DELTA PROJECT IMPLEMENTATION STRATEGIC PLAN

FINAL REPORT

Prepared for:

U.S. Army Corps of Engineers

Sacramento District

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EXECUTIVE SUMMARY

This report presents proposed strategies that will assist the USACE in the execution of two of its existing authorities: the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study. The PBS&J Delta Team was engaged to:

1. Review and asses existing and future water resources problems;
2. Review and assess ongoing initiatives;
3. Propose an effective, collaborative strategy for executing the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study; and
4. Recommend report formats for the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study.

General Findings/Observations

The Sacramento-San Joaquin River Delta (Delta) is facing serious existing and future water resources problems. Complicating the matter is the fact that these problems and their possible solutions are not confined to the geographical boundaries of the Delta. The water resources problems in the Delta are geographically expansive, functionally interdependent and encompass a range of local, regional and national beneficial and adverse impacts. Accordingly, there are multiple, diverse stakeholders, interest groups, organizations and government agencies participating in concurrent planning, design, construction, regulatory, management, and monitoring initiatives that affect the Delta. Consequently, these initiatives typically have specific geographic focus and/or project specific interests – sometimes they may fit in a synergistic fashion but most often they do not fit together and can even compete against one another.

Multiple, concurrent Delta initiatives lacking formal oversight and integration risk probable inefficiencies, such as duplicative efforts and overlaps or gaps in boundary conditions, and are potentially ineffective. Lacking formal, comprehensive integration, the multitude of ongoing Delta planning and management efforts are prone to data inconsistencies which preclude a richer understanding of the watershed problems and the effective development of integrated strategies. Similarly, despite the ambitious introduction of the CALFED Program in the 1990's, there has been little

apparent progress in crafting and implementing large-scale solutions. This lack of visible progress has resulted in decreased credibility of the effort and agencies involved, stymied partnerships, and splintered independent efforts.

The lack of sufficient Federal funding and clarified policy guidance from the USACE are obvious factors which have limited progress. Further, the lack of interagency collaboration and cohesiveness is impeding mutual progress. Nevertheless, the current political climate in the State is one that embraces action, as evidenced by the ongoing development of "A Delta Vision" as the precursor to development of a Strategic Implementation Plan for the Delta by the end of 2008. This momentum for action creates an opportunity for the USACE to participate in, and perhaps lead some significant aspects of, the creation of a comprehensive water resources plan for the Delta, and even the implementation of projects to solve the problems. More than politics, current natural system realities (prolonged droughts, threats to endangered species, ecosystem decline, and population growth) are the catalysts to craft and implement near-term fixes that will also augment long-term programs and solutions.

The USACE is well-positioned to engage in and facilitate the development of both near-term and long-term water resources strategies that provide for the water resources needs in the Delta. To maintain a comprehensive, credible assessment of the issues, the USACE must provide holistic assessments that fully address the critical and long-term water resources issues. Only after a thorough and complete assessment has been accomplished can solutions – within and beyond the Federal interest – be determined. The USACE is the only agency that has both the mission and capability to lead a comprehensive and integrated process to develop solutions to the multiple water resources needs in the study and impacted area (including upstream watersheds and Southern California). Without a long-term comprehensive approach that actively involves the many stakeholders with responsibilities and interests in the Delta, an effective solution cannot be identified. For the USACE, the challenge will be to refrain from planning for just USACE projects and plan for what is best for all interests and the Delta, deal with uncertain budgetary scenarios, and address growing public expectations resulting from a growing list of "no regrets" state & locally backed projects that seem to have significant momentum.

Overview of the Strategic Plan

The development of this Strategic Plan was based upon four sources of information. These included:

- Interviews with USACE and other Federal, state, regional, and local leaders (from government, business, and non-governmental organizations) to assess views of water resources problems and current decision making climate;
- A review of existing laws, policies, and reports;
- A review off current initiatives to address problems; and
- Consideration of alternative approaches to address problems and issues in the Delta.

On the whole, interviewees favored an approach that deals distinctly with both near-term and long-term issues separately. That said, some interviewees expressed fears that the USACE would slow down or not mesh with ongoing critical, State led efforts that combine short-term work with the beginning of longer-term efforts (e.g. the State's Delta Blue Ribbon Task Force). For this reason, it is important for the USACE to execute short-term efforts in a manner that 1) rebuilds and reinforces partnerships and 2) demonstrates a sincere interest in issues regardless of its ability to solve issues unilaterally. Such actions would support a more comprehensive approach to long-term planning efforts, which is important because a vast majority of interviewees felt that the appropriate involvement from the USACE could have positive ramification on the future of the Delta – indeed some believe that the USACE, acting as an objective planning agency, may be in the best position to develop a comprehensive plan.

While the majority opinion among representatives who were interviewed believe the Federal government needs to be an active participant in developing water resources strategies in the Delta, there was not unanimous agreement on how to achieve this participation. In order to avoid confusion when saying "federal interest," it is important to know that this term is not simply limited to USACE missions (e.g. flood control, navigation). The federal interest as it relates to this Strategic Plan is much broader. For that reason, we believe there is a federal interest in doing a watershed study that may or may not result in federal flood control projects. Solutions should not be biased towards USACE or even Federal projects, and any strategies envisioned and/or implemented should best fit the overall needs of the Delta, not any particular agency. Moreover, these sentiments are increasingly tempered by the "reality" of tight Federal fiscal constraints.

Several critical factors must be embodied in the execution of both near-term and longer-term efforts. Near-terms efforts are characterized in the Strategic Plan under the CALFED Levee Stability Program, and longer-term efforts are characterized under the Delta Islands and Levees Feasibility Study.

CALFED Levee Stability Program Strategy

In May 2006, the USACE submitted the "CALFED Levee Stability Program Report" to Congress, which concluded that: "There is a serious need for short-term actions and a long-term strategy to improve levee stability in the Delta because people's lives, properties, and vital resources of statewide and national importance are threatened." In addition, the USACE stated that the "short-term strategy is to move quickly to construction on high priority levee reconstruction projects identified in this report."

The USACE should follow through on its statements in the report to Congress by making the Program a high priority. The planning, design, and construction activities, and reporting and approval requirements, should be consistent with the following principles:

- CALFED Levee Stabilization projects are critical to meeting the water supply, water conveyance, water quality, flood damage reduction, and ecosystem restoration needs of the Sacramento-San Joaquin Delta and the State of California.
- The protection and development of California's economic and agricultural productivity, and of its environmental resources, are important to the security, economic development, and environmental health of the U.S., and as such provide a high economic and environmental return for the Nation.
- Projects listed in the May 2006 report to Congress are already authorized by Section 103(f)(3)(A) of PL 108-361.
- CALFED Levee Stability projects are not traditional USACE projects and, as such, do not require the amount of planning and reporting that USACE feasibility studies typically require.

In light of the fact that these levee stability projects are not traditional USACE projects, the Sacramento District should:

1. Focus plan formulation activities on only those solutions that directly address levee deficiencies. Do not try to make the projects more than a levee stability project.

2. Maximize the use of already available data and analyses, and limit new planning activities to the minimum needed to identify the least-costly, technically feasible, justified, and environmentally acceptable project.
3. Defer detailed engineering and other technical data collection and analysis until the design stage of project development.
4. Standardize reports and the review and approval processes.
5. Obtain authority to minimize normal USACE requirements to justify of projects consistent with the intent of Section 103(f)(3)(C) of PL 108-361, as amended by Section 3015(a) of WRDA 2007.
6. Obtain authority to make technical decisions on projects at the District level, and project approval decisions at the Division level.

Delta Islands and Levee Feasibility Study Strategy

The USACE Reconnaissance Report recommends the development of a study at a feasibility level of detail to address a wide variety of unmeet water resources needs in the Delta. In May 2006, the USACE entered into a Feasibility Cost Share Agreement (FCSA) with the California Department of Water Resources (DWR) to conduct the Delta Islands and Levees Feasibility Study.

The intent of the Feasibility Study is to serve as a decision document that recommends the authorization of the construction of USACE projects that would address the wide range of water and related land resources problems throughout the Delta. The scope of the study is extensive as indicated in its Project Management Plan:

> *The level of detail in the feasibility study will be sufficient to recommend multiple short- and long-term measures and alternatives along with cost estimates to address flood damage reduction, ecosystem restoration, water quality, conveyance of water supply, temporary/ emergency flood storage, multi-agencies emergency response/evacuation/coordination management plan, and other potential problems within the Bay-Delta. (Delta Feasibility PMP, 2006)*

Historically, the USACE's approach to water resources planning has been to focus problem solving and decision-making on specific types of water resources problems and at specific locations. However, in more recent years, the USACE has emphasized the use of a watershed approach to solving water resources problems. In 1999, the USACE issued Policy Guidance Letter (#61) which describes the importance of managing water resource activities within a watershed context. Further, the Civil Works

Strategic Plan (March 2004) emphasizes the increased application of watershed principles. The watershed approach is the unifying theme that ties the USACE Civil Works goals together. Under these principles, the USACE will:

1. work collaboratively with a broad range of stakeholders to help solve water resources problems in a sustainable manner;
2. use systems approaches to understand the connection between natural and manmade systems;
3. analyze water resources problems on larger geographic scales; and
4. strive to achieve multiple goals and functions using water and related resources in a balanced manner.

The strategy presented in this document is intended to establish a collaborative planning environment which offers a means to integrate disparate initiatives into a holistic, comprehensive approach that addresses all Federal, State, and local needs/interests. This requires a rethinking of the current approach that focuses on traditional USACE solutions and projects, and the discipline necessary to maintain the USACE'S commitment to the appropriate level of detail necessary to reasonably assess watershed needs and develop a comprehensive and integrated solution. Further, given the urgency of the issues in the Delta and the critical ongoing efforts, the study time must be substantially shorter than a traditional feasibility study of the same scope. Additionally, given the scope and complexity of this effort, the appropriate expertise must be identified and enlisted. Lastly, and perhaps most importantly, stakeholders, partners and the public must be more meaningfully engaged.

Watershed planning goes beyond project planning for specific USACE projects and towards more collaborative and comprehensive evaluations and analysis. Watershed planning does not limit studies to just the USACE'S traditional mission interests. Justification of potential new USACE projects is not the primary consideration. In conducting watershed planning, the Sacramento District can use its planning capability in a broader sense to continue to evolve in meeting the entire needs of the Delta. Watershed planning accommodates the multi-objective and multi-purpose planning and investigations and assures use of the water resources in a sustainable manner (USACE, 1999).

Therefore, recasting the Delta Islands and Levees Feasibility Study as a "Watershed Study" is consistent with current policy and would more accurately describe the comprehensive, multipurpose, and collaborative effort that encompasses the large geographic area, and even larger impact area due to the

implications of water supply for the Central Valley and Southern California. It is even possible that a watershed study fully supported by other Federal agencies, the State of California, and other local agencies and stakeholders who are fully engaged in the study might obtain funding beyond current District levels. This watershed study would be undertaken by a large number of federal, state, local governments, and various other partners and stakeholders. Therefore, all objectives—including those beyond the missions of the USACE — should be considered and integrated as part of the comprehensive view of the problems and opportunities in the Delta.

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INTRODUCTION

The U.S. Army Corps of Engineers (USACE) Sacramento District (SPK) tasked PBS&J to develop a strategic plan for implementing short-term critical fixes while also addressing the long-term solutions to the water resources problems in the Sacramento – San Joaquin Delta System (Delta). This report presents proposed strategies that will assist the Sacramento District in the execution of two of its critically important existing authorities: the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study.

Methodology

PBS&J's Bill Hinsley and three team members, Russell Reed, James Smyth, and Darlene Guinto (PBS&J Delta Team) reviewed existing laws, policies, and reports related to these two authorities and conducted 38 interviews with Federal, State, Regional, and Local- leaders (from government, business, and NGO) to further develop a historical base and clarity for understanding the water resources needs in the Delta and the most likely way forward for both efforts. A list of the documents reviewed is included in Appendix A of this report. A list of individuals interviewed is included in Appendix B.

