibits the discharge of pollutants to "waters of the United States" from any point source unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. Section 402 requires a NPDES Permit for the discharge of storm-water from municipal separate storm sewer systems (MS4) serving urban areas with a population greater than 100,000; construction sites that disturb one acre or more; and industrial amenities. The RWQCB administers these permits with oversight provided by the SWRCB and EPA Region IX.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project does not involve discharge of pollutants into waters of the United States; therefore a Section 402 permit is not required. Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with this Act during

the planning and implementation process and may require a Storm Water Pollution Prevention Plan (SWPPP) under the NPDES under Section 402 of this Act.

Section 404 authorizes the Secretary of the Army acting through the U.S. Army Corps of Engineers to issue permits for the discharge of dredged or fill materials into the waters of the United States, including wetlands, at specified disposal sites. The selection and use of disposal sites must be in accordance with guidelines developed by the Administrator of EPA in conjunction with the Secretary of the Army and published in 40 CFR Part 230 (knows as the 404(b)(1) guidelines). Under the Section 404(b)(1) guidelines., the Corps shall examine practicable alternatives to the proposed discharge and permit only the Least Environmentally Damaging Practicable Alternative (LEDPA).

For Corps actions, the Corps does not issue permits, but demonstrates compliance, or "equivalency," with Section 404 through a Section 404(b)(1) analysis. In addition, the requirements and conditions of nationwide permits and regional permits may be applied for Corps actions and thus considered when addressing compliance with Section 404. All other entities must obtain a Section 404 permit from the Corps before undertaking any discharge of dredged or fill materials into waters of the United States, unless determined to be exempt from regulation.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project does not involve discharge of dredged or fill material in waters of the US; therefore a 404(b)(1) analysis is not required.

6.6 Clean Air Act of 1970 (42 USC 7401 et seq.)

Section 118 of this Act states that any Federal action that may result in discharge of air pollutants must comply with Federal, state, interstate and local requirements respecting control and abatement of air pollution. Section 176(c) of the Act requires that Federal actions conform to an implementation plan after it has been approved or promulgated under Section 110 of the Act.

The potential air quality impacts of the proposed project have been examined and compared to the significant levels identified by the SCAQMD, which is the agency with jurisdiction to enforce Clean Air Act regulations and other relevant local air quality regulations. The SCAQB sets the threshold limits which, if exceeded, trigger New Source Review Rules, as defined in the Act.

Based on the air quality analysis described in Appendix D, Sections 3.4.1 through 3.4.3 and 4.2.1.3, a conformity determination for a specific pollutant is not required because for each criteria pollutant or precursor the total of direct and indirect emissions of the criteria pollutant or precursor in the nonattainment area caused by the Federal action would not equal or exceed any of the rates in 40 CFR 93.153(b)(1) or (2). As a result, the proposed project conforms to the Federal Clean Air Act, as amended.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the Act during the planning and implementation process.

6.7 Noise Control Act of 1972, as amended (42 USC 4901 et seq.)

Noise generated by any activity, which may affect human health or welfare on Federal, state, county, local, or private lands, must comply with noise limits specified in the Noise Control Act.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project will not have any direct impacts to noise levels in the area. Noise will continue to be regulated with Federal, state, and local laws and ordinances.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the Act during the planning and implementation process.
The project is in compliance with the Act.

6.8 National Historic Preservation Act (NHPA) (16 USC 460b, 470l-470n)

Section 106 of the NHPA requires any Federal agency to take responsibility for the impact of the decisions on historic resources. Under Section 106, Federal agencies are prohibited from approving any federal "undertaking" (including the issuance of any license, permit, or approval), without 1) taking into account the effects of the undertaking on the historic properties, and 2) affording the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking. The NHPA forces an agency to stop and consider the consequences of its undertakings on any historic property, and assures that the agency does so by requiring it to receive comment from the ACHP, or agencies acting in its stead, and from the public before proceeding with any such undertaking. In order to comply with the NHPA, a Federal agency considering an undertaking must go through the process outlined in the ACHP's regulations at 36 C.F.R. Part 800.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project will have no effect on historic properties. As such, the proposed project is in compliance with Section 106 of the Act and its implementing regulations (36 CFR part 800).

If any cultural resources are discovered in the future during study of proposed additional recreation amenities, they will need to be evaluated for their eligibility for inclusion in the NRHP pursuant to 36 CFR 800.13(b).

6.9 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (42 USC 9601 et seq.)

CERCLA regulates the release or substantial threat of release into the environment of any pollutant or contaminant which may present an imminent and substantial danger to the public health or welfare.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project will not result in any impacts resulting from any pollutants or contaminants.

If during the planning process of future proposed recreation development in the Basin additional sites were discovered, compliance with the Act would be required.

6.10 Executive Order (EO) 11514, Protection and Enhancement of Environmental Quality, amended by Executive Order 11991, Relating to Protection and Enhancement of Environmental Quality

This EO 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. These

regulations include procedures for early EIS preparation and require impact statements to be concise, clear, and supported by evidence that agencies have made the necessary analyses.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process. This Draft Environmental Assessment has been prepared as part of this Master Plan. Therefore, the proposed project is in compliance with the mandates of this EO.

6.11 Executive Order 11988, Floodplain Management

In accordance with this EO, the Corps shall take action to "…avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

This EO requires that Federal Agencies take action to manage the risk and/or impacts of floods on human safety, health, and welfare; and restore and preserve natural and beneficial values served by the floodplains. Each agency also has the responsibility to evaluate potential effects of Federal actions that may be made within floodplains.

Compliance with this EO requires proper implementation of engineering regulations (ER) 1165-2-26, which states that 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.

Since the proposed project is limited to the reclassification of land use within the Basin with no project to be physically implemented, the proposed project will not result in further inducing development in the base floodplain.

There is no practicable alternative to undertaking the proposed Action Alternative within the floodplain, as the project area is already established within the floodplain. The Action Alternative recommends a land use classification plan for the Basin only, and does not include provisions for any physical development, alteration, or modification of the existing conditions. Therefore, the Action Alternative must occur within land that is already within the floodplain, and there are no practicable alternatives. The proposed project is in compliance with ER 1165-2-26 for implementing EO 11988.

