U.S. Army Corps of Engineers

San Francisco District

DELTA DREDGED SEDIMENT LONG-TERM MANAGEMENT STRATEGY (PINOLE SHOAL MANAGEMENT AREA) STUDY WORK PLAN

MANAGEMENT COMMITTEE REVIEW DRAFT

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BA	Biological Assessment
BMPs	Best Management Practices
CBDA	California Bay-Delta Authority
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CESPD	U.S. Army Corps of Engineers South Pacific Division
COCs	Constituents of Concern
Corps	U.S. Army Corps of Engineers
CVP	Central Valley Project
CVRWB	Central Valley Regional Water Board
DDRS	Delta Dredging and Reuse Strategy
DMMO	Dredged Material Management Office
DMMP	dredged material management plan
DPC	Delta Protection Commission
DWR	California Department of Water Resources
DWSC	Deep Water Ship Channel
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
GI	General Improvement
HQUSACE	Headquarters of the U.S. Army Corps of Engineers
IWG	Interagency Working Group
SPK	U.S. Army Corps of Engineers Sacramento District
SPN	U.S. Army Corps of Engineers San Francisco District
LTMS	Long-Term Management Strategy
MC	Management Committee
NAS	network analysis system
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Association
NMFS	National Marine Fisheries Services
OBS	organizational breakdown structure
PEIS	Programmatic Environmental Impact Statement
PMP	Project Management Plan
QA/QC	quality assurance/quality control
RAM	Responsibility Assignment Matrix

SMP	sediment management plan
SQO	Sediment Quality Objectives
SRG	Strategy Review Group
State Water Board	the State Water Resources Control Board
SWP	State Water Project
TWG	Technical Work Group
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VSA	Value Stream Analysis
WBS	work breakdown structure

EXECUTIVE SUMMARY

Background

The Delta estuary is the largest estuary on the West Coast. Covering more than 738,000 acres in five counties, it is a maze of tributaries, sloughs, and islands and a haven for plants and wildlife, supporting more than 750 plant and animal species, including more than 110 species listed as "species of concern." The Delta is critical to California's economy, supplying drinking water for two-thirds of Californians and irrigation water for more than 7 million acres of the most highly productive agricultural land in the world.

The Delta is also the hub of California's two largest water distribution systems – the Central Valley Project (CVP) operated by the U.S. Bureau of Reclamation (Reclamation) and the State Water Project (SWP) operated by the California Department of Water Resources (DWR). Maintaining high quality water in the Delta is critical for drinking water supplies, agricultural irrigation, and ecosystem function. More than 1,100 miles of levees protect the water conveyance functions, ecosystem, and land uses on Delta islands. The Sacramento and San Joaquin River channels also provide important waterborne commerce access to the Ports of Sacramento and Stockton.

In recent years, conflicts about levee rehabilitation, dredging, and placement of dredged sediments have been increasing. There is an ongoing need to dredge Delta channels for navigation, water conveyance, flood control, and levee maintenance. At the same time, there are increasing regulatory concerns about the potential impacts to water quality and the ecosystem from levee work, dredging activities, and dredge materials placement and reuse.

In the last several years, agencies (Federal, State, and local), the public, political leaders, and the media have become increasingly concerned about the urgent need for levee rehabilitation in the Delta. Sediment management and reuse from dredging activities is a potential source of material for Delta levee rehabilitation. At the same time, the Delta environment is showing signs of major stress and dysfunction, as evidenced by the rapid decline of pelagic species in recent years.

Concerns about the complex and sensitive environment in the Delta have resulted in stringent regulatory requirements for dredging and sediment reuse and placement in the Delta. These two apparently conflicting objectives, protection of the Delta environment and increased dredging and sediment reuse and placement, highlight the need for better coordination and management of Delta dredging and sediment management and reuse requirements.

In late 2004, local sponsors of Delta dredging projects and the U.S. Army Corps of Engineers (Corps) met to explore the feasibility of developing a long-term management strategy (LTMS) for dredging and dredged materials placement or reuse in the Delta. A similar

process was used to successfully develop a collaborative, coordinated approach to dredging and sediment management in San Francisco Bay.

Project Goals and Objectives:

The five initial participating agencies (Corps, U.S. Environmental Protection Agency [USEPA], DWR, California Bay-Delta Authority [CBDA], and Central Valley Regional Water Board [CVRWB]) agreed to examine the sediment issues and needs within the Delta. The participating agencies drafted a three-part project purpose statement:

- The Delta Dredged Sediment LTMS development process will examine and coordinate dredging needs and sediment management in the Delta to assist in maintaining and improving channel function (navigation, water conveyance, flood control, and recreation), levee rehabilitation, and ecosystem restoration.
- Agencies and stakeholders will work cooperatively to develop a sediment management plan (SMP or LTMS) that is based on sound science and protective of the ecosystem, water supply, and water quality functions of the Delta.
- As part of this effort, the sediment management plan will consider regulatory process improvements for dredging and dredged material management so that project evaluation is coordinated, efficient, timely, and protective of Delta resources.

To achieve these goals, the Delta LTMS seeks to improve coordination and planning efforts between dredging proponents and regulatory agencies, and to streamline, wherever possible, the regulatory approval process for future Delta dredging and sediment management activities. The following lists some of the specific objectives identified through stakeholder interviews that participants would like to see achieved during the LTMS development process. Some of these items may eventually be found not to be suitable for this group, but have been retained in this document in an effort to address all stakeholder concerns:

- Develop a streamlined permitting process to facilitate and improve coordination and cooperation among agencies with dredging management responsibilities or regulatory authority over dredging and placement activities.
- Develop a Standardized Sediment Characterization Manual that addresses stakeholder concerns pertaining to appropriate tests, protocols, and methods for various disposal options.
- Review and summarize regional best management practices (BMPs) for the dredging and disposal of contaminated and non-contaminated dredged sediments.
- Review regional disposal alternatives for contaminated and non-contaminated dredged sediments.
- Identify environmental restoration and/or enhancement opportunities that are directly related to the dredging and disposal of sediments.
- Develop a Sediment Management Plan to include: (i) approved regional disposal sites and/or identify treatment alternatives; (ii) BMPs for dredging and disposal operations; (iii) a consolidated and consistent plan for regulatory review; (iv)

chemical trigger levels for sediment/elutriate testing and disposal alternative selection; and, (v) a tiered approach for site suitability to dispose dredged sediments.
- Develop a programmatic BA to facilitate dredging and placement activities while ensuring the protection of resources (fish species).
- Prepare a programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to implement the Delta disposal management alternatives.
- Ensure that the SMP and EIS/EIR are consistent with CVRWB regulations for the surface and groundwater quality.
- Facilitate beneficial use of dredged materials for levee stabilization or other uses while protecting surface and groundwater quality.

Organization

The Delta LTMS is organized in a management process to include an executive committee, management committee, interagency working group, strategy review group, and science advisory teams as described in this section. In addition, public meetings will be held periodically to provide additional opportunities for input and feedback from interested parties.

Executive Committee

At the top level, an Executive Committee will direct the overall program, set policy direction, and provide oversight of the study. The directors of each of the following agencies will serve on the Executive Committee. The appointed executive managers should have the decision-making authority to represent the agency on the policy and regulatory issues to be addressed. The Agency Executive Committee will meet annually or as necessary to set policy direction for the study and keep abreast of the progress of the study.

- U.S. Army Corps of Engineers, Commander, South Pacific Division
- U.S. Environmental Protection Agency, Regional Administrator, Region 9
- State Water Resources Control Board (State Water Board), Chairperson
- Central Valley Regional Water Board, Chairperson
- California Department of Water Resources, Director
- California Bay-Delta Authority, Chairperson
- Delta Protection Commission, Chairperson

Management Committee

The Management Committee will consist of the deputy-level managers for the State and Federal agencies. The Management Committee will oversee the work of the Interagency Working Group (IWG) and the associated Strategy Review Group, review policy recommendations, study plans, budget proposals, and provide recommendations to the Executive Committee. The Management Committee will meet quarterly. Members of the Management Committee are:

- U.S. Army Corps of Engineers, District Commander, San Francisco District
- U.S. Army Corps of Engineers, District Commander, Sacramento District
- California Department of Water Resources, Deputy Director, Public Safety

- U.S. Environmental Protection Agency, Director, Water Management Division, Region 9
- California Bay-Delta Authority, Executive Director
- State Water Board, Executive Officer
- Central Valley Regional Water Board, Executive Officer
- NOAA Fisheries, Southwest Region, Executive Director
- U.S. Fish & Wildlife Service, Pacific Region, Director
- California Department of Fish & Game , Executive Director
- Delta Protection Commission

Interagency Working Group

An Interagency Working Group (IWG) includes program-level staff at five agencies. The IWG will serve as the primary program managers of the Delta LTMS process and steering committee for the Strategy Review Group. The IWG will coordinate with the Management Committee, the Strategy Review Group and others with an interest in Delta activities and the LTMS process. The IWG's role is to identify study issues and questions to be addressed such as: identify technical work groups and expert resources, confirm purpose, charter, and assignments for the science advisory teams and technical review groups, discuss and review study work plans and scopes, discuss and review study budgets and resource needs, prepare and approve study reports, develop management and policy options for the Management and Executive Committees, and escalate issues to the Executive Committee that cannot be resolved at the Management Committee. The members of the IWG currently consist of the following:

- USEPA
- Corps
- CVRWB
- CBDA
- DWR

The Management Committee may identify other participants in the IWG.

Strategy Review Group

Study activities will be conducted in coordination with a Strategy Review Group consisting of representatives of other agencies, stakeholders, and interest groups in the Delta working in or affected by dredging and reuse activities for navigation, levee stability, or ecosystem restoration. The Interagency Working Group will coordinate meetings monthly or as needed with the Strategy Review Group to identify, review, and discuss: (1) the Delta sediment issues of concern to be addressed by the Delta LTMS study and in what order; (2) lines of inquiry that the science advisory teams (described below) will be tasked to pursue; and (3) coordinated regulatory approach for Delta dredging to be approved by the Executive Committee.

Members of the Strategy Review Group may also provide public comment at the Executive Committee meetings. In addition to the agencies on the Executive Committee, the Strategy Review Group also includes, but not be limited to the following organizations:

- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region
- California Department of Fish & Game
- Delta Protection Commission
- State Lands Commission
- Reclamation Board
- Reclamation Districts
- Contra Costa, Sacramento, Solano, Yolo, and San Joaquin Counties
- North, Central, and South Delta Water Agencies
- The Ports of Sacramento and Stockton
- Bay Planning Coalition
- DeltaKeeper
- The Nature Conservancy
- The Bay Institute
- Environmental Water Caucus
- California Sportfishing Protection Alliance
- California Farm Bureau Federation
- State Water Contractors
- California Delta Chamber

Technical Work Groups

The Management Committee will establish specific technical work groups to address Delta LTMS issues. The technical work groups will consist of agency staff with expertise in the relevant subject areas. Technical work groups are open to interested participants from any agency, interest group, or the public. With the direction and approval of the Management Committee, technical work groups will identify study needs, develop study scopes and work plans, identify resources, and review results and conclusions. The Management Committee will identify the leader for each technical group. The initial technical work groups created for the LTMS include the following:

- Regional Dredging and Reuse Permitting;
- Testing Protocols Review;
- Programmatic BA Development; and
- Disposal and Reuse Alternative Development.

Other Stakeholders/Interested Public

Other interested parties will have the opportunity to learn about the Delta LTMS process and activities by viewing the project website (www.deltaltms.com) and attending the public meetings to be held on an as needed basis, at project milestones.

Science Review Panel

The Management Committee will establish a Science Review Panel made up of independent scientists. The purpose of the Science Review Panel is to provide an independent science review process for Delta LTMS studies. The Management Committee will approve the leader and participants for the Science Review Panel. The Science Review Panel will evaluate existing information; identify gaps, and review results and conclusions.

Anticipated Project Tasks

Early in the development phase for Delta LTMS, a project process flow diagram was created (see Figure ES-1) to present an outline for an overall strategy for identifying and prioritizing project needs, identifying and evaluating management alternatives, forming technical work groups to contribute scientific information and policy direction, and key steps needed to successfully complete the LTMS. Similar approaches have been used successfully to develop long-term sediment management plans in San Francisco, Los Angeles, and Puget Sound. The initial technical tasks identified for this project and described in this Work Plan have been organized to follow the key tasks identified in that process diagram, including the following:

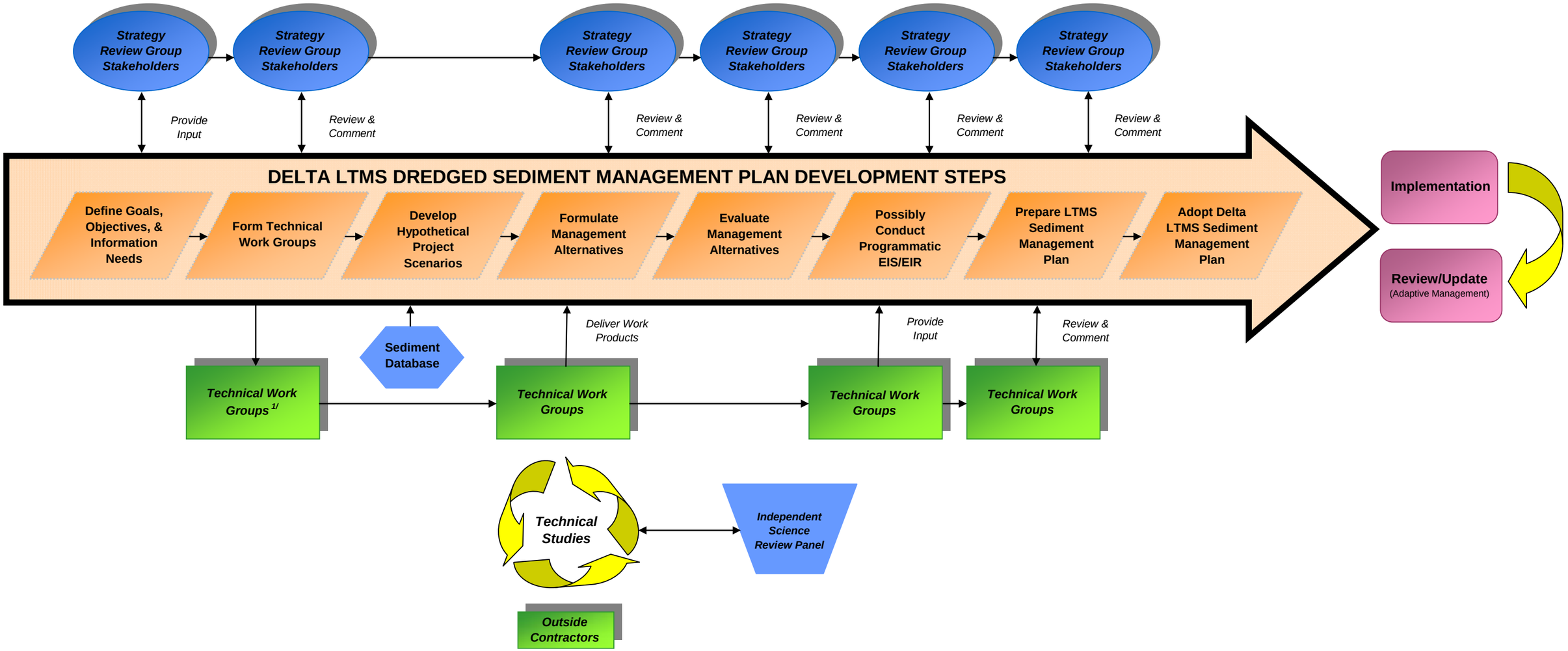
- Review and define project goals and objectives;
- Form technical work groups to address specific technical issues;
- Develop hypothetical project scenarios to frame potential management solutions;
- Formulate management alternatives;
- Evaluate management alternatives;
- Possibly conduct a programmatic EIS/EIR
- Prepare a sediment management plan to summarize project efforts; and
- Adopt and implement the LTMS sediment management plan.

Anticipated Project Schedule

The anticipated project schedule for completing the Delta LTMS sediment management plan is approximately 3 years. Several interim work products (e.g., possible formation of a Dredged Materials Management Office (DMMO), consolidated dredging permit application, sediment quality database, etc.) will be completed before that date and would be implemented upon completion.

Anticipated Project Budget

It is too early in the development process to accurately estimate the exact cost to complete the LTMS sediment management plan and associated technical studies; however, the planning level estimate based on the level of efforts required to complete similar projects in other regions is a little over $6 million.



Footnote: 1/ Ex: Work groups include Scientific Technical Studies & Permitting Coordination Activities

Figure ES-1
Delta Dredged Sediment LTMS Development Process
Management Committee Review Draft

1 INTRODUCTION

1.1 Project Background

In late 2004, local sponsors of Delta dredging projects and the U.S. Army Corps of Engineers (Corps) met to explore the feasibility of developing a long-term management strategy (LTMS) for dredging and dredged material placement and/or reuse in the Delta. In 2005, the Corps worked with multiple stakeholders including other Federal and State agencies to define a cooperative, collaborative approach to address the problems, challenges, and opportunities related to levee repairs, dredging, and beneficial reuse of dredge materials in the Delta.

As a result of these discussions, the Corps began working with other Federal and State agencies – the U.S. Environmental Protection Agency (USEPA), the California Bay Delta Authority (CBDA), California Department of Water Resources (DWR), Delta Protection Commission (DPC), and the Central Valley Regional Water Board (CVRWB) – to develop the initial Process Framework describing a cooperative approach for developing the Delta dredged sediment LTMS (Delta LTMS) Program for the Delta region.