Each interviewee received an invitation letter from the Sacramento District explaining the purpose of the interview and a read-ahead document describing the two authorities to be discussed. The importance of candor was explained at the outset of the interview, along with a promise that no quotes would be attributed to an individual. Each person was interviewed at some length (90-120 minutes), and in more than one case, at the interviewee's behest, interviews lasted several hours. A copy of the questionnaire appears as Appendix C to this report. Please note that after we explained our task to a respondent, he or she was given broad latitude to comment as they saw fit.

Scope

In accordance with the scope of work, the PBS&J Delta Team was engaged to:

1. Review and assess existing and future water resources problems;
2. Review and assess ongoing initiatives;

3. Propose an effective, collaborative strategy for executing the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study; and
4. Recommend report formats for the CALFED Levee Stability Program and the Delta Islands and Levees Feasibility Study.

Our recommendations are based upon knowledge of existing work efforts and products, experience in other large-scale water resources projects and/or programs, familiarity with USACE policies, and information shared by interviewees. We have attempted to bring these items together in a clear and concise report that can advance the planning, design, construction, and monitoring of water resources solutions in the Delta, even if the recommendations contained herein are not fully implemented.

It may seem easy to discount a report like this, as many stakeholders may feel they already understand the problems and intractable nature of available options, and since it may not contain a highly detailed plan for progress. In addition, some may discount the potential for the USACE's involvement because it is viewed as too slow or distant to bring value to existing efforts. As our interview progressed, it became clear that many stakeholders hadn't fully discussed the implications of all available planning and project delivery options with their staff or colleagues, hadn't listened to their own agency's recommendations, or had not considered new information. For this reason, we intend that you use this report not as an end to itself, but as a tool to stimulate problem-solving discussions among your Delta colleagues, and we strongly encourage that you meet soon to do so. The idea (as expressed in the task order under which this was carried out) was to use this document to stimulate discussions among representatives of not only the USACE, but also other federal agencies, the State of California, and other affected and interested stakeholders in order to make progress in devising and implementing water resources solutions within the Delta.

General Findings/Observations

The Delta is facing serious existing and future water resources problems. Complicating the matter is the fact that these problems and their possible solutions are not confined to the geographical boundaries of the Delta. The water resources problems in the Delta are geographically expansive, functionally interdependent and encompass a range of local, regional and national beneficial and adverse impacts. Accordingly, there are multiple, diverse stakeholders, interest groups, organizations and government agencies participating in concurrent planning, design, construction, regulatory, management, and

monitoring initiatives that affect the Delta. Consequently, these initiatives typically have specific geographic focus and/or project specific interests – sometimes they may fit in a synergistic fashion but most often they do not fit together and can even compete against one another.

Multiple, concurrent Delta initiatives lacking formal oversight and integration risk probable inefficiencies, such as duplicative efforts and overlap or gaps in boundary conditions, and are potentially ineffective. Lacking formal, comprehensive integration, the multitude of ongoing Delta planning and management efforts are prone to data inconsistencies which preclude a richer understanding of the watershed problems and the effective development of integrated strategies. Similarly, despite the ambitious introduction of the CALFED Program in the 1990's, there has been little apparent progress in crafting and implementing large-scale solutions. This lack of visible progress has resulted in decreased credibility of the effort and agencies involved, stymied partnerships, and splintered independent efforts.

The lack of sufficient Federal funding and clarified policy guidance from the USACE are obvious factors which have limited progress. Further, the lack of interagency collaboration and cohesiveness is impeding mutual progress. Nevertheless, the current political climate in the State is one that embraces action, as evidenced by the ongoing development of "A Delta Vision" as the precursor to development of a Strategic Implementation Plan for the Delta by the end of 2008. This momentum for action creates a window of opportunity for the USACE to participate in, and perhaps lead some significant aspects of, the creation of a comprehensive water resources plan for the Delta, and even the implementation of projects to solve the problems. More than politics, current natural system realities (prolonged droughts, threats to endangered species, ecosystem decline, and population growth) are the catalysts to craft and implement near-term fixes that will also augment long-term programs and solutions.

The USACE is well-poised to engage in and facilitate the development of both near-term and long-term water resources strategies that provide for the water resources needs in the Delta. To maintain a comprehensive, credible assessment of the issues, the USACE must provide holistic assessments that fully address the critical and long-term water resources issues. Only after a thorough and complete assessment has been accomplished can solutions—within and beyond the federal interest—be determined. The USACE is the only agency that has both the mission and capability to lead a comprehensive and integrated process to develop solutions for the multiple water resources needs in the study and impacted area (including upstream watersheds Southern California). Without a long-term comprehensive approach that actively involves the many stakeholders with responsibilities and interests

in the Delta, an effective solution cannot be identified. For the USACE, the challenge will be to refrain from planning for just USACE projects and plan for what is best for all interests and the Delta, deal with uncertain budgetary scenarios, and address growing public expectations resulting from an expanding list of "no regrets" state & locally backed projects that seem to have significant momentum.

Overview of the Strategic Plan

On the whole, interviewees favored an approach that deals distinctly with both near-term and long-term issues separately. That said, some interviewees expressed fears that the USACE would slow down or not mesh with ongoing critical, State-led efforts that combine short-term work with the beginning of longer-term efforts (e.g., the State's Delta Blue Ribbon Task Force). For this reason, it is important for the USACE to execute short-term efforts in a manner that 1) rebuilds and reinforces partnerships and 2) demonstrates a sincere interest in issues regardless of its ability to solve issues unilaterally. Such actions would support a more comprehensive approach to long-term planning efforts, which is important because a vast majority of interviewees felt that the appropriate involvement from the USACE could have positive ramification on the future of the Delta – indeed some believe that the USACE, acting as an objective planning agency, may be in the best position to develop a comprehensive plan..

While the majority of interviewees believe the Federal government needs to be an active participant in developing water resources strategies in the Delta, there was not unanimous agreement on how to achieve this participation. In order to avoid confusion when saying "federal interest", it is important to know that this term is not simply limited to USACE missions (e.g., flood control, navigation). The federal interest as it relates to this Strategic Plan is much broader. For that reason, we believe there is a federal interest in doing a watershed study that may or may not result in federal flood control projects. Solutions should not be biased towards USACE or even Federal projects, and any strategies envisioned and/or implemented should best fit the overall needs of the Delta, not any particular agency. Moreover these sentiments were increasingly tempered by the "reality" of tight Federal fiscal constraints.

Near-term efforts are characterized in the Strategic Plan under the CALFED Levee Stability Program, and the long-term efforts are characterized under the Delta Islands and Levees Feasibility Study. Several critical factors must be embodied in the execution of both near-term and long-term efforts. These include:

CALFED Levee Stability Program

- Critical Project Approach – from planning to construction
- Dedicated Funding
- Increase Authorized Funding Limits
- Resolve Program Issues & Develop Implementation Guidelines
- Obtain USACE, State, and Local Support
- Obtain Necessary Resources to Effectively Implement the Program

Delta Islands and Levees Feasibility Study

- Watershed Approach
- Develop CORE (not Corps) TEAM
- Communication Plan
- Obtain Additional Expertise
- Other Benefit Categories to Consider

Following each discussion of critical factors affecting each of the two authorities, we present a proposed report format table of contents/outline. Each of these presentations includes detailed discussion of what each section should achieve.

CALFED LEVEE STABILITY PROGRAM – SHORT-TERM STRATEGY

Background

The Delta is largely a rural area and a complex maze of tributaries, sloughs, and islands. The Delta consists of about 738,000 acres of land in six counties, segregated into some 80 tracts and islands with 1,100 miles of levees. The Delta with its levees, sloughs and islands is critical link in a complex statewide water system that provides water to more than 22 million people and irrigation water for more than 7 million acres of some of the most highly productive agricultural land in the world. The Delta's islands contain numerous roads and railroads, and bridges, all of which are critical transportation routes in the San Francisco Bay area. Likewise, many water aqueducts, electricity lines, and gas pipelines cross the Delta and are critical to the California economy.

The Delta's islands and sloughs are the much altered remnants of the largest estuary on the West Coast of the continental U.S., and provide critical habitat to approximately 750 valuable and unique species of fish, animals, and plants, and offer critical habitat for migratory birds. The Delta and its levees support billions of dollars of annual national, state-wide, and regional economic activity, and provide significant recreational opportunities to the large San Francisco and Sacramento metropolitan areas.

The Delta also supports a population of more than 500,000 in the cities of Antioch, Brentwood, Isleton, Pittsburg, and Tracy within the Delta, and in other cities adjoining the Delta such as Sacramento, Stockton, and West Sacramento.

At one time in the not too distant past, the Delta was a vast and rich natural area. The development of the Delta began in the mid-1800s at which time the process of building levees and claiming those lands for farming began. As farmers worked the land, the organic peat soil decayed and oxidized into dust, causing the interior of the islands to subside and drop below sea level over time. Meanwhile, the levees themselves typically settled and sunk into the soft organic foundation soils, necessitating the regular addition of new material to the levee crests to help maintain levee height. As a result the levees were improved as necessary to preserve human uses. By the mid-1940s, nearly all Delta marshland had been reclaimed and the Delta had been transformed from a large tidal marsh to a series of channels, levees, and islands similar to what exists today. Most Delta islands are now best described as "bowls" rather

than islands, with interiors of many islands over 15 feet below sea level, and some as much as 20 feet below sea level.

Of the 1,100 miles of levees in the Delta, 385 miles are Federal project levees. These levees were improved and incorporated into the Sacramento and San Joaquin Federal Flood Control Projects, and are generally located along the Sacramento and San Joaquin Rivers. The remaining Delta levees are non-project and non-Federal levees and generally were not built to any specific standard for design or construction. Likewise, construction was undertaken without consideration of the impacts of the levees on the ecosystem. The existing levees are maintained by local reclamation districts with assistance from the State of California.

Even with assistance from the State, local reclamation districts have struggled to improve and maintain the critical Delta levees. Subsidence, levee instability, erosion, and seepage problems are constant concerns. Sudden loss of the levees from earthquakes is also a real possibility in the Delta. When Delta levees fail, water rushes in to fill the island, drawing brackish water in from the San Francisco Bay and causing short- and long-term effects to water quality, supply, and water supply conveyance systems. Flooded islands also impact neighboring islands by increasing the potential for seepage, erosion, and possible additional levee failures. The State of California reports on a "Bay-Delta Levees' web site that a state study has shown that a 6.5 magnitude earthquake in the Delta region could cause levee failures so massive that they would result in a $30 billion to $40 billion loss to California's economy.

Since the early 1900's there have been about 162 levee failures in the Delta. In many cases, the resultant flooding proved costly to residents, farmers and the State as a whole. For example, the levee failure at the Jones Tract in June 2004 inundated about 12,000 acres causing nearly $100 million in damages. Around-the-clock emergency crews spent 25 days closing a 500-foot levee breach with 200,000 tons of rock. Six months of continuous pumping operations saved the island.

Issue - Critical Flood Control, Water Supply, Ecosystem, and Economic Needs

In June 1994, twenty five State and Federal agencies with management and regulatory responsibilities in the Delta signed a Framework Agreement and formed CALFED. This unique multi-agency team represented a wide range of agricultural, environmental, urban, fishery, water supply, and business interests. Once of CALFED's purposes was to develop a long-term comprehensive plan to restore

ecological health and improve water management for beneficial uses of the Bay-Delta system. CALFED determined that the Delta levee system is critical to meeting all CALFED objectives.

Recognizing the human and environmental importance of the Delta and the serious threat of levee failures with disastrous and wide-spread consequences, on October 25, 2004, the Congress passed the "CALFED Bay-Delta Authorization Act" (Title I of Public Law 108-361, Water Supply, Reliability, and Environmental Improvement Act, 118 Stat. 1695-1696). Section 103(f)(3)(A) authorized the USACE "to undertake the construction and implementation of levee stability programs or projects for such purposes as flood control, ecosystem restoration, water supply, water conveyance, and water quality objectives." Section 103(f)(3)(B) directed the USACE to "submit to the appropriate authorizing and appropriating committees of the Senate and the House of Representatives a report that describes the levee stability reconstruction projects and priorities that will be carried out under this title during each of fiscal years 2005 through 2010."