If actions are proposed in the future that would result in changes to the Basin, a separate review for compliance with this EO would be undertaken.

6.12 Executive Order 11990, Protection of Wetlands

Federal agencies shall take action to minimize the 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. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors. Each agency shall also provide opportunity for early public review of any plans or proposals for new construction in wetlands.

The proposed project would not impact any wetlands within the Basin. The proposed project is in compliance with this EO.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process if the proposal would impact existing wetlands.

6.13 Executive Order 12088, Federal Compliance with Pollution Control Standards

Federal Agencies are responsible for ensuring 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.

The action does not negatively affect the natural and beneficial values of the Basin as the reclassification of land use would conserve and protect existing natural areas from further development. The proposed project is in compliance with the EO.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process.

6.14 Executive Order 12898, Environmental Justice Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898 is intended to direct each Federal agency "to make achieving environmental justice part of its mission by identifying and addressing... disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low income populations in the [U.S.]..."

No minority or low income communities would be disproportionately affected by implementation of the Proposed Action. The Proposed Action is in compliance with the EO.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process.

6.15 Executive Order 13112, Invasive Species

Federal agencies are to expand and coordinate efforts to prevent the introduction and spread of invasive plant species and to minimize the economic, ecological, and human health impacts that invasive species may cause.

Although the invasive species *Arundo donax* is growing in patches within the Basin, maintenance of the Basin is the responsibility of the local sponsor under the terms of the lease. Eradication/maintenance of invasive species and the future replacement of non-native ornamental trees and other plant material as recommended in the updated Master Plan and per additional Corps guidance, the intent of the EO is met.

Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process.

6.16 Executive Order 13148, Greening the Government through Leadership in Environmental Management

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.

The Master Plan in Section 5, Resource Objectives, discusses ways to improve environmental stewardship and management of the Basin. The proposed project is in compliance with the EO. Any recreation and/or restoration projects that may be proposed in the future for development would need to comply with the EO during the planning and implementation process.

6.17 Executive Order 13195, Trails for America in the 21st Century

This EO states 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 types throughout the United States.

The approval of the updated Master Plan will not result in the development of trails or the reduction in quality or quantity of existing trails. An analysis of existing trails has been provided in the updated Master Plan, which will serve to inform the promotion of trail building and connection in the future. The Master Plan and DEA are in compliance with this EO.

7 REFERENCES

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APPENDIX D1:
VEGETATION

A list of plant species identified during the vegetation survey site visit is provided below. This list is not exhaustive, although, it captures all dominant plant species and associated habitat types. Also included is the canopy level and% of canopy cover each plant species comprises within each habitat type.

Common Name	Scientific Name	Canopy Level	% of Canopy
Salix exigua Shrubland Alliance			
Red willow	*Salix laevigata*	Upper	25
Castor bean	*Ricinus communis*	Middle	20
Narrowleaf cattail	*Typha angustifolia*	Middle	20
Arroyo willow	*Salix lasiolepis*	Middle	15
Fremont cottonwood	*Populus fremontii*	Upper	15
Giant cane	*Arundo donax*	Middle	15
Mulefat	*Baccharis salicifolia*	Middle	15
Sandbar willow	*Salix exigua*	Middle	15
Tobacco tree	*Nicotiana glauca*	Middle	15
Telegraph weed	*Heterotheca grandiflora*	Lower	10
Cocklebur	*Xanthium strumarium*	Lower	5
Hoary nettle	*Urtica dioica*	Middle	5
Southern California black walnut	*Juglans californica*	Middle	5
Fennel	*Foeniculum vulgare*	Middle	2
Giant wildrye	*Elymus condensatus*	Middle	2
Poison hemlock	*Conium maculatum*	Lower	2
Stinging nettle	*Urtica dioica*	Lower	2
Umbrella sedge	*Fuirena* sp.	Lower	2
White nightshade	*Solanum douglasii*	Lower	2
Artemisia californica Shrubland Alliance			
California buckwheat	*Eriogonum fasciculatum*	Middle	10
California sagebrush	*Artemisia californica*	Middle	10
Coyote brush	*Baccharis pilularis*	Upper	10
Laurel sumac	*Malosma laurina*	Upper	10
White sage	*Artemisia ludoviciana*	Middle	10
Black mustard	*Brassica nigra*	Upper	5
Black sage	*Salvia mellifera*	Middle	5
California yerba santa	*Eriodictyon californicum*	Middle	5
Coastal prickly pear cactus	*Opuntia littoralis*	Middle	5
Valley cholla	*Cylindropuntia californica*	Middle	5
Perennial pepperwood	*Lepidium latifolium*	Middle	2
Poison oak	*Toxicodendron diversilobum*	Middle	2
Scalebroom	*Lepidospartum squamatum*	Middle	2