The Process Framework describes the overall purpose and structure of the effort so that participating agencies can assess the study objectives, gauge their level of required participation, and assign resources to assist in developing the Delta LTMS Program. As with any cooperative planning effort, the Process Framework will be refined as participation increases and implementation proceeds.

In conjunction with the Process Framework document, the five agencies listed above used the framework as the basis for establishing a charter to promote participation and commitment to achieving the goals and addressing the concerns identified in the framework process document. Agencies signing the charter agreed to fully participate in the study activities and operate under the final Charter. Copies of the Final Delta LTMS Charter and Process Framework can be found in Appendix A).

The Delta LTMS Process Framework (Corps et al. 2006) summarizes the initial framework for the Delta LTMS, identifying the following components:

- Study purpose, goals, and objectives
- Structure, participants, and roles

- Authorities and decision making
- Related programs
- Study activities and phases

Based on those items, a Federal Project Management Plan (PMP) was developed by the Corps of Engineers to guide their internal managers on appropriate project direction, schedule, work assignments and potential costs. Because a Corps PMP follows a strict systems generated outline, not always easily understood by most non-Federal stakeholders, it was decided to also prepare this Study Work Plan to present those same topics and provide the operating framework for preparing the Delta LTMS.

1.2 Project Purpose and Need

Accurate estimates of historical dredge volumes within the Delta (Figure 1-1) are sometimes difficult to calculate because some of the smaller dredging projects do not have detailed records of the specific volumes removed and final placement destination. Accurate estimates are available, however, or all recent projects and the larger historical projects. The bulk of the dredging within the Delta (at least on a volume basis) occurs in either of the two deepwater shipping channels to the Ports of Stockton and Sacramento. Between 1966 and 2006, the average annual volume of material removed from these channels was 320,000 cubic yards (Stockton DWSC) and 593,000 cubic yards (Sacramento DWSC). Specific dredge volumes removed from the Stockton DWSC range from a low of 15,000 cubic yards in 1971 to a high of 841,000 cubic yards in 1978. Specific dredge volumes removed from the Sacramento DWSC range from a low of 35,000 cubic yards in 2005 to a high of 2.2 million yards in 1966. Additional, detailed information of historical and projected dredge volumes is provided later in this report in Section 2.2.

1.3 LTMS Structure Participants and Roles

The Delta LTMS is organized (Figure 1-2) in a management process to include an Executive Committee, Management Committee, Interagency Working Group (IWG), Strategy Review Group (SRG), Technical Work Groups (TWGs) and an Independent Science Review Panel as described in this section. In addition, public meetings will be held periodically to provide additional opportunities for input and feedback from interested parties.

Figure 1-1
Plan View of Delta Region
Management Committee Review Draft
Source: CALFED Bay-Delta Program

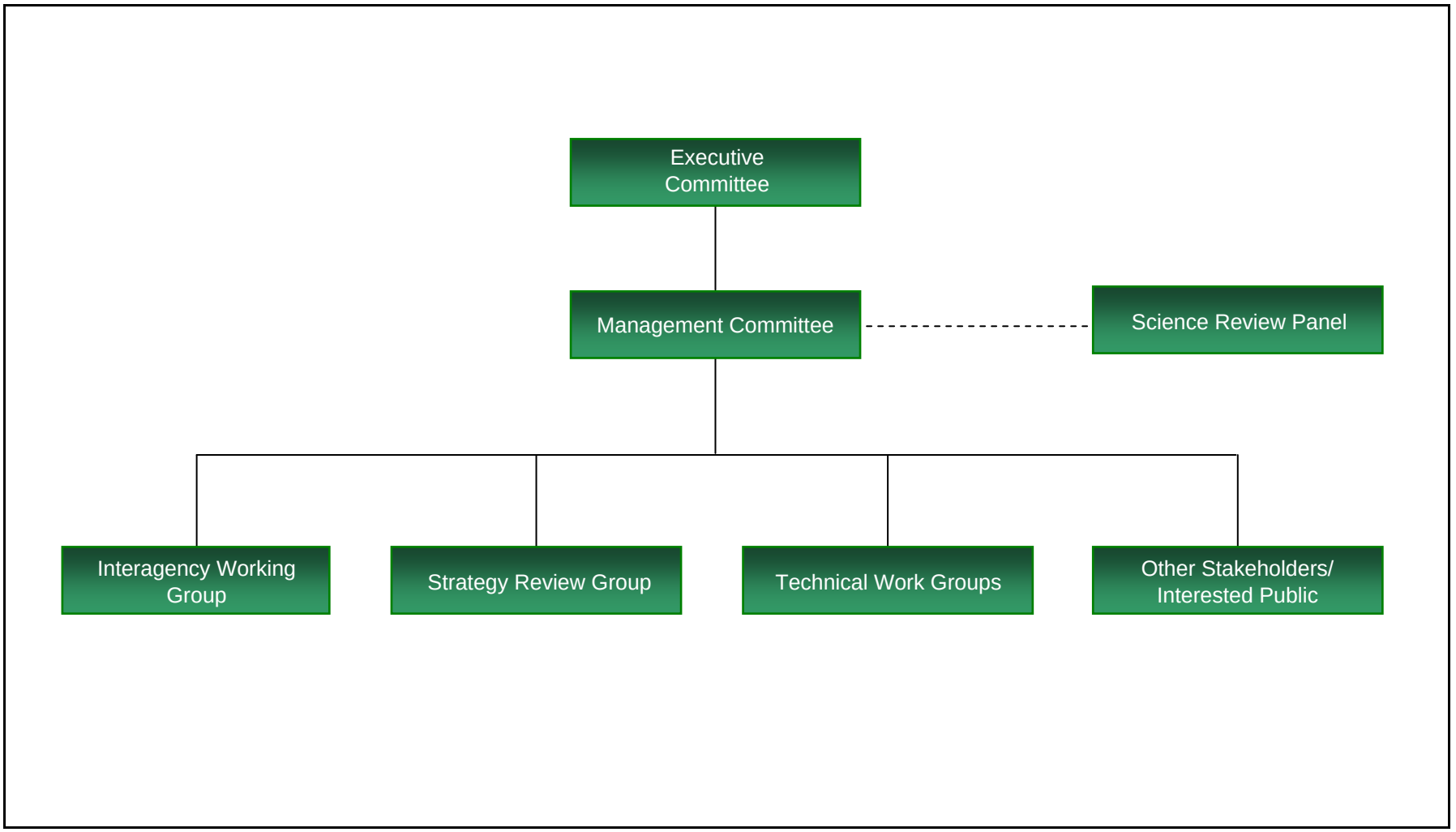


Figure 1-2
Organizational Structure
Management Committee Review Draft

Executive Committee

At the top level, an Executive Committee directs the overall program, sets policy direction, and provides oversight of the study. The directors of each of the following agencies serve on the Executive Committee. The appointed executive managers should have the decision-making authority to represent the agency on the policy and regulatory issues to be addressed. The Executive Committee will meet annually or as necessary to set policy direction for the study and keep abreast of the progress of the study.

- U.S. Army Corps of Engineers, Commander, South Pacific Division
- U.S. Environmental Protection Agency, Regional Administrator, Region 9
- State Water Resources Control Board (State Water Board), Chairperson
- Central Valley Regional Water Board, Chairperson
- California Department of Water Resources, Director
- California Bay-Delta Authority, Chairperson
- Delta Protection Commission, Chairperson

Management Committee

The Management Committee consists of the deputy-level managers for the Federal and State agencies. The Management Committee will oversee the work of the IWG and the associated Strategy Review Group, review policy recommendations, study plans, budget proposals, and provide recommendations to the Executive Committee. The Management Committee will meet quarterly. Members of the Management Committee are:

- U.S. Army Corps of Engineers, District Commander, San Francisco District
- U.S. Army Corps of Engineers, District Commander, Sacramento District
- California Department of Water Resources, Deputy Director, Public Safety
- U.S. Environmental Protection Agency, Director, Water Management Division, Region 9
- California Bay-Delta Authority, Executive Director
- State Water Board, Executive Officer
- Central Valley Regional Water Board, Executive Officer
- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region
- California Department of Fish and Game

Interagency Working Group

An IWG includes program-level staff at five agencies. The IWG serves as the primary program managers of the Delta LTMS process and steering committee for the Strategy Review Group. The IWG will coordinate with the Management Committee, the SRG and others with an interest in Delta activities and the LTMS process. The IWG's role is to identify study issues and questions to be addressed such as: identify technical work groups and expert resources, confirm purpose, charter, and assignments for the science advisory teams and technical review groups, discuss and review study work plans and scopes, discuss and review study budgets and resource needs, prepare and approve study reports, develop management and policy options for the Management and Executive Committees, and escalate issues to the Executive Committee that cannot be resolved at the Management Committee. The members of the IWG currently consist of the following:

- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- Central Valley Regional Water Board
- California Bay-Delta Authority
- California Department of Water Resources
- The Management Committee may identify other participants in the IWG

Strategy Review Group

Study activities will be conducted in coordination with a SRG consisting of representatives of other agencies, stakeholders, and interest groups in the Delta working in or affected by dredging and reuse activities for navigation, levee stability, or ecosystem restoration. The Interagency Working Group will coordinate meetings monthly or as needed with the Strategy Review Group to identify, review, and discuss:

1. The Delta sediment issues of concern to be addressed by the Delta LTMS Study and in what order;
2. Lines of inquiry that the science advisory teams (described below) will be tasked to pursue; and
3. Coordinated regulatory approach for Delta dredging to be approved by the Executive Committee.

Members of the SRG may also provide public comment at the Executive Committee meetings. In addition to the agencies on the Executive Committee, the SRG also includes, but is not limited to the following organizations:

- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region
- California Department of Fish and Game
- Delta Protection Commission
- State Lands Commission
- Reclamation Board
- Reclamation Districts
- Contra Costa, Sacramento, Solano, Yolo, and San Joaquin Counties
- North, Central, and South Delta Water Agencies
- The Ports of Sacramento and Stockton
- Bay Planning Coalition
- DeltaKeeper
- The Nature Conservancy
- The Bay Institute
- Environmental Water Caucus
- California Sportfishing Protection Alliance
- California Farm Bureau Federation
- State Water Contractors
- California Delta Chamber

Technical Work Groups

The Management Committee will establish specific science and technical work groups to address Delta LTMS issues. The science and technical work groups will consist of agency staff with expertise in the relevant subject areas. Technical work groups are open to interested participants from any agency, interest group, or the public. With the direction and approval of the Management Committee, technical work groups identify study needs, develop study scopes and work plans, identify resources, and review results and

conclusions. The Management Committee identifies the leader for each technical work group. Currently planned TWGs include the following:

- Regional Dredging and Reuse Permitting;
- Testing Protocols Review;
- Programmatic Biological Assessment (BA) Development; and
- Dredged Sediment Disposal and Reuse Alternative Development.

These work groups (discussed in more detail in Section 3.1.2) will be formed by the IWG and authorized by the Management Committee.

Other Stakeholders/Interested Public

Other interested parties will have the opportunity to learn about the Delta LTMS process and activities by viewing the project website and attending public meetings to be held on an as needed basis, at project milestones.

Science Review Panel

The IWG and Management Committee will establish a Science Review Panel made up of independent scientists. The purpose of the Science Review Panel is to provide an independent science review process for all Delta LTMS studies. The Management Committee will approve the leader and participants for the Science Review Panel.

1.4 Study Goals and Objectives

The five initial participating agencies (Corps, USEPA, DWR, CBDA, and CVRWB) agreed to examine the sediment issues and needs within the Delta. The participating agencies drafted a three-part project purpose statement:

1. The Delta Dredged Sediment Long-Term Management Strategy development process will examine and coordinate dredging needs and sediment management in the Delta to assist in maintaining and improving channel function (navigation, water conveyance, flood control, and recreation), levee rehabilitation, and ecosystem restoration.
2. Agencies and stakeholders will work cooperatively to develop a sediment management plan (SMP or Long-Term Management Strategy) that is based on sound science and protective of the ecosystem, water supply, and water quality functions of the Delta.

3. As part of this effort, the sediment management plan will consider regulatory process improvements for dredging and dredged material management so that project evaluation is coordinated, efficient, timely, and protective of Delta resources.

To achieve these goals, the Delta LTMS seeks to improve coordination and planning efforts between dredging proponents and regulatory agencies, and to streamline, wherever possible, the regulatory approval process for future Delta dredging and sediment management activities. The following lists some of the specific objectives identified through stakeholder interviews, conducted during the project planning phase by Circle Point, that participants would like to see achieved during the LTMS development process. Some of these items may eventually be found not to be suitable for this group, but have been retained in this document in an effort to address all stakeholder concerns.:

a) Develop a streamlined permitting process to facilitate and improve coordination and cooperation among agencies with dredging management responsibilities or regulatory authority over dredging and placement activities.
b) Develop a Standardized Sediment Characterization Manual that addresses stakeholder concerns pertaining to appropriate tests, protocols, and methods for various disposal options.
c) Review and summarize regional best management practices (BMPs) for the dredging and disposal of contaminated and non-contaminated dredged sediments.
d) Review regional disposal alternatives for contaminated and non-contaminated dredged sediments.
e) Identify environmental restoration and/or enhancement opportunities that are directly related to the dredging and disposal of sediments.
f) Develop a Sediment Management Plan to include: (i) approved regional disposal sites and/or identify treatment alternatives; (ii) BMPs for dredging and disposal operations; (iii) a consolidated and consistent plan for regulatory review; (iv) chemical trigger levels for sediment/elutriate testing and disposal alternative selection; and, (v) a tiered approach for site suitability to dispose dredged sediments.
g) Develop a programmatic BA to facilitate dredging and placement activities while ensuring the protection of resources (fish species).
h) Prepare a programmatic Environmental Impact Statement/Environmental Impact Report (EIS/EIR) to implement the Delta disposal management alternatives.
i) Ensure that the SMP and EIS/EIR are consistent with CVRWB regulations for the surface and groundwater quality and resource agencies.

j) Facilitate beneficial use of dredged materials for levee stabilization or other uses while protecting surface and groundwater quality.

1.5 Federal, Non-Federal, and Public Concerns

A number of concerns related to planning needs and constraints have been identified during the plan development process for the Delta LTMS Program and are described below. Initial concerns were received through meetings and interviews with the potential sponsor(s), other agencies, dredging proponents, and interested parties.

1.5.1 Environmental/Permitting

Identified concerns with the current permitting framework include:

1. Difficulties obtaining permits for dredging and placement of material at either designated disposal sites or beneficially reusing the material (i.e., levee maintenance, restoration, construction grade) have been identified as a primary driver for developing the LTMS.
2. Clarifying agency jurisdiction to dredging stakeholders and responsibility regarding Delta dredging, disposal and beneficial reuse actions.
3. Streamlining the permitting process by developing a General Order including National Environmental Policy Act, Clean Water Act, and California Environmental Quality Act (CEQA) compliance.
4. Due to perceived differences in agency policies, general permitting requirements, and overlapping jurisdiction, a need to facilitate better coordination between agencies regulating dredging, disposal, and reuse was identified by some stakeholders.

1.5.2 Technical

Technical questions and desired investigations thus far identified include:

1. As part of the overall characterization of sediment quality impacts and perceived lack of agreed upon sediment quality thresholds, the permitting/authorization process and the ability to efficiently plan dredging operations should be reviewed. Thus, developing sediment screening criteria for specific disposal/reuse applications has been identified as a task to assist in determining sediment suitability.

2. Summarizing contaminant exposure pathways for upland and wetland placement of dredged material, and potential impacts to water quality and biological resources will assist in developing a guidance manual for assessing sediment quality for various disposal options. Impacts from dredging operations could include: (i) turbidity, noise, depletion of dissolved oxygen, and/or degradation of air quality; (ii) potential resuspension of contaminants in the water column; and (iii) chemical advection and diffusion at dredge material placement sites.
3. Review BMPs to address potential construction impacts of dredge and disposal operations on air/water quality, ambient noise, turbidity, dissolved oxygen and vessel traffic, and mechanical and logistics modifications required to reduce impacts need to be identified.

1.5.3 Economics

Regional economic issues associated with dredging and placement of material include:

1. The cost to the Federal government, Non-Federal Sponsors and regulatory applicants for finding suitable sites for disposal and beneficial reuse of dredged material must be assessed. The desire to identify economically feasible options for disposal management and ensuring levee stability has been identified as an issue by all participants.
2. The potential economic degradation of regional and national economies due to the inability to efficiently dredge channels.
3. Reuse, redevelopment, modernization and expansion of facilities at the Ports of Stockton and Sacramento should be evaluated.
4. Potential economic impacts of levee failure should be considered when prioritizing suitable reuse alternatives.
5. A benefit-cost analysis (for Federal projects) for the dredging and disposal of sediments for levee stabilization and habitat restoration/enhancement should be established.
6. The desire to beneficially reuse dredge material has been identified as a priority for the Delta LTMS. Factors that can impact beneficial reuse of dredge material such as costs, feasibility, re-handling, and transportation need to be identified and evaluated.
7. Evaluate ways to encourage more opportunities for dredging companies to cost effectively operate in the Delta (longer dredging windows, lack of experienced crews, etc.).
8. Evaluate ways for cost effective rehandling and reuse of dredge materials.

1.5.4 Political

Identified political questions and issues include:

1. The perception that there is a lack of consensus regarding the permitting, testing, and suitability determinations for dredged material has been voiced by various participants, including some agency participants.
2. Conflicting mandates from different agencies with regard to levee repair and associated water quality and biological impacts versus the impacts of potential levee failure.
3. Identification of other stakeholder groups with an interest in the program, including resource agencies, environmental groups, and dredgers. Public perception will be crucial in the development and continued success of the program.