In January 2005, the California Department of Water Resources in a report entitled "Responding to California Flood Crisis," found that the Delta levee system has significantly deteriorated, partly due to deficiencies in the original design and deferred maintenance, partly due to erosion of riverbanks and levees, and partly due to under-seepage and other internal weaknesses. The report concluded that the "ongoing erosion causes more damage than can be repaired by the State or local reclamation district using normal maintenance programs." The report also concluded that a "strategic plan element must include a proactive short-term maintenance approach and a long-term project solution."

In May 2006, the USACE submitted the "CALFED Levee Stability Program Report to Congress." That report satisfied the CALFED Act requirement contained in Section 103(f)(3)(B) to submit a report to Congress that describes the levee stability reconstruction projects and priorities that are to be carried out under the program. That report, prepared with non-Federal input and support identified 54 projects totaling more than $1 billion in estimated costs. The Sacramento District evaluated these proposals and prioritized potential projects according to how well they met specific environmental, economic, and other implementation criteria.

Section 3015 of The Water Resources Development Act of 2007 (WRDA 2007) [Public Law 110-114], amended this prior legislation in a number of ways. In addition to removing a State of California definition of the Delta and broadening the areas where projects could be implemented, and adding a statement referring to an unidentified (but assumed CALFED Bay-Delta Program, Programmatic) Record

of Decision in defining the standard to which levees should be reconstructed, the WRDA 2007 amendments struck Section 103(f)(3)(C) removing any requirement that the projects implemented under CALFED Levee Stability Program have to meet any of the conditions of Section 205 of the Flood Control Act of 1948 (33 U.S.C. 701s), that the original CALFED legislation required.

The WRDA 2007 replaced Section 103(f)(3)(C) with a new section on "Justification" which states that "the Secretary of the Army may determine that the programs and projects are justified by the benefits of the project purposes described in subparagraph (A), and the programs and projects shall require no additional economic justification if the Secretary of the Army further determines that the programs and projects are cost effective." The amended Section 103(f)(3)(C) also specifies that the Secretary's determination noted above "shall not apply to any separable element intended to produce benefits that are predominantly unrelated to the project purposes described" in Section 103(f)(A) of PL – 108-361.

The WRDA 2007 also provided authorization to seek additional appropriations to implement levee stability projects. That amendment specified that in "addition to funds made available pursuant" to PL 108-361, "there is authorized to be appropriated to carry out projects described" in Section 103(f)(3)(D), *"$106,000,000, to remain available until expended."*

The State of California has developed "a durable vision for the sustainable management of the Delta". In California's January 17, 2008 final report the Blue Ribbon Task Force stated that:

> *"Infrastructure, including roars, gas lines and water systems in the Delta rely on the 1,300 miles of levees that also protect all in-Delta water and land uses. Levees are critical to the Delta's future. Yet, existing levees are vulnerable to failure from earthquakes, floods, and structural decay. Multiple levee failures at one time in the Delta could flood dozens of islands, cause dramatic changes in the ecosystem, and halt all water exports from the Delta for years."*

The State has recognized that improvement in these conditions is urgently needed and is preparing to develop a plan of action.

Solution – Implement the CALFED Levee Stability Program

Based on the research and interviews conducted during this study, the PBS&J Delta Team has developed a strategic plan for implementation of the CALFED Levee Stability Program. That plan involves a critical project approach to the planning, design, and construction of projects. As it applies to the Delta islands and levees, a critical project would be one that is intended to reduce risk of flooding to an island's

residential and agriculture land uses use and associated economic activities, to water supply and water conveyance facilities and activities, to infrastructure and its users, and to the natural ecosystem from the effects of catastrophic breaching of a Delta island levee. This approach would involve scoping all planning, reporting, approval, design, and construction efforts towards conducting only that amount of planning and design work necessary to provide safe, reliable, and cost-effective projects. While still fully complying with all appropriate Federal and State environmental laws, the approach would seek ways to accelerate those processes. This approach would also involve identifying a reliable funding source for such planning, design, and construction efforts, and obtaining support within the USACE, State of California, other Federal agencies and stakeholders for both the approach and its resulting projects.

Critical Project Approach – From Planning to Construction

In its May 2006 report to Congress the USACE concluded that: "There is a serious need for short-term actions and a long-term strategy to improve levee stability in the Delta because people's lives, properties, and vital resources of statewide and national importance are threatened." In addition, the USACE stated that the "short-term strategy is to move quickly to construction on high priority levee reconstruction projects identified in this report." In addition, both early CALFED studies and more recent State of California reports point out the critical need for levee stabilization.

The USACE should follow through on its statements in the May 2006 report to Congress by making the program a high priority. The planning, design, and construction activities, and reporting and approval requirements, should be consistent with the following principles:

- CALFED Levee Stabilization projects are critical to meeting the flood damage reduction, ecosystem restoration, water supply, water conveyance, and water quality needs of the Sacramento-San Joaquin Delta and the State of California.
- The protection of the Delta's economic and agricultural productivity, and of its environmental resources, is important to the security, economic development, and environmental health of California and the United States, and as such, provide a high economic and environmental return for the Nation.
- Projects listed in the May 2006 report to Congress are already authorized by Section 103(f)(3)(A) of PL 108-361.

- CALFED Levee Stability projects are not typical USACE projects and, as such, do not require the amount of planning and reporting that USACE feasibility studies typically require.

In light of the fact that these levee stability projects are not traditional USACE projects, the Sacramento District should:

1. Focus plan formulation activities to only those solutions that directly address levee deficiencies. Do not try to make the projects more than a levee stability project.
2. Maximize the use of already available data and analyses, and limit new planning activities to the minimum needed to identify the least-costly, technically feasible, justified, and environmentally acceptable project.
3. Defer detailed engineering and other technical data collection and analysis until a project has been identified, during the design phase of a project.
4. Standardize reports and the report review and approval processes.
5. Obtain authority to minimize normal USACE requirements to justify of projects consistent with the intent of Section 103(f)(3)(C) of PL 108-361, as amended by Section 3015(a) of WRDA 2007.
6. Obtain authority to make technical decisions on projects at the District level, and project approval decisions at the Division level.

Dedicated Funding

In section 103(f)(3)(D) of PL 108-361, the Congress specified that of "the amounts authorized to be appropriated under section 109, not more than $90,000,000 may be expended for" work associated with levee stabilization. Language in section 109 of PL 108-361 specifies that the funds are *"authorized to be appropriated by the Secretary (Interior) and the heads of the Federal agencies to pay the Federal share of the cost of carrying*" various programs including the levee stability work authorized by section 103(f)(3). PL 108-361 authorizes the appropriation of funds for the fiscal years 2005 through 2010, with those funds to remain available until expended. Under PL 108-361, funding for levee stability projects would be expected to be appropriated through the normal budget process.

Section 3015(b) of WRDA 2007 provided additional authorization for appropriations when it specified that in "addition to funds made available …to carry out section 103(f)(3) …there is authorized to be

appropriated to carry out projects described in that section $106,000,000, to remain available until expended."

The interviews of government personnel located in Washington, D.C. found one clear central theme regarding USACE-wide study and project funds. That is, funding is and will continue to be very limited as available study and construction funds are already being utilized in other on-going high priority studies and projects a cross the Nation. It is our observation and conclusion that unless a strong and well documented case can be made that the CALFED Levee Stability Program is of critical national importance, it is unlikely that the USACE will be able to obtain funds for existing authorizations in the normal USACE budget, and even more unlikely that any future authorizations will be funded. Every effort should be made to make the best case for yearly Congressional funding.

Increase Funding Limits

The current legislation as contained in PL 108-361, limits the appropriations of funds to fiscal years 2005 through 2010. In addition, PL 108-361 limited appropriations for USACE funding of CALFED Levee Stability Projects to not more than $90 million during those years, although in accordance with Section 109 of PL 108-361, any funds that are appropriated remain available until expended. Section 3015(b) of WRDA 2007 increased the authorization of appropriations to an additional $106,000,000 above the "funds made available under PL 108-361," and does not impose any time limits on the authority to seek those appropriations.

Review of the May 2006 CALFED Levee Stability Program Report to Congress, and interviews within USACE and with representatives of State of California agencies indicated that the levee reconstruction needs will far exceed current appropriation limits. This report concluded that existing identified project needs exceed $1 billion versus the $196 million in current authorizations. Therefore, the strategic plan for the levee stability program should include a legislative proposal to amend the existing legislation contained in section 3015(b) of WRDA 2007 to authorize the appropriations of additional funds that will allow the USACE to address the critical, high priority needs. In addition, it is suggested that the limit on appropriations be removed entirely, so that the USACE has the authority to seek whatever appropriations are necessary and do so until all high priority projects are complete. It should be noted that this legislative change is not needed immediately, as it will take many years to effectively utilize the current "authorization of appropriations" amounts.

Resolve Program Issues and Develop Implementation Guidance

The Sacramento District should draft guidance that identifies any policy, planning, reporting, review and approval, and technical issues that can interfere with or slow down the implementation of the CALFED Levee Stability Program. Once that guidance is drafted, the District should conduct an internal USACE meeting to address and resolve these issues. It is suggested that all elements of the USACE attend, including representatives of the Office of the Assistant Secretary of the Army (Civil Works).

Obtain USACE, State, and Local Support

The Project Manager for the CALFED Levee Stability Program should develop a communication and involvement plan for educating and securing the support from successive higher levels of USACE management. This effort should begin with an internal Sacramento District meeting (to include at least Project Management, Planning, Counsel, and Engineering) to objectively and realistically review District priorities and resources, and real interest, in implementing the levee stability program. If a preliminary decision is made to pursue the program, the Project Manager should develop a strategy to move forward and get a final decision from the District Engineer, and then the South Pacific Division. A critical part of this effort should be to involve and gain the support of the State of California and potential local sponsors.

Obtain Necessary Resources to Effectively Implement the Program

Based on the interviews conducted as part of this study effort, particularly interviews conducted with representatives of the USACE and the State of California, it is clear that the Sacramento District has a very challenging and important on-going study and project implementation program. Many interviewees expressed concern that the District does not appear to currently have the necessary staff to undertake a new program at the accelerated level that is necessary to effectively address critical levee stability needs. Should other efforts continue to remain a priority, and once other policy and technical issues are addressed and a plan developed to implement the program, additional resources from inside the USACE, as well as expertise from other Federal, state, and local agencies and qualified experts in the private sector, must be obtained to implement the CALFED levee stability program.

Proposed Report Format

Attached as Appendix D, is a proposed outline of the Implementation Reports for the CALFED levee stability program.

FEASIBILITY STUDY – LONG-TERM STRATEGY

Background

A Reconnaissance Report was completed by SPK recommending the development of a study at a feasibility level of detail to address a wide variety of unmet and future water resources needs in the Delta. In May 2006 SPK entered into a Feasibility Cost Share Agreement (FCSA) with the California Department of Water Resources (DWR) to conduct the Delta Islands and Levees Feasibility Study (Feasibility Study).

The intent of the Feasibility Study is that it will serve as a decision document to recommend the authorization of the construction of USACE projects that would address the wide range of water and related land resources problems throughout the Delta. The scope of the study is extensive as indicated in the Project Management Plan:

> *The level of detail in the feasibility study will be sufficient to recommend multiple short- and long-term measures and alternatives along with cost estimates to address flood damage reduction, ecosystem restoration, water quality, conveyance of water supply, temporary/ emergency flood storage, multi-agencies emergency response/evacuation/coordination management plan, and other potential problems within the Bay-Delta. (Delta Feasibility PMP, 2006)*

Further, the Feasibility Study was anticipated to take no more than 3 years[1] to complete, and have the flexibility to allow for more detailed study prior to construction for project elements. To date, sufficient Federal funding has not been received to meet the anticipated schedule.

Issue – Need for a Comprehensive Solution

Water resource problems in the Delta are geographically expansive, functionally interdependent and encompass a range of local, regional and national beneficial and adverse impacts. As noted in the Project Management Plan for the Delta Feasibility Study, the problems that need to be addressed in the Delta include flood damage reduction; ecosystem restoration; water quality; conveyance of water supply; temporary or emergency flood storage; multi-agency emergency response, evacuation, and coordination management plans; and other potential yet unnamed problems. Consequently, there are multiple, diverse stakeholders, interest groups, organizations and government agencies participating in

[1] Appendix G displays the study schedule from the Delta Islands and Levees Feasibility Study Project Management Plan.

concurrent initiatives. These initiatives have a wide-spread geographic and stakeholders focus as well as project specific interests. In addition to evaluating the geographic area of the Delta, to address all these problems, the study should consider the tributary watersheds of the Delta, as well as downstream areas that receive water. As an example, just looking at the Delta will not solve water supply problems. Depending on the desired future environmental conditions of the Delta (fresh, salt, or brackish water) existing projects and upstream areas also need to be looked at. Likewise, for example, consideration should be given to the impact existing and planned flood damage reduction and navigation projects will have on the Delta's water quality, natural environment, and water supply conveyance capacity.