Common Name	Scientific Name	Canopy Level	% of Canopy
Spearscale	*Atriplex triangularis*	Middle	2
Salvia mellifera Shrubland Alliance			
Black sage	*Salvia mellifera*	Middle	30
California sagebrush	*Artemisia californica*	Middle	20
California buckwheat	*Eriogonum fasciculatum*	Middle	15
Laurel sumac	*Malosma laurina*	Upper	15
California brittlebush	*Encelia californica*	Middle	10
Chaparral yucca	*Yucca whipplei*	Middle	10
Telegraph weed	*Heterotheca grandiflora*	Middle	10
White sage	*Artemisia ludoviciana*	Middle	5
Chaparral yucca	*Yucca whipplei*	Middle	2
Coast live oak	*Quercus agrifolia*	Upper	2
Laurel sumac	*Malosma laurina*	Upper	2
Lepidospartum squamatum Shrubland Alliance			
Brittlebush	*Encelia farinose*	Middle	10
California sagebrush	*Artemisia californica*	Middle	10
Mulefat	*Baccharis salicifolia*	Middle	10
Scalebroom	*Lepidospartum squamatum*	Middle	10
California buckwheat	*Eriogonum fasciculatum*	Middle	5
California yerba santa	*Eriodictyon californicum*	Middle	5
Chaparral yucca	*Yucca whipplei*	Middle	5
Coastal prickly pear cactus	*Opuntia littoralis*	Middle	5
Deer weed	*Lotus scoparius*	Lower	5
Fremont cottonwood	*Populus fremontii*	Upper	5
Laurel sumac	*Malosma laurina*	Middle	5
Lemonade berry	*Rhus integrifolia*	Upper	5
Poison oak	*Toxicodendron diversilobum*	Middle	5
Western sycamore	*Platanus racemosa*	Upper	5
Ornamental Tree/ Maintained Lawn			
Chinese elm	*Ulmus parvifolia*	Upper	15
Common ice plant	*Mesembryanthemum crystallinum*	Lower	15
Common olive	*Olea europaea*	Upper	15
Eucalyptus	*Eucalyptus* sp.	Upper	15
Palms	*Washingtonia* sp.	Upper	15
Peruvian pepper tree	*Schinus molle*	Upper	15
Sweetgum	*Liquidambar styraciflua*	Upper	15
Toyon	*Heteromeles arbutifolia*	Middle	15
Western sycamore	*Platanus racemosa*	Upper	15
Arborvitae	*Thuja occidentalis*	Upper	10
Brazilian pepper tree	*Schinus terebinthifolius*	Upper	10

Common Name	Scientific Name	Canopy Level	% of Canopy
Canary Island pine	*Pinus canariensis*	Upper	10
Castor bean	*Ricinus communis*	Middle	10
English ivy	*Hedera helix*	Lower	10
Indian fig	*Opuntia ficus-indica*	Middle	10
Kapok	*Ceiba pentandra*	Upper	10
Liquid amber	*Liquidambar styraciflua*	Upper	10
Magnolia	*Magnolia* sp.	Upper	10
Oleander	*Nerium oleander*	Middle	10
Siberian elm	*Ulmus pumila*	Upper	10
White alder	*Alnus rhombifolia*	Upper	10
Yellow popular	*Liriodendron tulipifera*	Upper	10
Black locus	*Robinia pseudoacacia*	Upper	5
Deodar cedar	*Cedrus deodara*	Upper	5
English holly	*Ilex aquifolium*	Middle	5
Laurel sumac	*Malosma laurina*	Middle	5
Pampas grass	*Ulmus pumila*	Middle	5
Red oak	*Quercus rubra*	Upper	5
Weeping willow	*Salix babylonica*	Upper	5
Canyon live oak	*Quercus chrysolepis*	Upper	2
Chinese tree of heaven	*Ailanthus altissima*	Upper	2
Coast live oak	*Quercus agrifolia*	Upper	2
Juniper	*Juniperus* sp.	Middle	2
Mexican palo verde	*Parkinsonia aculeata*	Upper	2
Papaya	*Carica papaya*	Middle	2
Paper bark birch	*Betula Papyrifera*	Upper	2
Disturbed Upland			
Castor bean	*Ricinus communis*	Upper	15
Prickly Russian thistle	*Salsola tragus*	Middle	15
Telegraph weed	*Heterotheca grandiflora*	Middle	15
Tobacco tree	*Nicotiana glauca*	Upper	15
Giant wildrye	*Elymus condensatus*	Upper	10
White nightshade	*Solanum douglasii*	Lower	10
Cocklebur	*Xanthium strumarium*	Middle	5
Indian fig	*Opuntia ficus-indica*	Middle	5
Poison hemlock	*Conium maculatum*	Middle	5
Southern California black walnut	*Juglans californica*	Upper	5
Toyon	*Heteromeles arbutifolia*	Upper	5
California buckwheat	*Eriogonum fasciculatum*	Middle	2
California sagebrush	*Artemisia californica*	Middle	2
Perennial pepperwood	*Lepidium latifolium*	Middle	2

Common Name	Scientific Name	Canopy Level	% of Canopy
Sacred thorn-apple	*Datura wrightii*	Lower	2
White sage	*Artemisia ludoviciana*	Middle	2
Ruderal			
Prickly Russian thistle	*Salsola tragus*	Lower	15
Sacred thorn-apple	*Datura wrightii*	Lower	2

APPENDIX D2:
WILDLIFE

A list of wildlife species documented during the field survey site visit is provided below. This list is not exhaustive; although it captures most common species in the project area. Also included is the habitat type in which each species was documented.

Common Name	Scientific Name	Habitat
Birds		
Acorn woodpecker	*Melanerpes formicivorus*	Upland
American avocet	*Recurvirostra americana*	Riparian/wetland
American coot	*Fulica americana*	Open water
American kestrel	*Falco sparverius*	Upland
American robin	*Turdus migratorius*	Upland
American wigeon	*Anas americana*	Open water
Anna's hummingbird	*Calypte anna*	Upland
Black phoebe	*Sayornis nigricans*	Riparian/wetland
Black-necked stilt	*Himantopus mexicanus*	Riparian/wetland
Brewer's blackbird	*Euphagus cyanocephalus*	Upland
Bushtit	*Psaltriparus minimus*	Upland
California towhee	*Pipilo crissalis*	Upland
Canada goose	*Branta canadensis*	Open water
Cattle egret	*Bubulcus ibis*	Riparian/wetland
Chestnut-backed chickadee	*Poecile rufescens*	Upland
Common raven	*Corvus corax*	Upland
Dark-eyed junco	*Junco hyemalis*	Upland
Double-crested cormorant	*Phalacrocorax auritus*	Open water
European starling	*Sturnus vulgaris*	Upland
Golden-crowned kinglet	*Regulus satrapa*	Upland
Great egret	*Ardea alba*	Riparian/wetland
Hairy woodpecker	*Picoides villosus*	Upland
Hermit thrush	*Catharus guttatus*	Upland
House finch	*Carpodacus mexicanus*	Upland
Mallard	*Anas platyrhynchos*	Open water
Marbled godwit	*Limosa fedoa*	Riparian/wetland
Marsh wren	*Cistothorus palustris*	Wetland
Mourning dove	*Zenaida macroura*	Upland
Northern flicker	*Colaptes auratus*	Upland
Pied-billed grebe	*Podilymbus podiceps*	Open water
Red-tailed hawk	*Buteo jamaicensis*	Riparian
Ruddy duck	*Oxyura jamaicensis*	Open water
Rufous hummingbird	*Selasphorus rufus*	Upland
Say's phoebe	*Sayornis saya*	Riparian/wetland
Sharp-shinned hawk	*Accipiter striatus*	Upland
Song sparrow	*Melospiza melodia*	Upland
Spotted towhee	*Pipilo maculatus*	Upland
Tree sparrow	*Spizella arborea*	Upland