1.6 Adaptive Management and Integration Plan

Because planning is an iterative process, more or less funding and time may be required to accomplish the formulation and evaluation of the study objectives, specific management alternatives, and ultimately the Sediment Management Plan. With clear descriptions of the scopes and assumptions outlined in the PMP and the Work Plan, deviations are easier to identify. The impact in either time or money is easily assessed and decisions can be made on how to proceed. The PMP and Work Plan are intended to be living documents, periodically updated and revised as necessary as the project progresses and study findings require adjustments to the study program as agreed to by the Executive and Management Committees.

1.7 Summary of Work Plan Organization

Using the components of the Corps' PMP document, this Work Plan has been arranged in the following format:

Chapter 1 – Introduction. A description of the Work Plan and the LTMS in general, including structure and goals.

Chapter 2 – Delta LTMS Study Area. A description of the Study Area, including geography, historical, and projected dredge areas and volumes, and sediment characteristics.

Chapter 3 – Delta LTMS Development Process. A detailed discussion of the tasks and coordination involved in the LTMS.

Chapter 4 – Technical Quality Control Plan. A brief description of the project Quality Control Plan.

Chapter 5 – Public Involvement and Coordination. Description of key public involvement tasks and coordination activities for the Delta LTMS Study.

Chapter 6 – Delta LTMS/SMP Agency Implementation Strategy. Describes how the agencies and stakeholders will implement the plan.

Chapter 7 – References. Lists all project references.

2 DELTA LTMS STUDY AREA

2.1 Geographic Boundaries

One of the first tasks for the Technical Work Groups to address will be to review and finalize the geographic boundaries for the Delta LTMS Study. Until the point that it is revised, this document assumes that the Study Area will be that known as the "Legal Delta" according to the Delta Vision program (www.deltavision.ca.gov). Located roughly between the cities of Sacramento, Stockton, Tracy, and Antioch (Figure 1-1), the "Legal Delta" extends approximately 24 miles east to west and 48 miles north to south, including parts of five counties (Sacramento, San Joaquin, Contra Costa, Solano, and Yolo).

The delta consists of a myriad of small natural and man-made channels (locally called sloughs), creating a system of isolated lowland islands and wetlands (defined by dikes or levees). The extensive system of earthen levees has allowed wide-spread farming throughout the delta, one of the most fertile agricultural areas in California.

Today, the Delta provides critical habitat to many of California's fish species residing in the region, including several threatened and endangered species. Recreationally, the Delta contains 635 miles of boating waterways which are served by approximately 95 marinas containing over 11,000 in-water boat slips and dry storage space for an additional 5,000 boats.

An additional, critical early task to be addressed by the Technical Work Groups and IWG members will be to identify and prioritize which areas of the Delta may be most suitable for developing dredge material beneficial reuse opportunities for levee repairs. Figure 2-1 presents an overview of the Delta levee system showing the areas of greatest concern with regards to the Federal (project) levee system according to a recent report prepared by the Corps (Appendix B). It should be noted, however, that this map does not show the hundreds of miles of levees in need of repair that are part of the State (non-Project) flood protection system.

2.2 Historical and Projected Dredge Volumes

Additional data is still being collected to complete this section.

2.3 Sediment Physical and Chemical Characteristics

Additional data is still being collected to complete this section.

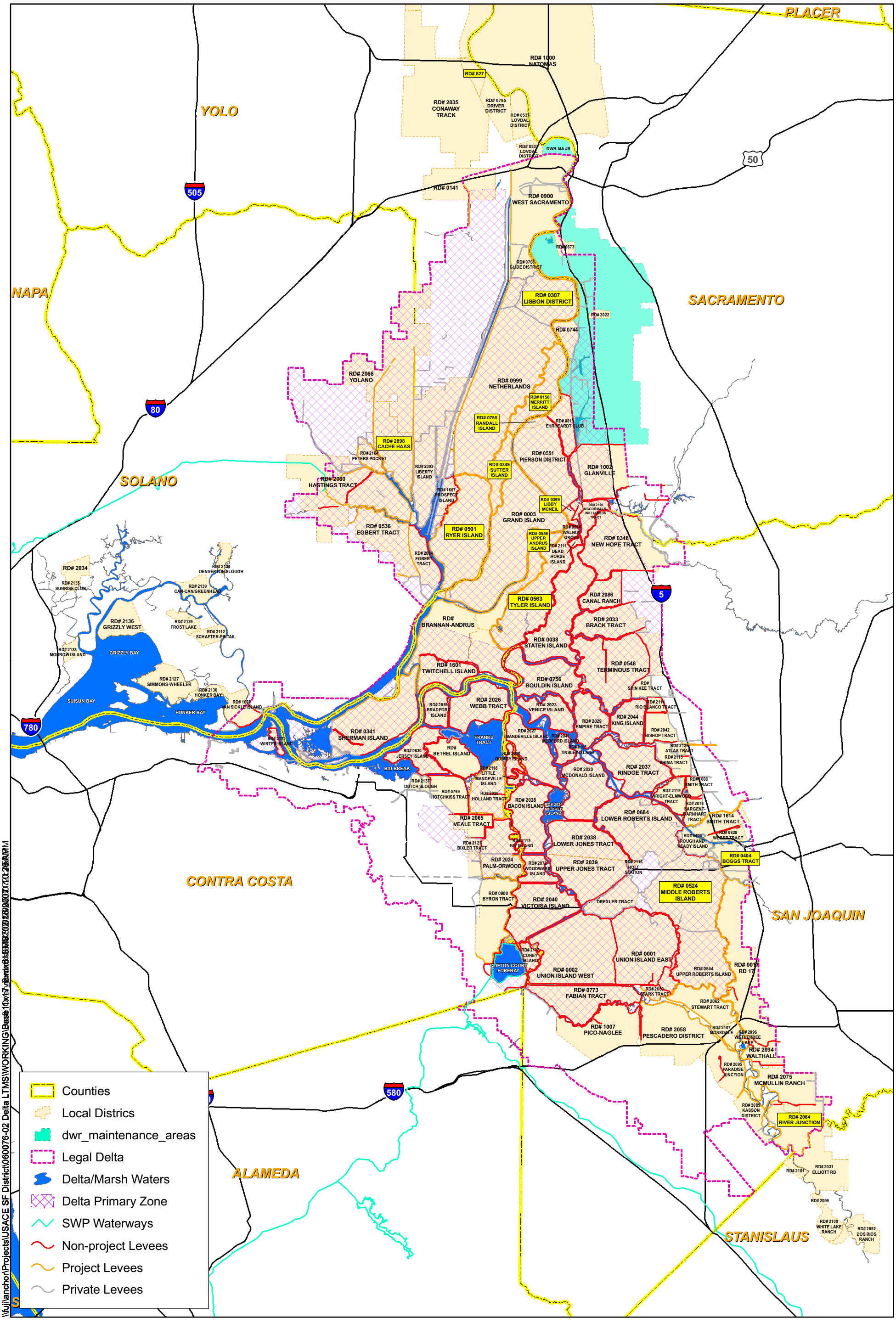


Figure 2-1
Delta Levees and Federal Areas of Concern
Management Committee Review Draft

3 DELTA LTMS DEVELOPMENT PROCESS

Early in the development phase for Delta LTMS, a project process flow diagram was created (see Figure 3-1) to present an outline for an overall strategy for identifying and prioritizing project needs, identifying and evaluating management alternatives, forming technical work groups to contribute scientific information and policy direction, and key steps needed to successfully complete the LTMS. Similar approaches have been used successfully to develop long-term sediment management plans in San Francisco, Los Angeles, and Puget Sound. The technical tasks described in this Work Plan have been organized to follow the key tasks identified in that process diagram, as described below.

3.1 List of Initial Tasks

3.1.1 Define Goals, Objectives, and Information Needs

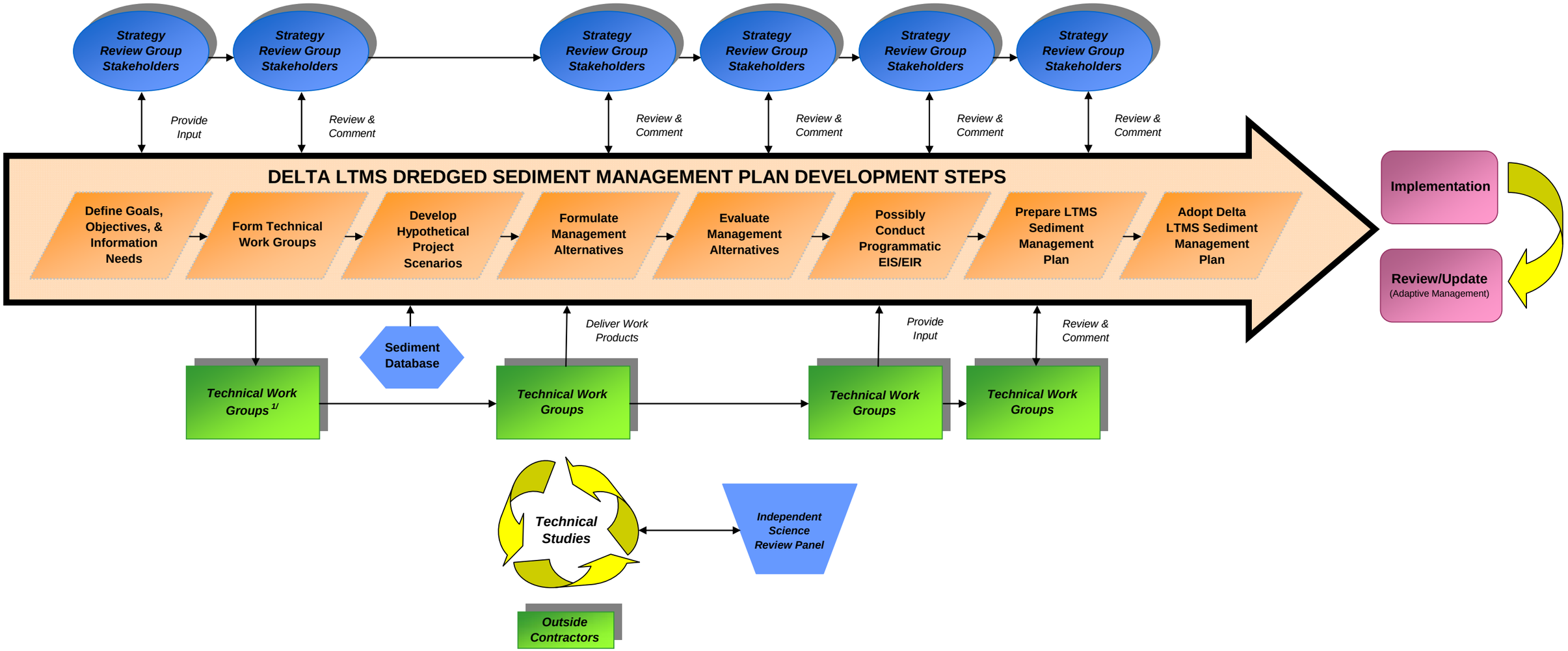
As described in Section 1.3, a series of stakeholder meetings, one-on-one interviews and targeted outreach programs were used to develop a list of overall goals, specific project objectives, and, subsequently, informational needs required to successfully prepare a regional sediment management plan for the Delta. That task has already been completed so is not included in this section.

3.1.2 Formation and Coordination of Technical Work Groups

The technical framework of the Delta LTMS will be driven by four key TWGs:

- Regional Dredging and Reuse Permitting;
- Testing Protocols Review;
- Programmatic BA Development; and
- Disposal and Reuse Alternative Development.

A key first step in the LTMS development process, therefore, has been working to form these groups and identify the scope and direction for each. Coordination between these groups and IWG/SRG will be critical to prevent overlap and to remain focused on project priorities. Group participation will be open to all LTMS stakeholders and participants can choose to attend whenever interests arise. Overall direction and approval will be provided by on a daily basis by the IWG and, ultimately, the Management Committee.



Footnote: [1/] Ex: Work groups include Scientific Technical Studies & Permitting Coordination Activities

Figure 3-1
Delta Dredged Sediment LTMS Development Process
Management Committee Review Draft

Each TWG will be led by an appropriate agency person chosen from amongst the agency stakeholders to be the primary point-of-contact for that group. Anchor Environmental will provide a technical liaison to each TWG for purposes of meeting coordination, note taking, document production services, etc. Once the point-of-contact for each TWG is chosen, its members will assemble for an initial kick-off meeting to review the scope and direction for the group, and choose a satisfactory meeting schedule and venue for future gatherings. The following sections describe the initial direction expected for each of the four TWGs.

3.1.2.1 Regional Dredging and Reuse Permitting Work Group

The purpose of this Work Group will be to review and summarize the current procedures required for each stakeholder agency, and address perceived confusion and inefficiencies regarding the proper regulatory steps required for permitting various dredging, disposal and reuse projects within the Delta.

Five key agencies currently have jurisdiction over different aspects of the dredging process within the Delta: the Corps, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Game (CDFG), and the CVRWB. In addition to these organizations, various ordinances and land use restrictions of local agencies, such as the county or municipality, may apply to dredging projects with land disposal. In some cases, other agencies such as the California Department of Transportation, California Department of Conservation, and Reclamation Board also may require permits.

Prior studies conducted by the CALFED Bay-Delta Program and summarized in the June 2002 Delta Dredging and Reuse Strategy (DDRS) report identified specific areas where the current regulatory process could be enhanced, and recommended several key topics for future study. These include:

1. Developing general order Waste Discharge Requirements to help streamline the Regional Board's approval process;
2. Prepare a programmatic EIR/EIS that addresses all of the requirements of CEQA and National Environmental Policy Act (NEPA) for all impacts associated with maintenance dredging, disposal and reuse projects – a

general order already exists for maintenance dredging of the deep water ship channels which could be used as a starting point for additional general orders;

3. Develop regional permits to reduce redundancy in the process and expedite agency review;
4. Develop programmatic biological opinions (addressed by separate Work Group); and
5. Form multi-agency review committee for dredging projects to meet routinely and review processes and potential improvements.

The members of this Work Group should use the information developed for the CALFED program as a basis for beginning this evaluation and build upon it to reach consensus among the members for making recommendations to the Management Committee.

In order for this Work Group to be successful, staff participation from the following Delta LTMS stakeholders must occur:

- Corps (Sacramento and San Francisco Districts);
- USEPA;
- DWR;
- CBDA; and/or
- CVRWB.
- Staff participation and technical contributions from other agencies (State or Federal) or stakeholders would be beneficial to assist completing the proposed tasks.
- Other agencies that will be crucial and may have permitting authority for dredging or disposal sites include: State Lands Commission, Department of Water Resources.

A total of three main deliverables are expected from this Work Group along with monthly updates in the form of progress memos or verbal updates at the IWG and/or SRG meetings.

1. Permitting Summary/Value Stream Analysis – The first deliverable will be a summary of the current permitting processes required for dredging, disposal and reuse of sediments within the Delta system, including areas where agencies overlap in their jurisdiction. This information should be separated by upper and lower reaches, and again by navigable waters and flood control channels. Input will be required from the Work Group created to identify current and future potential disposal and reuse opportunities. Core agency participants should take the lead in preparing this deliverable. The likely method to develop this summary and identify opportunities and constraints will be through a Corps directed Value Stream Analysis under the Lean-Six-Sigma program currently in use throughout the Corps' South Pacific Division.
2. Joint Permit Application – The second deliverable will be a draft consolidated permit application including all required information to meet the needs of the appropriate agencies with jurisdiction over regional dredging projects. The goal of this deliverable will be to create a template that can be used by the Management Committee in the short-term.
3. Dredged Material Management Office (DMMO) – The third deliverable will be a review , and possibly a recommendation (if deemed beneficial), for the formation of a Delta DMMO, similar to those in place for the Bay Area and the Northwest states. If implemented, a Delta DMMO should be led by the Corps of Engineers Sacramento District, and involve assigned regulatory agency personnel from dredging stakeholder groups. If the work group ultimately recommends the formation of a DMMO, a strategy should be developed to outline issues associated with individual agency participation, jurisdiction for each dredging, disposal and reuse strategy, funding sources within each agency, meeting procedures, permit application submittal and review and approval processes. A draft Strategy should be submitted for Management Committee and IWG approval. Comments on the draft will then be incorporated into a final version for review and comment by the rest of the Delta LTMS Stakeholders.

Formation of a DMMO is a large logistical issue requiring significant input from agencies, especially the Corps and USEPA. As such, the task to decide if one is warranted for the Delta Region is included as an early step in the LTMS process to promote early coordination and allow time for resolution of staffing, funding, and other logistical issues. The DMMO formation, if it occurs, will largely be a parallel

track, and the LTMS stakeholders should expect some periodic updates from the Corps and USEPA on this task.

It is anticipated that, at a minimum, the Work Group will meet once a month to collaborate on achieving the tasks specified and addressing priority of short and long-term issues pertaining to the permitting process. Work Group participants should also anticipate a minimum of 10 hours a month to review, produce, or discuss documents relevant to the permitting deliverables listed below. The Value Stream Analysis may require a one-time commitment of 2 to 4 consecutive days by all key participants.

3.1.2.2 Testing Protocols Review Work Group

The Strategy Review Group identified reviewing appropriate testing protocols for the characterization of sediments proposed for dredging and disposal as a critical issue for the Delta LTMS program. Existing methods and protocols for the evaluation of dredged material will be reviewed and documented.