Lacking formal, comprehensive study integration, these efforts are prone to inconsistencies which will preclude a richer understanding of the Delta's problems and the effective development of integrated strategies at a scale necessary to achieve comprehensive solutions. A true watershed-scale solution to the water resources problems in the Delta must first be based on an agreement within USACE for a comprehensive approach that integrates the multiple water resources needs in both the study and impacted areas (including upstream watersheds and downstream areas served by Delta-dependant water conveyance systems). This agreement on a comprehensive approach/plan should be made before feasibility-level of detail studies are conducted for the purpose of implementing a USACE project. With the agreement on a comprehensive plan, the State and local agency projects would be more in alignment with solutions that the USACE or other agencies might implement, and solutions identified in the comprehensive plan are more likely to address the diverse political, geographic, physical, institutional, technical, and stakeholder considerations.

Another issue that must be addressed is the ability of the USACE and the State of California, and other potential study and project sponsors, to fund the necessary investigations. From the USACE standpoint, it is clear from the interviews conducted in this effort, that the likelihood of obtaining General Investigations funds for new large-scale studies as part of the USACE's normal budget process is limited. At the same time, the State's interest, and funding ability, in developing and implementing a comprehensive solution is great. Much attention will have to be given to the importance of any new study in the District's and overall USACE program, and the crafting of materials to support budget decisions. Competition for study funds is great, and the District will have to show how critical the problems are, how important the study is, how willing the State and other agencies are willing to actively participate in the comprehensive study and to serve as a local sponsor, and how likely is the study to identify justified and acceptable USACE and/or State and local projects.

Solution – A Long-Term Strategy

The strategy presented in this document is intended to establish a collaborative planning environment which offers a means to integrate disparate initiatives into a holistic, comprehensive approach that addresses all Federal, State, and local needs/interests. This requires a rethinking of the current approach that focuses just on traditional USACE solutions and projects, and the discipline necessary to maintain the USACE'S commitment to the appropriate level of detail necessary to reasonably assess watershed needs and develop a comprehensive and integrated solution. Further, given the urgency of the issues in the Delta and the critical ongoing efforts, the study time must be substantially shorter than a traditional feasibility study of the same scope. Additionally, given the scope and complexity of this effort, the appropriate expertise must be identified and enlisted. Lastly, and perhaps most importantly, stakeholders, partners and the public must be more meaningfully engaged.

Watershed Approach

Historically, the USACE'S approach to water resources planning has been to focus problem solving and decision making on specific types of water resources problems and at specific locations. Over time, planning guidance and procedures have been developed for project planning for the Corp's primary missions. A common element of USACE planning is project justification and related requirements, including environmental compliance, to support the authorization of projects and the appropriation of funds for implementation of a USACE project. While this project approach is warranted in most cases, it does not support or encourage the more comprehensive, multipurpose, and collaborative effort that is needed to address the Delta's water resource problems.

In recent years the USACE has emphasized the use of a watershed approach to solving water resources problems. In 1999, the USACE issued Policy Guidance Letter (#61) which describes the importance of managing water resource activities within a watershed context. The Policy Guidance Letter identifies nine principles including consideration of environmental protection, economic development and social well-being; coordinated planning and management by responsible Federal, tribal, state and local governments; leveraging of resources and programs among Federal, tribal, state and local interests; identification of future water resource use demands; and, public input to water resources development and management.

Further, the Civil Works Strategic Plan (March 2004) emphasizes the increased application of watershed principles. The watershed approach is the unifying theme that ties the USACE Civil Works goals together. Under these principles, the USACE will:

1. work collaboratively with a broad range of stakeholders to help solve water resources problems in a sustainable manner;
2. use systems approaches to understand the connection between natural and manmade systems;
3. analyze water resources problems on larger geographic scales; and
4. strive to achieve multiple goals and functions using water and related resources in a balanced manner.

Watershed planning goes beyond project planning for specific USACE projects and towards more collaborative and comprehensive evaluations and analysis, and towards more involvement of others in the planning and implementation processes. Watershed planning is not a new mission but, as an example, becomes a way of conducting a USACE multi-purpose water resources study. As such, watershed planning does not limit studies to just the USACE'S traditional mission interests. Justification of potential new USACE projects is not the primary consideration, although a watershed study also may involve feasibility level of detail studies of USACE projects. In conducting watershed planning, SPK, together with other partners, can use its planning capability in a broader sense to continue to evolve in meeting the entire needs of the Delta. Watershed planning accommodates the multi-objective and multi-purpose planning and investigations and assures use of the water resources in a sustainable manner (USACE, 1999).

In utilizing a systems approach within the Delta, the planning effort should identify and characterize the systems of interest to the future needs of the Sacramento - San Joaquin Rivers watershed and even areas outside the watershed. This watershed contains many systems which interact and depend on one another at some level. Systems included in the Delta and upstream and downstream watersheds include: transportation systems, power grid systems, municipal and industrial and agricultural water supply systems, municipal and agricultural wastewater systems, flood control systems, economic systems, recreation systems, regulatory frameworks, ecosystems, water management systems, and navigation and dredged material systems.

Therefore, recasting the Delta Islands and Levees Feasibility Study as a "Watershed Study" is consistent with current policy and would more accurately describe the comprehensive, multipurpose, and collaborative effort that encompasses the large geographic area, and even larger impact area due to the implications of water supply for the Central Valley and Southern California. It is even possible that a study using a watershed planning approach and fully supported by other Federal agencies, the State of California, and other local agencies and stakeholders who are fully engaged in the study might obtain funding beyond current District levels. This watershed planning study would be undertaken by a large number of federal, state, local governments, and various other partners and stakeholders. Therefore, all objectives—including those beyond the missions of the USACE — should be considered and integrated as part of the comprehensive view of the problems and opportunities in the Delta.

Develop CORE (not Corps) Team

In conducting the study using this watershed planning approach, opportunities should be sought and developed to allow multi-agency programs, both federal and non-federal, to work together with the full involvement of other stakeholders, in a collaborative planning process. Agency missions, goals, objectives, funding requirements, and timeframes should be fully understood so that efforts can be accomplished over time by various entities in an integrated way in accordance with a collaboratively developed plan. A big advantage of a properly executed watershed study is that all agencies can avoid duplication of effort, thereby limited resources can be used over time in an integrated fashion to achieve a greater sum than if the agencies and stakeholders pursued action independently. By working collaboratively, identification of existing information results in leveraging of technical information across the watershed as well. The development of the CALFED program demonstrates a historic willingness of state and local entities to become engaged in a coordinated process that can result in Federal, State and local benefits. However, the inability of the CALFED process to implement comprehensive solutions also suggests potential doubts about federal involvement, which the core team will need to specifically address.

Communication Plan

Focus all communications within the USACE, and with other agencies, the public, and Congressional interests on real world expectations. Do not raise false hopes on what might occur; instead establish and maintain credibility on what can be accomplished. In other words, be forthcoming on what actually can

be achieved within the authorizations, funding, and resources that are available to both the watershed study and the levee stabilization program, and with the District other study and project priorities.

Establish and maintain effective information sharing with all levels in the Corps of Engineers, Office of the Assistant Secretary of the Army (Civil Works), Office of Management and Budget, Council on Environmental Quality, and Congressional staff. Provide these offices with clear and concise information on a routine bases so that the study, its progress, and accomplishments are on their minds in budgetary discussions.

Obtain Additional Expertise

Reach out and request guidance, assistance, and support from as many offices in the USACE of Engineers as possible, making the study a "USACE-wide" effort. Involve such offices as: Hydrologic Engineering Center (HEC), Engineering Research and Development Center (ERDC), Institute for Water Resources (IWR), USACE Chief Economist, Chief**,** of the Environment Community of Practice (CoP); Chief of the Planning Community of Practice (CoP), Interagency Performance Evaluation Task Force (IPET) Risk and Reliability experts, Nonstructural/Flood Proofing Committee, USACE Centers of Expertise, etc. In addition, seek unique expertise from the State of California, other Federal, regional, and local agencies, as well as experts from the private sector.

Other Benefit Categories to Consider

Another advantage of a fully collaborative study using a watershed planning approach is that the planning effort does not have to be constrained by only accounting for and measuring National Economic Development (NED) benefits and costs, or for estimating benefits and costs using traditional USACE methods and procedures. A watershed study may elevate the other social effects (OSE), environmental (EQ), and regional economic development (RED) accounts to be as important as NED. That said, the USACE must still require that any estimates are done by accepted and accredited models and methods (if necessary, get new models and methods accredited), and that adequate data, and reasonable assumptions be used, and that appropriate support and documentation be done.

- Measure costs and benefits in the NED, RED, EQ, and OSE accounts
- Measure benefits to all water resources needs
- Measure benefits in non-traditional categories

- Measure benefits to the nation using the "willingness to pay" principle of the "Principles and Guidelines." (An example might be that increased agricultural water supply cost would result in the increased cost of fruits and vegetables to the nation. Likewise, an increase in municipal and industrial water supply costs might lead to increased production costs and to an increase in the cost of goods and services to the nation.)

Note that any project specific feasibility studies that would come from the watershed study would have to follow USACE policy on estimating NED and NER benefits and costs.

Proposed Report Format

Attached as Appendix E, is a proposed outline of the Sacramento-San Joaquin Rivers and Delta Watershed Study.

CONCLUSIONS

The Delta watershed provides significant economic, agricultural, environmental, and social benefits to the region, State of California, and the nation. However, the system is in peril and faces significant existing human safety, water supply, flood damage, and environmental risks and issues that need to be addressed in both an expedited and comprehensive manner. Conditions are such that these problems will only get worse if nothing is done to address them. The CALFED Levee Stability Program requires immediate, expedited attention and funding. Long-range planning efforts already underway now require comprehensive and collaborative involvement from both Federal and non-Federal stakeholders. The USACE, as the leading agency in national water resources planning, has the authority and capability to assist – and perhaps even lead - in the development of both near-term and long-term water resources strategies.

Short Term Fixes

The urgency of the levee stability problems warrant an expedited approach to addressing environmental and human safety risks. Consideration should be given to avoidance of catastrophic response when the levees fail and, instead, towards a common-sense proactive approach to implementing needed levee repairs. To address near-term issues, the USACE must balance the federal interest, uncertain budgetary scenarios, and growing expectations with a growing list of “no regrets” state & local backed projects that seem to have significant momentum.

Long Term Planning

The multiple and serious water resources problems facing the Delta warrant a comprehensive strategy to ensure human health and safety to the population, environmental sustainability, and economic vitality. This strategy must include consideration of areas upstream and downstream of the Delta. Considering the watershed system interdependencies (e.g. water supply, flood damage reduction) will likely lead to the identification of alternate implementing agencies, such as State or local entities. However, without a comprehensive assessment and plan, it is likely that ongoing efforts will remain piecemeal, and solutions are likely to be ineffective and controversial. Real solutions must address a wide-range of diverse political, geographic, physical, institutional, technical, and stakeholder considerations.

The USACE has both the mission and capability to lead a comprehensive and integrated process to develop solutions to the multiple water resources needs in the study and impacted area (including upstream watersheds and portions of Central and Southern California served by Delta-dependent water systems). However, the Feasibility Study is inappropriately scoped to adequately address the vast array of these water resources problems. The feasibility study needs to be expanded to address the Delta as a watershed. A watershed planning approach is now a fundamental tenet of USACE policy. Our team is fully in agreement with the Watershed Studies Engineering Circular (EC 11-2-187. 10 May 06. Page II-2-11) that re-scoping the feasibility study in terms of a watershed planning approach will:

- Require team thinking about water resources development and management in the context of multiple purposes rather than single purposes, and, thus, facilitates the search for comprehensive and integrated solutions.
- Improve opportunities for public and private groups to identify and achieve common goals by unifying on-going efforts and leveraging resources.
- Identify a combination of recommended actions (a Watershed Management Plan) to be undertaken by various partners and stakeholders in order to achieve local, tribal, regional, and national water resources management goals identified in the study and may or may not identify further budgetable USACE studies or implementation projects.
- Leverage resources, including cost shared collaboration, and integrate programs and activities within and among Civil Works programs, and with other Federal, tribal state and nongovernmental organizations, to improve consistency and cost effectiveness.