Common Name	Scientific Name	Habitat
Turkey vulture	*Cathartes aura*	Upland
Vaux swift	*Chaetura vauxi*	Upland
Western kingbird	*Tyrannus verticalis*	Upland
White pelican	*Pelecanus erythrorhynchos*	Open water
White-crowned sparrow	*Zonotrichia leucophrys*	Upland
Willow flycatcher	*Empidonax traillii*	Riparian/wetland
Yellow warbler	*Dendroica petechia*	Upland
Yellow-rumped warbler	*Dendroica coronata*	Upland
Mammals		
Audubon's cottontail	*Sylvilagus audubonii*	Upland
Bobcat	*Lynx rufus*	Upland
California ground squirrel	*Spermophilus beecheyi*	Upland
Coyote	*Canis latrans*	Upland
Mountain lion	*Puma concolor*	Upland
Mule Deer	*Odocoileus Hemionus*	Upland
Raccoon	*Procyon lotor*	Wetland
Striped skunk	*Mephitis mephitis*	Wetland

APPENDIX D3:
ADAPTIVE HABITAT MANAGEMENT PLAN

The following Adaptive Habitat Management Plan (AHMP) is designed for use within the associated Hansen Dam Basin Master Plan and Draft Environmental Assessment (DEA) and is based on the U.S. Department of the Interior's Technical Guide for Adaptive Management (Williams *et al.* 2009).

This model should be applied to actions taken to preserve, protect, enhance, or restore biological resources. Its purpose is to ensure that, over time, management strategies continue to best meet resource objectives. Adaptive management requires a distinctly defined process of identifying resource objectives while remaining flexible in management strategies in order to best achieve those objectives. This AHMP should provide a means to more effective decisions and enhanced benefits.

The key to adaptive management is the awareness of uncertainty about management decisions and impacts due largely from the variability of ecological processes. Continued monitoring, and the adaptive application of information gained through such monitoring, is essential in fostering improvements to management policies.

An AHMP should be used only in certain cases. It is appropriate to use a management plan only when 1) projects have a goal, or set of goals, that can be specifically identified, 2) achievement of goals can be empirically measured, 3) there is the opportunity and intention to collect empirical data and learn from that data, and 4) stakeholders can modify their management strategies based on the empirical data. Each of these components must be attainable to utilize an AHMP effectively.

Resource objectives are described in general for management of the Basin in Section 5 of the Master Plan. These objectives will guide future biological and resource use management decisions. As specific management actions are proposed for improving biological resources, it will be necessary to apply the AHMP model to those plans.

Step 1: Stakeholder Involvement
Who decides how to manage the project area?

The stakeholders for any proposed action are people who must act as decision makers. The first step in this process is to identify the stakeholders and encourage their participation in the project. Stakeholders must be clearly apprised of the adaptive management process, must strive for agreement in all phases of the process, must commit to the timeframes agreed upon, and must commit resources for achieving AHMP goals. Stakeholders may include Federal or local governmental agencies or organizations tasked with managing the project area, property owners, non-profit or local interest groups, community members, or any group with a vested interest in the project or project area.

U.S. Army Corps of Engineers (Corps) Completed in 1940, Hansen Dam is operated to provide flood risk management along Tujunga Wash. The control and regulation of flood runoff into and through Hansen Dam is governed by the Basin's water control manual (Corps 1990). In addition to the flood risk management operations detailed in the water control plan, the manual provides extensive background information on the history, watershed characteristics, hydrologic data collection systems, hydrologic forecasting, agency responsibilities and coordination for water control management. The water control manual as well as current meteorological and hydrologic conditions at the Dam can be found on the Corps Reservoir Regulation website (Corps 1990). In addition, the Corps has responsibilities and authorities granted under the Federal Water Pollution Control Act, Section 404 (33 USC §1251 as amended; commonly referred to as the Clean Water Act or CWA). Thus, as the land owner and responsible agency

for the primary flood risk management functions of the Basin, the Corps is the principal stakeholder in any present or future actions within the Basin and its appurtenant works.

City of Los Angeles (City) The Corps grants a lease of 1,355.4 acres to the City of Los Angeles, which extends to January of 2044. The City has been granted permission to develop, operate, and maintain recreation amenities within the Basin, pursuant to Corps policy.

U.S. Fish and Wildlife Service (USFWS) The USFWS is the Federal agency whose mission is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the nation and its citizens. Their major responsibilities and missions include: migratory birds, endangered species, freshwater and anadromous fish, the National Wildlife Refuge System, protection of wetlands, protection of natural habitats, conservation of coastal areas, and environmental contaminants that threaten fish and wildlife and/or their habitats. The Endangered Species Act (16 USC §1531-1544 as amended; ESA) emphasizes early coordination/consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project related losses of listed species and their habitats. The consultation process thus renders the USFWS as a principal and compulsory stakeholder in any action or AHMP decision where the natural resources of the Basin are either positively or negatively affected.

U.S. Environmental Protection Agency (USEPA) In addition to the Corps' CWA responsibilities, the USEPA also retains and establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. In general, the objective CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters by preventing point and nonpoint pollution sources, providing assistance to publicly owned treatment works for the improvement of wastewater treatment, and maintaining the integrity of wetlands. Since the Hansen Dam Basin is a flood risk management facility designed to store flood waters, it has the potential to impact water quality and aquatic habitats. As a result, the USEPA should be considered a significant stakeholder for certain actions.

California Department of Fish and Game (CDFG) The CDFG maintains and conserves native fish, wildlife, plant, and natural communities for their intrinsic and ecological value and their benefits to the citizens of California and the nation. This includes habitat protection and maintenance in a sufficient amount and quality to ensure the survival of all species and natural communities. The department is also responsible for the diversified use of fish and wildlife including recreation, commercial, scientific, and educational uses. The California Endangered Species Act (CESA) states that all native species of fishes, amphibians, reptiles, birds, mammals, invertebrates, and plants, and their habitats, threatened with extinction and those experiencing a significant decline which, if not halted, would lead to a threatened or endangered designation, will be protected or preserved. CDFG will work with all interested persons, agencies, and organizations to protect and preserve such sensitive resources and their habitats. Similar to the Federal ESA process, the State of California also encourages early consultations to minimize impacts to State of California listed species and the formulation of mitigation measures for legal project actions. CDFG is therefore an important stakeholder in any action or AHMP decision process affecting the natural resources of the Basin.

California Regional Water Quality Control Board (CRWQCB) The CRWQCB regulate wastewater discharges to both surface water (rivers, ocean, etc.) and to groundwater. The CRWQCB also regulates storm water discharges from construction, industrial, and municipal activities; discharges from irrigated agriculture; dredge and fill activities; the alteration of any federal water body under the CWA Section 401 certification program; and several other activities with practices that could degrade water quality. Equivalent with the Corps' CWA, Section 404 responsibility, the CRWQCB is a significant stakeholder

in actions within the Basin (or in waters downstream of the Basin) that has the potential to affect water quality and ecosystem functions.

Los Angeles Regional Water Quality Control Board (LARWQCB) The LARWQCB regulates wastewater discharges to both surface water (rivers, ocean, etc.) and to groundwater. The LARWQCB also regulates storm water discharges from construction, industrial and municipal activities, discharges from irrigated agriculture, dredge and fill activities, the alteration of any federal water body under the CWA Section 401 certification program, and several other activities with practices that could degrade water quality. Tantamount with the Corps' CWA, Section 404 responsibility, the LARWQCB is a significant stakeholder in actions within the Basin (or in waters downstream of the Basin) that has the potential to affect water quality and ecosystem functions.

Local Communities Communities within the market area and Basin visitors may contribute, as necessary or appropriate. Involving the public allows for a greater evaluation of the issues and needs of the community and provides monitoring projects with potential volunteers.

Step 2: Objectives
What are the goals of the project?

It is essential to agree upon clear and measurable management objectives, which play a crucial role in evaluating performance, reducing uncertainty, and improving management decisions over time. Objectives should be specific and unambiguous, measurable through on-site data collection, achievable under the current environmental and socioeconomic conditions, and should specify desired results and the timeframe for these results. Examples of measurable objectives include improving nesting habitat for a targeted species, improving physical or chemical water quality, increasing native flora and fauna, or reducing non-native invasive species.

The goal of the project, strictly in terms of wildlife, habitat conservation, and the AHMP, is defined as follows in the Master Plan, *"Manage land in the Basin to optimize wildlife habitat and native vegetation."* This management objective can be further defined to:

- Protect, preserve, and restore wildlife habitat and native plant communities appropriate to the Basin.
- Manage resources within the Basin in a manner that would preserve or improve the quality of wildlife habitat and create coherent plant communities.
- Always use appropriate native plant palettes in new landscaping or when rehabilitating or replacing older established landscaped areas.
- Replace non-native vegetation with native species when existing non-native vegetation dies.
- Respect the public's attachment to landscapes of an exotic nature if they are long established or have cultural meaning. Also, recognize that these exotic landscapes may provide certain benefits to wildlife.
- The following is a brief discussion of certain elements that may influence how the goal(s) are achieved.

Environmental Quality and Character Congress has indicated that the protection and enrichment of environmental quality is clearly in the public interest and, in concert with other environmental legislation, is a compulsory part of the Federal decision making process. Environmental quality and character is an inclusive term that refers to the integrity and value of a number of resources which comprise an environment including ecological, esthetic and cultural resources. In other words, the environmental quality and character of the Basin is an applied tenant that factors in many aspects and relates to existing

conditions as well as future actions; it attempts to satisfy, to the greatest extent possible, both human reverences and wildlife uses of the environment. Environmental quality and character include management objectives that:

- Prioritize those uses, activities and developments which conserve natural and cultural resources.
- Preserve areas containing unique, sensitive and/or significant resources so that they will not be disturbed and their inherent integrity and values will not be adversely impacted by other uses, management practices, or developments within the Basin.
- Require management practices for on-going uses, activities and developments that avoid significant adverse impacts to the Basin' natural and cultural resources and the overall environmental quality and character of the Basin.
- Design siting, and operation of amenities and activities to avoid or minimize adverse environmental effects.
- Locate those activities which would have significant adverse impacts on the Basin's unique or important natural and cultural resources in areas where such impacts would be avoided or minimized to a level of insignificance.
- Conserve and protect those resources which cumulatively contribute to the Basin's overall environmental quality and character.
- Mitigate adverse environmental effects to the fullest extent practicable.

Connectivity Connectivity, in the context of wildlife conservation and habitat, defines the ability for effective movement of wildlife within and between spatially or functionally discrete areas. Man-made features often disrupt this movement and can adversely impact foraging, breeding, gene-flow, and overall persistence of a given species within the landscape. Vegetation can also suffer adverse impacts from a lack of connectivity when they depend on animal seed dispersal. It is therefore important to consider both local and regional vegetation and wildlife habitat patterns in order to minimize impacts of human encroachment while maximizing habitat use for the greatest number of species possible. Wildlife corridors, both aquatic and terrestrial, are an important characteristic of landscape-level ecology and environmental sustainability.

Within the context of recreation, connectivity describes a certain efficiency in trails and developed structures such as parking lots, picnic and camping areas, restrooms, and other public gathering areas. Efficient use, operation, and maintenance often depend on the connectivity of these types of amenities. Public safety and handicapped access is also an important aspect of connectivity.

It is important to consider both definitions of connectivity in environmental stewardship, but this is often a difficult goal to fully achieve and often oppose each other. Nonetheless, an awareness and diligence of all types of connectivity should be maintained during the design of all recreation amenities and the designation of natural habitat areas in order to maximize connectivity for both recreation and habitat purposes. The following are some management objectives to consider in future actions:

- Identify and connect with regional trail systems and eliminate impediments to trail connections within the Basin.
- Create trails that loop back upon themselves rather than be one-directional.
- Ensure that Basin-contained trail systems interconnect with trail systems outside the Basin.
- Create adequate signage to minimize unnecessary trips within the Basin.
- Provide safe and efficient circulation and access to the Basin's recreation amenities in order to both control traffic and provide a linkage between the various activities within the Basin.
- Protect and restore waterways such as creeks and streams to allow for safe corridors for wildlife movement.

- Identify natural opportunities/pathways for terrestrial wildlife movements; these may be evident through animal tracks or signs of foraging.

Community Involvement The public is an important contributor in land stewardship. If the community has a strong sense of ownership and pride in the Basin, issues such as littering and vandalism may be significantly reduced or even eliminated. In order to foster the public's sense of ownership, their inclusion in the decision making processes is essential. The public is often the best emissary in conveying the Corps mission of environmental stewardship, identifying and protecting resources of the site, and educating the public about those resources. The following are some management objectives and benefits that community involvement can bring about:

- Promote a spirit of personal responsibility and stewardship of public lands.
- Develop public appreciation for appropriate and safe use of resources.
- Promote volunteer programs for purposes of education and interpretation, clean-up, and restoration activities.
- Maintain communication channels among Basin users and the Corps for the reporting of issues or suggestions for improvements to the Basin.

Global Climate Change (GCC) GCC is an increasing problem that threatens the integrity and quality of all natural resources and ecosystems. Predictions vary and uncertainty around these predictions are considerable, but there is little doubt that GCC will impact virtually all aspects of society and a certain degree of GCC in now inevitable. It is therefore important that management decisions be mindful of the trajectory and consequences of GCC and implement as many mitigating measures as possible.

One of the more immediate impacts of GCC is the effects on water resources. The western United States is expected to witness moderate to severe drought conditions within the next 30-50 years, but this overall pattern may be punctuated by episodes of acute precipitation events as the ocean-atmosphere energy flux seeks a new equilibrium state. This places a new emphasis on flood control and the effectiveness of flood control amenities. The myriad effects of GCC also include an increase in water demand, changes in water quality, the expansion and increase of fire season intensity, and energy demand. In terms of natural resources and ecosystem responses, the affects of GCC are overwhelmingly chaotic and poorly understood; however, actions taken in the present can influence the sustainability through the difficult times ahead.

Some management objectives to be considered here are:

- Prioritize land uses and activities that do not contribute to GCC.
- Support Corps regulators on dealing with GCC in permitting decisions.
- Use adaptive management to respond to changing conditions on site that may result from GCC.
- Use the on-going development of methods and policies to deal with hydrologic frequency analysis under changing conditions.
- Evaluate the impacts of GCC on the Basin's ecosystems and the potential effects on Corps infrastructure and ecosystem restoration projects.
- Change native landscaping as needed to adapt to changed on-site conditions resulting from GCC.
- Where in harmony with the native landscape, maintain or expand the existing tree canopy.
- Build on the baseline carbon budget for Corps projects to guide subsequent policy and project operation and maintenance.
- Prioritize and promote the use of zero-emission transportation such as walking or bicycling within the Basin.

- Locate activities and developments that have an adverse impact on the environment in similar areas near vehicular access points to minimize overall impact.
- Create circulation and traffic plans that encourage the use of public transportation to and within the Basin.
- Promote the use or generation of renewable energy within the Basin.
- Require all new buildings achieve a LEED® Silver (U.S. Green Building Council) or higher rating.

Energy Energy conservation is a key component of sustainability and in reducing the carbon footprint of activities within the Basin. Energy saving measures should be encouraged and new development constructed in accordance with green building principles. Management objectives to consider here can often be applied in concert with objectives for GCC and include:

- Maximize energy conservation and apply/promote renewable energy alternatives.
- Minimize the use of non-renewable energy through energy efficient land use planning and construction techniques.
- Provide for the development of energy resources that promote national economic development.
- Require that all new development be consistent with green building principles.

Economic The primary function of the Dam is to minimize flood damage and the loss of life. The economic value of each Dam and Basin is the cost of property damage that has been avoided through the dam's operation. The Basin plays an even larger economic role. The recreation amenities at the Basin often generate user fees that help defray recreation operating costs. Recreation activities also contribute to the larger local economy through purchases of food, gas, lodging, and specialized recreation equipment by outside visitors. The Basin is not only an integrated feature in the landscape, but an important aspect to the local economy; however, economic benefits from the Basin must be weighed against many of the previous objectives to ensure that the ecological and esthetic merits remain uncompromised. Some management objectives here include:

- Minimize economic impacts to life and property by responding quickly to flood conditions.
- Ensure the long-term integrity of the Basin through inspections and maintenance.
- Encourage activities on site including various forms of recreation that contribute to the local economy while not impacting the ecosystem or flood control functions.
- Allow activities on Corps lands that help defray recreation amenities operation and maintenance costs.

Low Density Recreation Activities such as walking, hiking, bicycling, horse-back riding, picnicking, primitive camping, wildlife observation, and fishing provide enjoyable activities that are of less impact to the natural resources of the Basin and may create a higher level of interaction with nature than other more intrusive types of recreation. These activities lend themselves to small groups interacting together such as families with children or school groups. Activities such as these are generally dispersed throughout the Basin through the use of trails and can foster an intimate awareness and personal ownership of the Basin and its intrinsic value to the community. Again, recreation of any kind, including low density recreation, must be considered collectively with other resource objectives (*e.g.* connectivity and the separation of high-value ecosystems) as well as cumulative effects of all recreation activities within the Basin. Some low density recreation management objectives to consider are:

- Through the planning process, design low density recreation to minimize impacts to the natural environment and minimize conflicts between activities in the Basin.

- Promote a system of trails and networks that encourage use in and around the Basin while keeping such areas separate from ecologically sensitive areas.
- Provide low-density recreation opportunities that are available to a broad socio-economic cross-section of the region's population without discrimination based on age, race, religion, gender preference, or physical capabilities.
- Promote low-density recreation that brings people together seamlessly without regard to physical abilities.
- Design amenities such as picnic areas, campsites, and interpretive displays that take advantage of unique views or landmarks and lead to a greater appreciation of the Basin's natural resources.

Step 3: Management Actions
What is the initial management plan?

In this step, stakeholders identify a set of management actions that are intended to achieve project objectives. It allows for stakeholders to design and structure the kinds of management actions that will be taken, determine the timeframe or life of the project, the checks needed throughout the project life, and the decision-making process for changing management strategies to meet management objectives. Multiple management actions may be implemented to further increase learning about which strategies are or are not successful. Examples of management actions might be a plan to physically remove non-native invasive plant species or to plant native riparian plants to improve nesting and foraging habitat for a targeted species.

The Hansen Dam Basin Master Plan and DEA are documents designed to update the existing conditions of the Basin and suggest clear guidelines for the planning and implementation of future actions. In addition, the AHMP sets out a process to adaptively manage the dynamic resources and functions of the Basin. The basic tenant of adaptive management is to identify and consider all aspects of the target system, how they interact or indeed conflict, and to define a model mechanism through which current and future knowledge can be used to improve management decisions by the stakeholders. While the Master Plan and DEA provide essential Basin information, they cannot be viewed or intended as a surrogate for specific project evaluations or environmental compliance. Pursuant to NEPA (P.L. 91-190) additional compliance documents will be required when future actions are proposed.

Again, an initial management plan is an action, or set of actions, that promote the goals for natural resource management in the Basin. Factors that can influence the ability to achieve a specific goal(s), through formal analysis or professional inference, include:

Human Population Trends Southern California is a highly urbanized region that has undergone massive population growth for many decades. Like other population centers in the western United States, there is a mix of residential, commercial, industrial, and agricultural land uses. Many communities are at or near buildout capacity. Protection of natural areas is thus more important than ever before and the stresses on their integrity clearly more pronounced. There are continual pressures to develop these areas for short term economic gain or unwise use that threaten the natural qualities and species they harbor. It is therefore important to protect and wisely manage Hansen Dam Basin to effectively preserve both the flood control and the scarce natural environment it represents. In addition, a growing population will undoubtedly increase the recreation usage of the Basin and stress the system as a whole. An initial and forward-looking management plan must recognize the value of the Basin's natural resources and strive to preserve it in the face of a growing population and development pressures. Such a management plan will not only provide habitat for dwindling wildlife and vegetation, but ultimately provide a greater quality of life for the local citizens.

Global Climate Change (GCC) GCC represents perhaps the greatest long-term threat in the fundamental reorganization of the natural world we see and enjoy today. While the outcome is uncertain, an initial management plan must factor in a plausible and defensible error rate of all proposed actions and some way to adaptively manage the incremental actions in achieving its objectives. Water availability and temperature increases may drastically alter the ecology and species composition of the Basin and an initial management plan, as well as management plans in the future, must be prepared to address such changes without bias to the observed magnitude.

Public Opinion and Land Use Change It should be anticipated that public opinion on the current land uses may change in the future and this may or may not be commensurate with a given management plan. It is therefore important to consider the degree to which current and future lease agreements permit such changes, and how flexible stakeholders are willing to be in response to public opinion. If public opinion is in opposition to land use designations, it will become increasingly difficult garner public support for the Basin's use thereby making management far more difficult. Any land-use designations must, of course, work in conjunction with the original purpose of the Basin.

An effective and comprehensive management plan should seek to balance the goals and objectives indentified by the stakeholders. It is generally not practical to believe that all resources can be maximized within a relatively small parcel of land, but this does not mean that an adequate equilibrium cannot be achieved. Thoughtful and efficient planning, based on empirical or well developed modeling practices, are essential to effective management and individual management actions should be thought of as pieces of the larger whole in an effort to fulfill the shared vision of the Basin's objectives.

Step 4: Models
How do we measure the success of our management plan?

Stakeholders must now identify a model (or set of coupled models) that can be used to measure variables that indicate if the project is a success. This is the stage at which the "clear and measurable objectives" come into play. The model selected may be qualitative or quantitative; it can be as informal as a verbal description of system dynamics or it can be as formal as a mathematical equation(s). A Habitat Evaluation Procedure (HEP) is an example of a mathematical model. It combines Habitat Suitability Indices (HSI), which are models that describe the health of a habitat for a specific species or guild of species, to mathematically calculate habitat health for a suite of native species. Qualitative models must have benchmarks for measurement. Once a model(s) is selected, and prior to implementing management actions, an initial onsite survey must be conducted to establish baseline conditions within the Basin. The Master Plan and DEA should serve as the primer and foundation for Basin's baseline conditions.

Because the goals of Hansen Basin represent a set of resource management objectives, the need for multiple models is necessary and output from one given model may then be used as input for another (coupled models). For example, output (*e.g.* temperature and precipitation trends) from a General Circulation Model (GCM) can be used as input for hydraulic and hydrologic models and thus water supply predictions and flood risk management needs are identified. Water supply (and quality), precipitation, and temperature values can then be input as indices for an HEP and thus used to gain a better understanding for what GCC could represent for the future of the ecology and plausible biodiversity limitations of the Basin.

A GCM is a long-term predictor (years to decades) and should not be confused with a Numerical Weather Prediction (NWP) model. A GCM informs the user, in a statistical sense, about long-term climate trends in response to large-scale conditions (*e.g.* atmospheric carbon dioxide concentrations) whereas an NWP provides a short-term (1-10 days) weather prediction. A GCM need not be constructed and maintained by

stakeholders as there are numerous and respected resources (Federal, academic, etc.) that could be engaged for assistance.

There are a wide variety of models, both qualitative and quantitative, that can be applied to adaptive management objectives. In each case, there is an opportunity for the results to be propagated for other aspects of resource management. For example, data from a GCM and/or an HEP can be used in economic and socioeconomic modeling efforts. Here also, the results can be used to guide management decisions in terms of the divergence from baseline conditions and the dynamic resources of the Basin.

This kind of information, if conducted reliably and consistently, can help guide management decisions by providing useful parameters and boundary conditions for contemporary management decisions. Moreover, these efforts can be applied regionally thereby representing a significant cost savings and reducing misallocation of valuable government resources.

Step 5: Monitoring Plans
What is the plan for monitoring success of our management plan over time?

Once the models are identified, the next step is to design an appropriate way to collect data to plug into the models. If the model asks us to collect canopy cover data, then our monitoring plan will determine when and how that data is collected, and how it is used in the model.

Monitoring plans should be designed to assess the existing system conditions, which describes the current state of the system, and allows us to compare it to past and future conditions. Monitoring plans should remain consistent in their methodologies through time and thus the results comparable. Monitoring consistency also has cost implications as well. If the initial monitoring regime is intensive and future monitoring falls short in some way(s), then the results may not be commensurate in their use for modeling or comparative analysis. This can often result in a lapse of monitoring efforts and result in the need for comprehensive baseline assessments. This can represent a significant cost allocation and result in an unwitting decline in environmental and ecological integrity. Lastly, however, in an effort to conserve project funds, monitoring plans should be designed to be as efficient as possible, providing the necessary data for minimum cost. Geographic Information Systems (GIS) should be used to the greatest extent possible.

Monitoring may include the following (not including periodic inspections of flood risk management amenities and structures conducted by the Corps):

- Surveys for rare, threatened, and endangered species (plants and animals).
- Seasonal species richness and diversity indices including exotic species (location, extent, dominance, overstory/understory, etc.).
- Seasonal habitat use (avifauna, mammals, reptiles, amphibians, and insects).
- Basic water quality parameters on a seasonal basis (pH, temperature, conductivity, dissolved oxygen, etc.).
- Soil and water nutrient dynamics and flux (*i.e.* timing and degree of eutrophication of water bodies) possibly including forest litter production rates.
- Periodic contaminant testing (including fish tissue analysis, upstream sources, and downstream sinks).
- Seasonal recreation visitation rates including the types of activities. Perhaps conduct periodic public interactions (*i.e.* simple verbal questionnaires given to visitors).
- Infrastructure (*i.e.* parking lots, restrooms, trails) assessments for safety concerns, handicap accessibility, vandalism or other criminal activities.

Step 6: Decision Making
What will our response be to unsuccessful management plans?

In cases where the models do not indicate successful management actions or data clearly show a problem with the current management approach, a process should be identified for changing management plans. This is the crucial piece of the process that makes a management style *adaptive*. During Step 3, a number of alternative management actions should have been identified. In the event that the selected actions are not successful, as determined by the modeling or ascertained by monitoring, then the alternative actions may be implemented. In this step, the process of choosing a new management plan is defined.

All the tenants of previous steps should be observed: stakeholder and public involvement, a reassessment of goals and monitoring approaches, short- and long-term implications of management decisions, cumulative effects, etc. Only then can one be confident that the new management approach is well founded, has a reasonable chance for success, and is well defined.

Step 7: Monitoring
What is happening in our project area?

This is the actual gathering of empirical data. Data are collected following the guidelines set in the monitoring plan. Regular data collection, recording, synthesis, and reporting should be scheduled and carried out through standardized, repeatable methods.

A clear stakeholder hierarchy in the definition, potential contracting, data validation, schedule, and review procedures of monitoring data should be established prior to the initiation of any monitoring activities. This adds a crucial measure of consistency to the methods and data synthesis over time. If changes occur in the hierarchy, as is often the case, a transition procedure (meetings, documentation, identification of contractors and review personnel, etc.) should take place. Again, it must be emphasized that consistency in monitoring approaches and methods is essential for the long-term integrity of the dataset(s) and their use in modeling and/or management decisions. Inconsistency in monitoring will inevitably result in a waste of time, funding, and agency resources.

There must also be a firm belief in the long-term benefits of monitoring by the stakeholders. In the short-term, monitoring often shows little change or statistically insignificant trends that can be interpreted as background noise. This can result in complacency and the waning of interest in continued monitoring efforts. It is important to keep in mind that many of the parameters being monitored display gradual changes, but once altered are difficult to restore to a previous state or functional condition.

Step 8: Assessment
Are we achieving our project objectives?

In this step, data are calculated through the established model and results are reviewed to capture a description of the existing conditions of the Basin. The monitoring event outcome is then compared to the baseline data to determine if project objectives are being achieved.

Data interpretation and synthesis is an important aspect of this step. Scale, statistical significance, geospatial patterns, and autocorrelation effects can influence how the data are interpreted and subsequently put to use in the larger objective assessments. Moreover, a general consensus, or at least partial agreement, among the stakeholders in the assessment process should be sought before the lasting codification of objectives, methods of attaining those objectives, and monitoring approaches used to measure success are continued. This is often far more difficult than it appears and the effort by the stakeholders in attaining agreement should not be underestimated.

Step 9: Iteration
What's next?

If conditions have improved according to the model(s) output, monitoring inferences, and data synthesis, then management actions appear to be successful and continued monitoring and assessment should be carried out for the life of the project to validate the project's continued success. If data are input into the models, and outcomes indicate that management actions are not successful, it will be necessary to return to Step 6 and begin the process of adapting the management plan according to available or newly formulated management actions. The cycle from step 6 to 9 is iterated until the end of the previously determined project life. If data are unavailable or inconclusive, it may be necessary to return to step 4 to revisit model selection and/or the monitoring plan (Step 5) to validate monitoring data integrity. Finally, it may be necessary to critically revisit the goals and objectives and assess their plausibility. In the absence of any clear direction that can be agreed upon by the stakeholders, it is often advisable to seek an outside review and opinion of any given step or the AHMP as a whole.

APPENDIX E:

MAPS

Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

APPENDIX E:

LIST OF MAPS

Hansen Dam Basin
Master Plan and Draft Environmental Assessment
APPENDICES

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