The DDRS provides a technical analysis of potential contaminants in dredge material related to impacts on water quality, human health and biological resources. This document provides a foundation with which the Work Group can move forward. It provides a summary of the existing information (e.g., chemistry, dredging project, etc.) and water testing protocols within the Delta (2002). The DDRS made recommendations in Chapter 6 for future research and analyses for specific tests and evaluating new contaminants of concerns. The Work Group should review and if appropriate prioritize these recommendations for implementation.

Utilizing the DDRS as a starting point, the Work Group will have a head start on the subtasks identified below:

1. Literature Search – The Work Group will conduct a review of the current methods and protocols used to characterize sediments proposed for dredging and disposal, as well as any information regarding the method's technical accuracy. As previously stated, the DDRS (Volumes I and II) provides a solid foundation for this information. The Work Group will need to update this summary with current testing protocol information accessible from the

sediment database developed under a separate task as well as from other programs around the nation such as the Northwest Regional Sediment Evaluation Framework (Corp et al. 2006). Once testing protocol information has been updated, the Work Group can then identify new procedures possibly developed for other regions.

2. The Work Group will review regional sediment quality data from LTMS data base.
3. A sediment characterization framework for dredging and disposal will identify a list of chemicals of concern, physical parameters; elutriate tests, and biological tests appropriate for characterizing Delta sediments. This framework will use a risk based approach, will be adaptive, and integrate new methods or processes as they are approved by the Work Group, IWG, and possily a DMMO (if created).
4. The final report will provide recommendations for testing protocols for dredging, disposal, and beneficial use of dredged sediment in the Delta. It will also include a process for annual reviews to assess the accuracy and predictability of the testing framework. This review process will include implementation of adaptive management, introducing new methods or testing protocols where pertinent.

Overall, the key focus of this group should be to determine what testing methods most accurately characterize dredge material and their placement sites in terms of possible impacts to water quality. For example, the group should be focused on how soil conditions in the delta may attenuate contaminants at dredge placement and reuse sites. The goal is to reduce the uncertainty of dredge material placement on water quality so more informed decisions can be made by the Board and more certainty for the dischargers. In order for this Work Group to be successful, staff participation from the following stakeholders must occur:

- Corps (Sacramento and San Francisco Districts);
- USEPA;
- DWR;
- CBDA; and/or
- CVRWB.

- Experienced staff participation and technical contributions from other agencies (State or Federal) or stakeholders would be beneficial to assist completing the proposed tasks.

The primary deliverables for this Work Group are expected to include:

- A list of chemicals of concern;
- Sediment screening guidelines established using a risk based approach;
- Elutriate tests for various disposal options;
- Biological tests for various disposal options; and
- A Final Report detailing recommendations for a comprehensive characterization framework and annual review process. Recommendations for additional studies will also be included with this report.

These deliverables will focus on developing a strategy for applying the correct test to the right application rather than developing new tests. The draft report will be submitted to the IWG for review and approval. A draft final report will then be submitted to the Strategic Review Committee for review and comment. If approved, the framework will then be incorporated into each of the agencies current dredging project approval process. The Work Group chair will provide monthly updates in the form of progress memos or verbal updates at the IWG and/or SRG meetings.

It is anticipated that, at a minimum, the Work Group will meet once a month to collaborate on achieving the tasks specified and addressing priorities of short and long-term issues pertaining to the permitting process. Work Group participants should also anticipate a minimum of 10 hours a month to review, produce, or discuss documents relevant to the regional disposal and reuse alternative deliverables listed below.

3.1.2.3 Programmatic Biological Assessment Development Work Group

The Strategy Review Group identified a potential need for developing a programmatic biological opinion as a critical issue for the Delta LTMS. Currently, individual projects are reviewed by NMFS and USFWS and often have been time consuming and difficult on all parties due to the lack of data. Therefore, to address

the lack of consolidated data related to biological resources and potential impacts from dredging and disposal within the Delta, several tasks are proposed to help formulate a programmatic BA.

The Work Group will need to accomplish the following components listed below before a Programmatic Biological Assessment can be written and implemented for Delta dredging projects:

1. Literature Search/Review Summary Report – A comprehensive review of existing data related to the physical and biological baseline conditions within the Study Area will be conducted. The participating resource agencies will provide the federally- and state-listed species and critical habitat in the Delta and their status. They will also provide each species life history and population dynamics. Stakeholders and other interested parties can submit pertinent information to the group for their review and inclusion in the baseline. This baseline will be used to determine how projects may affect biological resources and physical conditions, and whether there have been significant changes in habitat values and resources compared to historical conditions. The literature search will also identify data gaps to help prioritize the need for additional studies such as biological surveys or water quality monitoring.
2. Biological Surveys – Data gaps for biological resources identified in the previous component will be prioritized. Once prioritized, the Work Group will present a study design specific for the biological resource identified. These will then be distributed to the SRG to seek support and funding for completion. Once a survey/study is completed the Work Group will review the data and integrate it into the overall BA.
3. Evaluation of Impacts – In the interim of finalizing additional studies or surveys, preliminary environmental windows could be established for species with sufficient supporting data. This approach will need to be discussed and reviewed with the resource agencies as well as other regulatory agencies. Regardless of an interim approach, the final programmatic BA will evaluate the potential impacts from proposed dredging projects (e.g., maintenance dredging) to resources and provide biological windows when dredging and disposal may occur while still providing resource protection.

In order for this Work Group to be successful, staff participation from the following Delta LTMS stakeholders must occur:

- Corps (Sacramento and San Francisco Districts);
- USEPA;
- DWR;
- CBDA; and/or
- CVRWB.
- The Resource Agencies: Marine National Fisheries Service, U.S. Fish and Wildlife Service, and California Department of Fish and Game are critical participants in this process. Staff from these agencies must participate.
- Experienced staff participation and technical contributions from other agencies (State or Federal) or stakeholders would be beneficial to assist completing the proposed tasks.

The primary deliverables for this Work Group are expected to include:

- A list of species of concern, their life history and population dynamics;
- An environmental baseline for the Study Area (Delta);
- Proposed additional studies;
- BMP recommendations for use by the Permitting Review Work Group;
- Interim environmental windows; and
- A Final Programmatic Biological Assessment.

The Work Group chair will provide monthly updates in the form of progress memos or verbal updates at the IWG and/or SRG meetings. The Science Review Panel will be asked to review this information, as appropriate.

It is anticipated that, at a minimum, the Work Group will meet once a month to collaborate on achieving the tasks specified and addressing priority of short and long-term issues pertaining to the permitting process. Work Group participants should also anticipate a minimum of 10 hours a month to review, produce, or discuss documents relevant to the regional disposal and reuse alternative deliverables listed below.

3.1.2.4 Dredge Material Disposal and Reuse Alternatives Development Work Group

This Work Group will develop a list of current regional disposal sites, reuse alternatives and hypothetical project scenarios. The list will provide information on project types, sediment type and quality, volumes dredged, disposal allocations and disposal site capacities. Once this information is compiled and existing conditions are mapped out – typical and atypical project scenarios can be generated. This process will dovetail with the permitting process and may generate changes in the permitting application or testing to address standardization.

Proposed activities for the Regional Disposal and Reuse Alternatives Development Work Group shall include the following items:

- Review and summarize what alternatives currently exist for Delta projects and how often they are used;
- Determine how successful past projects have been;
- Review and evaluate alternatives from other regions for use in Delta;
- Assess recommendations for screening criteria and testing processes for reuse alternatives (See Testing Protocols);
- Identify end users and/or disposal sites for use in Delta;
- Evaluate and identify a centralized dredged material re-handling facility;
- If needed, identify improvements to existing alternatives;
- Identify long-term sediment management needs (i.e., capacity accommodations for increasing or decreasing volume of material of the next 50 years); and
- Develop a decision making policy and sediment management plan.

The members of this Work Group should use the information developed for the CALFED DDRS as a basis for beginning this evaluation and build upon it to reach consensus among the members for making recommendations to the Management Committee. Other key sources of information that should be considered include the following documents:

- Long-term management strategy (LTMS) for the placement of dredged material in the San Francisco Bay region. Management Plan 2001. Prepared

by U.S. Environmental Protection Agency, Region IX; U. S. Army Corps of Engineers, San Francisco District; San Francisco Bay Conservation and Development Commission; and San Francisco Bay Regional Water Quality Control Board, California State Water Resources Control Board. San Francisco, CA.

- Contaminated Sediments Task Force, Los Angeles Region. Long-Term Management Strategy. Prepared for the CSTF by Anchor Environmental CA, L.P., Everest International Consultants, Inc., and AMEC Earth and Environmental, Inc.
- U.S .Environmental Protection Agency. 1994. ARCS Remediation Guidance Document. USEPA 905-B94-003. Chicago, Ill.: Great Lakes National Program Office.
- Northwest Sediment Evaluation Framework. Interim Final 2006. Prepared by Corps Seattle District, USEPA Region X, Washington Department of Ecology, Washington Department of Natural Resources, Oregon Department of Environmental Quality, Idaho Department of Environmental Quality, National Marine Fisheries Service, U.S. Fish and Wildlife.

In order for this Work Group to be successful, staff participation from the following Delta LTMS stakeholders must occur:

- Corps (Sacramento and San Francisco Districts);
- USEPA;
- DWR;
- CBDA; and/or
- CVRWB.
- Experienced staff participation and technical contributions from other agencies (State or Federal) or stakeholders would be beneficial to assist completing the proposed tasks.

The primary deliverable for this Work Group will be a list of agency approved, cost effective, and technically feasible disposal and reuse alternatives for use with Delta dredging projects. Alternatives should be separated, as appropriate, by sub-region, and type of dredge scenario. Recommendations for additional study, if needed, would be developed by this Work Group and presented to the Management

Committee for approval and to assist in developing funding opportunities. The Science Review Panel will also review this information, as appropriate. The report will form the basis for the management alternatives evaluated in the EIR/EIS.

It is anticipated that at a minimum the Work Group will meet once a month to collaborate on achieving the tasks specified and addressing priority of short and long-term issues pertaining to the permitting process. Work Group participants should also anticipate a minimum of 10 hours a month to review, produce, or discuss documents relevant to the regional disposal and reuse alternative deliverables listed below.

3.1.3 Sediment Quality Database Development

A sediment quality database is being developed to assist in identifying and quantifying past and planned dredging activities for navigation, flood control, water conveyance, recreation, and other Delta functions. The goal of this task is to develop and document a database on sediment quality and populate it with data from the San Francisco Bay Delta. The database will be used for characterizing sediments in areas planned for dredging to assess quality and aid in selecting appropriate management approaches. Example management approaches include selection of potential material suitable for wetland creation, rehabilitation, and restoration; levee maintenance; and other dredge material beneficial re-use schemes. The database should also have the potential to support other possible purposes as well, including, but not limited to applied research.

The database will be prepared using: (1) data from the Corps which contains information prior to 2001 from Sacramento District which has already been compiled; (2) data the contractor (Exa) is in possession of for related projects; and (3) additional sources. Efforts will be focused on quality assurance of the existing pre-2001 data as well as compiling post-2001 data not already in the database. The work will incorporate the DDRS database compiled by CDFG in 2002. The work will also be coordinated with the State's Sediment Quality Objectives (SQOs) project conducted by the State Water Board to the extent possible, and related efforts conducted by the CVRWB, and other possible partners to be identified at a later time, to optimize these efforts and provide cost sharing efficiencies.

Data from the various sources may be in a variety of digital and hard copy formats. The type of data used should include sediment contamination, toxicity, benthic fauna, fish and tissue data as well as other incidentally collected water quality (dissolved oxygen, temperature at the time of data collections) or other data that may aid in understanding sediment quality and toxicity issues. The database documentation will include a description of the elements in the database and an evaluation of its contents will also be provided.

Documentation should answer questions such as:

- Which sediment contaminants were measured?
- What collection and analytical methods were used?
- Do the method detection limits meet QA/QC guidelines?
- Are toxicity test protocols using standard ASTM methods?
- Were appropriate laboratory methods used?
- Which species, tissue type, methods used, etc.?
- Which contaminants were measured?
- Where were samples taken?

The format of the database will be easily transferable to other database types and formats, including those that can be used across a web interface and easily convertible to GIS format with measurements as attributes. Further, the database will be structured such that new data may be added in a relatively straightforward manner. The database will be easily usable by a broad range of stakeholders, including the Corps, other Federal, State, and local agencies as well as non-governmental concerns. It is anticipated that in the future, data should be available in a web-based format requiring no specialized programs and/or cost for the typical end-user. Determining such structure will be an important part of the task and should be accomplished in part with input from the Corps.

Because the quantity and quality of data available are not clearly known, a first priority will involve documenting data sources. It is realized that the product to be produced is one which will be complete and usable as delivered, but may of necessity document

steps required to incorporate data which could not be completely addressed due to logistic difficulties.

3.1.4 Develop Hypothetical Project Scenarios

The Disposal and Reuse Alternative Development TWG will lead in developing a series of hypothetical project scenarios as part of its mandate. Significant input will be required from all the Technical Work Groups, as well as the IWG and Management Committee members.

Hypothetical project scenarios consist of dredging projects that most (i.e., 75 percent or more) of the typical dredging projects in the Study Area. For example, one hypothetical scenario will likely be maintenance dredging of deep-water ship channels. This project scenario would then describe a "typical" project in terms of volume, material type, equipment, and disposal locations/issues. Once the project scenarios are developed, they become the critical element in forming the "project description" component of the LTMS EIS/EIR.

3.1.5 Identification and Evaluation of Management Alternatives

The Disposal and Reuse Alternative Development TWG will also be charged with the lead in developing a series of dredged material management alternatives (see 3.1.2.4) and evaluating them against a series of criteria, also to be developed by the group. All information developed by the work group will be presented to the IWG for comment and approval.

Example alternative evaluation criteria may include: short and long-term effectiveness, implementability, environmental impacts, environmental benefits, cost, and public acceptance. Based on these evaluations, a recommended decision framework should be developed for each hypothetical project scenario. These analyses and the decision framework will eventually form the basis of the technical evaluation in the LTMS EIS/EIR.

3.1.6 Development of a Programmatic EIS/EIR

Corps policy described in EC 1165-2-200 requires each Corps District to develop a dredged material management plan (DMMP) (or LTMS) for each harbor or jurisdiction to address dredged material management. This policy encourages the development of a range of feasible management alternatives that are cost effective and environmentally acceptable, use sound engineering techniques, and that optimize the beneficial reuse of dredged materials. The LTMS also ensures that sufficient confined disposal facilities and beneficial reuse opportunities are available for at least the next 20 years. A management plan is usually developed for an individual harbor; however, as part of the Delta LTMS program, the Corps is proposing to develop a master LTMS for the Study Area. The environmental documentation for the LTMS would take the form of a Programmatic EIS (PEIS).

The primary objective of this PEIS is to identify potential environmental impacts of the proposed LTMS on a regional basis. Components of the LTMS would summarize the future (20 years) disposal/management needs for the Region, the expected physical and chemical characteristics of the dredged material, the potential available reuse and disposal alternatives in the Region, and a strategy for evaluating and selecting the most appropriate management alternative given varying project scenarios. To accomplish this task, hypothetical project scenarios will be developed and evaluated by the technical work groups.

In order for this EIS/EIR and Sediment Management Plan to be completed, staff participation from the Corps of Engineers must include participation from the Regulatory, Real Estate, Planning, Engineering, and Programs and Project Management Functions. LTMS stakeholder agencies will provide comments on the draft and final documents, and the output of the TWGs is crucial to the EIS/EIR technical analyses (as described before). Comments will be solicited from all participating LTMS agencies and the public.

The primary deliverable will be the completed Programmatic EIS/EIR, which will be a key component of the Sediment Management Plan. It is anticipated that completion of the EIS/EIR will take between 12 and 18 months. Some of the specific subtasks for the Delta LTMS PEIS are described below.

3.1.6.1 Environmental Baseline Conditions

Development of the environmental baseline within the Delta is necessary for accurate evaluation of existing conditions and impacts of various alternatives. Baseline condition evaluations will include the general sediment characteristics of the region; water resources within the region; amounts and frequency of dredging; and a description of the environmental baseline for relevant NEPA/CEQA and Clean Water Act variables including all relevant aspects of the human and biological environment.

- *Sediment and Dredged Material Characteristics* – Will describe the typical characteristics of dredged material in the Study Area. Utilize the typical scenarios developed under the Hypothetical Project Scenarios Task (and Technical Work Group).
- *Biological Surveys* – The results of the Biological Assessment Work Group effort will be incorporated into an evaluation of biological resources in the region, and inform the evaluation of impacts.

3.1.6.2 Project Scenarios and Alternatives Development

The hypothetical project scenarios and management alternatives framework developed by that TWG will be the basis of the technical evaluation.

3.1.6.3 Technical Analyses

- *Real Estate Analyses/Report* – Conduct a baseline and with-project analysis of property values and potential for changes in property value resulting from potential dredging and discharge of dredged materials within the Study Area.
- *Air Quality Report* – Conduct a baseline and with-project analysis of air quality, including potential air quality impacts of dredging and discharges of dredged material at a programmatic level.
- *Cultural Resources Report* – Conduct an inventory level assessment of listed and eligible sites under the auspices of Section 106 of the National Historic Preservation Association (NHPA).
- *Geotechnical Investigation Report* – Conduct a qualitative geotechnical evaluation of the condition of levees and channels within the Study Area, consisting primarily of a detailed literature search and, possibly, new field assessments if deemed necessary by the technical working groups.

- *Hydrologic Investigation Report* – Conduct a hydrologic evaluation of the Sacramento and San Joaquin River systems.
- *Cost Estimates* – Evaluate costs associated with management alternatives presented and calculate B/C ratios.
- *Public Process Documentation* – Summarize public involvement, including progress meetings, agency coordination, NEPA/CEQA scoping, workshops, etc.