Other Key Recommendations

The following list represents specific, tangible recommendations for advancing water resources strategies in the Delta. This is by no means an exhaustive list, rather these points are offered as essential items for creating and implementing robust solutions in combination with the short and long-term efforts included as part of this Strategic Plan. This list is intended to expand the conversation about what must be done to effect positive change in the Delta. Each point is followed by a suggestion of what needs to happen, why it is important, and a recommendation for implementation.

Define the Delta's significance/value to the Nation

What: The Delta plays an essential role in the sustainability of the natural, human, and economic systems in the region, State of California, and the nation.

Why: During interviews, we heard much about how important the Delta was to the United States as a whole (economically, environmentally, and culturally), but did not hear clarity on exactly what this is, how it is measured, or how it should be expressed. It will be essential to identify and quantify the national-based water benefits that can be realized through solution of the Delta's problems. It is equally important to develop consensus among Federal and non-Federal stakeholders on this point.

How: Consensus-based corporate decision making forum. The State's Delta Vision process provides an opportunity to identify and quantify national-based water benefits however, this process presently lacks formally coordinated Federal participation. The USACE should partner with other Federal agencies, the State, local agencies, and non-profits and provide the necessary leadership to assist in defining the significance and value of the Delta to the Nation.

Assign problems to entities that can develop solutions

What: Multiple levels of government and multiple agency missions will be required to develop and implement solutions to the many and varied water resources and related problems in the Delta. That said, because of the large number of entities (200+) in the Delta, particular attention needs to be paid to who is doing what, if they are the optimal entity to be carrying out an action, and forging an agreement on a collaborative joint Federal/non-Federal plan for addressing the Delta's needs.

Why: Different levels of government and different agencies have different missions and authorities. While considerable momentum exists at the State level to define solutions, there has been a lack of Federal involvement in developing these solutions. This lack of involvement could significantly impact and delay project implementation if an existing Federal project is affected by the State solution, a new Federal project is needed, or if a Federal agency has regulatory jurisdiction.

How: Establish an actionable Federal, non-Federal, pubic 'steering committee' to aid in the development of the plan, implement appropriate portions of the plan, and resolve issues.

Devise appropriately scaled solutions adequate to address the problem

What: There are a litany of multi use and specific problems within the Delta. Some are created by upstream effects, some by downstream needs, and some are internal to the Delta. What goes on in the Delta also affects areas outside the Delta. It may not be appropriate to lump all solutions and impacts into a single plan that is "owned" by a single agency.

Why: Other large-scale water resources programs have recognized that political will, funding, understanding of the problems, and engineering solutions vary over time and from issue to issue. Intentions to develop one single solution, or link projects together may have the unintended effect of slowing down overall progress.

How: Balance short term and long term needs and solutions. Conduct a comprehensive, collaborative study of all the problems in the Delta, and its watershed, before focusing on building projects. Also, don't overbuild solutions to encompass too many problems — solutions need to have 'digestible,' practically sized 'action items' that won't choke/clog the system. Some problems may be urgent enough or ripe enough for quick solutions – don't hesitate to act if the action will not risk irretrievable commitment of resources, be irreversible, or unduly risk future strategies. Break out specific projects or programs for implementation by the various Federal, State, or local agencies.

Discuss, compare, and address the context and differences between CALFED, the USACE Sacramento and San Joaquin Comprehensive Study Interim Report (Comp Study), and Delta Islands & Levee Feasibility Study planning processes.

What: There are a litany of previous studies and efforts to manage water resources within the Delta. Many of these have either failed to address the multi use aspects of the delta or focused on specific problems. The CALFED seems to have broadened the focus, but stumbled with a lack of ability to implement change. A newly focused long-term planning effort needs to build on the lessons learned and institutional efficiencies afforded by each of these efforts.

Why: The proposed strategy in this report differ from CALFED, Comp Study, and Delta Island and Levee Feasibility Study approaches because it proposes that plan formulation be conducted from a watershed or systems approach – it looks at upstream effects/inputs, downstream needs, and also addresses issues/problems internal to the Delta.

How: The USACE has adequate and appropriate authority to re-scope existing USACE efforts into a watershed study approach. The State of California is currently engaged in planning efforts that support such involvement and has the funding necessary to partner with the USACE in this effort.

APPENDIX A - REFERENCES

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APPENDIX B - LIST OF INTERVIEWEES

The scope of this assessment had the intent not to interview all individuals involved in this process, but instead a sample to give an overall representation of ideas and concerns. A list of those interviewed are identified below.

Assistant Secretary of the Army's Office (Civil Works)

- George Dunlop - Deputy ASA(CW), Policy and Legislation

Office of Management and Budget

- Eric Hansen – Project Review Manager

USACE – Headquarters

- Raleigh Leef, Acting Chief, Policy and Policy Compliance Division
- Harry Kitch - Flood Risk Management Business Line Manager
- Robyn Colosimo – Office of Water Project Review
- Ken Zwickl - SPD RIT (Planning)

USACE – South Pacific Division (SPD)

- BG John R. McMahon - Commander and Division Engineer
- Mark Charlton - Acting Director, Programs Directorate
- Annette Kuz - Chief, Office of Counsel
- Paul Bowers - District Support Team Program Manager

USACE – Sacramento District (SPK)

- COL Tom Chapman - District Engineer
- Christine T. Altendorf - Deputy District Engineer for Project Management
- Frank Piccola - Chief, Planning Division
- Scott Clark – Chief, Environmental Branch
- Russ Rote - Project Manager

- Cindy Tejeda – Planning Technical Lead
- Kyle Keer - Engineering Technical Lead
- Ignatius Anyanwu – Economist

USACE – San Francisco District (SPN)

- Arjis Rakstins - Deputy District Engineer for Project Management

Congressional Staff

- Paul Schmid – Congresswoman Tauscher's Office
- Remy Goldsmith– Congresswoman Tauscher's Office
- Paul Kidwell – previous staffer with Congresswoman Tauscher's Office

Governor's Delta Vision Blue Ribbon Task Force

- Ray Seed - Member, Delta Vision Blue Ribbon Task Force

CALFED

- Joe Grindstaff Director of CALFED & Asst. Sec. for Resources Agency
- Sergio Guillen Asst. Deputy Director, Water Management, CALFED & Delta Vision

California Department of Water Resources (DWR)

- David Gutierrez - Director, FloodSAFE California
- Les Harder - Deputy Director
- Ralph Svetich – Project Manager, DRMS
- Dave Mraz - Chief, Delta Suisun Marsh Office
- Kamyar Guivetchi - Statewide Water Planning
- Said Salah-Mars – Contractor Lead (URS), DRMS Project Manager
- Gary Bardini - Division of Flood Management
- Barbara McDonnell - Division of Environmental Services

Other Agency & Stakeholders

- Gary Bobker – The Bay Institute
- Curt Schmutte – Metropolitan Water District
- Gil Cosio – MBK Engineering
- Lynn O'Leary – Kleinfelder
- Roberta Goulart – Executive Officer, Contra Costa County Water Agency

APPENDIX C - INTERVIEW GUIDE

Survey Questions

For the purpose of this survey, questions were prepared for the following groups of people:

1. Resources people at the Federal, State and local levels. Those who are in leadership positions that know and understand the water resources problems and have a vision of what types of solutions are needed to solve the problems.
2. Technical people at the Federal, State and local levels. Those who are working on the studies to formulate and justifying the solutions and write reports (feasibility and EIS) that are used to seek approval of projects.
3. Report reviewers and processors at the Federal and State levels. Those who will work to review and make recommendations on approval of projects developed in the studies.

Orientation

The following script was used to introduce the survey to each interviewee:

- Time: 90 minutes, a lot to cover, will focus wherever you see fit
- Candor / Anonymity

The interview we'll conduct with you is one of many we'll be conducting, all to the same end. We are here to discuss the water resources problems and needs in the Sacramento District in the Sacramento-San Joaquin River Delta, and the two ongoing studies in that area:

1. CALFED Levee Stability Program
2. Delta Island and Levees feasibility Study

Our goal is to recommend reporting requirements for these efforts so that they:

- meet the water resources needs in the Delta
- meet federal and state requirements,

- embody the unique strengths of each agency involved,
- reflect the effective organizational and procedural responses to each project's needs.

In turn, the result of this interview can contribute to discussions between the USACE and the State regarding the completion of necessary studies and implementation of projects or programs for each of these efforts.

The process we're undertaking looks like this:

- Having built on the progress made in previous federal/state partnerships, we're now garnering input on those things from stakeholders up and down the hierarchy in United States Army Corps of Engineers (USACE), California Department of Water Resources (DWR), and the California Department of Fish & Game (DFG).
- With the help of that input, we'll shape a strategic plan and a format for decision documents with an emphasis on defining and/or reaffirming the necessary studies, procedures and roles.
- We'll also provide guidance on the benefits, costs, and risks of different requirements and procedures that garnered the highest level of interest or concern from our interviewees.

You should have been provided with background information on the Sacramento-San Joaquin River Delta, and the CALFED Levee Stability Program and Delta Island and Levees feasibility Study. Do you have any questions about that material?

Resource Staff

1. What is your primary professional/experiential lens you bring to the Delta…What is your role (e.g., I'm a biologist, engineer, etc. My history in the Delta is…)? Repeat guarantee for anonymity to ensure candid responses/dialogue.
2. The two USACE authorities that have been identified for solving the problems in the Delta area are the CALFED Levee Stability Program, and the Delta Islands and Levees Feasibility Study.
    a. Would you agree that these efforts are the appropriate ways to identify and implement solutions to the water resources problems in the Delta?
    b. If so, do you believe that these combined efforts will solve all the problems? What are the limitations of these efforts?
    c. If not, what are the limitations of these efforts?
    d. What do you suggest is (are) the appropriate(s) way to implement solutions to the water resources problems in the Delta?
    e. What percentage of the problems do you believe the CALFED Levee Stability Program can address?
    f. What percentage of the problems do you believe the Delta Islands and Levees Feasibility Study can address?
3. What are the water resources problems in the Sacramento – San Joaquin River Delta System as a whole?
    a. Of the problems you list, how would you prioritize them – from the most critical or significant to the least critical or significant?
    b. For each problem, please indicate on a scale of 0 – 100 the significance of the problem, giving the most critical/significant problem you listed 100 points. Other problems should receive fewer points depending on how it compares to the most critical water resources problem you see in the Delta area. If you believe there are two (or more) equally critical/significant problems, each should receive 100 points.

4. What are some of the solutions to the problems you mention?

    a. How would you measure success in resolving the water resources problems in the Sacramento – San Joaquin Delta System? What criteria would you use to characterize 'success'? Please list the criterion in order of importance? The most important criteria should be listed first.

5. Have any of these solutions been evaluated before and if so by whom? Can you provide us with a reference to the document that has evaluated the solutions to the problem?

6. What have been the primary challenges in initiating and/or maintaining progress in developing and implementing solutions to the water resources problems in the Delta?

    a. What is the source of those problems/challenges?

    b. Are there staffing, funding, management issues that need to be addressed?

    c. Are there Federal or State laws, policies, regulations, or procedures which need to be addressed?

    d. Are the appropriate studies being conducted?

    e. How do you think the problems that are affecting progress can be solved?

7. Many entities at the Federal, State and local levels have authorities that can address the water resources problems in the Delta. Who do you believe should take the lead in solving the problems you mention?

8. SPD and HQUSACE ONLY: Is the South Pacific Division Regional Integration Team (RIT) fully informed about the problems and needs in the Sacramento – San Joaquin River Delta System, and functioning to provide support to this effort? What are the types of issues that have been brought to HQUSACE (or Division) attention on the studies?

9. Do you believe there are any institutional issues that need to be addressed before the various stakeholders can succeed in implementing a plan to solve the water resources problems in the Delta? If so, what are they (internal and external)? Please prioritize issues in order of most to least significant/critical. What would you propose be done to resolve those institutional issues?

10. How does (or how can) your agency best contribute to the solution of the water resources problems in the Sacramento – San Joaquin River Delta System? How does your office contribute to the solution of the problems?
11. Is there anything else I should have asked about/you'd like to comment on?
12. Are there others you feel whose input would be valuable for better understanding the problems and opportunities for the Sacramento – San Joaquin River Delta System? Who?

Technical Staff

1. Primary professional/experiential lens you bring to this role (e.g., I'm a biologist, engineer, etc. My history in the Delta is…)? Guarantee anonymity to ensure candid responses/dialogue.
2. With respect to the problems with the Delta, what are your agency's primary objectives?
3. What is your responsibility in the studies of the problems and needs of the Sacramento – San Joaquin River Delta System?
4. Regarding the ongoing studies, do you believe that they are on schedule, receiving the priority, staffing, funding, and other resources that they need to be successful?
5. What are the water resources problems in the Sacramento – San Joaquin River Delta System as a whole?
    a. Of the problems you list, how would you prioritize them – from the most critical or significant to the least critical or significant?
    b. For each problem, please indicate on a scale of 0 – 100 the significance of the problem, giving the most critical/significant problem you listed 100 points. Other problems should receive fewer points depending on how it compares to the most critical water resources problem you see in the Delta area. If you believe there are two (or more) equally critical/significant problems, each should receive 100 points.
    c. Of those problems you mention, please provide some details such as whether it is an existing problem or a future problem, location or geographical extent of the problem, etc.
6. What are some of the solutions to the problems you mention? Please list potential issues associated with potential solutions (e.g. competing priorities, justification, implementability, environmental impacts, adverse affects on the solution of other problems, etc.).

7. How would you measure success in resolving the water resources problems in the Sacramento – San Joaquin Delta System? What criteria would you use to characterize 'success'
8. What resources are critical to successfully completing your study efforts? Please list the resources in order of importance to completing your work? The most important resource should be listed first.
9. Based on your experience, are there any legal, policy, or technical issues that need to be addressed as the USACE and the State of California work on evaluating solutions to the problems in the Sacramento – San Joaquin River Delta System?
10. What studies do you believe need to be done to adequately evaluated and recommend solutions to the water resources problems in the Sacramento – San Joaquin River Delta System?
11. In your agency, is upper management involved in the studies of the Sacramento – San Joaquin River Delta System?
12. Is the decision-making process working in a definitive and timely way? If not, what changes would you recommend be considered to improve the situation?
13. Does the existing Project Management Plans or other scoping and scheduling documents, adequately portray the problems and needs of the Sacramento – San Joaquin River Delta System? If not what are the deficiencies, and how can they be corrected?
14. Is there adequate communication between agencies and within your agency regarding the studies being conducted for the Sacramento – San Joaquin River Delta System? What, if any, organizational structure changes would you recommend be considered to help make the study process more efficient and effective?
15. SPD and HQUSACE ONLY: Is the South Pacific Division Regional Integration Team (RIT) fully informed about the problems and needs in the Sacramento – San Joaquin River Delta System, and functioning to provide support to this effort? What are the types of issues that have been brought to HQUSACE (or Division) attention on the studies?
16. Is there anything else I should have asked about/you'd like to comment on?
17. Are there others you feel whose input would be valuable for better understanding the problems and opportunities for the Sacramento – San Joaquin River Delta System? Who?

Review & Processor Staff

1. Primary professional/experiential lens you bring to this role (e.g., I'm a biologist, engineer, etc. My history in the Delta is…)? Guarantee anonymity to ensure candid responses/dialogue.
2. Has your agency (as appropriate - division, office, group, etc.) been informed about the water resources problems in the Sacramento – San Joaquin River Delta System? Is your agency engaged in the effort, and how much resources are being committed to participating and being prepared when the reports/project are submitted for approval?
3. Are there any special reporting requirements necessary for these projects? If so, what are they, and has the USACE and State been informed of them?
4. Do you believe that the study efforts on the Sacramento – San Joaquin River Delta System are adequately staffed and funded? If not, what should the staffing and funding levels be?
5. What is your understanding of the overall schedule for the study efforts, and do you think the schedule is reasonable?
6. Based on your experience, are there any legal, policy, or technical issues that need to be addressed as the USACE and the State of California work on evaluating solutions to the problems in the Sacramento – San Joaquin River Delta System?
7. Regarding the reports, what critical items need to be addressed in those report(s) before they are submitted to your office for approval?
8. SPD and HQUSACE ONLY: Is the South Pacific Division Regional Integration Team (RIT) fully informed about the problems and needs in the Sacramento – San Joaquin River Delta System, and functioning to provide support to this effort? What are the types of issues that have been brought to HQUSACE (or Division) attention on the studies?
9. Is there anything else I should have asked about/you'd like to comment on?
10. A re there others you feel who's input would be valuable for better understanding the problems and opportunities for the Sacramento – San Joaquin River Delta System? Who?

APPENDIX D – CALFED LEVEE STABILITY PROGRAM REPORT FORMAT IMPLEMENTATION REPORTS

EXECUTIVE SUMMARY – Summarize the problems and solutions considered for the specific levee/island, and describe the selected project, and its benefits, costs, and impacts. Be sure to be clear on the critical nature of the problems, the need for quick action, and that the USACE already has the authority to implement the project. The Executive Summary needs to be written as if it may be the only thing that some readers may look at. Get the points across clearly, concisely, and in a compelling manner.

1. **PROGRAM AND PROJECT AUTHORITY** – In this section, include a very clear and concise summary of the CALFED Levee Stability Program legislation, including the WRDA 2007 amendments. Emphasize that the levee stability work included in the implementation report is already authorized for construction and only needs approval and funding for implementation. Make particular note of the critical nature of the problem and the project. Refer to an appendix which should repeat the full text of the project authority and also include any USACE project guidance as appropriate. Summarize appropriate USACE WRDA 2007 implementation guidance regarding Section 3015 of WRDA 2007.

2. **PROJECT AREA** – Include a concise description of the project area and location, including clear figures/maps with all key features identified. In this section, we suggest that the report also provide a history and background on the construction of the levees in the Delta, the history of levee failures and their impacts. The report should get the point across that the problem with the levee in the implementation report is not an isolated problem, which will help emphasize the critical nature of the problem and the importance of the project. As appropriate, emphasize the regional and state impacts if infrastructure is to be adversely affected by the levee failure. Be sure to include information on other islands and levees that will likely be effected if the project levee fails.

3. **PROJECT PURPOSE AND SCOPE –** Succinctly identify the project purpose and scope.

4. **PRIOR STUDIES, REPORTS, AND EXISTING PROJECTS** – In this section, in addition to a concise description and summary of other pertinent USACE, other Federal, State and local projects and reports in and affecting the project area and project, present information from the CALFED Levee Stability Report to Congress (May 2006). Be sure to include the information on the project

that was presented in the report to Congress, particularly data that was presented on its justification and priority.

5. **PLAN FORMULATION**

a. EXISTING CONDITIONS

i. Levee Conditions – Summarize information on the project levee. Such things as when the levee was initially constructed, construction materials, dimensions and elevations, and other pertinent information that will enable the reader, reviewer and decision maker to understand and appreciate the problem, its impacts, and the critical nature of the deteriorating conditions of the levee. This section should also provide clear and specific information on the particular area where the problem is located, including all past levee problems and repair efforts (what happened and when, what was done, when, and costs).

ii. Island Conditions – Summarize information on the use of island to include past, current and future developments on the island; infrastructure on and traversing the island; number of people living and working on the island; agriculture, development and infrastructure values; importance of the island to the region, state and nation; primary need for protection (environmental protection, water supply, flood damage reduction, etc.); and other pertinent information that will enable the reader, reviewer and decision maker to understand and appreciate the critical importance of the island and why protection is critically needed and justified.

iii. Environmental Conditions – Present data on the ecosystem in and around the island, particularly if the justification for the project is to be ecosystem restoration.

iv. Hydrologic and Hydraulic Conditions – Present clear and concise data on the existing and future conditions affecting the waterways affecting the particular islands and levees. Particular attention should be paid to presenting data on any conditions that affect levee stability, such as flow velocities, tidal and storm stages, duration of tides and flows, wave action, and sea level rise.

v. Geotechnical Conditions – Present clear and concise data on the geotechnical conditions in the Delta, and for the particular project island/levee. Particular attention should be paid to presenting data on and conditions which affect levee stability. As appropriate, describe the seismic conditions that may affect the levee.

b. FUTURE WITHOUT PROJECT CONDITIONS – Summarize the relevant factors which affect the conditions of the levee and the island it protects, and water resources needs in the project area, region, or state over the planning horizon. It normally would be expected to show that conditions will get worse over the planning horizon. Be sure to address potential impacts of sea level rise, seismic conditions in the Delta, future water supply needs and conveyances, and impacts of the failure of other levees.

c. PROBLEMS, NEEDS, OPPORTUNITIES, AND PROJECT OBJECTIVES – Present a clear and concise summary of the problems and needs. Although meeting other objectives are allowed, the focus should be on the project purposes listed in section 103(f)(3)(A) of P.L. 108-361. Develop specific statements of the objectives to be used in plan formulation, including the identification of critical problem locations, sources or reasons for the problems, and the design or protection levels to be achieved.

d. CONSTRAINTS – Include data on restrictions that limit the extent of the planning, design, and/or the implementation and maintenance of the project. As appropriate, USACE implementation guidance for Section 3015 may address plan formulation, justification, and authorization issues which may beneficially constrain the planning process. If so, be sure to document such guidance.

e. KEY ASSUMPTIONS – Identify the key hydrologic, environmental, economic and other assumptions that are critical to the formulation and selection of the project. Include those assumptions that relate to data and any models and procedures used in the analysis. Be sure to address key assumptions relative to the ability of the State and/or the levee districts to address the problems without USACE assistance.

f. ALTERNATIVE PLANS AND SCREENING OF ALTERNATIVE PLANS

   i. Identification of Alternative Plans – Identify the various levee stability measures that might be used to achieve the stated project objectives. This section will likely be a short presentation of the various ideas that may be used to solve the problems. Just present enough information to identify the measure or plan, what it should accomplish, and a very brief description of impacts, likely costs and other critical factors that should be considered in evaluating each measure or plan. If appropriate, include management and/or nonstructural measures or plans. If not possible, explain why not. Not much data is needed on the alternatives as in most cases they will likely focus on localized levee

repairs. The intent is to show what alternatives improvements were considered. Use as much existing data as possible.

ii. Screening of Alternative Plans – Present the results of the evaluation of the various ALTERNATIVES considered to solve the problems and needs. The goal is to screen out those measures that are not competitive and to have the remainder of the report focus on just the plan, or those very few plans, that would provide a meaningful solution to the problems. Since most plans will likely provide just about the same benefits, just present enough data to show differences between the plans so that a selection of the particular plan to implement can be made. Use existing data as much as possible. Consider the following items in screening plans: costs, benefits, real estate requirements, beneficial environmental effects, and adverse impacts on water quality, fish and wildlife resources, threatened or endangered species, and cultural resources.

- Water Quality
- Fish and Wildlife Resources
- Threatened and Endangered Species
- Cultural Resources

iii. Rationale for Plan Selection — Describe the rational supporting plan selection. The assumption for this outline is that all of the alternatives plans will have just about the same level of outputs or benefits, so that costs and construction impacts comparisons will likely be used to select the project. In other words, the least-costly and environmentally-acceptable project is likely to be selected. If so, the economics (i.e., justification, BCR, net benefits, etc.) will not likely be the determining factor in selecting the project, and therefore not needed for selection. Likewise detailed engineering, and cost estimates may not be needed if a clear cost or technical feasibility differential among plans can be supported without such work. To a lesser extent, adverse impacts, particularly environmental impacts, may be a factor in the selection. To the extent it is, and if those impacts are not addressed in mitigation features, explain how such impacts played a part in plan selection. Also explain any regional or social effects that played a part in plan selection.