3.1.6.4 Impacts Analysis and Programmatic 404(b)(1) Evaluation

Based on the suite of management alternatives developed, baseline conditions identified, and technical analyses identified, conduct a NEPA/CEQA impacts evaluation and programmatic 404(b)(1) evaluation for each hypothetical dredging scenario. Discuss relative benefits and impacts of each management alternative for each hypothetical dredging scenario.

3.1.7 Sediment Management Plan Report Development

The results of the EIS/EIR will form the basis of the Sediment Management Plan, which will contain management level recommendations for hypothetical project scenarios and function as an Executive Summary of the process. This document will essentially become the long-term management strategy document for the Delta. It will summarize the entire development process, individual work products, stakeholder meetings, alternative development and evaluation process and conclusions made by the various committees. It is intended to be a living document that will be reviewed and updated though an adaptive management process.

3.2 Project Schedule and Task Relationships

Using the list of initial tasks presented in Section 3.1, and the LTMS developmental process flow chart presented in Figure 3-1, an example project schedule (Figure 3-2) was developed for each main task and key deliverable expected over the duration of the Delta LTMS Study. Where appropriate, task inter-relationships have been identified and mapped. The content and relationships presented in this figure are intended purely to describe the planned activities as of the time this Work Plan was prepared. This information will be updated frequently as additional details become available. In addition, the colors used in the figure are not of significance and are only intended to represent visual breaks in the tasks.

ID		Task Name
1		Form Technical Work Groups
2		Review Stakeholder Issues & Concerns
3		Develop Common Technical Needs
4		Create Work Groups & Draft Directives
5		Present to SRG
6		Incorporate SRG Comments
7		Present to Management Committee
8		Incorporate MC Comments
9		Solicit Volunteers
10		Form Work Groups
11		Schedule Kick-off Meetings
12		Dredging,Disposal,& Reuse Permitting Work Group
13		Work Group Kick-off Meeting
14		Prepare Permitting Summary
15		Develop Joint Permit Application
16		Create Dredge Material Management Office (DMMO)/Ad HOC Agency Group
17		DMMO/Ad HOC Agency Group meets as needed to review/implement processes
18		Testing Protocols Report Work Group
19		Work Group Kick-off Meeting
20		Develop List of COCs
21		Review Sediment Screening Guidelines
22		Review Elutriate & Bilogical Test Protocols
23		Prepare Recommendations
24		Programmatic Biological Assessment Development Work Group
25		Work Group Kick-off Meeting
26		Conduct Literature Search
27		Conduct Biological Surveys
28		Evaluation of Impacts (Biological Assessment)
29		Regional Disposal & Reuse Alternative Development Work Group
30		Work Group Kick-off Meeting
31		Develop Hypothetical Project Scenarios
32		Define Study Area
33		Summarize Typical Conditions
34		Physical
35		Water Quality
36		Sediment Quality
37		Contaminants
38		Dredge Volumes
39		Group Scenarios
40		Develop Alternatives for each Scenario
41		Prepare Recommendations Report
42		Develop Sediment Database
43		Develop Data Contact List
44		Create Data Inventory
45		Prioritize Data
46		Draft Database
47		Stakeholder Review
48		Final Database
49		Formulate Management Alternatives
50		Formulate Alternatives for Each Scenario
51		IWG Review
52		SRG Review
53		Management Committee Review
54		Evaluate Management Alternatives
55		Formulate Evaluation Criteria
56		IWG Review
57		SRG Review
58		Management Committee Review
59		Conduct Evaluations
60		Programmatic EIS/EIR
61		Public Scoping Meeting
62		Revise Project Alternatives
63		Develop Significant Criteria
64		Present Significant Criteria to Resource Agencies
65		Present Significant Criteria to IWG for Approval
66		Present Significant Criteria to SRG for Approval
67		Complete Baseline Conditions
68		Complete Alternatives Evaluation
69		Draft EIS/EIR
70		Public Comment Period
71		Respond to Public Comments
72		Final EIS/EIR
73		Prepare LTMS Sediment Management Strategy
74		Develop Strategy Report Outline
75		Review Approach with IWG
76		Review Approach with SRG
77		Prepare Draft Document
78		Science Review Panel Review
79		Final Document
80		Adopt Delta LTMS Sediment Management Plan

2007: Qtr 1 (Dec, Jan, Feb) | Qtr 2 (Mar, Apr, May) | Qtr 3 (Jun, Jul, Aug) | Qtr 4 (Sep, Oct, Nov)
2008: Qtr 1 (Dec, Jan, Feb) | Qtr 2 (Mar, Apr, May) | Qtr 3 (Jun, Jul, Aug) | Qtr 4 (Sep, Oct, Nov)
2009: Qtr 1 (Dec, Jan, Feb) | Qtr 2 (Mar, Apr, May) | Qtr 3 (Jun, Jul, Aug) | Qtr 4 (Sep, Oct, Nov)
2010: Qtr 1 (Dec, Jan, Feb) | Qtr 2 (Mar, Apr)

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

Figure 3-2
Delta LTMS Project Schedule
Management Committee Review Draft

3.3 Estimated Task Costs

Estimated project costs have been developed purely for planning level purposes based on assumptions developed for similar efforts conducted in San Francisco, Los Angeles, and Puget Sound (Table 3-1). When possible, cost estimates have been adjusted to match the estimated level of effort expected for Delta-specific investigations. These costs should not be used for anything other than to project an expected level of effort for each of the primary steps in the development process based on the assumptions currently available. More refined estimates will be prepared as additional details become available. While Table 3-1 presents line items for specific sub-tasks, cost estimates are only provided for higher level categories.

Table 3-1
Summary of Estimated Costs

Corps Work Level [1]/	Description	Federal costs	Non-Fed in-Kind	Total costs
1	**Delta LTMS Program**	---	---	---
5	**IWG meetings**	$150,000	$150,000	$300,000
5	**SRG meetings**	$200,000	$200,000	$400,000
5	**Formulation of Science Advisory Committee**	$200,000	---	$200,000
2	**Strategy Development Process**	$50,000	$25,000	$75,000
3	**Identify Issues of Concern and Responsible Working Groups**	---	---	---
5	*Finalize Issues of Concern*	$15,000	---	$15,000
5	*Formation of Working Groups*	$15,000	---	$15,000
5	Testing Protocols Working Group	$250,000	$150,000	$400,000
5	Biological Windows Working Group	$250,000	$150,000	$400,000
5	Permitting Working Group	$250,000	$150,000	$400,000
5	Regional Disposal and Reuse Alternatives Working Group	$250,000	$150,000	$400,000
4	*Testing Protocols Report*	$50,000	$25,000	$75,000
5	Formulate Working Committee	---	---	---
5	Literature Search	---	---	---
5	Evaluation of Procedures	---	---	---
5	Present Preliminary findings to IWG and SRG	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
4	*Programmatic Biological Opinion*	$250,000	$150,000	$400,000
5	Literature Search	---	---	---
5	Interagency Meetings with Resource Agencies	---	---	---
5	Biological Surveys	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
4	*Regulatory Permitting Process Report*	$300,000	$150,000	$450,000

Table 3-1
Summary of Estimated Costs
(continued)

Corps Work Level [1]/	Description	Federal costs	Non-Fed in-Kind	Total costs
5	Formation of Working Group	---	---	---
5	Lean Six Sigma Value Stream Analysis	---	---	---
5	Development of Draft Joint Permit Application	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
3	**Develop Hypothetical Project Scenarios**	$150,000	$150,000	$300,000
4	*Regional Disposal and Reuse Alternatives*	---	---	---
5	Sediment Database	---	---	---
5	Evaluate Delta Sediment Characteristics	---	---	---
5	Assess Reuse and Placement Capacities	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
3	**Development and Evaluation of Management Alternatives**	$250,000	$150,000	$400,000
4	*Management Alternatives Report*	---	---	---
5	Formation of Working Group	---	---	---
5	Correlate reports from previous Groups and Identify Alternatives	---	---	---
5	Evaluate Management Alternatives	---	---	---
5	Prioritize Management Alternatives	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
2	**EIR/EIS**	$750,000	$100,000	$850,000
4	*Environmental Baseline Conditions within the Delta*	---	---	---
4	*Sediment and Dredged Material Characteristics*	---	---	---
4	*Water and Groundwater Quality w/in Project Area*	---	---	---
4	*Biological Surveys*	---	---	---
4	*Environmental Control Measures for Dredging/Disposal*	---	---	---
4	*Policy level mitigation measures and alternative development*	---	---	---
5	Draft EIS/EIR Report	---	---	---
5	Final EIS/EIR Report	---	---	---
5	With Project Economic Evaluations	---	---	---
5	*Real estate Analyses/Report*	---	---	---
5	Baseline Conditions	---	---	---
4	With Project Economic Evaluations	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
5	*Air quality Report*	---	---	---
5	Baseline Conditions	---	---	---
4	With Project Evaluations	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
5	*Cultural Resources Report*	---	---	---
5	Baseline Conditions	---	---	---
4	With Project Evaluations	---	---	---

Table 3-1
Summary of Estimated Costs
(continued)

Corps Work Level [1]/	Description	Federal costs	Non-Fed in-Kind	Total costs
5	Draft Report	---	---	---
5	Final Report	---	---	---
5	*Geotechnical Investigation Report*	---	---	---
5	Literature Search	---	---	---
4	Levee Investigations	---	---	---
5	Channel Investigations	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
5	*Hydrological Investigation Report*	---	---	---
5	Literature Search	---	---	---
4	Sacramento and San Joaquin River Summary	---	---	---
5	Draft Report	---	---	---
5	Final Report	---	---	---
5	*Cost Estimates*	---	---	---
5	Appraisal of Management Alternatives	---	---	---
4	Appraisal of EIR/EIS (mitigation measures)	---	---	---
5	Appraisal of SMP (cost implications)	---	---	---
5	*Public Involvement Documents*	---	---	---
5	Progress Meetings	---	---	---
4	Coordination with Agencies	---	---	---
5	Public Workshops in Support of SMP Development	---	---	---
5	Public Meetings/CEQA – NEPA Scoping	---	---	---
5	Public Meeting SMP scoping	---	---	---
2	**Sediment Management Plan**	$800,000	$250,000	$1,050,000
5	Draft Plan	---	---	---
2	Final Plan	---	---	---
5	*Supervision and Administration*	---	---	---
5	Planning Division	---	---	---
4	Engineering Division	---	---	---
5	Contracting Division	---	---	---
5	*Technical Review of Documents*	---	---	---
5	Technical Review – Working Group Reports	---	---	---
4	Technical Review – EIR/EIS	---	---	---
5	Technical Review – SMP	---	---	---
5	Technical Review – PMP	---	---	---
5	*Programs and Project Management and Budget Documents*	---	---	---
5	PM to Support Working Groups	---	---	---
4	PM to Support IWG and SRG meetings	---	---	---
5	PM to Support EIR/EIS development	---	---	---
5	PM to Support SMP development	---	---	---
	Total of Federal and Non-Federal Work	**$4,340,000**	**$2,100,000**	**$6,440,000**

[1]/ "Corps work level" is a term used in the Project Management Plan to define task levels. It has been carried over to this document to maintain consistency.

3.4 Task Responsibility Assignment

Although is has not been determined exactly which LTMS stakeholder will execute each of the tasks identified in this Work Plan, the Corps has committed (pending appropriate budget allocation) to complete most of the main categories. As such, Table 3-2 presents a responsibility matrix that identifies which specific tasks the Corps expects to complete and which tasks other stakeholders will be responsible.

Table 3-2
Responsibility Assignment Matrix

Corps Work Level [2]/	Description	Federal	Non-Fed	Other
1	**Delta LTMS Program**	X		
5	IWG meetings	X		
5	PRG meetings	X		
5	Formulation of Science Advisory Committee	X		
2	**LTMS Sediment Management Strategy Development**	X	X	X
3	**Identify Issues of Concern and Responsible Working Groups**	X		
5	*Finalize Issues of Concern*	X		
5	*Formation of Working Groups*	X		
5	Testing Protocols Working Group	X	X	X
5	Biological Windows Working Group	X	X	X
5	Permitting Working Group	X	X	X
5	Regional Disposal and Reuse Alternatives Working Group	X	X	X
4	*Testing Protocols Report*	X	X	X
5	Formulate Working Committee	X	X	X
5	Literature Search		X	X
5	Evaluation of Procedures	X	X	X
5	Present Preliminary findings to IWG and PRG	X	X	X
5	Draft Report	X	X	X
5	Final Report	X	X	X
4	*Programmatic Biological Opinion*	X	X	X
5	Literature Search	X	X	X
5	Interagency Meetings with Resource Agencies	X	X	X
5	Biological Surveys	X	X	X
5	Draft Report	X	X	X
5	Final Report	X	X	X
4	*Regulatory Permitting Process Report*	X	X	X
5	Formation of Working Group	X	X	X
5	Development of Draft Joint Permit Application	X	X	X
5	Draft Report	X	X	X
5	Value Stream Analysis	X		
5	Final Report	X	X	X
3	**Develop Hypothetical Project Scenarios**	X		

Table 3-2
Responsibility Assignment Matrix
(continued)

Corps Work Level [2]/	Description	Federal	Non-Fed	Other
4	*Regional Disposal and Reuse Alternatives*	X	X	X
5	Sediment Database	X		
5	Evaluate Delta Sediment Characteristics	X	X	X
5	Assess Reuse and Placement Capacities	X	X	X
5	Draft Report	X	X	X
5	Final Report	X	X	X
3	**Development and Evaluation of Management Alternatives**	X		
4	*Management Alternatives Report*	X	X	X
5	Formation of Working Group	X		
5	Correlate reports from previous Groups and Identify Alternatives	X		
5	Evaluate Management Alternatives	X	X	X
5	Prioritize Management Alternatives	X	X	X
5	Draft Report	X	X	X
5	Final Report	X	X	X
2	**EIR/EIS**	X		
4	*Environmental Baseline Conditions within the Delta*	X	X	X
4	*Sediment and Dredged Material Characteristics*	X	X	X
4	*Water and Groundwater Quality w/in Project Area*	X	X	X
4	*Biological Surveys*	X	X	X
4	*Environmental Control Measures for Dredging/Disposal*	X		
4	*Policy level mitigation measures and alternative development*	X		
5	Draft EIS/EIR Report	X		
5	Final EIS/EIR Report	X		
5	With Project Economic Evaluations	X		
5	*Real Estate Analyses/Report*	X		
5	Baseline Conditions	X		
4	With Project Economic Evaluations	X		
5	Draft Report	X		
5	Final Report	X		
5	*Air quality Report*	X		
5	Baseline Conditions	X		
4	With Project Evaluations	X		
5	Draft Report	X		
5	Final Report	X		
5	*Cultural Resources Report*	X		
5	Baseline Conditions	X		
4	With Project Evaluations	X		
5	Draft Report	X		
5	Final Report	X		
5	*Geotechnical Investigation Report*	X		
5	Literature Search	X		

Table 3-2
Responsibility Assignment Matrix
(continued)

Corps Work Level [2]/	Description	Federal	Non-Fed	Other
4	Levee Investigations	X		
5	Channel Investigations	X		
5	Draft Report	X		
5	Final Report	X		
5	*Hydrological Investigation Report*	X		
5	Literature Search	X		
4	Sacramento and San Joaquin River Summary	X		
5	Draft Report	X		
5	Final Report	X		
5	*Cost Estimates*	X		
5	Appraisal of Management Alternatives	X		
4	Appraisal of EIR/EIS (mitigation measures)	X		
5	Appraisal of SMP (cost implications)	X		
5	*Public Involvement Documents*	X		
5	Progress Meetings	X		
4	Coordination with Agencies	X		
5	Public Workshops in Support of SMP Development	X		
5	Public Meetings/CEQA - NEPA Scoping	X		
5	Public Meeting SMP scoping	X		
2	**Sediment Management Plan**	X		
5	Draft Plan	X		
2	Final Plan	X		
5	*Supervision and Administration*	X		
5	Planning Division	X		
4	Engineering Division	X		
5	Contracting Division	X		
5	*Technical Review of Documents*	X		
5	Technical Review - Working Group Reports	X		
4	Technical Review - EIR/EIS	X		
5	Technical Review – SMP	X		
5	Technical Review – PMP	X		
5	*Programs and Project management and Budget Documents*	X		
5	PM to Support Working Groups	X		
4	PM to Support IWG and SRG meetings	X		
5	PM to Support EIR/EIS development	X		
5	PM to Support SMP development	X		
5	*Contingencies*	X		

[2]/ "Corps work level" is a term used in the Project Management Plan to define task levels. It has been carried over to this document to maintain consistency.

4 TECHNICAL QUALITY CONTROL PLAN

Maintaining strict quality control throughout the development of the Delta LTMS is critical to the entire agency stakeholder group. To assist in ensuring that all work products are of the highest scientific credibility, a technical quality control plan has been developed.

4.1 Quality Control Plan Objective

The overriding objective of the LTMS Quality Control (QC) Plan is to ensure that all project deliverables are scientifically reviewed at multiple levels to ensure not only their technical efficacy, but also their appropriate use within the development of the Delta LTMS work products. Achieving this QC Plan objective will be accomplished through internal contractor review, internal agency review with each of the IWG members, stakeholder review by the SRG members, and independent technical review by unaffiliated representatives. Sections 4.2 through 4.4 provide additional details on this process.