6. **DESCRIPTION OF SELECTED PROJECT**

   a. PROJECT COMPONENTS – Identify and describe the selected project.

   b. DESIGN AND CONSTRUCTION CONSIDERATIONS – Refer to an appendix which should present pertinent and critical information on the design and construction elements of the selected project.

   c. OPERATION, MAINTENANCE, REPAIR, REHABILITATION, AND REPLACE-MENT CONSIDERATIONS – Present a summary of OMRR&R actions, costs, and responsibilities. If applicable, be sure to include and describe sponsor project monitoring.

   d. PROJECT ACCOMPLISHMENTS – Present data on project outputs/benefits.

   e. ENVIRONMENTAL AND SOCIAL IMPACTS – Identify and describe key environmental and social factors and consequences associated with implementation of the project. Summarize the NEPA process. Describe cumulative effects where appropriate. Describe efforts taken to avoid or minimize adverse impacts, and any fish and wildlife or other mitigation actions that have been incorporated into the project. Describe any monitoring and future management needs associated with mitigation actions. Refer to detailed environmental impact information found in the NEPA document which could be presented as an appendix.

   f. ENVIRONMENTAL OPERATING PRINCIPLES – Describe how the selected project supports the USACE‘s environmental operating principles.

   g. SYSTEMS CONTEXT – Describe how the selected project is important to and integrated within the Delta levee system, with other critical levee stabilization projects, and with other water resources projects in the Delta area.

   h. PROJECT COSTS – Present all first costs by major cost category, and detail any cost allocation and/or cost apportionment as applicable. Specify price level, discount rate, and period of economic analysis. Below is a suggested sample table for such a display.

TABLE __
PROJECT FIRST COSTS
"PROJECT NAME"
(October 200_ Price Levels)

Project Cost Item	Cost
Lands & Damages	
Relocations	
Construction	
Major Item #1	
Major Item #2	
Major Item #3	
Major Item #4	
Fish & Wildlife Mitigation	
Engineering & Design	
Construction Management	
HTRW Remedial Action	
Total Project Construction Costs	

i. SUMMARY OF ECONOMIC, ENVIRONMENTAL AND OTHER EFFECTS – This is where any detailed economic data that includes cost and benefit information should be presented.

Section 3015(a)(2) of the Water Resources Development Act of 2007 authorizes the Secretary of the Army to "determine that [CALFED Levee Stabilization] programs and projects are justified by the benefits of the project purposes" described in PL 103(f)(3), and that "the programs and projects shall require no additional economic justification if the Secretary of the Army further determines that the programs and projects are cost effective." The USACE WRDA 2007 implementation guidance on Section 3015 will likely determine how much information and analyses is needed on project benefits and justification of the project. It may be that WRDA guidance will determine that not much information on justification is need. If so, benefit data should be summarized. On the assumption that guidance is not provided in a timely fashion or that a decision is made that the Secretary – or a person to whom decision authority may be delegated – will want to review each proposal to evaluate benefits and costs and to determine justification, then this section should present those benefits and justification. Likewise, if the Sacramento District determines to conduct a traditional monetary or non-monetary benefit analysis, this is the section that the data should be presented.

Benefits may be monetary or non-monetary depending on the purpose of the levee stability project. As appropriate, identify the major benefit categories and describe how benefits were calculated. Also include other appropriate information supporting the justification of the project. For non-monetary ecosystem restoration projects, be sure to emphasize the significance of the restored aquatic habitat to the nation, state and Delta, and beneficial effects on endangered or threatened species. Present data on the scarcity of the restored or protected habitats and what the project does to achieve diversity. If there is more than one purpose, be sure to present the data allocated between purposes.

TABLE ___
EQUIVALENT ANNUAL BENEFITS AND COSTS
"PROJECT NAME"
(October 200_ Price Level, 50-Year Period of Analysis, ____Percent Discount Rate)

Investment Costs:	
Total Project Construction Costs	
Interest During Construction	
Total Investment Cost	
Average Annual Costs:	
Interest and Amortization of Initial Investment	
OMRR&R	
Total Average Annual Costs	
Average Annual Benefits	
Net Annual Benefits	
Benefit-Cost Ratio	x.x to 1
Benefit-Cost Ratio (computed at 7%) See footnote 1/	x.x to 1

1. Per Executive Order 12893 (Note for this outline – EC 1105-2-405 requires this data for specifically authorized projects. We suggest you include it for these critical projects.)

7. **INDEPENDENT TECHNICAL AND POLICY REVIEWS** – Describe how the selected project and its supporting technical analyses were reviewed for technical quality. Also included summary information on any substantive technical comments and how they were resolved. Refer the reader to an appendix which should provide more detailed information on the technical review. Limit the information in the main report. Consider reproducing the documentation of the technical review in an appendix. Should the project and/or report have undergone a policy review before it was completed, describe that review, and any substantial comments and how they were resolved. As suggested for technical review, include detailed information on the policy review in an appendix.

8. **PLAN IMPLEMENTATION**

    a. INSTITUTIONAL REQUIREMENTS – Address the Federal, State, and local institutional requirements for implementation of the project. Be sure to address approval, funding, and implementation processes.

    b. DIVISION OF RESPONSIBILITIES AND COST SHARING – Clearly present information about Federal and non-Federal implementation responsibilities and cost sharing

    c. PROJECT COOPERATION AGREEMENT (PCA) – If a PCA has been developed, summarize key elements in this section, and provide the PCA and/or details in an appendix.

    d. SPONSOR VIEWS – Identify the non-Federal sponsor for the project. Suggest that a letter be obtained from the sponsor supporting the project and indicating that the sponsor is willing and capable of participating in the initial construction and maintenance of the project. Also conduct or obtain a final analysis of the sponsor's ability to financially meet the project construction and OMRR&R needs. On the assumption that the sponsors will be a local levee district, explain any State of California financial involvement in the project.

9. **SUMMARY OF COORDINATION, PUBLIC VIEWS, AND COMMENTS** – Describe public involvement, review and consultation actions. Describe key perspectives and differences among stakeholders based on comments received on the draft report and responses to those comments. Make specific note of actions that have been taken to resolve issues, and actions proposed to address any unresolved issues.

10. **CONCLUSIONS**

11. **RECOMMENDATIONS**

12. **APPENDICES**

    a. Appendix I – CALFED LEVEE STABILITY LEGISLATION - Provide the full text of the Levee Stability Legislation (see Appendix F in this report). If available, also include any USACE guidance on implementation of Section 103(f)(3) of PL 108-361 and Section 3015 of WRDA 2007.

    b. Appendix II – Information on this project from the CALFED Levee Stability Report to Congress, May 2006

    c. Appendix III – ENGINEERING, DESIGN, AND COST ESTIMATES

d. Appendix IV – TECHNICAL AND POLICY REVIEWS

e. Appendix V – NEPA DOCUMENTATION

f. Appendix VI – REFERENCES AND OTHER SUPPORTING DATA

APPENDIX E - SACRAMENTO-SAN JOAQUIN RIVERS AND DELTA WATERSHED STUDY REPORT FORMAT

USACE planning reports are intended to provide salient information, relevant discussion, adequate evaluation and analysis necessary for sound decision making by all engaged and affected USACE decision makers. For watershed planning, these decision makers include other Federal agencies, tribal, regional, state and local entities. Consequently, the report should include pertinent information appropriate to the scale of the Delta's watershed investigation and address a wide variety of water resources interests and all levels of decision making considerations.

The following sections provide guidelines to ensure a succinct and comprehensive watershed study that adequately addresses evolving watershed policy requirements while simultaneously balancing practical budgetary and schedule requirements. Additionally, given the significance and potential controversial aspects of such a broad watershed study, involving other Federal, tribal and non-Federal partners and stakeholders, emphasis is given to ensure a comprehensive snapshot of the problems, needs, and opportunities. Given the range of problems and needs, and of potential alternatives and collaboration issues, this effort should focus on the development of a consensus-based watershed study that demonstrates understanding and appreciation of the issues and collaborative decision making required to determine the best paths forward. Only then can more detailed discussion of project specifics be most beneficial.

EXECUTIVE SUMMARY – The Executive Summary needs to be written as if it may be the only thing that some readers may review. Key points must be made clearly, concisely, and in a compelling manner. The executive summary should summarize the problems, needs, opportunities and potential outcomes within the watershed considering all authorities, agencies and affected interests. Further, it should describe opportunities for synergistic planning among multiple agencies as well as potential impacts of incremental, separate efforts. The Executive Summary should emphasize the holistic focus of the study, a systems approach to analyzing the problems and solutions, and the collaboration and partnership used to develop and implementing solutions. USACE and non-USACE efforts alike should be considered as appropriate to maximize benefits and leverage interagency efforts, consistent with a collaborative planning approach.

1. **PROGRAM AND PROJECT AUTHORITIES** – Relevant program and project authorities should be presented. Moreover, implications and the opportunities to maximize benefits in accordance with these authorities should be discussed. Limiting factors and associated program and project impacts should be highlighted. Refer to an appendix which should include the full text of the project and program authorities and also include any USACE project guidance as appropriate.

2. **PROJECT AREA** – Include a complete, concise description of the watershed, including maps with all key features identified. In this section, we suggest that the report also provide a history and background on the construction and operations of water resources projects in the watershed. Key points should include interdependencies among features, geographies, and activities.

3. **PRIOR STUDIES, REPORTS, AND EXISTING PROJECTS** – In this section, include a concise description and summary of other pertinent USACE, other Federal, Tribal, State and local projects and reports in and affecting the watershed. Even include those reports prepared by other interests not actively participating in the watershed study. The description should include date, purpose, type(s) of analyses and key findings/recommendations. Note any discrepancies among studies and or gaps in study areas/efforts.

4. **PLAN FORMULATION**

    a. INVENTORY AND FORECAST CONDITIONS IN THE WATERSHED - This inventory and forecast of likely future conditions should include:

        i. agency programs and capabilities,

        ii. existing knowledge base, existing data, or any inventory necessary consistent with the needs of the study. Inventory is not limited to those areas traditionally used to develop analyses directly related to project planning.

        iii. jurisdictional delineations (who does what and why),

        iv. identification of needs within the watershed, as well as competing and conflicting interests,

        v. existing models in use, with a discussion of compatibility of models and/or existing data,

        vi. existing mapping and GIS data, as well as any limitations, concurrent FEMA efforts and associated impacts/opportunities,

        vii. development and land use patterns,

viii. climate and sea level change patterns

ix. flood control systems,

x. navigation systems,

xi. water supply systems,

xii. wastewater treatment systems,

xiii. water rights,

xiv. ecosystems, current land management practices, and

xv. transportation systems

b. PROBLEMS, NEEDS, OPPORTUNITIES, AND PLANNING OBJECTIVES – Establish appropriate partnerships to collectively determine problems, needs and opportunities throughout the watershed. Other USACE functional elements such as Operations and Regulatory shall be included in all Civil Works watershed planning activities from the outset. Present a clear and concise summary of the problems and needs. Develop specific statements of the objectives to be used in plan formulation, including the identification of critical problem locations, sources or reasons for the problems, and the design or protection levels to be achieved.

c. CONSTRAINTS – Include data on restrictions that limit the extent of the planning, design, and/or the implementation and maintenance of the project.

d. KEY ASSUMPTIONS – Identify the key hydrologic, development, environmental, economic, institutional and other assumptions that are critical to the formulation, evaluation, and identification of a comprehensive watershed plan. Include those assumptions that relate to data and any models and procedures used in the analysis. Be sure to address key assumptions relative to the ability of the State and/or the levee districts to address the problems.

e. ALTERNATIVE PLANS – Formulation of alternatives is a key value-added component of the watershed planning effort. Watershed planning alternatives may include alternative courses of action and their expected outcomes, alternative ways to address identified needs through agency programs, alternative combinations of future efforts, basin wide strategies, and other "alternatives". In watershed planning scenarios, alternatives should be developed in the context of options or choices and their resultant projected outcomes. There may be a myriad of ways to address the needs within a watershed; assessment of the pros and cons of pursuing various courses over time allows a comparison of alternatives to one another

based upon expected results. Since the watershed study will involve a wide variety of other Federal, Tribal, State, and local agencies and stakeholders, and since the outcome of the watershed study will be a watershed management plan that identifies a combination of recommended actions to be undertaken by these various partners, and since any USACE further activities to implement projects will likely be through a separate feasibility study, it logically follows that the level of detail involved in the development of individual alternative watershed plans is less than in a typical USACE feasibility study.