4.2 Guidelines Followed For Technical Review

The following guidelines will be observed for QC of Delta LTMS deliverables:

- Deliverables will be easily understood by the public and agency stakeholders, and be properly formatted and of professional quality;
- Deliverables will be scientifically accurate, i.e., unit conversions and measurements;
- Statements of fact will be supported based on peer reviewed literature, past agency studies, and the testimony of experts;
- Deliverables will contain accurate references to environmental regulations, and not propose or suggest processes that violate any regulation; and
- Deliverables will be reviewed at the appropriate level dependent on the task and responsible work group.

4.3 Document/Work Product Review Steps

All LTMS deliverables will be subject to QC Plan review. Deliverables include but are not limited to this Work Plan; all TWG deliverables; the EIS/EIR, including technical analyses/reports; sediment database; and the final Sediment Management Plan.

Table 4-1 provides a summary of the *minimum* review steps that must be conducted for each LTMS work product. It should be noted that this list is very conservative because there will likely be several levels of review conducted within each of the IWG member organizations that is not listed in the Table. For example, within the Corps, all primary deliverables/ work products will be reviewed by each branch assigned by the Corps' Project Manager within the San Francisco and Sacramento Districts (i.e., real estate, regulatory, planning, operations, project management, legal, construction, engineering, etc.).

Table 4-1
Minimum Technical Review Steps for Delta LTMS Work Products

Work Product/Function	Primary Review Team	Secondary Review Team
• Data Calculations	• 100% of all calculations by internal contractor review • Appropriate use in work product by contractor review	• IWG Review • Independent Technical Review team
• Database Entries	• See Section 4.3	• See Section 4.3
• Technical Studies Recommended/Conducted by TWGs	• Internal contractor review • IWG • SRG	• Independent Technical Review team
• Programmatic EIS/EIR	• Internal contractor review • IWG • SRG	• Independent Technical Review team • Management Committee • Executive Committee
• Final Sediment Management Plan	• Internal contractor review • IWG • SRG	• Independent Technical Review team • Management Committee • Executive Committee

The DREDGE Database was originally created in support of the Delta Dredging and Reuse Strategy (DDRS) document (CDFG 2002), and has been modified for use in the Delta. For every table in the DREDGE, the following checks were employed:

- The number of records were tracked – any deleted records were saved in a separate table and the reason for deletion stored;
- The uniqueness of the records were evaluated, and reason for duplicates were assessed;
- The relationships between that table and others were assessed to ensure that there were no orphan records (for example, chemistry records with no record in the sample table);

- Each field within each table was evaluated for gaps (nulls) – if possible these gaps were filled;
- Each table was evaluated for consistency among the fields within each study – details are provided below; and
- Unreasonable data was identified within possible limits, including sample depths, dates, locations, and results outside of statistical ranges – an effort was made to find the original data to check these data.

4.4 Deviations from the Approved Quality Control Plan

Any deviations from the QC Plan will be subject to the review and discretion of the IWG and/or Management Committee.

5 PUBLIC INVOLVEMENT AND COORDINATION

The LTMS group is designed to be transparent to the public and aggressive in promoting public involvement. A number of measures are/will be employed to ensure a successful public involvement process. Some of the key steps taken by the IWG members to ensure public involvement and coordination include:

- Creating an open format structure for monthly meetings held to update the project's progress and solicit stakeholder input;
- Creating a website (www.deltaltms.com) to provide status reports, meetings schedules, meeting notes and handouts, technical reports, contact information and links to other useful websites;
- Developing fact sheets and press releases when key milestones are met to inform the public of the project's status;
- Presenting routine updates and technical studies at regional and national conferences;
- Preparing a Programmatic EIS/EIR with all necessary NEPA/CEQA public involvement elements; and
- Seeking public comment on all technical and policy-related work products, as well as the Sediment Management Plan.

6 DELTA LTMS/SMP AGENCY IMPLEMENTATION STRATEGY

Implementation of the LTMS and SMP is expected to occur either through the development of a Sacramento Delta DMMO or, at a minimum, the development of an ad-hoc permitting agency review group. If created, the DMMO would utilize the LTMS and SMP as part of its mandate and, like in other regional DMMOs, would conduct annual review meetings to evaluate and update technical processes (e.g., biological and chemical testing protocols and screening criteria) and policy guidelines. If an actual Delta DMMO is not created, the individual permitting agencies should still plan to meet on a routine basis to review upcoming projects and discuss strategies for implementing and updating the SMP. This latter approach has been adopted successfully in Southern California by the Advisory Committee of the Los Angeles Regional Contaminated Sediments Task Force (http://www.coastal.ca.gov/sediment/sdindex.html).

7 REFERENCES

Anchor Environmental CA, L.P., Everest International Consultants, Inc., and AMEC Earth and Environmental, Inc. 2005. Contaminated Sediments Task Force, Los Angeles Region. Long-Term Management Strategy. Prepared for the CSTF.

U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, California Bay-Delta Authority, and Central Valley Regional Water Quality Control Board. June 2006. Delta LTMS Process Framework.

U.S. Army Corps of Engineers Seattle District, USEPA Region X, Washington Department of Ecology, Washington Department of Natural Resources, Oregon Department of Environmental Quality, Idaho Department of Environmental Quality, National Marine Fisheries Service, U.S. Fish and Wildlife. 2006. Northwest Sediment Evaluation Framework. Interim Final 2006.

U.S .Environmental Protection Agency. 1994. ARCS Remediation Guidance Document. USEPA 905-B94-003. Chicago, Ill.: Great Lakes National Program Office.

U.S. Environmental Protection Agency, Region IX; U. S. Army Corps of Engineers, San Francisco District; San Francisco Bay Conservation and Development Commission; and San Francisco Bay Regional Water Quality Control Board, California State Water Resources Control Board. 2001. Long-term management strategy (LTMS) for the placement of dredged material in the San Francisco Bay region. Management Plan 2001. San Francisco, CA.

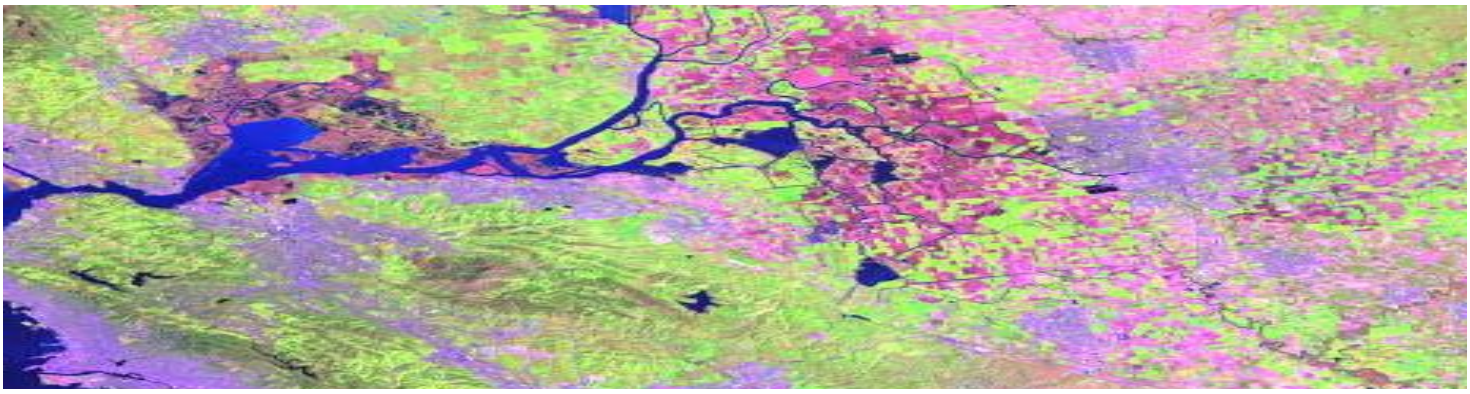
APPENDIX A

LTMS CHARTER AND FRAMEWORK

Long Term Management Strategy for Dredged Material in the Delta

(Delta LTMS)

PROCESS FRAMEWORK



Source: http://glovis.usgs.gov/

Long Term Management Strategy for Dredged Material in the Delta (Delta LTMS)

Process Framework

Pinole Shoal Management Study

November 2006

Delta LTMS Process Framework

1 Introduction and Background

The Delta estuary is the largest estuary on the West Coast. Covering more than 738,000 acres in five counties, it is a maze of tributaries, sloughs, and islands and a haven for plants and wildlife, supporting more than 750 plant and animal species, including more than 110 species listed as "species of concern." The Delta is critical to California's economy, supplying drinking water for two-thirds of Californians and irrigation water for more than 7 million acres of the most highly productive agricultural land in the world.

The Delta is also the hub of California's two largest water distribution systems – the Central Valley Project (CVP) operated by the U.S. Bureau of Reclamation (Reclamation) and the State Water Project (SWP) operated by the California Department of Water Resources (DWR). Maintaining high quality water in the Delta is critical for drinking water supplies, agricultural irrigation, and ecosystem function. More than 1,100 miles of levees protect the water conveyance functions, ecosystem, and land uses on Delta islands. The Sacramento and San Joaquin River channels also provide important shipping access to the Ports of Sacramento and Stockton.

In recent years, conflicts about levee rehabilitation, dredging, and placement of dredged sediments have been increasing. There is an ongoing need to explore alternatives and find solutions that will allow dredging of Delta channels for navigation, water conveyance, flood control, and levee maintenance, while, at the same time, protecting water quality and the ecosystem from levee work, dredging activities, and dredge material placement and reuse.

In the last several years, agencies, the public, political leaders, and the media have become increasingly concerned about the urgent need for levee rehabilitation in the Delta. One possible contributor to Delta levee rehabilitation is sediment management and reuse from dredging activities. At the same time, the Delta environment is showing signs of major stress and dysfunction, as evidenced by the rapid decline of pelagic species in recent years. Concerns about the complex and sensitive environment in the Delta necessitate stringent regulatory requirements for dredging and sediment reuse and placement in the Delta. These two apparently conflicting objectives, protection of the Delta environment and increased dredging and sediment reuse and placement, highlight the need for better coordination and management of Delta dredging and sediment management and reuse requirements.

In late 2004, local sponsors of Delta dredging projects and the U.S. Army Corps of Engineers (USACE) met to explore the feasibility of developing a long-term management strategy (LTMS) for dredging and dredged material placement or reuse in the Delta under the authority of the Pinole Shoal Management Study. The LTMS process was used successfully to develop a collaborative, coordinated approach to dredging and sediment management in San Francisco Bay.

In 2005, the USACE worked with stakeholders including other federal and state agencies to define a cooperative, collaborative, and operational approach to address the problems, challenges, and opportunities related to levee work, dredging, and placement in the Delta. This Process Framework is the result of those discussions.

This document describes the initial framework for the Delta LTMS, including the following:

- Study purpose, goals, and objectives
- Structure, participants, and roles

- Authorities and decision making
- Related programs
- Study activities and phases

This framework is intended to describe the overall purpose and structure of the process so participating agencies can confirm the purpose, participation, and resources for the Delta LTMS. As with any cooperative planning process, the framework will be refined as participation increases and implementation proceeds.

To address these concerns, the U.S. Army Corps of Engineers began working with four other federal and state agencies: U.S. Environmental Protection Agency (USEPA), the California Department of Water Resources (DWR), the Resources Agency, CALFED Bay-Delta Program (CALFED), and the California Regional Water Quality Control Board, Central Valley Region (CVWQCB). These five agencies drafted this initial Process Framework to describe a cooperative approach for developing an LTMS for Delta dredging.

2 Study Purpose

2.1 Problems, Challenges, and Opportunities

The Delta plays a critical role in a number of fronts bringing unique challenges and opportunities in establishment of a Long Term Management Strategy. These challenges and opportunities are in areas of management of sediment, ecosystem integrity, water conveyance, water quality and supply, navigation, recreation, flood control, and agriculture. The following is a brief description of these challenges and opportunities as they relate to the Delta:

Dredging – Dredging in the Delta is a critical activity for maintaining the important functions of the Delta – levee stability, flood control, navigation, ecosystem quality, water supply, and recreation. Dredging activities vary in size from small marina dredging projects to major channel deepening. There is no comprehensive planning for dredging in the Delta to determine the dredging and placement needs, potential beneficial uses of dredged material, or placement sites. In the last ten years, increasing concerns about the potential impacts of dredging on fisheries, habitat, and surface and ground water quality have resulted in greater restrictions on dredging operations and the placement or reuse of dredged material. Today, the complexity of the regulatory permit process for the Delta is viewed by dredging proponents as a major contributor to escalating project costs and lengthy study and review processes by those conducting dredging projects small and large. Delta dredging could support or harm the critical Delta features described below, including the ecosystem, levees, navigation, recreation, water quality, and water supply.

Ecosystem – The Delta ecosystem is the largest estuarine ecosystem on the west coast. It supports more than 750 plant and animal species. There are more than 110 species of fish, plants, animals, and birds in the Delta that are listed by state and federal agencies as “species of concern.” For the past ten years, state and federal resource agencies have focused hundreds of millions of dollars on ecosystem restoration projects to protect and enhance the ecosystem functions. In spite of those efforts, there are indications that much more needs to be done. For example, in the last several years, populations of pelagic fish have dropped precipitously.

Continued protection and enhancement of the Delta ecosystem and threatened and endangered species is necessary.

Levees – Delta levees are the most important infrastructure in the Delta. More than 1,100 miles of levees protect thousands of acres of homes and farmland, protect and provide important habitat, and convey fresh water supplies through the Delta for agriculture, municipal, and industrial water supplies. Approximately 410,000 people live in communities of the Delta protected by levees. The Delta levee system is at risk of chronic and catastrophic failure as a result of deferred maintenance, earthquake, or flood. The consequences of major levee failure in the Delta are potentially devastating for water quality, water supply, the ecosystem, and local property and economic activity.

Navigation – The Delta is also a transportation corridor for access to deep water ports in Stockton and Sacramento. Two federally authorized shipping channels exist in the Delta, the Sacramento Deep Water Channel and the Stockton Deep Water Channel. These channels provide access to foreign markets for Central Valley exports such as sulfur, rice and wheat, and imported goods such as cement, fertilizer, and steel. In 2004, more than 325 ships and barges transported nearly 3 million tons of goods through the ports. Without regular maintenance, the deep water channels fill with silt and debris, reducing access by ship traffic.

Recreation – Delta channels are an important recreation resource for the region. As cited in the 1998 Economic Impact of Regional Boating and Fishing in the Delta, boating and fishing recreation accounted for over $378 million in annual expenditures. The Delta boasts more than 100 marinas and waterside resorts, parks, and campgrounds, and more than 50 boat launching facilities. Protecting and enhancing the Delta fish populations and dredging to maintain marina access are high priority goals for recreation in the Delta.

Water Conveyance and Supply – The Delta provides fresh water for more than 23 million Californians and 7 million acres of the most highly productive farmland in the world. Delta channels and sloughs convey water from the major river systems to intake pumps throughout the Delta. The amount and quality of water diverted from the Delta is influenced by hydrology, water operations, and other activities in the Delta. Continued protection of the water supply system is critical for public health and the economy of California.

Water Quality – The waters of the Delta provide for several diverse, and sometimes conflicting, beneficial uses, including drinking water, habitat, irrigation, and recreation. The natural actions of an estuary, where fresh and salt water meet, pose substantial challenges in serving these beneficial uses. These challenges are made even greater by the human activities that channel, move, divert, and return water to the Delta. Protecting and enhancing water quality for all beneficial uses is critical for public health, recreation, and the sustained health of the Delta ecosystem.

2.2 Study Purpose Statement

As a result of these challenges, the five initial agencies, referred to as the Interagency Working Group (IWG) (USACE, USEPA, DWR, CALFED, and CVWQCB) have agreed to examine Delta dredging, reuse, and placement needs and explore ways to operationally improve the regulatory approval process for dredging in the Delta. The agencies seek to coordinate dredging planning and dredged material management in ways that protect and enhance the Delta environment and water quality. The agencies recognize the importance of dredging projects and

the need to explore the beneficial use of dredged material to stabilize levees, maintain and improve navigation channels, support ecosystem restoration, and maintain water supply and water quality. With these needs in mind, the agencies have drafted the following three-part project purpose statement:

1. The Delta LTMS will examine and coordinate dredging needs and sediment management in the Delta to maintain and improve channel function (navigation, water conveyance, flood control, and recreation), levee rehabilitation, and ecosystem restoration, and the beneficial use of dredged material.
2. Agencies and stakeholders will work cooperatively to develop a management plan that is based on sound science and protective of the ecosystem, water supply, and water quality functions of the Delta.
3. As part of this effort, the Delta LTMS will consider regulatory process improvements for dredging and dredged material management so that project evaluation is coordinated, efficient, timely, and protective of Delta resources.

3 Goals & Objectives

3.1 Study Goals

There are four overarching goals of the Delta LTMS. These four goals represent the benefits to be achieved from a coordinated sediment material management program and an improved dredging approval process:

- Manage sediment, including exploring the beneficial reuse of dredged material, to maintain and stabilize Delta levees that protect land-based activities and water conveyance
- Manage dredging activities and beneficial reuse to protect and enhance water quality for Delta water supply and ecosystem function
- Manage dredging activities to support and maintain Delta channel functions for navigation, flood control, water conveyance, and recreation
- Manage dredging activities and beneficial reuse to protect and enhance aquatic, wetland, and terrestrial ecosystems

3.2 Study Objectives

To achieve these goals, the Delta LTMS intends to improve coordination, planning, and approvals of Delta dredging activities and sediment management to achieve these specific objectives:

- Improve operational efficiency through the coordination and cooperation among agencies with dredging management responsibilities or regulatory authority over dredging activities
- Protect surface and groundwater quality

- Protect fish species and habitat
- Study the beneficial use of dredged material for levee stabilization or other uses
- Support ecosystem restoration activities in the Delta
- Support cost-effective dredging activities

4 Structure, Participants, and Roles

The Delta LTMS is organized to include an executive committee, management committee, interagency working group, strategy review group, science and technical work groups, and a science review panel as described in this section. In addition, public meetings are held to provide additional opportunities for input and feedback from interested parties.

4.1 Executive Committee

At the top level, an Executive Committee directs the overall program, sets policy direction, and provides oversight of the study. Subject to their approvals, the directors of each of the following agencies serve on the Executive Committee. The executive managers have the decision-making authority to represent the agency on the strategic and regulatory issues to be addressed. The agency Executive Committee generally meets annually or as necessary to establish guidance for the study and keep abreast of the progress of the Delta LTMS.

Federal Agencies

- U.S. Army Corps of Engineers, Commander, South Pacific Division
- U.S. Environmental Protection Agency, Regional Administrator, Region 9

State Agencies

- State Water Resources Control Board, Board member
- California Regional Water Quality Control Board, Central Valley Region, Chairperson
- California Department of Water Resources, Director
- Resources Agency, CALFED Bay-Delta Program, Director
- Delta Protection Commission, Chairperson

4.2 Management Committee

The Management Committee consists of the deputy-level managers for the state and federal agencies. The Management Committee oversees the work of the Interagency Working Group (IWG) and the Strategy Review Group, reviews recommendations, study plans, budget proposals, and provides recommendations to the Executive Committee. The Management Committee generally meets quarterly. Subject to their approvals, members of the Management Committee are:

- U.S. Army Corps of Engineers, District Commander, San Francisco District
- U.S. Army Corps of Engineers, District Commander, Sacramento District
- California Department of Water Resources, Deputy Director, Public Safety
- U.S. Environmental Protection Agency, Associate Director, Water Division, Region 9
- Resources Agency, CALFED Bay-Delta Program, Chief Deputy Director
- State Water Resources Control Board, Executive Director

- California Regional Water Quality Control Board, Central Valley Region, Executive Officer
- Delta Protection Commission, Executive Director
- NOAA Fisheries, Southwest Region
- U.S Fish and Wildlife Service, Pacific Region
- California Department of Fish and Game

4.3 Interagency Working Group

The Interagency Working Group (IWG) includes program-level staff at five agencies. The IWG serves as the primary program managers of the Delta LTMS process and steering committee for the Strategy Review Group. The IWG coordinates with the Management Committee, the Strategy Review Group and others with an interest in Delta activities and the LTMS process. The IWG's role is to identify study issues and questions to be addressed such as: identify technical work groups and expert resources, confirm purpose, charter, and assignments for the science review panel and technical work groups, discuss and review study work plans and scopes, discuss and review study budgets and resource needs, prepare and approve study reports, and develop management and strategic options for the Management and Executive Committees. Subject to their approvals, the members of the IWG consist of the following:

- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- California Regional Water Quality Control Board, Central Valley Region
- Resources Agency, CALFED Bay-Delta Program
- California Department of Water Resources

The Management Committee may identify other participants in the IWG.

4.4 Strategy Review Group

Delta LTMS activities are informed by the Strategy Review Group. The Strategy Review Group will consist of Interagency Work Group members and other interested governmental agencies. The meetings will be open to the public with an opportunity for interested individuals to participate. The Interagency Work Group agencies will invite stakeholders, and interest groups, and individuals working in or affected by Delta dredging and beneficial use activities for navigation, levee stability, flood control, water quality, or ecosystem restoration. The Interagency Working Group coordinates meetings monthly or as needed with the Strategy Review Group to identify, review, and discuss: 1) the Delta sediment issues of concern to be addressed by the Delta LTMS and in what order, 2) lines of inquiry that the science and technical work groups (described below) will be tasked to pursue, 3) coordinated regulatory approach for Delta dredging to be approved by the Executive Committee.

Members of the Strategy Review Group may also provide public comment at the Management and Executive Committee meetings. Subject to their approvals, the Strategy Review Group may include, but is not limited to the following agencies:

State and Federal Agencies

- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region

- California Department of Fish & Game
- Delta Protection Commission
- State Lands Commission
- Reclamation Board

In addition, members of the public will be invited to participate in the meetings of the Strategy Review Group, including, but not limited to, the following groups:

Local/Regional Agencies

- Reclamation Districts
- Contra Costa, Sacramento, Solano, Yolo, and San Joaquin Counties
- North, Central, and South Delta Water Agencies

Stakeholders and Interest Groups

- The Ports of Sacramento and Stockton
- Bay Planning Coalition
- DeltaKeeper
- The Nature Conservancy
- The Bay Institute
- Environmental Water Caucus
- California Sportfishing Protection Alliance
- California Farm Bureau Federation
- State Water Contractors
- California Delta Chambers

4.5 Science and Technical Work Groups

The Management Committee will establish specific science and technical work groups to address Delta LTMS issues. The science and technical work groups will consist of agency staff with expertise in the relevant subject areas. Technical work groups are open to interested participants from any agency, interest group, or the public. With the direction and approval of the Management Committee, technical work groups identify study needs, develop study scopes and work plans, identify resources, and review results and conclusions. The Management Committee identifies the leader for each technical group. Some example science and technical work groups include the following:

- **Testing Protocols** – examining the appropriate procedures for testing dredged material
- **Soil and Sediment Studies** – characterizing the quality of sediments and soils in the Delta
- **Permitting Process** – identifying the regulatory approval process and opportunities for improved coordination
- **Placement and Reuse** – identifying criteria, methods, and locations for dredged material placement and reuse

These groups will be formed as determined by the Management Committee.

4.6 Science Review Panel

The Management Committee establishes a Science Review Panel made up of independent scientists. The purpose of the Science Review Panel is to provide an independent science review process for Delta LTMS studies. The Management Committee approves the leader and participants for the Science Review Panel. The Science Review Panel will evaluate existing information, identify gaps, and review results and conclusions.

4.7 Other Stakeholders/Interested Public

Other interested parties have the opportunity to learn about the Delta LTMS process and activities and to comment on them at public meetings to be held on an as needed basis, at project milestones.

5 Authorities and Decision Making

A number of state and federal agencies regulate dredging and dredged material management in the Delta. Different laws and regulations govern their roles and responsibilities, but often their purposes and goals overlap. The following summarizes the agency responsibilities for dredging, water quality, natural resources, levees, and land use. One of the early Study activities will be to document the planning, regulatory, and implementation responsibilities for Delta dredging in order to improve coordination and operational efficiency among the various Federal, State, and local agencies having jurisdictional responsibilities within the Delta. As noted in the Delta LTMS Charter, participating regulatory agencies retain their full authority to regulate dredging, reuse, and disposal activities, and nothing in the Charter or the Delta LTMS Framework shall restrict their authorities. Signatories to the Charter do not indicate their approval for any specific project that may be proposed in the future.

5.1 Dredging

The primary state and federal agencies involved in planning and permitting dredging projects are the U.S. Army Corps of Engineers (USACE), U.S. Environmental Protection Agency (USEPA), California Regional Water Quality Control Board, Central Valley Region (CVWQCB) and the State Lands Commission (SLC).

5.2 Water Quality

The primary agencies with responsibility for overseeing compliance with water quality laws and regulations are the U.S. Environmental Protection Agency, the State Water Resources Control Board, and the California Regional Water Quality Control Board, Central Valley Region.

5.3 Natural Resources

Dredging and placement actions in the Delta will involve the review and approval by state and federal resource agencies, including the U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service (FWS), the National Marine Fisheries Service (NMFS), and the state Department of Fish & Game (DFG).

5.4 Levees

If the placement of dredge material involves levees in the Delta, the USACE, the Department of Water Resources, the California Reclamation Board, and the individual Reclamation Districts have responsibilities and authorities for planning, reviewing and approving levee maintenance and dredged material placement.

5.5 Land Use

The Delta Protection Commission has regional planning and coordination responsibilities in the Delta to protect and enhance agriculture, wildlife habitat, and recreation. Five counties (Contra Costa, San Joaquin, Solano, Sacramento, and Yolo), three Councils of Government, and several cities have land use planning authority in the Delta.

6 Study Activities and Phases

The Delta LTMS will generally combine two parallel approaches – a management approach and a planning approach. These activities are designed to comply with USACE guidance for Long-Term Management Strategies and Dredged Material Management Plans, while at the same time allowing flexibility to consider and incorporate planning and evaluation activities from other federal and non-federal partners. In the near-term, these activities will focus on identifying and addressing the immediate challenges associated with dredging and protecting the Delta's resources. In the long-term, these activities will improve the scientific understanding of the effects of dredging and measures to protect Delta resources and develop a Sediment Management Plan to coordinate dredging planning, dredge material placement and reuse, and the permitting process.

6.1 Management Approach

The management approach for the Delta LTMS is designed as an iterative approach to identify and address priority issues and needs related to Delta dredging and levee rehabilitation. The iterative approach proceeds through five activities. Stakeholders and the public will provide review and input during all activities.

1. **Assessment** – During the Assessment stage, the agencies will identify and prioritize dredging and dredged material management needs, opportunities and constraints, the regulatory approval process, and study and analysis needs.

2. **Research and Analysis** – During the Research and Analysis stage, the agencies will define and implement focused research and policy analysis activities to collect and evaluate information that will assist the Management Committee and the Agency Executive Committee address the priority issues and needs.

3. **Planning** – During the Planning stage, the agencies will develop and evaluate options to address the priority issues and needs related to sediment management, beneficial reuse, and regulatory process improvements.

4. **Implementation** – The Implementation stage will include the activities necessary to implement the actions identified during the planning activities.

5. **Evaluation and Refinement** – During the final stage, the agencies will review and evaluate the performance of the implemented actions. The evaluation results will be reported to

the Agency Executive Committee and stakeholders and used to prioritize activities for the next iteration of the management approach.

6.2 Planning Approach

In parallel with the iterative management approach to priority issues associated with Delta dredging, the Delta LTMS will proceed through five planning phases leading to a long-term Sediment Management Plan. These planning phases are consistent with federal planning guidelines.

Phase 1 – Evaluate Management Options – Establish goals, objectives, geographic scope, and operational boundaries. Forecast dredging requirements, material characteristics placement site capacities, and reuse and placement needs.

Phase 2 – Formulate LTMS Alternatives – Develop and retain all viable long-term management options that meet study goals and objectives.

Phase 3 – Alternatives Analysis – Complete a comparative assessment that weighs and balances engineering, economic, and environmental factors and benefits.

Phase 4 – LTMS Implementation – Develop and implement plan, including environmental documentation, permits, and mitigation requirements.

Phase 5 – Review and Update LTMS – Conduct periodic reevaluation of regulatory, economic, and environmental conditions and identify updates to the Delta LTMS.

6.3 Initial Issues and Topics

The following is an initial list of issues and topics planned for the Delta LTMS:

- **Regulatory Process** –Document the regulatory approval process for dredging activities and beneficial use of dredged material and identify opportunities for improved coordination.
- **Dredging Activities and Quantities** – Identify and quantify planned dredging activities for navigation, flood control, water conveyance, recreation, and other Delta functions.
- **Reuse and Placement Capacity** – Identify and quantify sediment reuse needs, sediment sources, and on-going long-term placement capacity.
- **Testing Protocols** – Identify and conduct research on evaluation of dredged material testing protocols for beneficial use of dredged sediment in the Delta.
- **Sediment Quality** – Develop and implement research on sediment quality in likely areas for dredging.
- **Emergency Procedures** – Identify existing responsibilities and procedures for response to emergency conditions in the Delta (e.g., levee failure or flooding).

7 Summary

The structure and process for the Delta Long-Term Management Strategy described in this document are designed to establish a collaborative framework to examine Delta dredging, beneficial use of dredged sediment for levee reconstruction and ecosystem restoration, and other

placement needs and explore ways to operationally improve the regulatory approval process for dredging in the Delta in ways that protect and enhance the Delta environment and water quality.

In this document, the following was detailed: 1) purpose, 2) goals and objectives, 3) structure, participants and roles of committees and working groups, 4) authorities and decision making processes, and 5) study activities and phases for the Delta LTMS process. When taken together, these framework components will enable participants to shape and implement a Delta LTMS work plan and, ultimately, a Delta sediment management plan that may include dredging projects to stabilize levees, maintain and improve navigation channels, support ecosystem restoration, and maintain water supply and water quality. The immediate next steps include development of a project management plan and work plan, as well as preparing a detailed scope of work for development of the Sediment Management Plan.

Appendix A –
Related Programs

The Bay-Delta is an interconnected system that affects and is affected by numerous projects and programs related to levees, navigation, water supply, ecosystem restoration, land development, and recreation. The following is a list of the major programs in each of these areas that will influence or relate to the Delta LTMS.

Multi-Purpose Programs

Delta Vision Process—State-led effort to encompass and integrate many ongoing but separate planning activities for the Delta and Suisan Bay/Marsh that will assess risks and prepare a contingency and emergency response plan for near-term catastrophic events. Will develop a long-term Delta Vision for sustainable management of the Delta's multiple uses, resources and ecosystem in cooperation with elected officials, government agencies, stakeholders, academia, and affected California communities.

Delta Improvement Program – As part of the CALFED Bay-Delta Program, DWR, the federal Bureau of Reclamation (USBR), and the Central Valley Project (CVP)/State Water Project (SWP) water contractors have proposed a program to improve integration of SWP/CVP operations and Delta facilities included in the CALFED Record of Decision (ROD). The program seeks to coordinate the South Delta Improvements Program (SDIP), CVP/SWP Intertie, and the Operations and Criteria Plan (OCAP) schedules, which support continuing the Environmental Water Account and define operational rules for the Banks Pumping Plant and the CVP/SWP Intertie.

South Delta Improvements Program – DWR and USBR are responsible for implementing CALFED's South Delta Improvements Program. Activities include providing for more reliable long-term export capability by the state and federal water projects, protecting local diversions, and reducing impacts on San Joaquin River salmon. Specifically, the CALFED actions in the SDIP include consideration of placement of an operable gate at the head of Old River to protect salmon, up to three operable gates in south Delta channels, dredging and extension of some agricultural diversions, and increasing diversion capability of Clifton Court Forebay.

North Delta Improvement Program – Operated as part of the CALFED Bay-Delta Improvement Projects, the purpose of the North Delta Flood Control and Ecosystem Restoration Project is to implement flood control improvements in a manner that benefits aquatic and terrestrial habitats, species, and ecological processes. The additional objectives include:

- Improve Water Supply Reliability for Conveyance
- Improve Water Quality for Conveyance
- Recommend Ecosystem Restoration and Science Actions
- Improve Levee Stability
- Improve and Enhance Recreation

Delta Protection Commission Land Use and Resource Management Plan—Adopted in November 1995 and reprinted in 2002, the DPC Land Use and Resource Management Plan

includes findings, policies, and recommendations for maintaining and improving Delta resources in eight areas: environment; utilities and infrastructure; land use; agriculture; water; recreation and access; levees; and marine patrol, boater education, and safety programs.

Dredging

National Dredging Team – The Army Corps of Engineers and the U.S. EPA are co-chairs of the National Dredging Team (NDT). The NDT was established in 1995 to support implementation of the National Dredging Policy, promote national and regional consistency on dredging issues, and provide a mechanism for issue resolution and information exchange among Federal, State, and local agencies and stakeholders. This policy calls for establishing Regional Dredging Teams and Local Planning Groups to coordinate dredging activities and permitting. The Delta LTMS could function as one or both of these groups under the National Dredging Policy.

Delta Dredging and Reuse Strategy – The Delta Dredging Reuse Strategy (June 20, 2002, Central Valley Regional Water Quality Control Board) analyzed the regulatory and technical considerations for contaminants in dredged material, particularly for the Regional Board's review of dredging projects. The technical analysis focused mainly on upland placement and beneficial use. The recommendations include identification of information gaps, recommendations for permit streamlining, and recommendations for interim screening values and test methods that may be used by Regional Board staff in future General Order Waste Placement Requirements or to assess future projects.

San Francisco Bay LTMS – Beginning in 1994, the USACE, USEPA, the SWRCB, the San Francisco Bay Regional Water Quality Control Board, the Bay Conservation and Development Commission (BCDC) and other agencies began developing a Long-term Management Strategy for dredging in the San Francisco Bay. This program provides useful guidance and experience for implementing the Delta LTMS.

Levees

CALFED Levees Program – The purpose of the CALFED Levees Program is to facilitate levee system integrity to protect water supplies needed for the environment, agriculture, and urban uses by reducing the threat of levee failure and seawater intrusion. This involves collaboration between CALFED, DWR, the Department of Fish and Game, USACE, and the Reclamation Board, and numerous local reclamation districts. The CALFED Authorization Act (108-361) provided further direction on the development and implementation of the Levee Stability and Improvement Program.

Delta Risk Management Study (DRMS) – This is a multi-year program to evaluate the ongoing and future risk of levee failure and to develop a set of alternative risk reduction plans to mitigate the consequences of levee failures. DWR has an ongoing program to reuse dredged material for Delta levee construction. Because levee construction material is in such short supply in the Delta, the primary issue for DWR associated with dredging activities is the long-term viability of this beneficial reuse program while protecting the beneficial uses of the waters of the State.

Navigation

San Francisco to Stockton Ship Channel Deepening – The San Francisco District of the Army Corps of Engineers is managing the planning process for deepening the channel from Stockton to San Francisco to accommodate larger ships of varying commodities.

Sacramento Ship Channel Deepening – Proposed improvements call for deepening the existing 300-ft- wide project from 30 to 35 ft from Sacramento River miles 12 to 20.

Water Quality

Regional Board TMDLs – The California Regional Water Quality Control Board, Central Valley Region is working on four Total Maximum Daily Load (TMDL) studies to address Delta water quality problems related to mercury, salinity, dissolved oxygen, diazinon, and chlorpyrifos. The mercury, diazinon and chlorpyrifos TMDLs are being developed. The salinity and dissolved oxygen TMDLs have been adopted by the Board and are undergoing the approval process with the State Water Resources Control Board and the Office of Administrative Law. The diazinon and chlorpyrifos TMDLs will go to the Board in June.

Stockton Dissolved Oxygen Project – A large stakeholder-driven process to find a regional solution to the seasonal dissolved oxygen depression that occurs in the San Joaquin River. Low dissolved oxygen levels can be harmful to resident aquatic life and can delay the fall salmon migration in the river. The organizational structure for the project includes several oversight committees and diverse stakeholders, including the regional water board, local governments and agencies, and state and federal agencies.

Bay-Delta Basin Plan Update – The State Water Resources Control Board has adopted a Triennial Review staff report with a commitment to review baseline monitoring, aquatic life protection, chloride objectives, flow objectives, export limits and electrical conductivity objectives, among others, over the next decade. The California Regional Water Quality Control Board, Central Valley Region also has a Water Quality Control Plan for the Sacramento River and San Joaquin River Basins with objectives for salt and other constituents in the Delta.

State Water Resources Control Board Sediment Management Program – The State Board is managing a program to characterize and manage Delta sediments to improve water quality.

Ecosystem Restoration

CALFED Ecosystem Restoration Program – One of CALFED's program elements, the Ecosystem Restoration Program is designed to protect and restore aquatic, upland and riparian habitats, fish populations and other native species in the Delta.

CA Aquatic Invasive Species Management Plan—Document that lays out a process by which agencies would coordinate to implement control programs for aquatic invasive species. Draft plan was released in August 2006 by Dr. Karen McDowell of the San Francisco Estuary Project.

Bay-Delta Conservation Plan— Applicant-driven effort to provide for the conservation and management of aquatic species and regulatory assurances related to water supply reliability and water quality.

Local Entity HCP Programs— Local Habitat Conservation Plans (HCPs) are mater plans with the key purpose of balancing the need to conserve habitat for wildlife while accommodating growth for an expanding population. An example is the San Joaquin County Multi-Species

Habitat Conservation and Open Space Plan (SJMSCP), which has been in existence since 2001 covering 97 species with San Joaquin County.

Land Use

County and City General Plans – A city or county's basic planning document. It provides the blueprint for development throughout the community by addressing all aspects of development, including housing, traffic, natural resources, open space, safety, land uses, and public facilities.

DPC Appeal Authority—Any person who is aggrieved by any action taken by a local government or other local agency in implementing the Delta Protection Commission's Land Use and Resource Management Plan for the Primary Zone of the Delta may file an appeal with the Commission.

Recreation

Delta Trail – State Senator Tom Torlakson has proposed a five-county trail network through the Delta that would stretch from the Bay Area to the heart of the Great Central Valley. The trail planning would be coordinated with levee improvement activities.

State Parks Central Valley Vision— California State Parks effort that began in 2003 analyzing gaps in park and recreational lands and services, specifically in the Central Valley. In 2005 State Parks held over three dozen meetings and with significant public input identified short-term actions to pursue over the next five years.

Other

Irrigated Lands Program – In July 2003, the California Regional Water Quality Control Board, Central Valley Region adopted a resolution which sets forth two Conditional Waivers of Waste Discharge Requirements (WDRs) for discharges of waste to surface water from irrigated lands. One Irrigated Lands Conditional Waiver is for Coalition Groups, the other is for individual Dischargers. The California Regional Water Quality Control Board, Central Valley Region also developed Monitoring and Reporting Program Plans for Coalition Groups, and Individual Dischargers. The Regional Board is in the process of adopting a new waiver.

Long Term Management Strategy for Dredged Material in the Delta

(Delta LTMS)

CHARTER

COPY

Long Term Management Strategy for Dredged Material in the Delta
(Delta LTMS)

CHARTER

VISION

The Long Term Management Strategy is designed to improve operational efficiency and coordination of the collective and individual agency decision making responsibilities resulting in approved dredging and dredged material management actions in the Delta. Approved dredging and dredged material management actions will take place in a manner that protects and enhances Delta water quality, identifies appropriate opportunities for the beneficial reuse of Delta sediments for levee rehabilitation and ecosystem restoration, and establishes safe disposal for materials that cannot be reused.

GOALS

The Delta LTMS will facilitate development of long-term management approach for the Delta sediments based on science, enhanced communication and coordination among the stakeholders, and resolution of issues surrounding Delta dredging and beneficial use of sediments. The agency and stakeholder meetings will serve as a forum for developing a Delta Long Term Management Strategy for Delta sediments to be detailed in a Sediment Management Plan (SMP), and for promoting its implementation when adopted.

The goals of the Delta LTMS, to be finalized in the SMP, are to manage dredging and sediment management activities, including the following:

- Maintain and stabilize Delta levees that protect land-based activities and water conveyance
- Protect and enhance water quality for Delta water supply and ecosystem function
- Support and maintain Delta channel functions for navigation, flood control, water conveyance, and recreation
- Protect and enhance aquatic, wetland, and terrestrial ecosystems

OPERATING PRINCIPLES

The participating agencies of the Delta LTMS will operate under the Delta LTMS Process Framework, as last revised on November 1, 2006.

The participating agencies will work towards the timely completion and implementation of the Delta LTMS and Sediment Management Plan.

The participating agencies will continue to seek the participation of other agencies and stakeholders to the Delta LTMS Charter and Process Framework.

The agenda and issues to be addressed will be determined by the Delta LTMS agencies in consultation with other agencies and stakeholders.

The Delta LTMS will provide for peer review of technical studies through the Science Review Panel.

Information will be sought from stakeholders to help identify and clarify specific issues as well as provide factual data on the issues.

It is anticipated that the Delta LTMS will serve as a Regional Dredging Team under the National Dredging Policy.

Participating regulatory agencies shall retain their full authority to regulate dredging, reuse, and disposal activities, and nothing in this Charter or the Delta LTMS Framework shall restrict their authorities. Signatories do not indicate their approval for any specific project that may be proposed in the future.

MEMBERSHIP

The Delta LTMS is organized to include an executive committee, management committee, interagency working group, strategy review group, and science and technical groups as described in this section. In addition, public meetings will be held to provide additional opportunities for input and feedback from interested persons.

Executive Committee
At the top level, an Executive Committee directs the overall program, sets direction, and provides oversight of the study. Subject to their approvals, the directors of each of the following agencies serve on the Executive Committee. The executive managers have the decision-making authority to represent the agency on strategic and regulatory issues to be addressed, to the extent consistent with applicable laws, statutes, and regulations. The agency Executive Committee generally meets annually or as necessary to establish guidance for the study and keep abreast of the progress of the Delta LTMS.

Federal Agencies
- U.S. Army Corps of Engineers, Commander, South Pacific Division
- U.S. Environmental Protection Agency, Regional Administrator, Region 9

State Agencies
- State Water Resources Control Board, Board member

- California Regional Water Quality Control Board, Central Valley Region, Chairperson
- California Department of Water Resources, Director
- Resources Agency, CALFED Bay-Delta Program, Director
- Delta Protection Commission, Chairperson

Management Committee
The Management Committee consists of the deputy-level managers for the state and federal agencies. The Management Committee oversees the work of the Interagency Working Group (IWG) and the Strategy Review Group, reviews strategic recommendations, study plans, budget proposals, and provides recommendations to the Executive Committee. The Management Committee generally meets quarterly. Subject to their agency approvals, members of the Management Committee include:

- U.S. Army Corps of Engineers, District Commander, San Francisco District
- U.S. Army Corps of Engineers, District Commander, Sacramento District
- California Department of Water Resources, Deputy Director, Public Safety
- U.S. Environmental Protection Agency, Associate Director, Water Division, Region 9
- Resources Agency, CALFED Bay-Delta Program, Chief Deputy Director
- State Water Resources Control Board, Executive Director
- California Regional Water Quality Control Board, Central Valley Region, Executive Officer
- Delta Protection Commission, Executive Director
- NOAA Fisheries, Southwest Region
- U.S Fish and Wildlife Service, Pacific Region
- California Department of Fish and Game

Interagency Working Group
The Interagency Working Group (IWG) includes program-level staff at five agencies. The IWG serves as the primary program managers of the Delta LTMS process and steering committee for the Strategy Review Group. The IWG coordinates with the Management Committee, the Strategy Review Group and others with an interest in Delta activities and the LTMS process. The IWG's role is to identify study issues and questions to be addressed such as: identify technical work groups and expert resources, confirm purpose, charter, and assignments for the science advisory teams and technical review groups, discuss and review study work plans and scopes, discuss and review study budgets and resource needs, prepare and approve study reports, and develop management and policy options for the Management and Executive Committees. Subject to their approvals, the members of the IWG consist of the following:

- U.S. Environmental Protection Agency
- U.S. Army Corps of Engineers
- California Regional Water Quality Control Board, Central Valley Region
- Resources Agency, CALFED Bay-Delta Program

- California Department of Water Resources

The Management Committee may identify other participants in the IWG.

Strategy Review Group

Delta LTMS activities are informed by the Strategy Review Group. The Strategy Review Group will consist of Interagency Work Group members and other interested governmental agencies. The meetings will be open to the public with an opportunity for interested individuals and organizations to participate. The Interagency Working Group agencies will invite stakeholders, interest groups, and individuals working in or affected by Delta dredging and beneficial use activities for navigation, levee stability, flood control, water quality, or ecosystem restoration. The Interagency Working Group coordinates meetings monthly or as needed with the Strategy Review Group to identify, review, and discuss: 1) the Delta sediment issues of concern to be addressed by the Delta LTMS and in what order, 2) lines of inquiry that the science and technical work groups will be tasked to pursue, 3) coordinated regulatory approach for Delta dredging to be approved by the Executive Committee.

Members of the Strategy Review Group may also provide public comment at the Management and Executive Committee meetings. Subject to their approvals, the Strategy Review Group may include, but is not limited, to the following agencies:

State and Federal Agencies

- NOAA Fisheries, Southwest Region
- U.S. Fish & Wildlife Service, Pacific Region
- California Department of Fish & Game
- Delta Protection Commission
- State Lands Commission
- Reclamation Board

Local/Regional Agencies

- Reclamation Districts
- Contra Costa, Sacramento, Solano, Yolo, and San Joaquin Counties
- North, Central, and South Delta Water Agencies
- The Ports of Sacramento and Stockton

In addition, members of the public will be invited to participate in the meetings of the Strategy Review Group, including, but not limited to, the following groups:

Stakeholders and Interest Groups

- Bay Planning Coalition
- DeltaKeeper
- The Nature Conservancy
- The Bay Institute
- Environmental Water Caucus
- California Sportfishing Protection Alliance
- California Farm Bureau Federation

- State Water Contractors
- California Delta Chambers

Science and Technical Groups
A Science Review Panel of independent scientists will be formed as determined by the Management Committee. The Management Committee may also establish science and technical work groups of agency staff, the meetings of which will be open to the public

AGREEMENT

Participants in the Delta Long Term Management Strategy agree to participate in the study activities and will operate under this Charter. The undersigned recognize that public agency signatories to this Charter have specific statutory and regulatory authority and responsibilities, and that actions of these public agencies must be consistent with applicable procedural and substantive requirements. Nothing in this Charter or the Delta LTMS Framework is intended to, or shall have the effect of, constraining or limiting any public entity in carrying out its statutory responsibilities to regulate dredging, reuse, and disposal activities. Nothing in this Charter constitutes an admission by any party as to the proper interpretation of any provision of law or policy, nor is anything in this Charter intended to, nor shall it have the effect of, waiving or limiting any public entity's rights and remedies under any applicable law.

The undersigned recognize that certain departments, boards, and commissions (Adjudicative Entities) have adjudicative responsibilities with respect to contested regulatory matters that are brought before them. (See California Gov. Code §§ 11400, et seq.) Such adjudicative responsibilities include the requirement that the Adjudicative Entity and its members avoid bias, prejudice, or interest in the adjudicative matters before them, e.g., they cannot decide the outcome of a matter before completion of any required hearing or equivalent proceeding.

Some such Adjudicative Entities exist within the undersigned agencies. This Charter does not in any way require or commit an Adjudicative Entity to participate in proposing a project that will come before it for approval, nor does this Charter require or imply that an Adjudicative Entity will approve a project that requires an adjudicative proceeding. Under this Charter, the role of Adjudicative Entities in connection with matters that may require an adjudicative decision is limited to promptly and diligently processing any applications, petitions, or other requests for approval. Nothing in this Charter commits an Adjudicative Entity to an approval or disapproval of any project subject to the authority of the Adjudicative Entity, nor to a term or condition in any approval of a project by the Adjudicative Entity.

Legal Consistency
All provisions of this Charter are intended and shall be interpreted to be consistent with all applicable provisions of State and Federal law.

The parties recognize that this Charter is not a contract. This Charter does not delegate to any agency, or the collective group of agencies, the authority to: (1) control another agency's final decision on a project; (2) modify or halt an agency's project; or (3) compromise an agency's discretion to pursue projects according to their individual agency legal authority. This Charter facilitates cooperation and advice among the agencies; it shall not be interpreted to form a partnership, joint venture, or contract that requires federal agencies to analyze state projects and programs under the National Environmental Policy Act.

Contingent on Appropriation of Funds and Future Actions

The expenditure or advance of any money or the performance of any obligation of the United States under this Charter shall be contingent upon appropriation or allotment of funds in accordance with 31 USC 1341(Anti-Deficiency Act). No liability shall accrue to the United States for failure to perform any obligation under this Charter in the event that funds are not appropriated or allotted.

Activities and obligations, if any, under this charter pertaining to entities of the State of California are also subject to the availability of appropriated funds and to the independent decision-making authority of such entities. No liability shall accrue to such entities, or to the State of California, for failure to perform any action under this Charter in the event that funds are not appropriated or if any such entity declines to participate in any activity. Each participating agency's participation under this Charter is and shall remain voluntary.

This Charter shall be effective upon the date of signature of all participating agencies listed on page 7. This Charter may be signed in counterparts.

COPY

Signed by:

12 FEB 07

General John R. McMahon
Commander, South Pacific Division
U.S. Army Corps of Engineers

Date

22 FEB 07

Wayne Nastri
Regional Administrator, Region 9
U.S. Environmental Protection Agency

Date

14 Feb 07

Lester Snow
Director
California Department of Water Resources

Date

2/28/07

Tam M. Doduc
Chairperson
State Water Resources Control Board

Date

13 Feb 07

Karl E. Longley
Chairperson
California Regional Water Quality Control Board, Central Valley Region

Date

2/14/07

Joe Grindstaff
Director
CALFED Bay-Delta Program (Resources Agency)

Date

2/22/07

Mike Reagan
Commissioner
Delta Protection Commission

Date

APPENDIX B

LEVEES OF FEDERAL CONCERN

Engineers: 122 levees at risk of failing Date?

By BEVERLEY LUMPKIN, Associated Press Writer

WASHINGTON – One hundred twenty-two levees from Maryland to California are at risk of failing, according to a list released Thursday by the Army Corps of Engineers.

There could be danger to people who live in communities near some of the levees as well as a chance that they will have to pay more for insurance, said Butch Kinerney of the **Federal Emergency Management Agency**'s national flood insurance program.

The list was released in response to Freedom of Information Act requests filed by news organizations, including The Associated Press.

If the Corps of Engineers determines a levee to be at risk of failing, homeowners in the area could be required to purchase flood insurance, though exceptions can be made.

Communities near the levees have been notified that they have received an "unacceptable maintenance inspection rating." That means a levee has one or more problems, which can include movement of floodwalls, faulty culverts, animal burrows, erosion or tree growth, according to a statement released by the Corps.

California, with 37 suspect levees, and Washington state, with 19, led the list.

FEMA's Kinerney said he was concerned that the levees present not only a chance of higher insurance costs but a danger to those living nearby. FEMA maps flood plains and helps determine the flood risks that communities face.

Kinerney said people living near the levees should have an evacuation plan, a family emergency plan, and a disaster supply kit, along with flood insurance.

The Corps has been warning communities they need to take care of routine levee maintenance, said Larry Larson, director of the Association of State Floodplain Managers. Larson said he was glad the Corps was putting out the word on the levees.

"The feds are saying, 'Wait a minute, we haven't been doing our job,'" Larson said. "'We better get on top of this. Your people are at risk. You need to get something done.'"

The Corps historically has constructed the levees and has turned most of them over to local communities for operations and maintenance. Some communities may not have kept up with needed repairs, while others may merely lack the documentation, Kinerney said.

As the Corps decertifies the adequacy of a particular levee, it also notifies FEMA, which can take away the credit communities get on their flood insurance rate for having a levee.

Kinerney added that if residents of the communities at risk were to purchase flood insurance now, before the community's designation changes, they can still pay the cheaper rate.

The Corps can give communities 12 months to make corrections — sometimes it's just a matter of "filling gopher holes," Kinerney said.

Also, FEMA can issue for up to 24 months a provisional accreditation if a community requests it, giving it up to two years to correct the problems or contest the finding that the levee is not sound. During that period, residents are not required to purchase flood insurance.

The list: http://www.hq.usace.army.mil/cepa/releases/leveelist.pdf