f. SCREENING OF ALTERNATIVE PLANS – Present the results of a preliminary evaluation of the various measures, alternatives, strategies and approaches considered to solve the problems and needs. The goal is to screen out those measures or plans that are not competitive and to have the remainder of the report focus on just those few plans that would provide meaningful solutions to the problems. This screening should take into account the various criteria that possible implementing agencies have for their projects. It should be very collaborative effort.

g. EVALUATION OF FINAL ARRAY OF ALTERNATIVE WATERSHED PLANS

   i. Description of Alternative Watershed Plans

   ii. Cost of Alternative Plans - Planning-level cost estimates are useful tools to assist decision makers in assessing efficient allocation of limited resources. In watershed planning, cost estimates involving savings or least cost options and outcomes are encouraged.

   iii. Beneficial Impacts of Alternative Plans

   iv. Real Estate Requirements

   v. Environmental Considerations

      - Water Quality
      - Fish and Wildlife Resources
      - Threatened and Endangered Species
      - Cultural Resources
      - Address requirements of Environmental Operating Principles

   vi. Risk and Uncertainty Analysis

   vii. Rationale for Plan Selection

5. **DESCRIPTION OF SELECTED WATERSHED PLAN**

   a. PLAN COMPONENTS – Identify and describe the selected watershed plan.

   b. DESIGN AND CONSTRUCTION CONSIDERATIONS – Refer to an appendix which should present pertinent and critical information on the preliminary design and construction elements of the selected project.

   c. OPERATION, MAINTENANCE, REPAIR, REHABILITATION, AND REPLACE-MENT CONSIDERATIONS – Present a summary of likely OMRR&R actions, costs, and responsibilities.

   d. PROJECT ACCOMPLISHMENTS – Present data on project outputs/benefits.

   e. ENVIRONMENTAL AND SOCIAL IMPACTS – Identify and describe key environmental and social factors and consequences associated with implementation of the recommended watershed plan. As appropriate, summarize the NEPA process. Describe cumulative effects where appropriate. Cumulative impacts – beneficial and adverse – may become more important as more of the critical levee stabilization projects are implemented. Describe efforts taken to avoid or minimize adverse impacts, and any fish and wildlife or other mitigation actions associated with the project. Describe any monitoring and future management needs associated with mitigation actions. Refer to detailed environmental impact information found in the NEPA document which could be presented as an appendix.

   f. ENVIRONMENTAL OPERATING PRINCIPLES – Describe how the selected watershed plan supports the USACE's environmental operating principles.

   g. SYSTEMS CONTEXT – This is a very important aspect of the watershed plan. Describe how the selected plan is important to the programs of the various agencies responsible for water resources management in the watershed. Pay particular attention to showing how the watershed plan integrates with the water supply system, flood control system, Delta levee system and with other levee stabilization projects.

   h. PROJECT COSTS – Present all first costs by major cost category. Specify price level, discount rate, and period of economic analysis.

   i. SUMMARY OF ECONOMIC, ENVIRONMENTAL AND OTHER EFFECTS – All identifiable benefits and impacts should be identified including non-monetary and/or non-quantifiable benefits

and impacts This is where the detailed economic data that includes cost and benefit information (e.g. traditional benefit-cost analysis, cost-effectiveness analyses and incremental cost analyses) should be presented. Identify the major benefit categories. Include other appropriate information supporting the implementation of the project. For ecosystem restoration projects, be sure to emphasize the significance of the restored habitat to the nation, state and Delta. Present data on the scarcity and sustainability of the restored or protected habitats and what the project does to achieve diversity. If there is more than one purpose, be sure to present the data allocated between purposes. Address the risk and uncertainties (e.g., ecosystem response, etc.) associated with each watershed plan.

6. **INDEPENDENT TECHNICAL AND POLICY REVIEWS** – Describe how the selected watershed plan and its supporting technical analyses were reviewed for technical quality. Also included summary information on any substantive technical comments and how they were resolved. Should the plan and/or report have undergone a USACE or other agency policy review before it was completed, describe that review, and any substantial comments and how they were resolved. In conducting watershed studies it is recognized that many agencies and stakeholders have developed numerous models and data. Use of existing models and data to the maximum extent in watershed planning is encouraged; through a collaborative process specific models may be used as agreed upon through the process. Use of existing models in watershed planning is not subject to the USACE model certification requirement which only applies to models used to support project justification. However, the principles of certification should be applied to any models developed or used to assure confidence in the results.

7. **WATERSHED PLAN IMPLEMENTATION** – Collectively determine—among and within appropriate partnerships and stakeholders—initiatives that would systematically improve the watershed. Determine a probable best schedule for implementing activities and identify which agency is best suited for accomplishing such activities. Address impacts of political and budgetary uncertainties to the effectiveness and efficiency of implementation. The conclusions should include those reached in a collaborative manner and reflect the desired outcomes.

8. **SUMMARY OF COORDINATION, PUBLIC VIEWS, AND COMMENTS** – Watershed planning involves not only a level of public and stakeholder collaborative involvement beyond public scoping meetings, but attempt to result in stakeholder and public engagement in defining,

evaluating, and formally accepting and agreeing to the future actions and plans developed. Describe public involvement, review and consultation actions. Describe key perspectives and differences among stakeholders based on comments received on the draft report and responses to those comments. Make specific note of actions that have been taken to resolve issues, and actions proposed to address any unresolved issues.

9. **CONCLUSIONS** – In conducting watershed planning, both federal and non-federal, opportunities should be sought and developed to allow the programs to work together over time. Agency missions, goals, objectives, funding requirements, and timeframes should be fully understood so that efforts can be accomplished over time by various entities in an integrated way in accordance with a collaboratively developed plan. By avoiding duplication, limited resources can be used over time in an integrated fashion to achieve a greater sum than if the agencies and stakeholders pursued action independently. By working collaboratively, identification of existing information results in leveraging of technical information across the watershed as well.

10. **RECOMMENDATIONS** – While identification and justification of potential new USACE projects is not the primary consideration, describe any project recommendations and how these recommendations fit into the comprehensive watershed plan.

11. **APPENDICES**

    a. Appendix I – SPECIFIC PROJECTS

       It is possible that if a USACE project is identified as part of the watershed plan, detailed project analyses can be accomplished if funding and a cost sharing sponsor are available. This may or may not be part of the watershed study. The USACE project must be analyzed and reported on consistent with existing requirements and included as an appendix to the watershed plan.

    b. Appendix II – ENGINEERING, DESIGN, AND COST ESTIMATES

       In the absence of a USACE project, the requirements for an Engineering Appendix (Alternative Designs, Recommended Plan Design, MCACES cost estimates, flood frequency analysis as input for economic project justification, and other project related engineering) do not apply. However, appropriate engineering evaluations tailored to the watershed planning effort should be presented. USACE engineering principles and expertise should be applied in watershed planning to meet the needs of the study rather than being confined to

traditional project design and cost requirements. However, when project implementation is recommended USACE Engineering Regulations that govern production, review, and approvals of Engineering Appendices shall be followed for the project specific elements.

c. Appendix III – REAL ESTATE PLAN

In the absence of a USACE project, the requirements for a Real Estate Plan (Gross Appraisal, Real Estate Acquisition Plan, and other project related real estate requirements) do not apply. However, appropriate real estate evaluations tailored to the watershed planning effort should be presented. USACE real estate principles and expertise should be applied in watershed planning to meet the needs of the study rather than being confined to traditional USACE project requirements. However, when project implementation is recommended, USACE Engineering Regulations (ER) governing production, review, and approvals of Real Estate Appendices shall be followed for project specific elements.

d. Appendix IV –NEPA DOCUMENTATION

While a NEPA document is not required as part of a watershed plan, data and analysis can be performed in support of a Programmatic NEPA document or for preparing future NEPA compliance documentation by either the USACE or others. However, appropriate environmental evaluations tailored to the watershed planning effort should be presented. USACE environmental principles and expertise may be applied in watershed planning to meet the identified needs of the study rather than being confined to traditional project mitigation or justification (outputs) requirements.

e. Appendix V – REFERENCES AND OTHER SUPPORTING DATA

Include items such as memorandums of understanding/agreement between and among other agencies.

Public Law 108–361, October 25, 2004

108th Congress

Water Supply, Reliability, and Environmental Improvement Act

As Amended By

Section 3015 of the

Water Resources Development Act of 2007

Public Law 110-114, November 8, 2007

110 Congress

Authorization for the CALFED Levee Stability Program is contained in Section 103(f)(3) of the "Water Supply, Reliability, and Environmental Improvement Act" (Public Law 108-361). It is found in Title I which is the "CALFED Bay-Delta Authorization Act." Specifically the authorization is located in Section 103 which is titled "Bay Delta Program", subsection (f), which is titled "Description Of Activities Under New and Expanded Authorizations," and subsection (3) titled "Levee Stability."

As amended by Section 3015(a) of the Water Resources Development Act of 2007, Section 103(f)(3) reads as:

(3) LEVEE STABILITY. –

(A) IN GENERAL. – For purposes of implementing the Calfed Bay-Delta Program, the Secretary of the Army is authorized to undertake the construction and implementation of levee stability programs or projects for such purposes as flood control, ecosystem restoration, water supply, water conveyance, and water quality objectives.

(B) REPORT. – Not later than 180 days after the date of enactment of this Act, the Secretary of the Army shall submit to the appropriate authorizing and appropriating committees of the Senate and the House of Representatives a report that describes the levee stability reconstruction projects and priorities that will be carried out under this title during each of fiscal years 2005 through 2010.

(C) JUSTIFICATION. –

(i) IN GENERAL. – Notwithstanding section 209 of the Flood Control Act of 1970 (42 U.S.C. 1962-2), in carrying out levee stability programs and projects pursuant to this paragraph, the Secretary of the Army may determine that the programs and projects are justified by the benefits of the project purposes described in subparagraph (A), and the programs and projects shall require no additional economic justification if the Secretary of the Army further determines that the programs and projects are cost effective.

(ii) APPLICABILITY. – Clause (i) shall not apply to any separable element intended to produce benefits that are predominantly unrelated to the project purposes described in subparagraph (A).

(D) PROJECTS. – Of the amounts authorized to be appropriated under section 109, not more than $90,000,000 may be expended to—

(i) reconstruct Delta levees to a base level of protection (also known as the ‘‘Public Law 84–99 standard”) as described in the Record of Decision;

(ii) enhance the stability of levees that have particular importance in the system through the Delta Levee Special Improvement Projects Program;

(iii) develop best management practices to control and reverse land subsidence on Delta islands;

(iv) develop a Delta Levee Emergency Management and Response Plan that will enhance the ability of Federal, State, and local agencies to rapidly respond to levee emergencies;

(v) develop a Delta Risk Management Strategy after assessing the consequences of Delta levee failure from floods, seepage, subsidence, and earthquakes;

(vi) reconstruct Delta levees using, to the maximum extent practicable, dredged materials from the Sacramento River, the San Joaquin River, and the San Francisco Bay in reconstructing Delta levees;

(vii) coordinate Delta levee projects with flood management, ecosystem restoration, and levee protection projects of the lower San Joaquin River and lower Mokelumne River floodway improvements and other projects under the Sacramento-San Joaquin Comprehensive Study; and

(viii) evaluate and, if appropriate, rehabilitate the Suisun Marsh levees.

Water Resources Development Act of 2007

(Public Law 110-114, November 8, 2007, 110 Congress)

Section 3015 of the WRDA 2007 provided additional authorization of appropriations. Section 3015(b) of WRDA 2007 states that:

(b) ADDITIONAL AUTHORIZATION OF APPROPRIATIONS. – In addition to funds made available pursuant to the Water Supply, Reliability, and Environmental Improvement Act (Public Law 108-361) to carry out section 103(f)(3) of that Act (118 Stat. 1696), there is authorized to be appropriated to carry out projects described in that section $106,000,000, to remain available until expended.

APPENDIX G – FEASIBILITY STUDY SCHEDULE

Schedule from the Delta Islands and Levees Feasibility Study Project Management Plan: