Final Value Engineering Study Report

USACE South Pacific Division

Regional Dredging Program

November 2013

Prepared by

Value Management Strategies, Inc.

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Date: November 6, 2013

To: Nick Malasavage, VE Officer
USACE San Francisco District

Subject: Final VE Study Report
USACE South Pacific Division Regional Dredging Program

Dear Nick:

Value Management Strategies, Inc. is pleased to transmit this Final VE Study Report for the referenced project. This report summarizes the events of the study conducted August 12 through 15, 2013.

If you have any questions or comments concerning this report, please contact me at (816) 206-0067 or mark@vms-inc.com.

Sincerely,

VALUE MANAGEMENT STRATEGIES, INC.

Mark Watson, PE, CVS, PMP
VE Study Team Leader

Copy: (PDF) Addressee
(PDF) Scott Noble, Noble Consultants, Inc.

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EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

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Value Management Strategies, Inc., in association with Noble Consultants, Inc., conducted a Value Engineering (VE) study on the U.S. Army Corps of Engineers (USACE) South Pacific Division's (SPD) O&M Dredging Program. The study was conducted in San Francisco, California in August 2013. The VE study involved working with designated representatives from the USACE San Francisco District (SPN), Los Angeles District (SPL), Sacramento District (SPK), and SPD, in conjunction with industry experts and contractors that have been involved in recent dredging projects. These representatives, as facilitated by VMS, comprised the VE team.

REPORT ORGANIZATION AND OUTLINE

The VE study followed the VE Job Plan and the Value Methodology as endorsed by SAVE International. During the course of the VE study, a number of analytical tools and techniques were applied to develop a better understanding of the baseline program. This VE Study Report does not include an explanation of standard value engineering processes used during the workshop in development of the results presented herein. This would greatly expand the size of the report. The purpose of this report is to document only the results of the study.

The primary goal of the VE study was to identify and document as many value-enhancing alternatives as possible. The intent of this report is to provide the developed documentation of the alternatives and not necessarily the analyses that led to their identification. As such, the report outline is organized in the following manner:

The *Executive Summary* provides a broad overview of the SPD's Navigation Dredging Program, key issues and concerns identified by the VE team, and the general results of the VE study. The *Value Engineering Alternatives* section provides the detailed documentation of all the alternatives and additional considerations developed during the VE study and represents the primary body of the report. Supplementary information regarding the Dredging Program being reviewed and each District's areas of responsibility can be found in the *Project Information* section of this report, beginning on page 52. The analyses which formed the basis of the results of the VE study are presented in the *Project Analysis* section on page 75 and *Idea Evaluation* section on page 83.

PROGRAM SUMMARY

The SPD is comprised of four districts, three of which were represented at the VE study: SPN, SPL, and SPK. This VE study was a programmatic review of the entire SPD's Dredging Program, which includes the specific dredging projects as listed by District below.

Specific dredging projects in the Los Angeles District are as follows:

- Morro Bay Harbor
- Santa Barbara Harbor
- Ventura Harbor
- Channel Islands Harbor
- Port Hueneme

- Marina Del Rey
- Los Angeles-Long Beach Harbor
- Los Angeles River Estuary
- Surfside-Sunset
- Newport Harbor
- Dana Point Harbor
- Oceanside Harbor
- San Diego-Mission Bay Harbor
- San Diego Harbor

Specific dredging projects in the San Francisco District are as follows:

- Humboldt Harbor and Bay
- San Francisco Harbor
- Redwood City Harbor
- Richmond Inner and Outer Harbor
- Oakland Inner and Outer Harbor
- Suisun Bay Channel (includes New York Slough)
- Pinole Shoal Channel
- San Leandro Marina
- Larkspur Ferry Channel
- Petaluma River and River Channel
- Napa River (Upstream and Downstream Portions)
- San Rafael Inner Canal
- Sausalito Debris Dock
- Noyo River and Harbor
- Crescent City Harbor
- Moss Landing Harbor
- Monterey Harbor

Specific dredging projects in the Sacramento District are as follows:

- Sacramento River Deep-Water Ship Channel
- Stockton Deep Water Ship Channel

PROGRAM PURPOSE AND NEED

The Navigation mission of the SPD is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems (i.e., channels, harbors, and waterways) for movement of commerce, national security needs, and recreation.

VE STUDY OBJECTIVES

The objective of the VE study was to analyze and review the SPD's Dredging Program consistent with the established requirements for performance, reliability, quality, and maintainability.

KEY PROGRAM ISSUES

The following summarizes key program issues and concerns identified during the VE team's analysis of the Division's Dredging Program:

- Future funding limitations will limit the amount of material that can be dredged, which will result in navigation impacts and issues with areas in need of the beneficial use disposal.
- Funding availability timeframes do conflict with environmental work windows.
- The process timeframes to receive contributed funds for dredging can be too long to adequately use the funds for dredging.
- Contracting processes for acquiring additional technical services can delay award of dredging contracts.
- The use of the Continuing Contracting Clause has led to flexibility in awarding dredge contracts based on available funding in the past, but may no longer be allowed (or needs additional approvals to award a contract for more than available funds).
- Programming restrictions to project-specific areas limits flexibility in sharing available funding.
- Contracting project by project limits flexibility and coordination with other Districts in the region.
- Episodic and environmental coordination are required per year, but covered under programmatic permits.
- Internal USACE process inefficiencies can lead to additional costs to deliver dredging projects (outside of the contract award costs for dredging). In addition, Districts' organizational structures results in teaming and communication inefficiencies.
- Contracting requirements have resulted in additional reviews which add to project delivery time.

VE STUDY RESULTS

Based on the analysis performed during the VE study and presented in the *Project Analysis* section of this report, the VE team developed 18 VE alternatives for improvement to the SPD Dredging Program, as well as 25 additional programmatic suggestions, for consideration in the planning, scoping, and execution of future dredging projects. The alternatives suggest concepts to address one or more of the following aspects:

1. Maximize the flexibility across the region in order to better allocate the limited available funds;
2. Achieve greater coordination between senior leadership in the Districts and Division, relative to the scheduling of staff and resources; and

3. Leverage opportunities in the criteria and requirements being imposed relative to the largely repetitive and consistent nature of dredging work.

A summary list and developed content of all of the VE Alternatives is included beginning on page 6.

VE TEAM

The following personnel participated as full-time VE team members for this study.

VE Study Team

Name	Organization	Title
Anne Sturm	USACE South Pacific Division	Navigation & Coastal Business Line Manager
Joe Yee	USACE Walla Walla District	Cost Engineer
Dave Doak	USACE San Francisco District	Navigation Technical Manager
Nick Malasavage	USACE San Francisco District	VE Officer
Jessica Burton Evans	USACE San Francisco District	Navigation Program Manager
Stan Lee	USACE South Pacific Division	Contracts
Mo Chang	USACE Los Angeles District	Navigation Manager
Joe Ryan	USACE Los Angeles District	Coastal Engineer
Doug Ross	USACE Sacramento District	Navigation Project Manager
Scott Noble	Noble Consultants	Civil Engineer
James Haussener	CMANC	Executive Director
Patrick Royce	Ahtna Engineering	Construction Manager
Jim McNally	Manson Construction	West Coast Regional Manager
Mark Watson	Value Management Strategies	VE Study Team Leader
April Hiller	Value Management Strategies	VE Study Assistant

VALUE ENGINEERING ALTERNATIVES

The results of this study are presented as individual alternatives to the baseline program. Each alternative consists of a summary of the baseline concept, a description of the suggested change, a listing of its advantages and disadvantages, discussion of schedule and risk impacts (if applicable), and a brief narrative comparing the baseline program with the alternative.

EVALUATION OF VE ALTERNATIVES

The alternatives developed by the VE team represent possible revisions to the baseline concept (i.e., current SPD dredging program) and are based on the information available at the time of the VE Study. Generally speaking, they represent the highest potential of value improvement and have direct relationship to cost reductions and/or performance improvements. All stakeholders are encouraged to evaluate all VE alternatives based on their individual merit, selecting the ones, in whole or in part, to be implemented to further improve their project(s). The documentation provided as part of each VE alternative, beginning on page 8, is structured to provide the rationale and justification for each alternative.

ADDITIONAL CONSIDERATIONS

The VE team developed a series of Additional Considerations, presented on page 37, that supplement and/or further enhance the concepts proposed as VE Alternatives. During Idea Evaluation, the VE team determined that these ideas did not call for full development as a VE Alternative in the limited timeframe of the VE study workshop given that the concepts may result in only a minor cost or performance improvement, additional information or design development is required for concept to be fully evaluated, the concepts were out of scope of the VE study, or they were already being addressed by others. As such, unlike the VE Alternatives which received the full level of development as described above, the development of the Additional Considerations consists of a narrative paragraph briefly describing the concept. Given this reduced level of development, minor errors or oversights in the details of the Additional Considerations may be present, but should not detract from the reliability of the overall concepts suggested therein. The VE team still encourages stakeholders to carefully review these suggestions for opportunities to improve the overall delivery of dredging projects. The reader may also find that a review of the suggestions presented herein will awaken new and/or modified ideas that they may wish to investigate further or implement.

VE ALTERNATIVE SUMMARY CATEGORIES

During the VE Study, Mr. Jim McNally, West Coast Regional Manager for Manson Construction, observed that the VE alternatives and additional considerations each fall into one of the following nine categories:

1. Resource Agency Coordination/Restriction Relief
2. Internal Corps Coordination (Intra-District and Intra-Division)
3. Funding Quantity and Flexibility Improvements

4. Project Delivery Timeline/Sequencing/Frequency Improvements
5. Dredge Project Support Services Contracting
6. Control/Influence Third Parties (pollutant sources/third parties mining dredge materials)
7. Dredge Contracting Methods
8. Dredge Prism/Dredge Method Changes
9. Disposal Alternatives

VE SUMMARY TABLES

Summary of VE Alternatives

VE Alternative No. and Description
1 Extend dredging contracts to be multi-year contracts that cover multiple dredge projects
5 Establish additional placement sites
13 Provide additional funds to advance schedule in order to synchronize dredging windows with funding timelines
15 Pursue multi-year approvals from regulatory agencies in lieu of episodic approvals
16 Pursue the use of sediment samples from previous years to cover dreding for the following year
18 Standardize specifications and plans for each dredge type and reduce P&S review timeframe
19 Develop a dedicated navigation team for resources in each district for technical support
21 Evaluate alternative contract types for rental of dredging equipment
23 Re-evaluate the definition of beneficial use to allow more in-bay placement
26 Revise delivery schedule to solicit contracts as early as possible prior to dredging window start date
28 Increase the use of regional planning for dredging needs and contract capacities across west coast
35 Set project areas in the environmental documents and contracts to maximize flexibility of executing dredging as needed
41 Create multi-year ID/IQ contract(s) for environmental services that support dredging projects
45 Pursue demonstration or experimental projects for advance maintenance dredging
50 Prioritize O&M dredging contracts in Contracting during high volume timeframes
53 Consolidate and concentrate BCOE and contracting review using required in-person conferences
76 Award multiple year open-by-amendment contracts for dredging

Summary of Additional Considerations

No. and Description
4 Maximize use of government-owned hopper dredge as a regional resource
8 Revise reprogramming restrictions to allow shared funding across projects
9 Pursue additional funds for SPD dredging
10 Pursue funding for system-wide approach (all California ports system) in lieu of project-specific funding
11 Streamline the contributed funds process
14 Eliminate or modify USACE dredging program execution metrics
20 Revise USACE organizational structure for navigation program to be in Operations branch
22 Pursue expanding environmental windows for dredging operations
24 Establish a placement site for contaminated materials
30 Revise dredge quality management requirements
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36 Revise budget criteria relative to prioritizing dredging of sediment traps
38 Allow third parties to take materials in Federal channels or placement sites for commercial use
40 Pursue funding relative to flood damage reduction relative to areas requiring dredging
48 Utilize USACE policies and guidance relative to overdepth restrictions in lieu of Region 9 EPA requirements
52 Eliminate peer review of IFB contracts
54 Expand responsibility of navigation technical team to prepare front-end portions of dredging contracts
55 Specify the use of the ProjNet/DrChecks system for contract inquiries
58 Expand the quantity and area restrictions for knock-downs
63 Consider project-specific consultations to allow year-round dredging of Oakland channel
71 Post interim after-dredge surveys prior to completion of dredge project
73 Ensure lessons learned from After Action Reviews are used in programming future projects
77 Consider regionalizing the USACE technical services for sharing across Districts
83 Revise the project description and unit cost implications in dredging budget requests
84 Consider re-evaluating environmental restrictions that are driving costs of dredging projects

VE ALTERNATIVE 1

Extend dredging contracts to be multi-year contracts that cover multiple dredge projects

Description of Baseline Concept: Currently, the Sacramento District (SPK) has a 3-year indefinite delivery/indefinite quantity (IDIQ) contract that combines both the Sacramento and Stockton Deep Water Ship Channel maintenance dredging projects. The San Francisco (SPN) and Los Angeles (SPL) Districts currently do not make use of multi-year/multi-project IDIQ contracts for single-year projects. The San Francisco District procures dredging services through single-year, single-project contracts. Los Angeles (SPL) District uses contracts that consist of a single-project base year plus option years for specific project locations.

Description of Alternative Concept: The alternative concept involves extending the current contracts into multi-year, multi-project, or multi-year/multi-project contracts, for single-year projects within their respective Operations and Maintenance (O&M) dredge programs.

Advantages:

- Reduces the extensive amount of USACE workload associated with base contract years
- Additional years within a contract reduce the opportunity for protest
- Allows for a small percentage of cost-redistribution between projects
- Reduces risks to project delivery schedules relative to executing dredging work when funds are available within limited environmental work windows

Disadvantages:

- A longer contract extends future unit price estimates on a contract, and creates more risk for the contractor
- A longer contract may decrease competition in the future where the losing contractor may have to take equipment elsewhere to bid projects
- Multi-year contracts create more USACE workload during the first year
- Small contracts may restrict the successful contractor's ability to pursue other (perhaps more lucrative) dredge contracts throughout the duration of the contract

Discussion: The number of USACE staff involved and contracting steps required in the preparation and award of a multi-year, multi-project contract is extensive, but could be reduced to less frequent occurrence.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

This alternative requires coordination with Contracting branches in each District and needs to be evaluated on a project-by-project basis. Large programs could be used to test this proposed contracting method proposed to see if they result in significant reduction in contracting effort vs. unit cost and total contract cost impacts.

Discussion of Schedule and Risk Impacts: The additional workload can contribute to the number of potential scheduling delays to dredging. Extending the number of years covered by a contract will simplify the dredge schedule over a longer period of time.

VE ALTERNATIVE 1

Extend dredging contracts to be multi-year contracts that cover multiple dredge projects

Multi-year contracts will reduce the amount of risk to the dredge program associated with a potential contract protest during the initial contract year. Last season this proved to be an issue for SPK as an IDIQ contract award protest significantly impacted the dredge operations that season.

The risk associated which restrict a contractor's ability to pursue other projects can be mitigated with the combination of multiple projects into a single contract which allows for mobilization/ demobilization ("mob/demob") savings, as well as increased competition for the larger contracts.

Discussion of Cost Impacts: A contract extension will reduce the amount of workload placed on the USACE staff during a baseline contract year, causing a reduction in USACE cost to a dredge project.

Combining multiple dredge projects onto a single contract allows for contract funding to be most effectively distributed amongst multiple dredge projects within the contract.

VE ALTERNATIVE 5

Establish additional placement sites

Description of Baseline Concept: There are a limited number of permitted in-bay/ocean/upland placement sites that have sufficient capacity and infrastructure (where applicable) to accept dredged material. The recent push for beneficial use of dredged material from the resource and permit agencies combined with restricted use of in-water sites has made it apparent that, in general, it is not more economical to use upland sites, and near-shore placement sites will be needed in the very near future to control dredging costs.

Description of Alternative Concept: The development of additional upland sites that are more centrally located to the dredging projects is needed, including any infrastructure that is needed to make the sites fully operational. Also, there is a need for more near-shore (i.e., coastal) placement sites where sandy dredged material can be placed back into littoral cells or directly onto beach nourishment applications. There is also a need to identify in-bay aquatic placement for beneficial use.

Advantages:

- Provides more cost-effective alternatives (e.g., beach placement) to the existing available sites
- Increases the possibilities for beneficial use of dredge material

Disadvantages:

- The development of additional upland sites requires considerable capital investment that is beyond the current O&M budgets for the projects that would use them
- The science and permitting necessary to support authorization of near-shore disposal sites requires funding, collaboration with the permitting agencies, and time

Discussion: The development of upland sites is likely going to require that the non-federal sponsor (NFS) or other third parties participate financially where it can be demonstrated that the NFS would benefit from the development. It is not likely that additional O&M funds would be appropriated for projects to develop upland sites and infrastructure unless it can be demonstrated that the cost of upland development is less expensive than the current government standard for that project. Currently, the Coastal Sediment Management Working Group is advancing the science and permitting actions needed to support agency authorization of additional near shore placement sites for beneficial use.

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

For San Francisco Bay projects, this will require extensive collaboration with the resource agencies. Upland sites require a large investment to develop the sites. The in-bay aquatic sites require a large permitting effort (with studies to support revising the current regulatory constraints).

Additional coordination with Division and HQ management is needed to understand the constraints for local sponsor responsibilities relative to the additional placement sites and what would be considered a reasonable amount of costs for developing additional sites that could be covered with Federal O&M funds.

VE ALTERNATIVE 5

Establish additional placement sites

Discussion of Schedule and Risk Impacts: The risk associated with not developing additional sites is that remaining upland capacity will continue to decrease. There will be an increase in pressure to execute beneficial use, and further restrictions on in-water placement/disposal from the resource agencies will make the use of existing upland sites more expensive.

For coastal projects (particularly the non-annual projects), the cost to develop additional sites is significant given the impacts to environmental as well as contaminated materials.

Discussion of Cost Impacts: The development of upland sites usually includes the cost associated with the management of the dredged material once it has been placed in the site. This may involve monitoring and adaptive management to achieve habitat goals, or processing for transport to final disposition, e.g., engineered fill, land fill cap, etc. In some cases, this additional cost is equal to the cost to dredge and transport the dredged material to the site. The total cost must be compared to the current cost to dredge and transport to the current placement site. This VE alternative cost may be comparable to the cost to dredge and place at an ocean site or an upland site that is further away than a new upland site, in which case it is worth pursuing. However, for projects that are currently permitted to place dredged material in-bay, it is not likely to be affordable to place dredged material elsewhere.

VE ALTERNATIVE 13

Provide additional funds to advance schedule in order to synchronize dredging windows with funding timelines

Description of Baseline Concept: The development of dredging contract plans and specifications and all environmental coordination, sediment sampling, and analysis does not begin until fiscal funds have been received within SPN and SPK.

Description of Alternative Concept: The alternative suggests allocating increased funding in a given fiscal year in order to fund all of the project environmental planning tasks such that they could all be initiated in the fiscal year prior to the dredging execution.

Advantages:

- Allows the project schedule to start sooner and thereby increases the chance that the entire environmental work window would be available for the dredging contractor

Disadvantages:

- There are no current programmatic permits or agreements with resource agencies that would allow for sampling and testing of sediment that will not be present when the dredging contract is being executed because it will have been dredged in the prior year's contract and therefore not representative of the sediment present in the project footprint

Discussion: For projects that must perform Tier 3 sediment sampling and analysis and obtain a suitability determination for the disposition of the dredged sediment, the typical project schedule results in a contract solicitation and award that overlaps a portion of the environmental work window significantly. This makes it more difficult and more expensive for the dredging contractor to complete the contract before the work window expires.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☐ San Francisco ☒ Sacramento ☒

This action will require any additional coordination with the resource agencies to accommodate the proposed revision to the sediment sampling and analysis protocol.

If additional funds are not available, the PMs for specific projects could submit budget requests for work packages for advance planning and sampling of future dredging projects. These requests will need to explain the benefits and justification of this advance work to the future projects.

Discussion of Schedule and Risk Impacts: There are no perceived schedule impacts, other than an improved schedule start. The risk is that the sediment that is dredged may actually have a potential contamination issue that will go undetected. (This also assumes that the contaminant would have been detected under the current sampling protocol.)

Discussion of Cost Impacts: If the environmental work window is not shortened by current schedule impediments, then a contractor has a better chance of completing the work within the full work window without the need for additional equipment and crew needed to accelerate the work. This typically represents a savings of as much as approximately $500,000.

VE ALTERNATIVE 15

Pursue multi-year approvals from regulatory agencies in lieu of approvals for individual dredging events

Description of Baseline Concept: While multi-year and programmatic environmental approvals/permit are pursued on several projects (e.g., San Francisco Bay projects), these approvals often require a secondary approval, or "episodic" approval, as a condition. The episodic approval is based on more frequent sediment testing and suitability determinations and episode-specific dredge operation plans. The episodic approval request must be submitted 30 days prior to the start of dredging and the regulatory agency responds prior to the start of dredging.

Description of Alternative Concept: Continue to pursue the multi-year, programmatic environmental approvals, but work with the agencies to revise the episodic approval process such that annual dredging notification is submitted, but an affirmative response is not required. The regulatory agencies maintain their regulatory enforcement authorities.

Advantages:

- "Front-loads" work during the approval/permit application process
- Reduces paperwork between USACE and regulatory agencies during the implementation phase of the regulatory approval

Disadvantages:

- Permit/approval process may take longer and it front-loads the cost over to the first year of the multi-year cycle, resulting in irregular budget cycles

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☐ San Francisco ☒ Sacramento ☐

The VE alternative requires coordination with the regulatory agencies to transition the event-specific approval process into a notification process under a programmatic approval/permit framework. The permits are currently being renewed, which would allow these changes to be made.

Discussion of Schedule and Risk Impacts: Multi-year permitting/approval process is most effective with a detailed National Environmental Policy Act (NEPA) document. In San Francisco Bay, it is also means that the State agencies are required (per their rules/regulations) to prepare a California Environmental Quality Act (CEQA) document (Environmental Impact Report [EIR], in this case). The public process for NEPA/CEQA and the permit/approval renewal is long with many opportunities for delay. Renewal process should be scheduled to start 2 years in advance of when the approvals are needed. Delay in the approvals can impact the procurement process (no permit, no 'E' approval of the BCOES [Biddability, Constructibility, Operability, Environmental, and Sustainability] review, and therefore no solicitation).

Discussion of Cost Impacts: The multi-year permits/approvals will result in a cyclical increase in the cost of environmental compliance activities during the year(s) when the approvals are being renewed. This would be offset by a cost savings during subsequent years that only require notification/reporting.

VE ALTERNATIVE 16

Pursue the use of sediment samples from previous years to cover dredging for the following year

Description of Baseline Concept: Currently, SPK is required to perform annual pre-dredge sediment sampling and analysis for the 401 Water Quality Permit, which places severe time constraints for issuance of NTP to the contractor by August 1. SPN is required to perform Tier 3 sediment sampling and analysis in accordance with *USACE-EPA Evaluation of Dredged Material Proposed for Ocean Disposal (Testing Manual)*, testing every 3 to 5 years on the annually dredged projects in San Francisco Bay to be in compliance with the conditions of our environmental approvals (401 Water Quality Certification, Coastal Zone Management Act (CZMA) Consistency Determination, and Ocean Dumping Act as required).

Description of Alternative Concept: Allow sediment samples taken from previous years to cover dredging for the following year to eliminate dredge reach predictions and reduce the pre-dredge sediment sampling redundancies/overall sampling workload. For example, sediment samples are collected in year X when shoaling is at a maximum (just before dredging) and in locations that are generally representative of the channel's shoaling pattern. Sediment testing is concurrent with the dredging period. Sediment suitability/quality determination is then applicable to years X+1 through the remaining testing cycle. If a channel has a 3-year testing cycle, the next sediment sampling would occur in year X+3, and would be used for a sediment suitability determination in year X+4 through X+6.

Advantages:

- Reduces pre-dredge sediment sampling workload each season
- Eliminates annual sediment sampling redundancies in areas where environmental conditions remain consistent
- Reduces cost associated with pre-dredge sediment sampling efforts
- Reduces potential schedule delays related to pre-dredge sediment sampling

Disadvantages:

- Less current pre-dredge sediment samples, perceived risk by regulatory agencies

Discussion: Because of the lengthy process involved with developing a pre-dredge sediment sampling and analysis plan, each season SPK predicts which reaches along the Sacramento and Stockton Deep Water Ship Channels will require dredging (and, by extension, sampling) prior to getting the spring condition soundings completed for review. This process introduces a high probability that a sampled reach will either not be dredged or an unsampled reach will be later discovered after completing the spring condition soundings that requires dredging. Both of these scenarios have occurred at SPK and cause the program to run less efficiently.

In general, this alternative would remove the sediment testing schedule from the dredging critical path.

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

VE ALTERNATIVE 16

Pursue the use of sediment samples from previous years to cover dredging for the following year

Coordination with the applicable regional water boards is required in order to get approvals necessary for this alternative.

Discussion of Schedule and Risk Impacts: The process of selecting reaches (or dredge area) to be dredged prior to performing and reviewing the condition soundings introduces risk that a sampled reach will either not be dredged (resulting in a waste of project funds) or an uncharacterized reach will be later discovered that requires dredging.

Discussion of Cost Impacts: Reducing the amount of seasonal redundancies in pre-dredge sampling efforts will reduce sediment sampling costs for the dredge project. This alternative also increases certainty around sediment suitability and related environmental requirements to allow for other activities (e.g., plans and specs development and review) to be completed earlier.

VE ALTERNATIVE 18

Standardize plans and specifications for each dredge type

Description of Baseline Concept: Currently, plans and specifications are prepared separately for each project and for each dredging method.

Description of Alternative Concept: Prepare a specification template that can be used for dredging and disposal options that might be possible for all dredging projects. Alternatively, prepare separate templates for each dredging type. Templates for plan details (e.g., side slope details, overdepth details, disposal details, etc.) could be developed.

Advantages:

- Minimizes effort/cost in preparing contract documents
- Consistent requirements for contractors to meet

Disadvantages:

- Potential to miss unique conditions and or requirements that may occur for a specific dredging event
- Requirement to review specifications to make sure they are current, which could be done off cycle

Discussion: This idea is similar to the SpecsIntact concept. SpecsIntact Section 35 20 23 "Dredging" could be used as a starting point to develop the template that would be used for South Pacific Division. The template could be developed by each District separately, or first by a combined effort by the Districts and then refined by each District to meet their needs.

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

All Districts in SPD will need to coordinate the preparation of the revised standard packages in order to ensure they are appropriate and can be implemented without further reviews (or with significantly reduced timeframes for the reviews). This should be completed uncoupled from a current dredge cycle in order to provide sufficient time for the development and review of the packages.

Discussion of Schedule and Risk Impacts:

- The overall program schedule could be increased by allowing labor resources to work on other tasks necessary to get the project advertised.
- The risk is that a one-time or new requirement would not get included in the contract documents.
- The risk of not periodically reviewing the template(s) to ensure they are up to date.

Discussion of Cost Impacts:

- The cost to prepare and review the contract documents would be reduced.

VE ALTERNATIVE 19

Develop a dedicated Navigation Team for resources in each District for technical support

Description of Baseline Concept: The current team for the navigation work is subject to competing mission priorities at the District.

Description of Alternative Concept: The establishment of a dedicated, inter-disciplinary team would provide the navigation program with regular and reliable technical resources with a priority to maintenance dredging.

Advantages:

- Establishes the maintenance dredging team in the navigation mission as a priority among team members and the District
- The team is more likely to produce a more cohesive, comprehensive, and higher quality product when compared to the current non-dedicated resources
- Eliminates the potential for competing USACE missions to distract or pilfer resources assigned, but not dedicated, to navigation work
- Improves the knowledge base and expertise of personnel with the navigation projects
- Creates an organizational structure that documents the role of team members, resource providers, and managers in context of the navigation program

Disadvantages:

- Personnel on the dedicated maintenance dredging team will not be available for other District work until the current maintenance dredging effort is complete
- Does not reduce supervisory overhead

Discussion: Personnel assigned to perform tasks associated with maintenance dredging projects are encumbered by other mission objectives at SPN. The result of a diffuse team, selected based on availability rather than skill set, induces significant risks to schedule creep and labor funds from work stops and starts or replacement of team members. Creation of a dedicated Navigation Team would eliminate or significantly reduce problems associated with staff availability and impaired communication between coordinating disciplines. The intended outcome of this effort is to develop a core team of individuals with experience and expertise related to maintenance dredging. The core team would then be able to provide leadership to novice team members during transitions or temporary increases in workload.

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☐ San Francisco ☒ Sacramento ☐

Establish a team within the existing organizational hierarchy. The Navigation Team should be consistent in personnel and available during regular/recurring periods of the fiscal year when navigation work is typically scheduled to occur. Formation of the Navigation Team would include documentation of specific expectations of team members, and support/approval from resource providers and managers. The team should include named team members from at least Civil Design, Environmental, Cost Estimating, Contracting, and Construction, Hydrographic Survey.

VE ALTERNATIVE 19

Develop a dedicated Navigation Team for resources in each District for technical support

Communication and coordination with upper management within SPN is required to obtain the approvals for the dedicated personnel to the navigation program.

Discussion of Schedule and Risk Impacts: A dedicated maintenance dredging team can only improve the schedule when compared to the non-committal to project prioritization currently experienced at the District.

Discussion of Cost Impacts: Costs of delays in schedule and added labor costs to train/familiarize new or replacement team members would be eliminated.

VE ALTERNATIVE 21

Alternative contract types for on-call availability of dredging equipment

Description of Baseline Concept: The USACE contracts with private industry to dredge materials that are located in the navigational channels.

Description of Alternative Concept: Explore the use of on-call contracts to private industry equipment and personnel to remove the materials in the navigational channels that drive the controlling dimensions. This could give the USACE a more direct method of performing maintenance dredging and quicker response times. Currently, small humps cannot be removed until the entire channel is dredged, negatively impacting commerce and environmental safety. This could also reduce USACE internal procedures and greater savings to the government.

Advantages:

- Improves usage of navigational channels to full depth
- Gives the USACE qualified and experienced staff and equipment to perform maintenance dredging
- Provides a ready resource to perform dredging work
- Reduces internal USACE procedures
- Streamlines operations for the USACE contracting and engineering groups
- Potentially assist small business development (depending on standby time compensation)
- Improves USACE/contractor communications
- Could eliminate the difficulties in scheduling back-to-back projects

Disadvantages:

- Might need different rental contracts for different types of dredging operations (hopper, mechanical, and hydraulic)
- Potential high cost or rental equipment without high utilization
- Reduce competition if rental equipment operates multiple locations
- Lost opportunity cost to the contractor
- No dedicated funding stream
- Undetermined workload
- Concurrent projects often encounter schedule challenges (permits/environmental/funding)

Discussion: Some believe that if the USACE had ready sources to remove sedimentation (i.e., intermittent humps and not the entire channel) by means of a simple and direct procedure, it could offer greater value for the dollars spent. In developing this idea, there are presently many areas of concern that would need to be mitigated before concluding that this can offer value to the government.

The advantages to on-call contracts to the government would mostly be from streamlining internal USACE procedures. Contracting and Engineering would have streamlined operations to as little as would be required to activate the contract in multiple locations. USACE would have a ready source to perform dredging activities when a navigational obstruction became present. USACE would receive consistent performance from the same contractor, lessening the unknowns from different contractors. It would also assist with communications as the USACE would be working through the same contractor.

VE ALTERNATIVE 21

Alternative contract types for on-call availability of dredging equipment

The largest disadvantage for this idea would the lack of a dedicated funding stream for implementation. The other large hurdle to overcome would be burdened by private industry. If equipment and staffing was expected to perform within a short window of notification, they would need to have equipment and staffing ready and able. This would increase the standby cost of the equipment and would either need to be offset in standby cost or higher rental rates than anticipated. Private industry would lose the opportunity to utilize these assets elsewhere while maintaining readiness for potential USACE work.

Ownership Cost of Equipment

- Original Cost + Improvements
- Depreciation
- Insurance

Operating Cost

- Labor and Benefits
- Fuel, Oil and Lubricants
- Repairs, Maintenance and Supplies
- General Overhead
- Crew Training and Retention Cost

$$\text{Daily Rental Rates} = \frac{\text{Operating Cost + Ownership Cost + Small Contingency}}{\text{Number of Days that can be expected to operate}}$$

It becomes apparent that with little utilization of the asset, daily rental rates increase. Higher utilization of the equipment could lead to lower competition in the market and make it harder for small businesses to enter the market.

Furthermore, the lost opportunity cost to private industry would be hard to determine. Keeping assets idle for standby readiness would lessen or eliminate the opportunity to greater utilize the asset in other dredging projects.

These concerns could be mitigated with greater planning of the work and sufficient notification to the contractor, although that might negate the benefit the USACE would receive from a standby contractor.

Implementation Considerations:

District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

Coordination and communication with Contracting Division is needed regarding what would be considered an in-scope and out-of-scope change to the dredging contracts.

Discussion of Schedule and Risk Impacts:

The risk for rental equipment would need to be spread between private industry and USACE. The USACE could expect higher rental rates for the additional readiness they require from private

industry. Private industry would need to reduce their future opportunities to keep assets and personnel in readiness conditions. Agreements between these two opposing concerns might be mediated once the USACE determines how much readiness they desire.

The risk to navigation would be reduced utilization of channels due to obstructions not getting removed in a timely fashion.

Another risk, albeit a low risk, would be to have equipment in a readiness state without guarantee that sedimentation will appear.

Discussion of Cost Impacts:

The cost impacts for this implementation would be variable. The cost savings would be realized through reduction of the internal procedures within USACE. Additionally, potential cost savings may be realized through smaller dredge quantities as small obstructions are removed before larger obstructions are present.

The greater cost impact would have equipment in a readiness state with little or low utilization. This could be remedied with greater utilization of the equipment to lower the total cost of operations.

In summation, there would be higher cost upon the government unless there was high utilization of equipment.

A 5,000- to 10,000-cubic-yard shoal has and can be the cause of a 2- to 5-foot draft restriction on a High Use Deep Draft project. Having an on-call contractor would allow the channel utilization to return to “normal” by 6+ months over the current process and may substantially reduce project costs over a multi-year period if the entire channel does not need to be dredged.

VE ALTERNATIVE 23

Re-evaluate the definition of beneficial use to allow more in-bay placement

Description of Baseline Concept: Coastal: There are multiple definitions for depth of closure for what depth dredged material can be placed near-shore for beneficial use as beach nourishment. This restricts near-shore placement of dredged material to a shallower depths for a greater certainty that the material benefits beaches. Absent near-shore placement of dredged material, on-shore/upland placement of dredged material is driver of schedule, cost, and risk.

San Francisco Bay: Over the past decade, San Francisco Bay has transitioned to a sediment-deficit ecosystem. Aquatic placement of dredged material is only allowed at designated disposal sites that are managed to be dispersive, but are not considered a beneficial reuse of dredged material. The Long-Term Management Strategy for Dredged Material in San Francisco Bay (LTMS) has the goal of maximizing beneficial use of dredged material and restricts the in-bay placement (for disposal) of dredged material to 1.2 million cubic yards, annually. For several projects, dredged material is lost from the littoral cell when it is placed at the deep ocean disposal site (San Francisco-DODS). There is a perception among the regulatory community that the aquatic placement of dredged material will not and cannot be beneficial for subtidal or wetland habitat improvement.

Description of Alternative Concept: Coastal: Near-shore placement in deeper water increases safety and allows for a larger variety of equipment sizes that can use the placement site, while still benefiting beaches.

San Francisco Bay: Sediment modeling in San Francisco Bay shows that there are locations in South San Francisco Bay at which aquatically placed dredged material will be naturally dispersed to subtidal and wetland habitats in the south bay. This alternative would be for a demonstration site (multi-year placement with monitoring) for in-bay placement for beneficial use. Under the LTMS, the demonstration site would be classified as beneficial use.

Advantages:

- Cost savings compared to upland or deep-ocean placement
- Dredged material is beneficially reused (Regional Sediment Management [RSM] and Engineering with Nature principles)
- Coastal: Deeper draft placement sites would allow for a greater variety of equipment that could perform the work, thereby increasing competition.
- Coastal: Reduces impacts to coastal resources (birds) relative to on-shore placement
- San Francisco Bay: Increase existing in-bay capacity available to other projects/users

Disadvantages:

- Capital investment to establish new placement sites
- Monitoring or studies required by other agencies to demonstrate beneficial use or reduced impacts

Implementation Considerations:

District to which this alternative concept applies:

Coastal:	Los Angeles ☒	San Francisco ☒	Sacramento ☐
San Francisco Bay:	Los Angeles ☐	San Francisco ☒	Sacramento ☐

VE ALTERNATIVE 23

Re-evaluate the definition of beneficial use to allow more in-bay placement

There are components that have been initiated to review the implementation of this concept, but additional studies will likely be needed prior to ultimate acceptance by the regulatory agencies. May be able to leverage USACE Research and Development (R&D) funding for RSM, Engineering with Nature (EWN), or other for studies that may be requested to demonstrate the ultimate beneficial fate of the dredged material.

Discussion of Schedule and Risk Impacts: Once a demonstration site is established, it would reduce constraints and risk associated with the current placement locations.

Discussion of Cost Impacts: Capital investment is required to establish demonstration project, and additional investment maybe needed to make the demonstration project permanent.

VE ALTERNATIVE 26

Revise P&S delivery schedule to solicit contracts as early as possible prior to dredging window start date

Description of Baseline Concept: Currently, the solicitation schedules in the San Francisco District are driven by the environmental planning tasks, such as sediment sampling and testing and the seemingly excessive reviews of the solicitation packages.

Description of Alternative Concept: The alternative concept is to take as many of the environmental planning tasks as possible off the critical path, and to reduce or combine as many mandatory reviews as possible, to shorten the schedule to solicitation.

Advantages:

- Increases competition by getting solicitation package onto street sooner, which reduces cost

Disadvantages:

- None apparent

Discussion: This requires that the resource agencies are agreeable with sampling and testing of material in the year previous to when the project will be dredged, and/or that they have approved programmatic Consistency Determinations (CD) and Waste Discharge Requirements (WDR) so that sampling and testing only needs to be done when the permits expire and new ones must be established. The combining and consolidation of reviews has been done on several occasions and been shown to be effective. Under current Corps guidance, it is not recommended that reviews be combined.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

Although the evaluation targets the issues at SPN, the constraint of work windows is believed to apply to all Districts. San Francisco District has no current programmatic permits in place and has had to request approval of extensions to the expired permits. This makes agency consultation, as well as sampling and testing, an annual necessity for each project.

Discussion of Schedule and Risk Impacts: By not shortening the schedule to solicitation, the risk that a project will not be awarded and completed within the environmental window is increased. It is also likely that, because a contract is solicited late in the dredging year, the available contractors and resources will be limited, which can lead to increased cost and/or delay of completion of contract work.

Discussion of Cost Impacts: Cost savings associated with early solicitation and award derives from the notion that contractors can apply and position their resources more effectively if they can begin work scheduling sooner in the year. Competition would increase because more contractors would be available to bid if they are already not committed to previously solicited contracts from other Districts or non-Federal clients.

VE ALTERNATIVE 28

Increase the use of regional planning for dredging needs and contract capacities across west coast

Description of Baseline Concept: The Districts primarily execute dredging projects within their respective boundaries.

Description of Alternative Concept: Develop dredging projects and contracts that serve the region, and if applicable, the entire west coast. Many of the dredging projects on the west coast have similar design parameters, such as utilizing a hopper dredge to perform the work and placing the material in an ocean disposal site, or utilizing a pipeline dredge and placing the material on the beach. The concept is to combine these similar projects and issue a single contract to perform the work. This not only allows a greater economy of scale for the contract price, but also provides a cost saving on the planning phase. A west coast hopper dredge contract has been executed successfully in the past. In certain cases, different environmental windows for different projects would also help the sequencing of the work, allowing a longer contract period for the whole contract.

Advantages:

- Cost savings on mobilizing and demobilizing of equipment
- Provides a greater economy of scale
- Efficiency on contract submittals, scheduling pre- and post-dredge surveys, and safety and equipment inspection
- Efficiency on design and contract administration of the contract
- Facilitates work load on Government hopper dredges
- May allow expanding work windows or accomplishing more dredging within the given windows

Disadvantages:

- May limit contractor competition
- May drive contractors to different areas
- May limit dredging contract experience in specific Districts

Discussion: Oftentimes, combining these projects together would provide a cost savings in the mob/demob costs. Combining Channel Islands and Ventura Harbors together would be a good example since these projects are close in proximity. In some cases, by grouping a single hopper dredge contract for the west coast would provide a lower unit price for the individual projects since the contracted hopper dredge is already on the west coast, providing a greater economy of scale.

Instead of doing multiple contract submittals, and safety and equipment inspection, these activities can be done less frequently or even reduced to perhaps once. Scheduling the pre- and post-dredge survey can also be easier since there is only one contractor and a single schedule to manage. Also, combining the projects would save on design (plans and specifications), and contracting and contract administration efforts. When government dredges' work schedule is full, a regional hopper dredge contract can provide additional capacity to the workload. When a contracted hopper dredge can travel to areas where the environmental window is closed to one where the environmental window is open, this allows greater flexibility in the work schedule and provides less risk to the contractor in bidding the contract.

VE ALTERNATIVE 28

Increase the use of regional planning for dredging needs and contract capacities across west coast

However, there are some disadvantages to the proposal. By combining smaller projects into a large contract often eliminates smaller dredging contractors. If there are only a few projects in a given area, combining these projects would drive the losing contractors to different areas. If the work is assigned to be designed and managed by a certain District, the other Districts will lose the experience for those projects on the planning, design, and contract administration levels.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☐

Suggest developing a matrix for projects by dredge type, project size, windows, etc., then review the matrix to see if there are opportunities for combining similar projects based on certain criteria.

Discussion of Schedule and Risk Impacts: If there is an issue on one of the projects, it could impact all the projects under that contract. During the design phase, if one project runs into an environmental permitting issue that would delay its schedule, a decision would be needed to keep that project on the regional contract. During construction, a breakdown of the dredge equipment would impact the entire construction schedule for all the upcoming projects.

Discussion of Cost Impacts: In general, costs for mob/demob are high. If there is cost savings on this item, it should be relatively high. The design and administration cost savings are in the medium range.

VE ALTERNATIVE 35

Revise project descriptions to be more general extents of the channel needing dredging

Description of Baseline Concept: Currently, regulatory authorization for maintenance dredging is dependent on knowing where the shoals are located and the quantity to be dredged. Therefore, sediment testing and preparation of environmental and contract documents cannot be completed until after the areas and quantities of material to be dredged are known, which limits maximum channel availability.

Description of Alternative Concept: Allow the project description to include complete authorized channel, or at least the extent of the channel area that has historically needed dredging. This description would designate the channel areas that would most likely require dredging in the upcoming maintenance cycle and the upper limit of expected maintenance quantity. The Sampling and Analysis Plan (SAP) and regulatory and contract documents would be prepared based on a condition survey and the expanded project description. An additional hydrographic survey and quantity calculations would be performed prior to advertising the contract. Regulatory agencies would review these documents and confirm that the actual area to be dredged was covered by the project description. Also, contract specifications can be performance-oriented and state the dredging to a required depth or volume within a larger project footprint.

Advantages:

- Allows sediment testing to be performed earlier in the process
- Allows timely, and not expedited, review of environmental and contract documents
- Allows the dredging contract to be bid early to optimize the chance of being ready to dredge when the environmental window opens
- Maximizes channel dimension availability

Disadvantages:

- If actual required dredging is outside of the project description then the project could be delayed because additional testing, environmental review, and contract amendments may be required.
- An additional hydrographic survey is required – one as a condition survey to develop the project description and one as a basis for bidding purposes.
- Can result in higher unit costs if there is too much uncertainty for the dredge areas within the larger project footprint. The risk for this should be minimized if the condition survey was conducted prior to bid advertisement.
- Increases risk of quantity overruns/Variation in Estimated Quantities (VEQ) modification or change conditions during the contract execution. This risk should be minimized if the condition survey was conducted prior to bid advertisement.
- A delay in the dredging schedule could occur if the actual required dredging determined by the pre-dredge survey is significantly different than the project description and thus the resource agencies withhold final approval.
- A delay to the dredging schedule (see above bullet point) will increase costs to the Corps, the local sponsor, and the users.

VE ALTERNATIVE 35

Revise project descriptions to be more general extents of the channel needing dredging

Discussion: Since the majority of the shoaling may not occur until after winter, the timeframe is limited for completing the planning and contracting process to be available to dredge when the dredging window opens.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

Discussion of Schedule and Risk Impacts:

- The schedule could be improved such that there is a greater chance that dredging could start when the window opened.
- There is a risk that the project could be delayed and costs increased if the project description did not cover the dredging that was required.

Discussion of Cost Impacts:

- The cost could be reduced by ensuring that award was made to maximize the dredging time within the window.
- The cost would increase if delays were incurred due to an improper or unacceptable project description.

VE ALTERNATIVE 41

Create new IDIQ for environmental services to support dredging projects

Description of Baseline Concept: Currently, some Districts must find an existing IDIQ environmental services contract that supports dredging, or procure environmental services contracts/purchase orders for each project. The existing IDIQs generally do not provide enough capacity or have enough capacity.

Description of Alternative Concept: Create multi-year IDIQ contracts that are regional (i.e., SPD) and encompasses all projects for environmental services that support dredging projects.

Advantages:

- Brand new IDIQ contracts will specifically support dredging projects
- Contractor will be more specialized towards navigation/dredging environmental work
- Pricing may be more applicable to work needed for dredging projects
- A base IDIQ with two option years would provide up to 3 years of environmental services or scaled otherwise to match longer contract periods
- Awarding task orders (as opposed to using solicitations for each project) saves time and resources; task orders can be awarded shortly after funds are received

Disadvantages:

- Upfront costs and work needed to create new IDIQ
- There may be an existing IDIQ in another District/Division that limits the number of potential bidders

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

To implement, the PM and Contract Specialist prepare an acquisition strategy and an acquisition plan. Both documents will be routed to the appropriate people for concurrence and approval. If approved, the PM should come up with a budget and project schedule. The Contract Specialist will work on the solicitation while the PM works on the scope of work. A PDT needs to be formed and the PDT will work on this project. If funding is required, it needs to be identified along with the source of the funding. A Source Selection Team will be required to evaluate proposals. Contract milestones and dates will be established and tracked. Districts need to discuss scope of work, area of performance, and contract requirements. Which District will procure the contract? Which District will administer the contract? Who can use the contract? How many years will it cover?

Discussion of Schedule and Risk Impacts: The best time to solicit a new contract is first or second quarter, before the typical year-end rush.

Risks include not getting approval from the Principal Assistant Responsible for Contracting (PARC) in Dallas to solicit/award a new IDIQ contract. Schedule risk involves getting all the people together for PDT and Source Selection Boards. The latter risk is the possibility that HQ or the PARC Dallas may feel there is no need for another IDIQ; if so, they will not approve the acquisition plan.

VE ALTERNATIVE 41

Create new IDIQ for environmental services to support dredging projects

Discussion of Cost Impacts: Like all new solicitations, funds are needed to pay for the PDT and Source Selection Team to solicit, evaluate, and award the new contract. Funding is also needed for the District administering this IDIQ contract.

VE ALTERNATIVE 45

Pursue demonstration or experimental projects for advance maintenance dredging

Description of Baseline Concept: The effort to identify advance maintenance is predominantly or entirely theoretical (e.g., numerical modeling). Validation with numerical modeling of an advance maintenance concept is an assumed prerequisite for environmental stakeholders to approve of execution in the field.

Description of Alternative Concept: Demonstration projects would allow for empiricism to validate an advance maintenance concept.

Advantages:

- Reduces the risk associated with developing advance maintenance concepts with only theoretical methods
- Allows for empirical proof of a concept before the expenditure for full implementation
- Leverages lessons learned in the field from a specific project to similar projects in the region

Disadvantages:

- Potential for a large expenditure of funds with no net return, or increase in dredging volumes required
- Dredging volumes may be increased temporarily without comparable reductions in dredging duration or frequency
- Negotiation with resource agencies to allow the demonstration project(s) would be required

Discussion: Projects experience shoaling at non-uniform rates and locations along the authorized length. This may cause consistent decreased draft in specific and constrained areas of the project. The point of minimum draft (i.e., highest shoal) dictates the level of service supplied by the navigation channel/project. Advance maintenance in the specific areas that have been observed to shoal faster could potentially decrease dredging frequency and increase the period the channel is at authorized depth.

Demonstration projects associated with advanced maintenance dredging would allow Districts to fast-track the identification of projects likely to benefit from such techniques. The field scale effort would also eliminate the risk and uncertainty associated with basing advance maintenance strategies on numerical methods alone.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☐

Advance maintenance has been implemented for decades in Districts across USACE. Desktop research on the success and failures at different projects can be used to support advance maintenance strategies and techniques. Projects that are similar in scope can aid to identify the scale of common risks/rewards likely to be experienced while implementing a demonstration project.

Discussion of Schedule and Risk Impacts: Executing a demonstration project will significantly reduce the time required to study and implement an established advance maintenance program. A successful demonstration of advance maintenance dredging can reduce the frequency and duration

of dredging episodes. An unsuccessful demonstration of these techniques would inform, improve, and reduce the scope of respective numerical modeling studies.

Discussion of Cost Impacts: The funds required to execute an advance maintenance demonstration project are at risk until the concept is validated. However, the empirical proof of the concept would eliminate or significantly reduce the effort required for numerical modeling efforts on similar projects.

The successful implementation of a demonstration project can significantly reduce the cost of dredging by lengthening the time between dredging episodes (reduced mobilization), improve unit prices (dredge volumes are spatially concentrated), and/or reduce the quantity dredged per episode.

VE ALTERNATIVE 50

Prioritize O&M dredging contracts in Contracting during high-volume timeframes

Description of Baseline Concept: During the fourth quarter (or other key times), there is a high volume of work which needs to be contracted in a short time period in order to execute dredging projects within limited work windows.

Description of Alternative Concept: Enable Contracting to provide higher priority to O&M dredging projects at their respective high volume times.

Advantages:

- Ensures more Contracting resources are allocated to O&M dredging during peak periods
- Greatly increases the chance of awarding dredging projects within established schedules
- Helps Commanders be green on their award metrics, especially at SPN, where 75% of the work is O&M dredging

Disadvantages:

- Non-O&M dredging projects would not get priority
- Non-O&M dredging project schedules and awards may be impacted

Discussion: The advantages and disadvantages of prioritizing O&M dredging contracts needs to be documented to communicate to management. Districts need to convince their respective Contracting Offices to place high priority to these projects. If possible, District Contracting can dedicate one or more persons to O&M dredging contracts.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

Discussion of Schedule and Risk Impacts: Improves award schedule and project schedule for O&M dredging. May impact non-O&M contracts.

Discussion of Cost Impacts: Costs may increase if overtime or additional full-time employees are needed.

VE ALTERNATIVE 53

Consolidate and concentrate BCOES and DQC reviews using required in-person conferences

Description of Baseline Concept: Current Corps guidance suggests consecutive Design Quality Control (DQC) and BCOES reviews. All DQC and BCOES reviews are required to be documented in the Corps-approved DrChecks system. Typically, the DQC is performed by an independent group that can either be from within the District that the PDT resides, or from outside the District. The BCOES review is performed by the Construction Branch that will be administering the construction contract. The scheduling of these reviews is subject to the availability of the review team members and each member reviews the solicitation package independent from the other review team members.

Description of Alternative Concept: Under this alternative concept, both the DQC and the BCOES review teams would assemble for a consolidated conference with the PDT members and discuss and resolve comments in real time. All comments and resolutions would still be documented in DrChecks.

Advantages:

- Reduces the schedule to solicitation by as much as two months

Disadvantages:

- Not in agreement with Corps guidance with respect to timing of review types and review team composition

Discussion: See below for a discussion of schedule and risk impacts, as well the discussion of cost impacts of implementing this VE alternative.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☐ San Francisco ☒ Sacramento ☐

This can be approved internally by the District and is simply a matter of the PDT committing to this approach.

Discussion of Schedule and Risk Impacts: There is only schedule benefit and no risk if this alternative is accepted.

Discussion of Cost Impacts: It is difficult to quantify what savings in the construction contract may be generated from accelerating the solicitation schedule. However, there are cost savings associated with reducing the review schedules because the man-hours are reduced. If this alternative is not accepted, construction costs will remain high and the amount of contract competition will continue to be less than optimal.

VE ALTERNATIVE 76

Award multiple-year open-by-amendment contracts for dredging

Description of Baseline Concept: Current typical USACE contracting procedures have the bids opened and awarded within 30 days. This procedure offers private industry a reasonable expectation for when the work will be performed and to reserve assets to perform this scope of work (SOW). This opening also allows private industry that was unsuccessful in winning the award pursue additional contracting opportunities**.**

Description of Alternative Concept: Release the current year's dredging project for review and bidding by private industry early (by 60 to 120 days). This would give private industry greater opportunity to estimate the current years' work potential and offer the USACE lower private industry cost by possibly securing work earlier in the bidding season. This would also allow USACE to release dredging opportunities before full (or partial) funding has been secured.

Advantages:

- Potential lower dredging cost by securing private industry earlier in the work cycle
- Allows the USACE to release for bid projects before final funding
- Allows private industry to review projects over a greater time frame, potentially locating methods or areas of saving potential
- Allows private industry longer review times to prepare cost estimates
- Allows the USACE the ability to amend portions of the bid package after publication

Disadvantages:

- Lost opportunity cost for private industry by having to wait for award
- Lost opportunity cost for reducing anticipated awards
- Additional private industry estimation cost as amendments are allowed to project details
- Risk to private industry for higher material cost due to time or other items beyond control (fuel, weather, etc.)

Discussion: Dredging opportunities are restricted, usually by environmental windows. This has the effect of flooding the private industry with estimations and performance within a small window of time (Q3 and Q4), negatively affecting pricing. The USACE would like to release the bid packages earlier in the season (Q2) for review and bidding by private industry. This could broadcast to private industry the intentions to award a contract and encourage private industry to keep assets in a certain marketplace, hopefully increasing competition. This would allow the USACE to release the bid packages before all internal operations are completed 100% but still allow for slight modifications. It would also allow the USACE to modify quantities after funding has been secured.

There is also the potential for cost savings if additional competition is drawn into a market by early signaling of the expected workload for the dredging season.

This approach would also let the USACE team spread their workload over more of the calendar year. When USACE can utilize this approach, it provides greater ability to dedicate staffing for dredge-specific projects, capitalizing on other suggestions from this VE study.

VE ALTERNATIVE 76

Award multiple-year open-by-amendment contracts for dredging

The downside of this approach would be to expect private industry to commit assets to potential projects for extended periods without compensation. This might lead private industry to include some cost contingency into the pricing to offset potential opportunity lost cost. Additionally, private industry would need to commit additional estimation and review resources to review amendments impacts on the project. The efforts to expand competition in this market could also have the negative effect in other USACE Districts as assets are kept in areas most likely to award projects.

Private industry would also need to estimate the cost of materials further into the future (fuel, etc.) that are beyond their control. This increased risk would create higher pricing to offset the risk of rising prices.

Implementation Considerations:
District to which this alternative concept applies: Los Angeles ☒ San Francisco ☒ Sacramento ☒

Discussion of Schedule and Risk Impacts: The risk impacts to private industry could be reduced with the awarding of projects early and not just the release of bid packages. If there were USACE mechanisms to modify awards based on actual funding levels, then private industry would have less opportunity cost to incorporate into the pricing.

The USACE could also receive many of the mentioned benefits if their financing of the projects would permit administrative and contractual aspects to be completed prior to the FY the work are to be released. This might take an initial capital infusion on behalf of USACE to initiate the process.

There might be opportunities to remove private industry risk if USACE Districts would work together to alleviate scheduling concerns. The tight environmental work windows would then present as another limiting factor for asset utilization.

Discussion of Cost Impacts: The USACE would need to release and award the projects earlier in the work season to realize the potential for lower unit prices. If several USACE Districts would release and award work earlier, that would allow private industry to better utilize equipment and concurrently drive down unit prices. That could also allow private industry to adjust pricing for work later in the dredging season if general overhead and maintenance cost have already been recuperated.

ADDITIONAL CONSIDERATIONS

The VE team identified the following observations and program ideas for consideration.

VE Alternative 4: Maximize use of government-owned hopper dredge as a regional resource

This alternative has been used over the years on the West Coast and has proven to be efficient. Maximizing the use of government-owned hopper dredge as a regional resource allows the reduction of the operating cost for the government. It also gives an additional tool for Districts when implementing their dredging program. To bring a hopper dredge from the East Coast is costly, unless there is regional contract that has a number of projects to minimize the mob/demob costs of the equipment.

VE Alternative 8: Revise reprogramming restrictions to allow shared funding across projects

Congress has limited the ability of the Corps to "reprogram" funds from one project to another, regardless of whether the funds are still needed in the first project.

VE Team's Suggestion: Allow for reprogramming of O&M navigation funds within SPD.

Advantages:

- Would allow funds to be expended on the "act" of maintenance
- Might allow some projects that have not had funds for 10 years or longer to be maintained
- Would reduce the maintenance backlog
- Improves budget execution

Disadvantages:

- May negatively impact a critical navigation project
- May be subject to local "political" pressures

The President requests and Congress appropriates funds for the Corps' navigation O&M program at the project level. The Corps was, at one point in time, able to reprogram funds and frequently did so – in some years moving billions of dollars across roughly 70% of their projects. Subsequently, by using the annual appropriations process, Congress has limited the ability of the USACE to move funds.

Numerous O&M projects within SPD have small amounts of money in their accounts that are too small to implement – let alone complete – a maintenance dredging project. Each year the funds in these accounts are diminished in numerous cases without any maintenance taking place. Several of these projects have not received funds during the past five fiscal years. Some of these funds have been taken by HQ for other purposes. This was approximately $1 million in FY12.

Allowing for the reprogramming of O&M Navigation Funds within the California System of Ports will allow for some navigation projects to be maintained that are not currently maintained.

The current fiscal environment makes it unlikely that the funds will be replaced in the near term. However, as numerous projects have not received any funding in over five fiscal years, it is unlikely that the maintenance will occur in the foreseeable future.

VE Alternative 9: Pursue additional funds for SPD dredging

Currently, funding for the Corps' O&M navigation program is capped by the President's Budget Request, which is insufficient to maintain all of the authorized and previously maintained projects in SPD.

VE Team's Suggestion: Augment the current funding stream with "new" funds that could include full Harbor Maintenance Tax Receipts, earmarking of customs duties for navigation, for those navigation projects that also provide flood- and storm-damage-reduction benefits having that program share the costs or cost-sharing by local sponsors or other entities.

Advantages:

- Would allow for critical navigation projects to be maintained.

Disadvantages:

- All Federal dollars are currently being spent somewhere and would require a reduction in other programs, generally external to the Corps. If local sponsors need to cost-share at which point would they no longer use the Corps for maintenance of navigation channels.
- Local sponsors would want to be more involved in all decisions to ensure that their funds were being efficiently utilized.

The navigation channels constructed and maintained by the Corps support the Nation's international trade that accounts for one-third of GDP and sustains over 13 million jobs.

It is estimated that the nation's busiest ports, on average, have channel dimensions available less than 35% of the time. This failure to maintain navigation channels increases transportation costs, resulting in higher prices to consumers and reduced competitiveness of US exports and negatively impacts navigation safety and the overall efficiency of waterborne transportation of goods.

Nationally, it is estimated the navigation business line needs $2 billion per year for five years to maintain all of the navigation projects. The funding for the Corps' Civil Works program is flat, while local sponsors purport that their needs for maintenance are increasing.

There are sufficient revenues from the Harbor Maintenance Tax to maintain the Nation's navigation channels.

Local sponsors have been advance-funding deepening projects and seek direct reimbursement or credit for their cost share of the project. Local sponsors have also contributed funds for maintenance projects to augment the federally appropriated funds. Most recently, some states are now stepping into the void created by a lack of Federal funds to meet all missions by funding navigation project maintenance.

Concerns have been raised about local sponsor funding in that only the "rich" would be able to move navigation projects forward, regardless of the Federal interest. Also, by local sponsors funding maintenance, the Federal government gets out of funding of maintenance while keeping Harbor Maintenance Tax receipts.

As there is a transition from federally funded to locally funded navigation maintenance, there will be a greater demand on the Corps to reduce its cost structure and to provide projects on time and within budget.

Increased funding will allow for a more efficient and effective navigation program. If the funds are local, there will be a requirement for Civil Works Transformation greater than currently being considered, along with the potential that the Corps will no longer be a leader in water resources planning, development, and maintenance.

VE Alternative 10: Pursue funding for system-wide approach (all California ports system) in lieu of project-specific funding

Currently, the funding for maintenance of navigation projects is by "line item." Each project gets funded, and those funds are generally not allowed to be re-programmed to other projects. Overall, the navigation O&M program at the District level must "execute" 95% of funding in a given fiscal year. Frequently, the funding for projects is not sufficient to meet capability and/or to meet efficient performance of project goals.

VE Team's Suggestion: Pool all of the annual funds received for navigation projects within SPD, so that the funds can be spent on any one of the authorized projects.

Advantages:

- Allows for the efficient maintenance of navigation projects
- If there is less or more sediment at a specific project, allows for funds to be transferred out or in to meet the sediment load and the current navigation needs
- Would allow for more funds to go directly to sediment removal rather than internal costs or contractor mobilization

Disadvantages:

- Some projects will not receive any funding during a fiscal year
- Local sponsors and Congress would be concerned about how funds would be allocated to particular projects
- Local sponsors would be concerned that their project(s) may not get funded in future years

California's port system currently has needs for maintenance at four High-Use Deep Draft Projects that receive about 73% of funding needs; three Moderate Use Deep Draft Projects that receive about 45% of funding needs; 12 Low Use Deep Draft Projects that receive about 21% of funding needs; and seven Low Use Shallow Draft Projects that receive about 10% of funding needs. Combining funds among projects should allow for the optimal funding of projects so that more dollars are going directly to sediment removal and that system-wide overall channel dimensions are being maintained to authorized and constructed depths.

Not all projects need to be dredged annually; by providing funds to each project in priority would allow for the reduction in the backlog of maintenance. Some projects that are currently dredged every year may not be dredged or just have the bare minimum done by actions such as knock downs.

If funding is not provided on a regional basis for several years, some projects that are placed at a lower regional priority may not receive funds even though the President had requested and Congress had appropriated funds for that project. Without other policy/program changes, such as providing for a regional on-call contractor or allowing for expanded knock-down, this VE suggestion could negatively impact a High Use Deep Draft Project.

VE Alternative 11: Streamline the contributed funds process

O&M funds are often insufficient to fully implement the needed dredging in the Federal channels.

VE Team's Suggestion: As a solution, the local government agencies (Local Sponsors) offer to provide additional funds, called "contributed funds," to the projects. In order to accept these funds, USACE requires a Memorandum of Agreement (MOA) be entered between the Local Sponsor and the Government. However, this process takes a number of months to execute. This often delays the project schedule and increases the total project cost, thereby increasing the contributed funds. Currently, there is a sample MOA developed by HQUSACE that may reduce the process time. Additional streamlining the process is still needed, such as the interpretation of Congressional notification by the Corps.

VE Alternative 14: Eliminate or modify USACE dredging program execution metrics

The existing metrics for program execution are based on the total dollars spent/obligated as a percentage of the total budgeted dollars in the program.

VE Team's Suggestion: Elimination or modification of the program execution metrics to more closely reflect navigation performance goals as the driver would allow for the dollars spent/obligated to be more directly correlated to the quantity and/or quality of work accomplished.

Advantages:

- Metrics based on project delivery would deprioritize goals to obligate dollars in respective fiscal years
- Priorities could be established to meet project and mission goals at USACE

Disadvantages:

- The ability to normalize the metric value between projects and programs is difficult
- The dredging program execution metrics are those used in other USACE programs; changing one program's metrics and not another's is unlikely

Discussion: The current metric assumes a 1:1 relationship between all projects, as well as the value associated with a given quantity spent. The general perception is that spending money on time can, and is, overshadowing the USACE navigation mission. Obligating all dollars budgeted also masks the fact that the amount budgeted may not successfully be meeting program goals (e.g., authorized

depth). The realignment of program execution metrics to program navigation goals would allow for positive metric performance that may or may not correlate to obligating budgeted dollars in given fiscal year.

The arrival of budgeted dollars is typically in Q4 and allows little time to award contracts. Modification of the current metric would allow for Districts to plan construction contracts around dredging windows rather than the fiscal year. This would reduce risks associated with large end-of-year contracting queues.

Cost incurred would be more focused on program/project accomplishment. This risk of "gold plating" work to obligate dollars would be significantly reduced.

VE Alternative 20: Revise USACE organizational structure for navigation program to be in one branch

USACE's Engineering and Technical Service Division at SPN has three branches: Planning, Engineering, and Construction. All three branches are involved in the dredging program during the year. The dredging program uses government plant (Hopper dredges) for some of the dredging, which falls under the Engineering Branch and Programs and Project Management Division (PPMD). Maintenance dredging of the Federal navigation channels is executed with a PM assigned from the PPMD, and the majority of the PDT comes from Engineering and Technical Services Division. The rest of dredging is accomplished via private dredging contracts issued from the Engineering Branch. The Construction Branch provides contract oversight/inspection of the dredging contracts. Annual and regularly scheduled maintenance dredging projects need to have continuity in the leadership and control of O&M projects. At this time the O&M projects are completed by all three branches, depending on government plant utilization.

The PM, in addition to the responsibilities associated with leading the PDT, is responsible for coordinating/meeting with contractors, sponsor agencies, local sponsors, and other stakeholders, coordinating project budget, and maintaining the schedule.

VE Team's Suggestion: Consider moving the maintenance dredging function to the Operation and Readiness Division in SPN, which has responsibility for navigation debris removal, and operations and maintenance of USACE SPN lakes. Regardless, maintenance dredging with or without government plant needs to be under the control of a single office, not multiple offices. The O&M Branch is logical as the work is O&M funded. This would remove the PPMD from maintenance dredging.

Current methodology relies on a coordinated "team" approach to achieve project success. The individual members of the team have separate chains of command up to the District level, or in some contracting cases, to the Division level. As such, where in the District should the engineer, or the project knowledge, be developed or expected? Past experience indicates that spreading the responsibility among numerous Branches or Divisions has not worked optimally. A further internal USACE study should be undertaken to investigate the possibility of having "ownership" of the maintenance dredging program in one location rather than the current dispersal mode.

VE Alternative 22: Pursue expanding environmental windows for dredging operations and conduct studies to determine specific dredging impacts to species sufficient to expand work windows

Environmental work windows are established through the Endangered Species Act (ESA) consultations with resource agencies. The intent is to avoid impacts to endangered species by not allowing work that may have an impact (or a take) during times with the endangered species is present. Through the Long-Term Management Strategy (LTMS) (for San Francisco Bay), studies have been conducted to quantify uncertainty on impacts to (or take of) the protected resource. Efforts should be continued to demonstrate that expanded work windows (more time available for dredge operations) do not have an additional impact to protected resources. Other locations that can address uncertainty about impacts to protected resources should evaluate if a study, demonstration project, or other scale testing can provide a line of evidence for expanding dredge work windows.

Expanded dredging work periods will result in regional equipment demand to be spread over a longer period of time, potentially increasing completion and reducing prices in the regional market.

VE Alternative 24: Establish a placement site for contaminated materials

A number of navigation projects in California contain contaminated sediments in the Federal channels. These contaminants are introduced mostly by storm drain runoffs from large metropolitan areas. Once identified, the search of a disposal site is always difficult. A number of projects in Southern California have encountered this issue. The cost of taking these sediments to a suitable upland fill site is very costly due to the number of re-handling of the material. These costs are paid by the Corps' maintenance program and sometimes the local ports.

VE Team's Suggestion: These costs should be the responsibilities of the upstream agencies, and implement the National Pollutant Discharge Elimination System (NPDES) requirement. Aside from implementing this requirement, additional disposal sites for the contaminated sediments should be developed, such as confined aquatic disposal (CAD) sites. Without additional sites, future dredging of these contaminated sediments will not be able to go forward once all a port's construction fill sites are full.

VE Alternative 30: Revise dredge quality management requirements

EPA requires that all scows that would be towed to an ocean disposal site be inspected for draft violations and leakage issues prior to shipping. This means that the USACE must provide on-call inspectors 24 hours a day to visually inspect loaded scows before they can be released for shipping to the ocean disposal site. These visual inspections are considered superfluous by Corps and dredging contractor personnel because any leakage issues would not be visible from above the water surface and a visual inspection of the scow below the water surface would not be comprehensive because it would be conducted under static conditions and would not simulate actual ocean conditions.

VE Team's Suggestion: Abandon the visual inspections that would occur in non-standard work shifts and thereby reduce labor costs associated with funding multiple shifts for inspection tasks.

Advantages:

- Reduces QA labor costs

Disadvantages:

- None apparent

It can be demonstrated that on previous dredging contracts that included ocean disposal, visual inspections failed to identify leakage issues on scows that experienced leakage as identified by Dredge Data Logging Systems (DDLS) and Dredging Quality Management (DQM). The elimination of one or more shifts of QA scow inspection could be as much as $1,200/day. There are no schedule impacts associated with visual inspection of scows in non-standard work shifts. There are no known risks associated with not performing the non-standard work shift visual inspections for leakage and scow draft issues. The DQM system records scow draft conditions already and the data is recorded and presented on a Corps website.

There are no schedule impacts associated with visual inspection of scows in non-standard work shifts. There are no known risks associated with not performing the non-standard work shift visual inspections for leakage and scow draft issues. The DQM system records scow draft conditions already and the data is recorded and presented on a Corps website.

EPA would have to agree to the elimination of visual inspections for scows that would be shipped to an ocean disposal site.

VE Alternative 32: Pursue third party cost share of placing materials at beneficial use sites

At SPL, dredge material placement sites have been established for "clean" material – typically either beach placement within 2 miles of the harbor or a nearshore placement site within a few miles of the harbor. If a local sponsor or other third party desires a different placement site, they are requested to pay for the increased cost. An MOA is developed to accept contributed funds. The bid schedule is modified to include a line item that will capture the cost to be paid by the third party.

VE Team's Suggestion: SPN encounters third parties requesting/requiring disposal of dredge material at sites that result in a cost increase to the project. SPN would like to recover this increased cost from the third party. The third party should be educated of the cost impacts, and be held accountable for the additional cost.

Refer to ER-1130-2-520, page 8-5, "M. Local Sponsor Applicability."

VE Alternative 36: Revise budget criteria relative to prioritizing dredging of sediment traps

Dredging of sediment traps for Low Use Deep Draft Projects that prevent sediment from getting into navigation channels is not eligible to be included in Budget Increments 1 through 3.

VE Team's Suggestion: Allow for the dredging of material from sediment traps that directly impacts navigation channels to be included in Budget Increment 3.

Advantages:

- Increases performance by reducing the period navigation channels are not functional
- Reduces the time required between dredged frequencies to keep the navigation channel functional
- Reduces long-term costs as dredging material from a sediment trap is generally less expensive than dredging the same sediment from a navigation channel

Disadvantages:

- Adds further pressure to navigation budget

Catching sediment before it enters a navigation channel or entrance is one of the most effective methods for management of sediment deposition. This increases the efficient use of harbor facilities and results in significant savings on maintenance dredging. The sediment trap itself must be emptied periodically to keep it functional. While the total amount of material to be dredged is not reduced by using a sediment trap, there is not a disruption to navigation by shoaling in the trap versus the channel, so long as the trap is maintained.

When a trap is full, it no longer provides any benefit to the navigation channel and the navigation channel requires more frequent dredging or experiences navigation disruptions which may include life safety issues.

Anecdotally, it has been reported that with a full sediment trap, navigation channels start to accrete sediment and suffer navigation restrictions immediately upon completion of channel maintenance dredging.

This suggestion will increase short-term costs; however, removing sediment from a sediment trap is generally less expensive than removing the same sediment from a navigation channel. And this process lengthens the time between navigation channel maintenance.

VE Alternative 38: Allow third parties to take materials in Federal channels or placement sites for commercial use

VE Team's Suggestion: When advantageous to the Government, and when there are no adverse impacts to the environment, littoral zone, or operations, third parties should be allowed to take materials from Federal channels or disposal sites.

At SPN, the Federal navigation channel in Suisun Bay requires annual dredging of approximately 175,000 to 200,000 square yards of sand. This material is then placed back in the bay at SF-16 Placement Site. Sand mining companies would like to mine this sand. Since sand mining is currently taking place elsewhere in Suisun Bay, SPN would like to allow sand mining in the navigation channel, potentially saving the Government millions of dollars annually. Sand mining of SF-16 would help maintain capacity at that site. The sand mining would supplement the annual dredging, not replace it. Sand mining companies are challenged with obtaining all of the permits for sand mining in the navigation channel.

VE Alternative 40: Pursue funding from flood damage reduction programs to supplement navigation dredging funds in select areas

USACE provides shore protection through beach nourishment under the Flood and Coastal Storm Damage Reduction Program as part of its civil works mission. Section 145 of WRDA 1976, as amended by Section 933 of WRDA 1986, Section 207 of WRDA 1992, and Section 217 of WRDA 1999, authorizes USACE to place suitable dredged material on local beaches if a state or local government requests it. The incremental costs of beach nourishment are shared on a 65 percent Federal and 35 percent non-Federal basis. This authority is appropriated programmatically.

A wide, flat beach berm with a sufficient volume of sand keeps the erosive power of the waves from reaching and destroying the dunes and structures and can reduce damage significantly from waves, inundation, and erosion. Without beach nourishment, the starting point for damage would be farther onshore; a nourished beach, with sufficient sand volume and healthy dunes, absorbs the storm's energy –even during slow-moving storms – and helps prevent damages to structures and infrastructure.

Example Images of Beach Nourishment (Location Unspecified)

However, sand replenishment of beaches is expensive. Like all other Federal programs, USACE dredging activities are subject to the Congressional appropriations process. Consequently, fewer navigational and shoreline protection projects are being funded, while others are apparently being reduced in scope. In specific locations (like Channel Islands Harbor/Hueneme Beach), lack of navigation dredging funds can result in leaving certain locations vulnerable to flood risk from beach erosion.

The lack of funding for the navigation dredging program could be supplemented by identifying new avenues for funding of the projects. For example, instead of relying solely on the Corps and its schedule and appropriations, minor adjustments to an existing Federal Emergency Management Agency (FEMA) grant program, along with additional grant funds, could provide supplemental funds necessary to ensure the beach replenishment is maintained even when dredging funds are limited or non-existent.

FEMA's Flood Mitigation Assistance Program has been used by FEMA to fund small projects, but has not been used on beach nourishment projects. Modifying the program would allow FEMA funds to be expended on such improvements. Assuming a 50/50 Federal/non-Federal match, it may be able to

identify State and local funds which could be matched against Federal funds. This infusion could lead to much higher levels of safety for residents and properties.

The Federal savings from this new avenue would occur in four ways: (1) reduced Federal cost share as compared to Corps projects, (2) reduced total project cost because it is constructed at the local level, where costs tend to be lower than Corps-built projects, (3) reduced likelihood of needing Federal disaster recovery funding, and (4) additional flood risk management requirements that communities could be encouraged to meet through rules that FEMA would develop for the grant program, such as achieving higher levels of flood protection and providing annual flood risk notifications to residents.

VE Alternative 48: Utilize USACE policies and guidance relative to overdepth restrictions in lieu of EPA Region 9 requirements

Dredge contractors assume risk if there is a chance of being fined for dredging beyond the allowable overdepth (typically 2 feet). If this risk could be eased, cost savings would result.

VE Team's Suggestion: USACE should persuade EPA Region 9 to use USACE policies and guidance regarding dredging, including limitations of different types of dredges (including tolerances) and allowable overdepth. Subsequently, USACE should pursue easing of restrictions relative to dredging below the allowable overdepth and enlighten EPA that the contractor has no incentive to overdredge.

USACE can offer to characterize material to a deeper depth, and also consider implementing penalties in the specification, such as that the quantity of material dredged beyond the overdepth shall be subtracted from the pay quantity, or that volume dredged in excess of available overdepth volume shall be deducted from the pay quantity.

VE Alternative 52: Eliminate Peer Review of IFB Contracts

VE Team's Suggestion: Eliminate Peer Review of IFB Dredging Contracts.

Advantages:

- Eliminates time and resources needed to conduct a Peer Review
- Improves the Project Schedule
- Award contracts quicker and in a timely manner

Disadvantages:

- Peer Reviews help discover problems or potential problems with a solicitation
- More people looking at a solicitation may improve the quality of the solicitation and Scope of Work

Districts should weigh the pros and cons of a Peer Review. Per Procurement Instruction Letter (PIL) 2010-02, A/E and IFB contracts are excluded from the USACE Peer Review requirement. However, Districts/Centers can perform them if they find Peer Reviews beneficial. The advantages identified above include elimination of time, cost, and resources to conduct a Peer Review. Peer Reviews usually require representatives from Legal, Contracts, Small Business, and Program Office. Depending on the level of Peer Review, it could take several days to conduct them. It also takes a lot of

coordination to schedule them and get everyone to attend them. The disadvantage is losing a "second set of eyes" to see potential problems or issues in the Solicitation documents. If Districts are confident on existing solicitation and pre-award documents, then there may not be a need to conduct Peer Reviews on IFB Dredging Contracts.

To implement, District PM should meet with District Contracting to discuss the IFB exemption listed in PIL 2010-02. District Contracting should agree that IFBs are exempt or come up with a strong rational for conducting a Peer Review on an exempted contract.

VE Alternative 54: Expand responsibility of Navigation Technical Team to prepare front end portions of dredging contracts and post to FedBizOps

Contracting Division is challenged at times to complete Division 00 sections ("front end") in a timely manner to meet the scheduled advertise date of dredge solicitations. The front end is comprised of:

- Cover Sheet
- SF-1442 – Solicitation, Offer, and Award
- 00010 – Bid Sheet
- 00100 – Instructions to Bidders
- 00600 – Representations and Certificates
- 00700 – Contract Clauses
- 00800 – Special Contract Requirements
- 00850 – Wage Rates

The following items are provided by the Technical Lead:

- Bid Sheet
- Site Visit (52.236-27 of Section 00100)
- Commencement, Prosecution, and Completion (00800)
- Liquidated Damages (00800)
- Payment for Mob/Demob (00800)

VE Team's Suggestion: Since all other parts of the front end are "boilerplate" (except for 00850 – Wage Rates), the VE team recommends allowing the Technical Lead to compile the front end to help meet the advertise date. The front end would be provided to Contracting Division for final approval.

Also, provide a limited number of the Navigation Technical Team (say, two) authority to post solicitations and amendments to FedBizOps. Postings to FedBizOps would only occur upon receipt of email from Contracting directing such a posting.

VE Alternative 55: Specify the use of the ProjNet/DrChecks system for contract inquiries

The Los Angeles District uses the ProjNet/DrChecks system for contractors to post any questions regarding the Plans and Specs during the advertisement period. This web-based system allows contractors to view all of the inquiries and responses.

The Inquiries paragraph is part of Section 00100 – Instructions to Bidders. At SPL, Contracting Division personnel act as the DrChecks Review Manager, setting up the Review and assigning USACE personnel to respond to questions.

VE Team's Suggestion: All inquiries should be handled through this ProjNet system; no longer would inquiries be fielded by telephone, email, or otherwise. Bid Inquiries and respective responses are not part of the contract.

VE Alternative 58: Expand the quantity and area restrictions for knockdowns

VE Team's Suggestion: Knockdowns, or barring, can be an effective management tool in locations where small, discrete shoals create draft restrictions and environmental restrictions preclude other actions. Knockdowns should be included in the environmental coordination to allow for operational flexibility when the need arises. Knockdown services can be provided by USACE or industry-owned assets.

VE Alternative 63: Project-specific consultations to allow year-round dredging at Oakland Harbor (SPN-specific, applicable to the highest value project in SPD)

The Oakland Harbor 50-foot Deepening Project completed the environmental coordination necessary to allow for year-round dredging; however, maintenance dredging of Oakland Harbor is restricted to 1 August to 30 November in any year. The environmental windows (multiple species) are established in the programmatic biological opinion for the LTMS Program. Project-specific consultations are required if the programmatic biological opinion is not applicable. Maintenance dredging in 2010, 2011, and 2012 was not able to be completed within the environmental work window and resulted in repeated environmental consultations and contract modifications to extend the dredging work period. The environmental windows were extended because there are acceptable methods to minimize impacts to biological resources.

VE Team's Suggestion: If the windows can be extended ad hoc, it stands to reason that they could be proactively extended through the appropriate consultation process(es). Consultation for year-round dredging at Oakland would remove the existing constraint to the dredging period that drives unrealistic contract performance periods and substantially reduce environmental coordination efforts during the dredging period.

VE Alternative 71: Post interim after-dredge surveys prior to completion of dredge project (SPN-specific)

Currently, the complete composite of all after-dredge surveys for the entire project are posted all at once at the end of the project.

VE Team's Suggestion: Post the after-dredge survey for each reach after acceptance.

Advantages:

- Allows for local draft restrictions to be lifted on a reach-by-reach basis
- Allows port tenants and Federal channel users to take immediate advantage of any improved draft improvements

Disadvantages:

- None apparent

This alternative does not require any additional coordination or change in Corps policy. Currently, posting notices are issued to all stakeholders. Ports, port tenants, and Federal channel users would benefit from the immediate posting of channel improvements adjacent to their berths. There are no risk impacts if this alternative is accepted. The ports, their tenants, and the Federal channel users are the only stakeholders that would realize cost impacts resulting from early after-dredge survey posting.

VE Alternative 73: Ensure lessons learned from After Action Reviews are used in programming future projects

After Action Reviews (AAR) are to be performed on a regular basis in Civil Works Projects including at the end of project maintenance.

VE Team's Suggestion: Not only would the PDT review the AAR upon the start of a "new" project maintenance cycle, but also provide the AAR to the local sponsor and include it in the construction specification package.

Advantages:

- Those lessons learned from the maintenance of a project are shared with the new PDT to ensure the Corps is a Learning Organization

Disadvantages:

- Would share the negatives and positives with non-USACE personnel

The PDT is responsible for project success as measured against the Project Management Plan. After Action Reviews are conducted to facilitate sharing of lessons learned and to allow those participating to learn and retain more than they would from a critique alone.

Per ER 1110-1-12, lessons learned and best practices from the AAR are to be documented and shared regionally and that customers and contractors are to be invited to participate in the AAR and customers are to get the AAR results. There is a requirement that the PDT is to capture lessons learned and that on project initiation each PDT will review the lessons learned repositories for information pertinent to the project. This proposal is to mandate the review of the previous AAR at the initiation of the subsequent maintenance project.

This would add some time to the initial PDT meeting upon the start of a maintenance project. However, this should reduce future risk by ensuring the positives and negatives from the AAR are incorporated in the "new" maintenance project.

VE Alternative 77: Consider regionalizing the USACE technical services for sharing across Districts

Currently, each District handles its own responsibilities for engineering design, plans and specs development, environmental coordination, surveying, etc., through District employees (or contractors as needed). There is very little opportunity for sharing these resources across District borders. In certain districts, such as the San Francisco District, the schedules of the dredging projects are being impacted due to limited resources available to handle the quantity of projects to be executed. Given the tight timelines relative to funding availability and environmental work windows limiting the time for dredging operations to be conducted, any slips or delays in the schedule can impact cost as well as impact the ability to maintain channel dimensions (which in turns impacts navigability of the channels).

VE Team's Suggestion: In order to alleviate the situation, the Division could consider and coordinate the sharing of technical resources on a more regional basis. This type of approach is already being used in the Alaska District where they contract with the Portland District to conduct their hydrologic surveys.

ER 5-1-11 – USACE Business Process includes policies relative to sharing resources across boundaries. Specifically, the ER indicates that USACE should make smart use of resources, technical competency, and innovation across the organization with a focus on mission execution and operate "as a team" in order to serve its customers. The execution of all USACE work, project delivery, and program execution across organizational boundaries must appear seamless to customers. The ER also specifically states that project teams may be drawn from more than one USACE District or activity.

VE Alternative 83: Revise the project description and unit cost implications of high mob/demob in dredging budget requests

Budget requests for the program are racked in spreadsheet format. This captures the total amount requested but does not speak to the impacts of reduction of dollars.

VE Team's Suggestion: The projection descriptions, or only attributes, would qualify/quantify the impact of increment reductions in funds from the requested budget. This would specifically address projects that incur high (e.g., as a percent of total contract value) mobilization costs.

Advantages:

- Projects that are elastic to economies of scale are more likely to receive requested funds
- Justifications for full budget requests would aid to assign need and more effectively accomplish project goals

Disadvantages:

- Quantitative impacts to increment budget reductions may be difficult to establish and/or validate when program budgets are reviewed

The study identified projects that suffer from incremental reductions in requested budgets. Generally, projects will incur a constant fixed cost associated with mobilization, regardless of the quantity of work performed. This fixed cost can represent as much as half the contract value. Full

funding of a requested project budget leverages a single mobilization that represents a significantly smaller portion of the total contract value.

VE Alternative 84: Consider re-evaluating environmental restrictions that are driving costs of dredging projects

Environmental restrictions/conditions over and above typical conditions are sometimes included in dredging authorizations. These restrictions can dictate the dredging method to be used, which will impact the cost. For instance, restrictions to reduce turbidity and fish entrainment and to maintain air quality (VE Alternative 34), which dictate the dredging method, may be imposed on a project.

VE Team's Suggestion: The Corps should evaluate these restrictions to see if there are opportunities to recommend that the restrictions be modified or eliminated. This could include researching available technical literature or performing one-time monitoring and/or testing to determine if environmental objectives are met using dredging methods and/or equipment that are not currently allowed. The objective of the re-evaluation is to see if there are alternative dredging methods that will still meet the goal(s) that are the basis for the environmental restriction.

VE Alternative 34, "Pursue revising air quality restrictions to reduce restrictions on dredge types," is a specific example. Air quality restrictions in some cases have dictated that electric dredges be used. Air quality standards may not change (and likely will not), but there may be other types of equipment that meet the air quality standards that are not currently allowed by the restriction.

PROJECT INFORMATION

PROJECT INFORMATION

BACKGROUND

The Navigation mission of the South Pacific Division is to provide safe, reliable, efficient, effective, and environmentally sustainable waterborne transportation systems (i.e., channels, harbors, and waterways) for movement of commerce, national security needs and recreation. Responsibilities include planning and constructing new navigation channels, ports, and harbors, and maintaining channel depths along coastal channels, ports, and harbors.

The South Pacific Division comprises four districts, three of which have dredging programs and were represented at the VE study: San Francisco District, Los Angeles District, and Sacramento District.

This VE study was a programmatic review of the SPD Dredging Program, which includes the specific dredging projects as listed by district below.

PROGRAM DESCRIPTIONS

Los Angeles District Navigation Program

The Los Angeles District (SPL) of the U.S. Army Corps of Engineers is responsible for 14 harbors along the Southern California coast, stretching from San Diego Harbor near the Mexican border to Morro Bay Harbor on California's central coast.

Some of SPL's projects include: The Ports of Los Angeles and Long Beach, which together make up the fifth busiest port complex in the world and account for more than $420 billion in cargo annually; San Diego Harbor, which is home to Naval Base Point Loma and the U.S. Third Fleet, Naval Air Station North Island, Naval Amphibious Base Coronado, and the Port of San Diego, which is a key regional commerce hub; and in Los Angeles County, Marina del Rey Harbor, which was constructed by USACE in 1965 and is one of the largest recreational harbors in the U.S. with 5,300 slips.

Specific dredging projects in the Los Angeles District are as follows:

- Morro Bay Harbor
- Santa Barbara Harbor
- Ventura Harbor
- Channel Islands Harbor
- Port Hueneme
- Marina del Rey
- Los Angeles-Long Beach Harbor
- Los Angeles River Estuary
- Surfside-Sunset
- Newport Harbor
- Dana Point Harbor
- Oceanside Harbor

- San Diego-Mission Bay Harbor
- San Diego Harbor

San Francisco District Navigation Program

The San Francisco District is responsible for 16 navigation projects in California, which supports a $68.1 billion annual maritime industry. The Navigation Program comprises approximately two-thirds of the District's workload. Within the navigation program, there are 6 coastal harbors from Monterey Bay to Crescent City that require maintenance dredging. The remaining 10 projects are a mix of deep- and shallow-draft channels in San Francisco Bay. The 6 deep-draft projects in San Francisco Bay serve a variety of Ports in the Bay area, including: Port of Oakland, the fourth busiest container port in the U.S.; Port of Richmond, a major bulk cargo port; Port of San Francisco; and Port of Redwood City. The deep-draft navigation channels also support the regional marine transportation system to multiple oil refineries, military/homeland security installations, and the inland ports of Stockton and West Sacramento. Furthermore, the program removes 1,400 tons of debris/year (average) from San Francisco Bay – the only agency with this mission.

Specific dredging projects in the San Francisco District are as follows:

- Humboldt Harbor and Bay
- San Francisco Harbor
- Redwood City Harbor
- Richmond Inner and Outer Harbor
- Oakland Inner and Outer Harbor
- Suisan Bay Channel (includes New York Slough)
- Pinole Shoal Channel
- San Leandro Marina
- Larkspur Ferry Channel
- Petaluma River and River Channel
- Napa River (Upstream and Downstream Portions)
- San Rafael Inner Canal
- Sausalito Debris Dock
- Noyo River and Harbor
- Crescent City Harbor
- Moss Landing Harbor
- Monterey Harbor

Sacramento District Navigation Program

The Sacramento District typically executes maintenance dredging for the two deep-water ship channels in the District: Sacramento Deep Water Ship Channel and the Stockton Deep Water Ship Channel. Dredging typically occurs annually between August 1 and November 30 to minimize environmental impacts. Annual dredging is needed in order to maintain both river channels at their navigable depths of 30 feet for the Sacramento River and 35 feet for the San Joaquin River.

INFORMATION PROVIDED TO THE VE TEAM

The Navigation Managers from each USACE district presented overviews of their respective programs, which are presented beginning on the following page. Additionally, the following documents were provided to the VE team for their use during the study:

- *Value Engineering Report on the South Pacific Division Operation and Maintenance Dredging, Deep Draft Projects*, prepared by USACE South Pacific Division, November 2007
- US Army Corps of Engineers, South Pacific Division website, Civil Works Mission (http://www.spd.usace.army.mil/Missions/CivilWorksMission.aspx)

Note: The information presented in this section of the report may have been excerpted either in part or in full from the documents/information provided to the VE team listed above.

Navigation Program Briefing

12 Aug 2013

Jessica Burton Evans
Navigation Program Manager
San Francisco District
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Jessica.L.BurtonEvans@usace.army.mil

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Navigation Mission and SPN

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San Francisco District

Navigation Mission

To provide safe, reliable, and efficient waterborne transportation systems (channels, harbors, and waterways) for the movement of commerce, national security needs and recreation.

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San Francisco District

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4

DEEP-DRAFT / HIGH-USAGE	Authorized Project Depth (MLLW)	Dredging Frequency (Cycle)	Project Last Dredged	Next Scheduled Dredging	Environ-mental Window	Legacy Disposal Site	Dredging Method	Estimated Quantities (CY)
HUMBOLDT HARBOR AND BAY	-38' / -26'	Annual	Apr-09	May-14	Weather	HOODS	Hopper	300,000
North Bay, Samoa, Field's Channels				*by Yaquina*	Driven	*Ocean*		
HUMBOLDT HARBOR AND BAY	-48'	Annual	Apr/May & Jul-13	Apr/May-14	Weather	HOODS	Hopper	1,000,000
Bar and Entrance Channel			*by Ess.& Yaq*	*by Essayons*	Driven	*Ocean*		
SAN FRANCISCO HARBOR	-55'	Annual	Jun-13	May-14	Weather	SF-17	Hopper	350,000
Main Ship (Bar) Channel			*by Essayons*	*by Ess. or KTR*	Driven			
PINOLE SHOAL CHANNEL	-35'	Annual	Sept-13	Jun 13	1 Jun to	SF-10	Hopper	150,000
San Pablo Bay/Mare Island Strait			*by Dutra*	*by Ess. or KTR*	30 Nov		Clamshell	
REDWOOD CITY HARBOR	-30'	2-yearr	Dec-11	TBD-14	Must Consult	SF-11	Clamshell	
Including San Bruno Shoal Channel			*Aug-12*	*by KTR*				
RICHMOND OUTER HARBOR	-45'	Annual	Aug - ? 13	Jun-14	1 Jun to	In-Bay	Clamshell	300,000
Long Wharf and Southampton Shoal			*by Dutra*	*by Ess. or KTR*	*30 Nov*			
RICHMOND INNER HARBOR	-38'	Annual	Sept-13 (T)	Jun-14	1 Jun to	SF-DODS	Clamshell	400,000
Includes Santa Fe Channel (not maintained)			*by Dutra*	*by KTR*	*30 Nov*	*or upland*		
SUISUN BAY	-35'	Annual	Aug-13	Aug-14	1 Aug	SF-16	Hopper	200,000
Includes New York Slough			*by Yaquina*	*by Yaquina*	*to 30 Nov*		Clamshell	
OAKLAND INNER & OUTER HARBOR	-50'	Annual	Oct-Nov-13	Aug-Nov-13	1 Aug	SF-DODS	Clamshell	600,000
			by KTR	*by KTR*	*to 30 Nov*	*or upland*		
Deep-Draft / Low-Usage								
MARE ISLAND STRAIT	-30'	Infrequent	FY 94	Indefinite	1 Jun to 30 Nov	N/A	N/A	N/A
ISLAIS CREEK (Part of SF Harbor)	-40'	Infrequent	FY 77	Indefinite	1 Jun to 30 Nov	N/A	N/A	N/A

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San Francisco District

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Shallow-Draft / Low-Usage	Authorized Project Depth (MLLW)	Dredging Frequency (Cycle)	Project Last Dredged	Next Scheduled Dredging	Environ-mental Window	Legacy Disposal Site	Dredging Method	Estimated Quantities (CY)
SAN LEANDRO MARINA	-6' / -7'	4-year	FY10	FY14	1 Jun to 30 Nov	Upland	Pipeline	86,000
LARKSPUR FERRY CHANNEL	-13'	Infrequent		N/A	1 Jul to 1 Oct	SF-11	Clamshell	100,000
PETALUMA RIVER CHANNEL	-8'	4-year	FY03	Overdue	1 Aug-15 Oct	Upland	Pipeline	150,000
PETALUMA RIVER (Across the Flats)	-8'	3-year	FY98	Overdue	1 Aug-15 Oct	SF-10	Pipeline	100,000
NAPA RIVER (Up-Stream Portion)	-10'	6-year	FY 98	Overdue	1 Aug-15 Oct	Upland	Pipeline	50,000
NAPA RIVER (Down-Stream Portion)	-15'	6-year	FY 98	Overdue	1 Aug-15 Oct	Upland	Pipeline	200,000
SAN RAFAEL INNER CANAL	-6'	4-year	FY11 (reduced)	Due	1 Jun - 30 Nov	SF-11	Clamshell	100,000
SAN RAFAEL (Across the Flats)	-8'	7-year	FY11 (reduced)	Due	1 Jun - 30 Nov	SF-11	Clamshell	150,000
SAUSALITO DEBRIS DOCK	-10'	Infrequent	Dec 08	N/A	1 Jun - 30 Nov	SF-11	Clamshell	20,000
Coastal Projects / Low-Usage								
MOSS LANDING HARBOR	-15'	3-year	FY 07	Overdue	Must Consult	SF-12/14	Pipeline	50,000
SANTA CRUZ HARBOR	-15'	Annual	FY 07		Must Consult	Beach	*Pipeline*	50,000
BODEGA BAY HARBOR	-12'	11-year	FY 05	FY 16	1 Jul to 1 Oct	*Upland*	*Pipeline*	150,000
NOYO RIVER & HARBOR	-10'	2-year	FY 09	Overdue	1 Jul to 1 Oct	Sponsor's	Clamshell	40,000
CRESCENT CITY HARBOR	-20' / -15'	5-year	FY 10	FY14-15	1 Jul to 1 Oct	Beach	*Pipeline*	50,000
PILLAR POINT BREAKWATER	N/A	N/A	N/A	N/A		*N/A*	*N/A*	*N/A*
MONTEREY HARBOR	N/A	N/A	N/A	N/A	Must Consult	N/A	N/A	N/A

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Overview of Key Maintenance Dredging Projects

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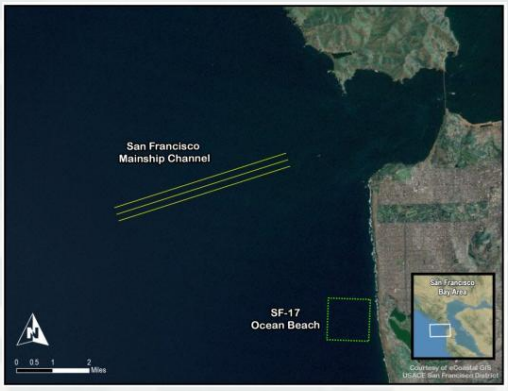
Humboldt Harbor and Bay

- Bar & Entrance: -48’ MLLW
- North Bay Channel: -38’ MLLW
- ~1,000,000 cubic yards, annually
- Government Dredges Essayons & Yaquina
- Work: March-May
- Ocean Disposal (HOODS)
- Near shore placement site in development

PM: Peter Mull

U.S. Army Corps of Engineers
San Francisco District

San Francisco Main Ship Channel



- Project Depth: -55' MLLW
- ~350,000 cubic yards, annually
- Government Dredge Essayons
- Work: May
- Ocean Disposal (SF-17)
- On-shore placement at Ocean Beach in development.

PM: Peter Mull

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San Francisco District

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Richmond Outer Harbor

- Project Depth: -45' MLLW
- ~200,000 cubic yards, annually
- Government Dredge Essayons
- Work: June
  - ► Window: June - November
- In-bay placement: Alcatraz Disposal Site (SF-11)

PM: Peter Mull

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San Francisco District

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Richmond Inner Harbor

- Project depth: -38’ MLLW
- ~200,000 cubic yards, annually
- Contractor, Clamshell
- Solicitation: May/July
- Work: July-Nov
  - ► Window: June - November
- Ocean Disposal (SFDODS) or Contractor provided upland/beneficial reuse

PM: Peter Mull

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San Francisco District

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San Pablo Bay / Mare Island Strait (Pinole Shoal)

- Project depth: -35’ MLLW
  - ► Authorized: -45’ MLLW
- ~150,000 cubic yards, annually
- Government Dredge Essayons
- Work: June
  - ► Window: June – November
- In-Bay Placement: San Pablo Bay Disposal Site(SF-10)
- Portion of the San Francisco Bay to Stockton Deepening Study (CG)

PM: Peter Mull

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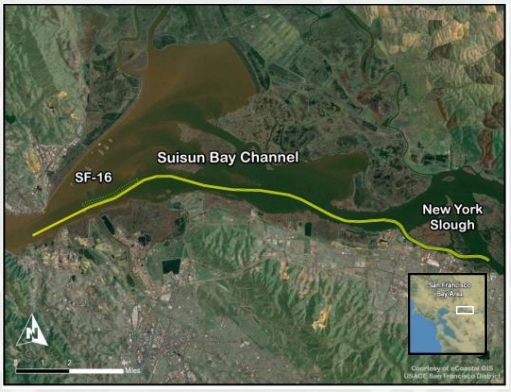
Suisun Bay Channel



- Project Depth: -35’ MLLW
  - Authorized: -45’ MLLW
- ~175,000 cubic yards, annually
- Government Dredge Essayons or Yaquina
- Work: August
  - Window: August – November
- In-Bay Placement: Suisun Bay Disposal Site(SF-16)
- Portion of the San Francisco Bay to Stockton Deepening Study (CG)

PM: Peter Mull

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San Francisco District

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Oakland Inner and Outer Harbor

- Project Depth: -50’ MLLW
- ~600,000 cubic yards, annually
- Contractor, Clamshell
- Solicitation: August
- Work: October - variable
  - Window: August – November
- Ocean Disposal (SFDODS) or Contractor provided upland/beneficial reuse

PM: Al Paniccia

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Redwood City Harbor

- Project Depth: -30’ MLLW
- ~150,000 cubic yards, Bi-annually
- Contractor, Clamshell
- Solicitation: July/August
- Work: September-November
  - ► Window: June – November
- In-bay placement: Alcatraz Disposal Site (SF-11)

PM: Katherine Reyes

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San Francisco District

Managing the Navigation Program

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San Francisco District

Partners in Navigation

- Non- Federal Sponsors
- Channel Users:
  - Ports
  - Shipping industry: Container, Oil, Bulk, RORO
  - Bar Pilots
  - Recreation
  - National Security
- Organizations:
  - Harbor Safety Committee
  - California Marine and Navigation Conference
  - Bay Planning Coalition
- Agencies:
  - USCG
  - USEPA
  - USFWS
  - NOAA-NMFS
  - Coastal Commission
  - Bay Conservation and Development Commission
  - Regional Water Quality Control Boards
  - California Department of Fish and Game

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Challenges

- Executing a 14 month schedule in 12 months
- Stagnant Appropriations + Increasing cost = deferred maintenance/reduced project depths
- Acquisitions
  - Overlapping work windows = challenge to West Coast capacity
  - SPN Small Business Goals
- Balancing multiple interests of diverse stakeholders.

U.S. Army Corps of Engineers
San Francisco District


Questions?

Los Angeles District Navigation Program

Mo Chang

Chief, Navigation Section
Programs and Project Management
District Office, Los Angeles CA

August 12, 2013

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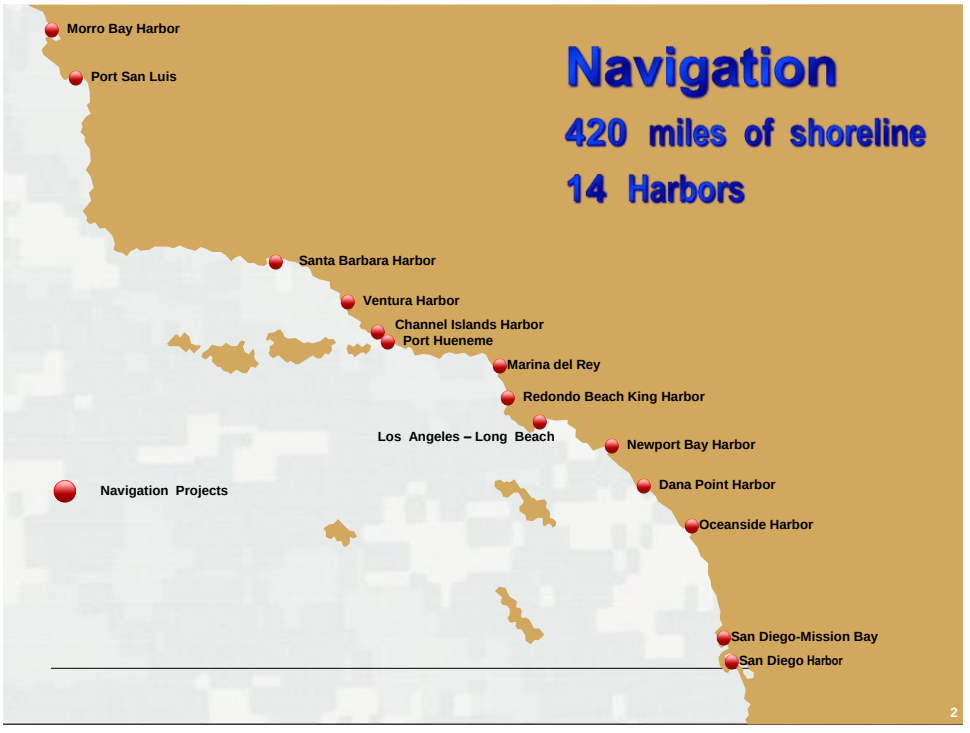

Frequency and Quantities

PORTS AND HARBORS	*Dredging Frequency (Cycle)*	*Project Last Dredged*	*Next Scheduled Dredging*	*Estimated Quantity Per Episode* (cubic yards)	*Typical Placement Location*
CHANNEL ISLANDS HARBOR *Entrance & Sand Trap*	2-years	FY13	FY 15	1,800,000	Hueneme Beach or Silver Strand
VENTURA HARBOR *Entrance Channel & Sand Trap*	Annual	FY 13	FY 14	300,000	South Beach or McGrath State Beach
SANTA BARBARA HARBOR *Entrance Channel*	Semi Annual	FY 13	FY 14	150,000	Beach
MORRO BAY HARBOR *Entrance*	Annual	FY 13	FY 14	150,000	Nearshore
MORRO BAY HARBOR *Inner Channels and Sand Trap*	3-years	FY 10	FY 13 Pending	500,000	Beach north of Morro Rock

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Frequency and Quantities

PORTS AND HARBORS	*Dredging* Frequency (Cycle)	*Project* Last Dredged	*Next* Scheduled Dredging	*Estimated* Quantity Per Episode (cubic yards)	*Typical* Placement Location
SAN DIEGO HARBOR Entrance Channel	Infrequent	FY 12	FY 18	250,000	Silver Strand or Imperial Beach
MISSION BAY Main Channel	Infrequent	FY 11 (completed Nov 2011)	FY 20	400,000	Mission Beach
OCEANSIDE HARBOR Entrance Channel	Annual	FY 13	FY 14	230,000	Beach south of Oceanside pier
DANA POINT HARBOR Main Channel	Infrequent	FY 90	Pending Funding	Pending Funding	
NEWPORT HARBOR Main Channel	Infrequent	FY 12	Pending Funding	100,000 Funding	LA-3 or Nearshore
LOS ANGELES RIVER ESTUARY	3-years	In-Progress	FY 14	150,000	LA-2 or port fill
LOS ANGELES-LONG BEACH HARBOR Entrance Channels	Infrequent	FY 05	FY 14 Survey	Pending Survey	LA-2 or port fill
LOS ANGELES-LONG BEACH HARBOR Inner Channels	Infrequent	FY 05	Pending Survey	Pending Survey	LA-2 or port fill
MARINA DEL REY North Entrance	4-years	FY 12	FY 16	300,000	Dockweiler Beach or Redondo Beach
MARINA DEL REY South Entrance	4-years	FY 12	FY 16	300,000	Port Fill

Morro Bay Harbor

Dredging Frequency:
•Entrance Channel annual (Gov.)
•Navy and Morro Channel, Sand Trap very three years (pending on funding)

Environmental restrictions:
•1 Mar-15 Sep No beach placement
•1 Sep- 15 Jul Elevated pipe crossings
Species of concern:
Sea Otters, Brown Pelicans, Peregrine Falcons.
Caulerpa surveys 30-90 day prior to start dredging, kelp bed, eel grass.

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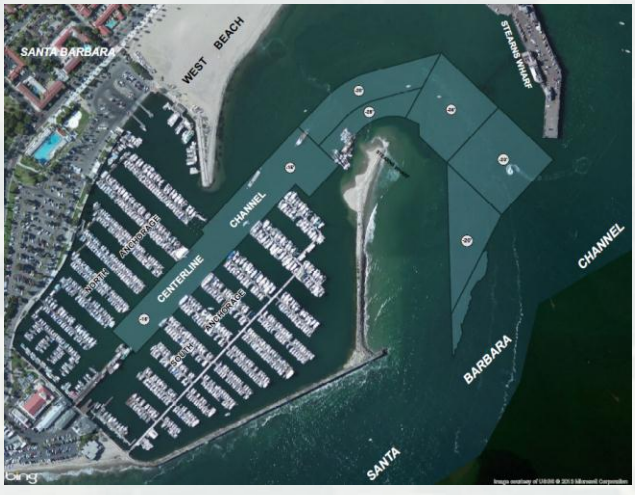
Santa Barbara Harbor



Dredging Frequency:
•Twice Annual

Environmental restrictions:
•1 Mar-15 Sep Avoid beach placement
•1 May-31 Aug No dredging allowed
•1 Sep- 15 Jul Elevated pipe crossings
Species of concern:
Sea Otters, Brown Pelicans, Snowy Plover, Grunion, Tidewater Goby, Steel Head.

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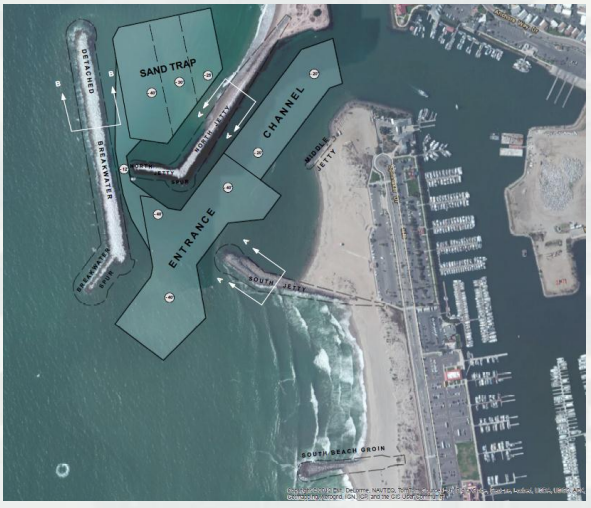
Ventura Harbor



Dredging Frequency:
•Annual

Environmental restrictions:
•1 Mar-15 Sep No dredging allowed
Species of concern: California Least Tern, Brown Pelicans, Snowy Plover, California grunion

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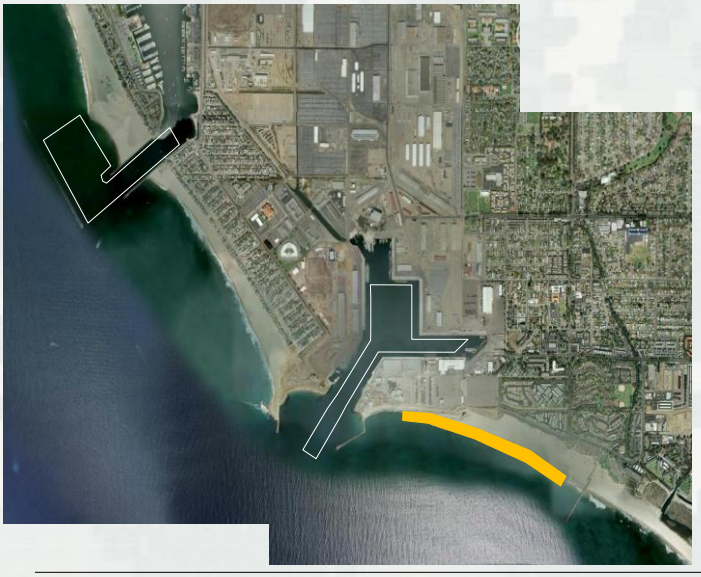
Channel Islands & Port Hueneme



Dredging Frequency:
•Every two years (Channel Islands)
• 3-5 years (Port Hueneme)

Environmental restrictions:
•15 Mar-15 Sep No dredging allowed
Species of concern: California Least Tern, Brown Pelicans, Snowy Plover, California grunion

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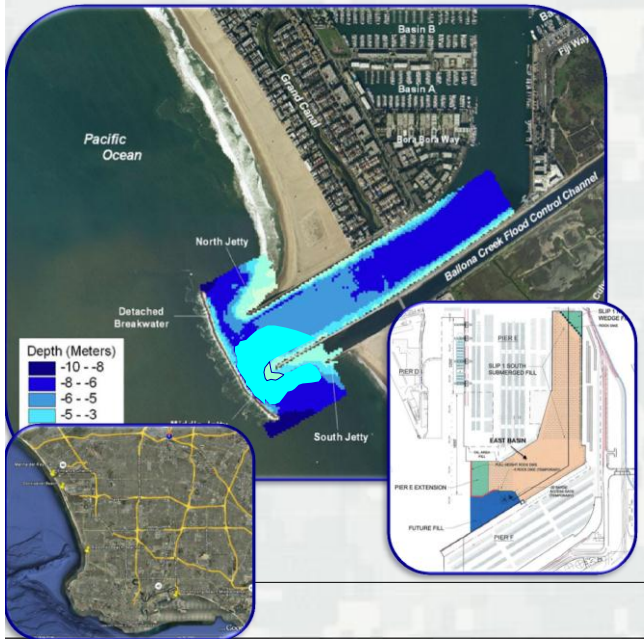
Marina Del Rey



Dredging Frequency:
- 3-5 years

Environmental restrictions:
- 15 Mar-15 Sep No dredging allowed

Species of concern:
California Least Tern, Brown Pelicans, California grunion

Note: FY 2012 dredged approximately 820,000 cubic yards of clean and contaminated material at the Harbor. The South Entrance and adjacent channel areas had an estimated 550,000 CY of contaminated sediment, and the North Entrance and adjacent channels had an estimated 270,000 CY of clean sediment. The contaminated sediment were taken to POLB Middle Harbor and cleans sediment to down coast beaches.

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Los Angeles-Long Beach Harbor

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Newport Harbor

Dredging Frequency:
• 8-10 years

Environmental restrictions:
•15 Apr-15 Sep under surveillance

Species of concern: California Least Tern, Brown Pelicans, Snowy Plover, California grunion, Eel Grass

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Dana Point Harbor

Dredging Frequency:
• 5-7 years (pending funding)

Environmental restrictions:
•15 Mar-15 Sep no beach placement

Species of concern: California Least Tern, Brown Pelicans, Snowy Plover, California grunion

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Oceanside Harbor

Dredging Frequency:
• Annual

Environmental restrictions:
•15 Mar-15 Sep under surveillance

Species of concern: California Least Tern, Brown Pelicans, California grunion

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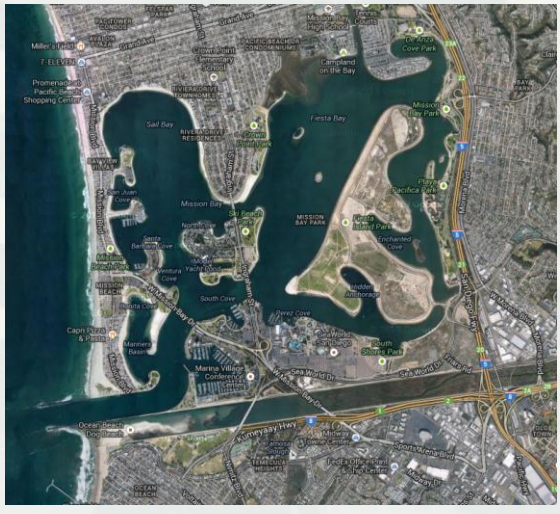
San Diego River-Mission Bay



Dredging Frequency:
• 7-10 years (pending funding)

Environmental restrictions:
•1 Mar-1 Sep no dredging

Species of concern: California Least Tern, Brown Pelicans, California grunion, Eel grass

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San Diego Harbor

Dredging Frequency:

- 7-10 years (pending funding)

Environmental restrictions:

- 1 Mar-1 Sep restricted beach placement

Species of concern:

- California Least Tern, Brown Pelicans, California grunion, Kelp beds, Green Sea Turtle

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Questions?

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Sacramento District

Sacramento District Dredging Program Overview

Port of West Sacramento
- Sacramento DWSC
  - ~40 mile channel length
  - 30 ft Authorized Depth
  - 1 Aug to 30 Nov

Port of Stockton
- Stockton DWSC
  - ~40 mile channel length
  - 35 ft Authorized Depth
  - 1 Aug to 30 Nov

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Sacramento District

Dredging Quantities

- Stockton 150,000 – 350,000 cy
- Sacramento 50,000 – 150,000 cy

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Sacramento District

Contract Method

3 yr IDIQ Contract

- Task Order issued each year based on spring sounding chart channel conditions
  - Contract based on unit prices (pumping distance / material)
- Contract has $10M capacity
- Task Order amounts range from $5M – $7M each year

US Army Corps of Engineers
Sacramento District

Program Challenges

- Dredge windows have been shortened due to endangered species
- Annual pre-dredge sampling and analysis for the 401 water quality permit places severe time constraints for issuance of NTP to contractor by August 1

PROJECT ANALYSIS

PROJECT ANALYSIS

SUMMARY OF ANALYSIS

The following analysis tools were used to study the project:

- Key Project Factors
- Cost Drivers/Issues
- Function Analysis
- Performance Analysis
- Risk Analysis

KEY PROJECT ISSUES

The following summarizes key project issues and concerns identified during the VE team's analysis of the Division's Dredging Program:

- Future funding limitations will limit the amount of material that can be dredged, which will result in navigation impacts and issues with areas in need of the beneficial use disposal.
- Contaminated material disposal increases dredging costs, thus limits total material that can be dredged. Contaminated areas are treated as deferred maintenance areas due to the costs of disposal (San Francisco Bay). The sources of the contamination are typically not involved in the costs to dispose of the contaminated dredge materials. The Los Angeles District has been using coordination with port construction projects, when available, in order to dispose of contaminated materials.
- Funding availability timeframes do conflict with environmental work windows.
- The process timeframes to receive contributed funds for dredging can be too long to adequately use the funds for dredging.
- Contracting processes for acquiring additional technical services can delay award of dredging contracts.
- Local agency requirements place constraints on projects outside of Federal requirements (e.g., air permits requiring the use of electric dredges). Water quality and State-listed fish species impacts may dictate the dredge type in certain areas; however, there are inconsistencies across the region. Different dredge types may be more efficient, but require additional monitoring and permitting.
- Regulatory definition of aquatic placement of beneficial use limits dredge material disposal flexibility.

- The use of the Continuing Contracting Clause has led to flexibility in awarding dredge contracts based on available funding in the past, but may no longer be allowed (or needs additional approvals to award a contract for more than available funds).
- Programming restrictions to project-specific areas limits flexibility in sharing available funding.
- Dredge locations are being determined prior to sounding results in order to get local approvals in a timely manner, as well as water quality and sediment characterization sampling locations.
- Deferred maintenance will result in increased dredge quantities in the coming years. Recent deepening projects will likely increase the cost of dredging via increased shoaling.
- Contracting project by project limits flexibility and coordination with other Districts in the Pacific Coast.
- Episodic and environmental coordination are required per year, but covered under programmatic permits.
- Overlapping environmental windows limits the availability of dredges and timeframe for dredging to be completed.
- Small Business Set Aside goals may conflict with execution of dredging when a large percentage of District contracting is for dredging work.
- There can be a 14-month dredging schedule in a 12-month fiscal year.
- Internal USACE process inefficiencies can lead to additional costs to deliver dredging projects (outside of the contract award costs for dredging). In addition, Districts' organizational structures results in teaming and communication inefficiencies.
- Regulatory agencies consider dredge material a waste material and require significant testing and monitoring prior to disposal or re-use.
- Contracting requirements have resulted in additional reviews which add to project delivery time.

COST DRIVERS/ISSUES

The following are the key drivers and issues relative to costs of the Division's Dredging Program:

- Dredge material disposal sites
    - Distance (fuel, labor, and time)
    - Method of offloading
    - Monitoring
    - Method of dredging
    - Risks (e.g., weather for SFDODS)

- Method of dredging
    - Environmental restrictions on dredge type
- Material being dredged
    - Method of dredging
    - Production rate/operations
- Depth of cut-face
    - Production rate/dredge efficiency
- Dredge efficiency/unit cost drivers
    - Partial funding/insufficient funding results in de-scoping (limits or depth)
- Mob/demob of dredge equipment
    - Pipeline components for hydraulic dredging
    - Specialized equipment
    - Fixed price of contract; known value for contractors
    - In option years, the contractor does not know what options will be funded or where equipment will be coming from, creating risk and potentially high costs
- Additional environmental requirements
    - Secondary monitoring
    - Silt curtains
    - Dredge quality management/inspections
- Environmental risk
    - Ocean disposal issues

FUNCTION ANALYSIS

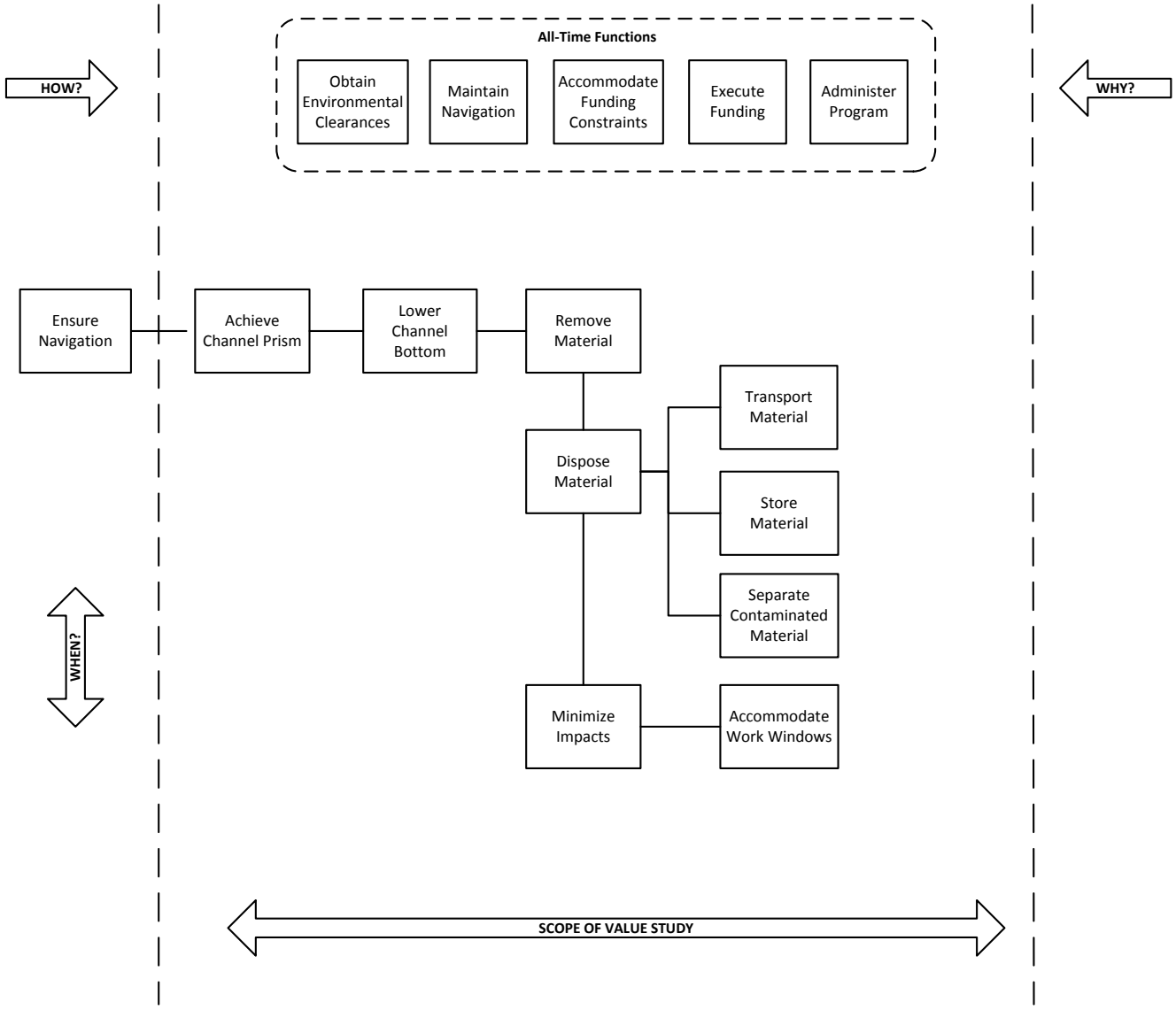
Function analysis was performed and a Function Analysis System Technique (FAST) Diagram was produced, which revealed the key functional relationships for the project. This analysis provided a greater understanding of the total project and how the project's performance, cost, time, and risk characteristics are related to the various functions identified.

The FAST diagram arranges the functions in logical order so that when read from left to right, the functions answer the question, "How?" If the diagram is read from right to left, the functions answer the question, "Why?" Functions connected with a vertical line are those that happen at the same time as, or are caused by, the function at the top of the column (a "When?" relationship).

Random Function Determination

- Maintain Navigation
- Achieve Channel Prism
- Increase Depth
- Remove Materials
- Lower Channel Bottom
- Dispose Material
- Transport Material
- Obtain Environmental Clearances
- Obtain Approvals
- Coordinate Projects
- Reduce Impacts
- Reuse Material
- Review Documents
- Accommodate Work Windows
- Accommodate Funding Constraints
- Establish Budget
- Prioritize Locations
- Acquire Funding
- Assess Condition
- Develop Schedule
- Maximize Dredge Window
- Administer Program
- Spend Money
- Prepare Documents

FAST Diagram



PERFORMANCE ANALYSIS

Performance requirements and attributes were developed and used throughout the study to evaluate how well the Division's Dredging Program was meeting its functions.

Define Performance Requirements

Performance requirements represent essential, non-discretionary aspects of project performance. Any concept that fails to meet a performance requirement cannot be considered as a viable solution. Concepts that do not meet a performance requirement cannot be considered further unless such shortcomings are addressed through the VE study process in the form of VE alternatives. It should be noted that in some cases, a performance requirement may also represent the minimum acceptable level of a performance attribute.

The following performance requirements were selected:

Performance Requirement	Definition
Authorized Channel Dimensions	The authorized dimensions are the depth and width of the channel authorized by Congress to be constructed and maintained by USACE.
Disposal of Dredge Material	Dredge material must be disposed in authorized locations (either designated placement areas or permitted beneficial use areas).
Applicable Laws and Regulations	Dredging projects are subject to multiple laws and regulations that dictate their activities. Examples include (but are not necessarily limited to): National Environmental Policy Act of 1969; Executive Order 11514, Environmental Quality Improvement Act of 1970; Executive Order 12088, Federal Compliance - Pollution Control Standards; Executive Order 11564, Transfer of Oceanographic Programs; Executive Order 11988, Floodplain Management; Executive Order 11990, Protection of Wetlands; Executive Order 12114, Environmental Effects Abroad of Major Federal Actions; Executive Order 12301, Integrity and Efficiency in Federal Programs; Executive Order 12372, Intergovernmental Review of Federal Programs; Executive Order 12498, Regulatory Planning Process, Comprehensive Environmental Response Compensation and Liability Act of 1980; Environmental Education Act of 1978; Environmental Programs Assistance Act of 1984; Section 309 of the Clean Air Act; Resource Conservation and Recovery Act of 1976; Federal Water Pollution Control Act of 1972; Water Quality Act of 1987, Section 10 - Permits for Structures and Activities in Navigable Waters of the Rivers & Harbors Act of 1899 (The Refuse Act); Water Resource Planning Act; Port & Tanker Safety Act of 1979; Oil Pollution Act of 1990; Marine Protection, Research, and Sanctuaries Act of 1972; Estuary Protection Act of 1968; National Ocean Pollution Act of 1978; Reservoir Salvage Act of 1968; River and Harbor and Flood Control Act of 1970; Water Resources Development Acts; Federal Environmental Pesticide Control Act of 1972; Outer Continental Shelf Lands Act; Coastal Zone Management Act of 1972; Endangered Species Act of 1973; Coastal Barrier Resource Act of 1982; Fish and Wildlife Coordination Acts of 1934, 1956, and 1958; Toxic Substances Control Act; National Historic Preservation Acts of 1966 and 1980; Submerged Lands Act of 1953; PL 82-3167, 43 U.S.C.; Magnuson-Stevens Act 16, U.S.C. 1801

Performance Attributes

Performance attributes represent those aspects of a project's scope that may possess a range of potential values. For example, an attribute called "Environmental Impacts" may have a range of acceptable values for a project ranging from 1 acre to 20 acres of wetlands mitigation. It is expected that a concept that offered 15 acres of mitigation would perform at a higher level than one that offered 5 acres, but both would meet the project's need and purpose, and their values (i.e., the relationship between performance and cost) could be rationally compared. The following performance attributes were selected for the Division's Dredging Program.

Impacts to Navigation

An assessment of the varying degrees of impacts to marine vessels as it relates to navigating the Federal channels in the Division. The attribute considers the number of days that the channels are at their authorized dimensions without draft restrictions. This attribute also considers the ability to communicate the post-dredging conditions that may affect navigation (channel morphology).

Maintainability

An assessment of the long-term ability to maintain a navigable channel. Maintenance considerations include the amount of dredging required, the level of side slope maintenance and repair needed, and the length of time before another dredging project will be required.

Environmental Impacts

An assessment of the permanent impacts to the environment, including ecological and habitat impacts (i.e., flora, fauna, air quality, water quality, visual, noise), placement sites for dredging spoils, and the potential of the project to utilize beneficial use areas for dredge material disposal.

Flexibility

Ability of the program to adapt to changing conditions, such as funding availability. This attribute also considers the ability of the program to adjust to dredging needs across the entire region, which includes a measure of the program's ability to prioritize the dredging work to improve navigability of the channels as needed.

RISK ANALYSIS

A qualitative risk analysis was performed to summarize the risks particularly of concern for the Division's Dredging Program. The VE team generated a list of the potential risks, then qualitatively evaluated the likelihood of each risk occurring and its potential impact to cost, schedule, and/or performance. The risks identified were qualified using a calculated indexing scheme that took into account the range of probability and impact in terms of the qualitative ratings (very low to very high).

The Risk Identification List to follow provided an analysis of the risks most in need of management and key delivery attention.

Risk Identification List

Risk ID	Name	Description	Probability	Impact
1	Funding Availability	The availability of funding results in decisions affecting dredging method types and contract structure. The funding availability affects what quantity can be executed in a base year and what has to be moved into option years.	Very High	Very High
2	Site Conditions at Disposal Sites	External conditions and factors at disposal sites can impact the efficiency and operations of the dredging contractor.	Medium	High
3	Dredging Locations where Sampling was Not Conducted	Dredge locations are being determined prior to sounding results as well as water quality and sediment characterization sampling locations.	High	Medium
4	Lack of Flexibility in Schedule	Any schedule delays result in impacts to dredging operations and limit contractor's effective time for executing the dredge work.	Very High	High
5	Permitting Timelines/ External Agency Coordination	Obtaining environmental clearances requires regulatory agency review and permitting processes that can result in schedule delays and may impact dredge methods and disposal costs. Regulatory agencies have also revised interpretations of requirements and regulations after disposal sites and dredge methods have been determined.	High	High
6	Sediment Suitability	Potential for material to be contaminated or physically unsuitable, thus requiring alternative disposal than what was previously assumed.	Medium	Very High
7	Availability of Disposal Sites	Certain disposal sites may not be available or have the capacity at the time they are needed for disposal of dredge material; especially the ability of the beneficial use sites to be able to receive the material given the limited windows for dredge operations.	Medium	Very High

IDEA EVALUATION

IDEA EVALUATION

The ideas generated by the VE team were carefully evaluated, and project-specific attributes were applied to each idea to assure an objective evaluation.

EVALUATION PROCESS

The VE team generated and evaluated ideas on how to perform the various project functions using other approaches. Each idea was evaluated with respect to the functional requirements of the Division's Dredging Program. Performance, cost, time, and risk as well as likelihood of implementation were all considered during this evaluation. Once each idea was fully evaluated, it was given a total rating number. This is based on a scale of 1 to 3, as indicated by the following rating index. The ratings represent the subjective opinion of the VE team regarding the potential benefits of the concepts in order to prioritize them for further development.

1 = Major Value Improvement	Concept results in performing project functions in a manner that results in high value improvement potential.
2 = Potential Value Improvement	Concept may result in a minor cost or performance improvement; however, additional information or design development is required for concept to be fully evaluated. Some concepts may be out of scope of the VE study or already being addressed by others.
3 = Major Value Degradation	Concept is not technically feasible, implementable, or does not meet Dredging Program's mission requirements.

Ideas rated 1 and 2 were developed further and those that were found to have the greatest potential for value improvement are documented in the *Value Engineering Alternatives* section of this report.

IDEA SUMMARY LIST

All of the ideas that were generated during the Speculation Phase using brainstorming techniques were recorded on the following pages.

Idea No.	Idea Description	Rating
1	Extend ID/IQ contracts to 1 year base with 4 option years (5 total years in lieu of 3)	1
2	Apply ID/IQ contract approach (multi-year contracts) to single year projects	Comb w/ 1
3	Expand scope of contracts to cover projects similar in scope, methods, and/or location	Comb w/ 28

Idea No.	Idea Description	Rating
4	Maximize use of government-owned hopper dredge as a regional resource	2
5	Establish additional disposal sites	1
6	Establish ID/IQ contract for each type of dredge method in each district that could be shared across the division	Comb w/ 1
7	Pursue a blanket waiver for use of Continuing Contracting Clause for O&M projects	3
8	Revise reprogramming restrictions to allow shared funding across projects	2
9	Pursue additional funds for SPD dredging	2
10	Pursue funding for system-wide approach (all California ports system) in lieu of project-specific funding	2
11	Streamline the contributed funds process	2
12	Establish a contributed funds format for all projects	Comb w/ 11
13	Provide additional funds to advance schedule in order to synchronize dredging windows with funding timelines	1
14	Eliminate or modify USACE dredging program execution metrics	2
15	Pursue multi-year approvals from regulatory agencies in lieu of episodic approvals	1
16	Reduce frequency of Tier 3 sampling	1
17	Decouple sediment testing from dredging operations in a given fiscal year	Comb w/ 16
18	Standardize specifications and plans for each dredge type and reduce P&S review timeframe	1
19	Develop a dedicated navigation team for resources in each district for technical support	1
20	Revise USACE organizational structure for navigation program to be in Operations branch	2
21	Evaluate alternative contract types for rental of dredging equipment	1
22	Pursue expanding environmental windows for dredging operations	2
23	Reevaluate the definition of beneficial use to allow more in-bay disposal	1
24	Establish a disposal site for contaminated materials	2
25	Evaluate sources of contamination of dredge material	Comb w/ 24
26	Revise delivery schedule to solicit contracts as early as possible prior to dredging window start date	1
27	Develop methods to program projects in previous fiscal year	Comb w/ 13

Idea No.	Idea Description	Rating
28	Increase the use of regional planning for dredging needs and contract capacities across west coast	1
29	Allow contracting across district boundaries	Comb w/ 28
30	Revise dredge quality management requirements	2
31	Evaluate consistency of requirements between regional water quality control boards	3
32	Pursue third party cost share of disposing materials at beneficial use sites	2
33	Pursue the increase in hydraulic dredging in lieu of mechanical dredging where possible	3
34	Pursue revising air quality restrictions to reduce restrictions on dredge types	Comb w/ 84
35	Set project areas in the environmental documents and contracts to maximize flexibility of executing dredging as needed	1
36	Revise budget criteria relative to prioritizing dredging of sediment traps	2
37	Allow third parties to take materials in sediment traps outside of littoral zones	Comb w/ 38
38	Allow third parties to take materials in Federal channels or disposal sites for commercial use	2
39	Pursue revising interpretation of requirements relative to beneficial use of aquatic placement of dredge materials	Comb w/ 23
40	Pursue funding relative to flood damage reduction relative to areas requiring dredging	2
41	Create multi-year ID/IQ contract(s) for environmental services that support dredging projects	1
42	Revise contracting restrictions and requirements for acquiring additional technical services	Comb w/ 41
43	Pursue the use of sediment samples from previous years to cover dredging for following year	Comb w/ 16
44	Pursue demonstration or experimental projects for aquatic beneficial use placement	Comb w/ 23
45	Pursue demonstration or experimental projects for advance maintenance dredging	1
46	Expand the paid overdepth limits beyond the current 1' requirement	3
47	Revise the restrictions relative to dredging additional depth beyond 2' below authorized depth	Comb w/ 48

Idea No.	Idea Description	Rating
48	Utilize USACE policies and guidance relative to overdepth restrictions in lieu of Region 9 EPA requirements	2
49	Pursue dredge training for regulatory agency representatives	3
50	Prioritize O&M dredging contracts in Contracting during high volume timeframes	1
51	Prioritize USACE contracting work for other agencies below primary USACE services	Comb w/ 50
52	Eliminate peer review of IFB contracts	2
53	Consolidate and concentrate BCOES and DQC reviews using required in-person conferences	1
54	Expand responsibility of navigation technical team to prepare front-end portions of dredging contracts	2
55	Specify the use of the Projnet/DrChecks system for bidding priority and contract inquiries	2
56	Assign a contracting representative dedicated to dredging contracts only	Comb w/ 50
57	Expand contracting personnel during heavy timeframes of dredging contract awards	Comb w/ 50
58	Expand the quantity and area restrictions for knock-downs	2
59	Increase the use of knock-downs to reduce the frequency of dredging	3
60	Increase frequency of dredging to multiple times per year outside current window restrictions	3
61	Allow disposal of dredge material to other channels to improve dredge disposal efficiency	3
62	Allow knock-downs of shoaling areas outside of environment work windows	Comb w/ 58
63	Consider project-specific consultations to allow year-round dredging of Oakland channel	2
64	Conduct studies to determine specific dredging impacts to species sufficient to expand work windows	Comb w/ 22
65	Institute an inter-agency assignment program to develop familiarity between stakeholders	3
66	Reduce or eliminate overflow restrictions on barges and hopper dredges	3
67	Perform analysis to verify water quality impacts of barge and dredge overflow	Comb w/ 66
68	Consider using additional sediment traps and allow commercial industry to take the material without royalties	Comb w/ 38

Idea No.	Idea Description	Rating
69	Utilize 3rd party contractors to perform post-dredge surveys of projects in lieu of USACE surveyors	ABD
70	Expedite the posting of the after-dredge surveys following completion of dredging	Comb w/ 71
71	Post interim after-dredge surveys prior to completion of dredge project	2
72	Default to Tier 1 level sediment testing unless needed for specific environmental impacts	Comb w/ 16
73	Ensure lessons learned from After Action Reviews are used in programming future projects	2
74	Include dredging contractors in After Action Review process	Comb w/ 73
75	Regionalize Pre-construction conference activities - set submittals, pre-dredge survey, safety and equipment inspections	Comb w/ 3
76	Award multi-year open-by-amendment contracts for dredging	1
77	Consider regionalizing the USACE technical services for sharing across Districts	2
78	Investigate categorical exclusion for environmental assessment (EA) for O&M dredging	3
79	Evaluate sediment barrier structures as part of the on-going sediment modeling efforts	3
80	Standardize the mob/demob contract and pay requirements across the Division	3
81	Combine projects in close proximity into single solicitation (e.g. Ventura and Channel Islands)	Comb w/ 3
82	Identify and prioritize projects with high mob/demob for full funding of dredging in the area	Comb w/ 83
83	Revise the project description and unit cost implications in dredging budget requests	2
84	Consider re-evaluating environmental restrictions that are driving costs of dredging projects	2

ABD: Already Being Done [in the Program]

VALUE ENGINEERING PROCESS

VALUE ENGINEERING PROCESS

A systematic approach was used in the VE study and the key procedures followed were organized into three distinct parts: (1) Pre-Study Preparation, (2) VE Study, and (3) Post-Study procedures.

PRE-STUDY PREPARATION

In preparation for the VE study, the team leader reviewed critical aspects of the program and areas for improvement. In the week prior to the start of the VE study, overviews of the dredging projects for each district in the SPD were prepared and reviewed.

VE STUDY

The Value Methodology (VM) Job Plan is followed to guide the teams in the consideration of program functionality and performance, potential schedule issues, high cost areas, and risk factors in the design. These considerations are taken into account in developing alternative solutions for the optimization of program value. The Job Plan phases are:

- Information Phase
- Function Phase
- Speculation Phase
- Evaluation Phase
- Development Phase
- Presentation Phase

Information Phase

At the beginning of the VE study, the navigation managers from each district presented overview presentations of dredging projects in their respective districts. The overviews included scopes of work, various requirements, constraints, and key issues for their programs. In addition, the program's performance requirements and attributes are identified and discussed.

Function Phase

Key to the VM process is the function analysis techniques used during the Function Phase. Analyzing the functional requirements of a program is essential to assuring an owner that the program will meet the stated criteria and its need and purpose. The analysis of these functions is a primary element in a VE study and is used to identify and develop alternatives. This procedure is beneficial to the VE team, as it forces the participants to think in terms of functions and their relative value in meeting the program's need and purpose. This facilitates a deeper understanding of the program.

Speculation Phase

The Speculation Phase involves identifying and listing creative ideas. During this phase, the VE team participates in a brainstorming session to identify as many means as possible to provide the necessary program functions. Judgment of the ideas is not permitted in order to generate a broad range of ideas.

The idea list includes all of the ideas suggested during the study. These ideas should be reviewed further by all stakeholders, since they may contain ideas that are worthy of further evaluation and may be used as the design develops. These ideas could also help stimulate additional ideas by others.

Evaluation Phase

The purpose of the evaluation phase is to systematically reduce or combine the large number of ideas generated during the creative phase to a number of concepts/recommendations that appear promising in meeting the program objectives. Once each idea was fully evaluated, it was rated.

Based upon the rating, ideas rated positively were developed further into VE Alternatives, and documented in this report. The balance of the ideas that were found to add no value, or were considered to already being done, were dropped from further consideration.

Development Phase

During the Development Phase, the highly rated ideas are expanded and developed into VE Alternatives. During the development phase, each idea was expanded into a workable solution. The development consisted of a brief narrative describing the idea in more detail and rationale for justifying for the change proposed. This analysis is prepared as appropriate for each alternative, and the information may include a performance assessment, initial cost, and life-cycle cost comparisons, and schedule analysis. Sketches and calculations are also prepared for each alternative as appropriate.

Presentation Phase

The VE study concludes with a preliminary presentation of the VE team's assessment of the program and VE alternatives. The presentation provides an opportunity for the program managers to preview the alternatives and develop an understanding of the rationale behind them.

POST-STUDY PROCEDURES

A *Draft VE Study Report* is prepared after the completion of the workshop. This report summarizes the activities and results of the VE study. Once this report has been reviewed by the navigation managers, a *Final VE Study Report* is prepared incorporating any comments or revisions on the Draft Report.

Value Engineering (VE) Study
Workshop Agenda

USACE South Pacific Division's
Navigation O&M Dredging Program

Workshop Location (All Days): Powell Room @ Hilton San Francisco Union Square
333 O'Farrell Street
San Francisco, CA 94102
Tel: (415) 771-1400

Monday, August 12, 2013

0900 VE Team Orientation/VE Process Overview/Agenda Review

- Identify and Discuss VE Study Objectives

0930 SPN Dredging Program Overview Presentation (Navigation Manager / Project Managers)

- Project Area and Projects Being Considered For VE Study Review
- Problems and Opportunities of Dredging Program
- Dredging Program Budget and Cost Estimates
- Environmental Constraints and Considerations

1200 Lunch
1300 Dredging Program Performance Analysis using Value Metrics
1630 Identify Dredging Program Key Functional and Cost Drivers / Project Issues
1700 Adjourn

Tuesday, August 13, 2013

0830 Function Analysis/FAST Diagram
1000 VE Team Brainstorming of Creative Ideas
1200 Lunch
1300 Evaluation of Ideas
1500 Review Alternative Development Process/Assignments for Development of VE Alternatives
1530 VE Alternative Development
1700 Adjourn

Wednesday, August 14, 2013

0830 VE Alternative Development (cont.)
1200 Lunch
1300 VE Alternative Development
1700 Adjourn

Thursday, August 15, 2013

0830 Summary of VE Results and Outbrief Presentation Preparation
1000 Presentation of VE Study Results
1200 Lunch
1300 Additional VE Alternative Development (as necessary)

MEETING ATTENDEES

USACE South Pacific Division, Regional Dredging Program VE Study

8/12	8/13	8/14	8/15	Name	Position/Role	Organization	Telephone	E-mail
X	X	X	X	Mark Watson	VE Team Leader	VMS, Inc.	816-206-0067	mark@vms-inc.com
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X	X		X	Anne Sturm	Navigation & Coastal Business Line Manager	USACE South Pacific Division	415-503-6587	anne.k.sturm@usace.army.mil
X	X	X	X	Doug Ross	Project Manager	USACE Sacramento District	916-557-7064	douglas.e.ross@usace.army.mil
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X	X	X	X	Dave Doak	Nav Tech Manager	USACE San Francisco District	415-503-6730	david.v.doak@usace.army.mil
X	X	X	X	Nick Malasavage	VE Officer	USACE San Francisco District	415-503-6915	nicholas.e.malasavage@usace.army.mil
X	X	X	X	Scott Noble	Civil Engineer	Noble Consultants	415-884-0327	snoble@nobleconsultants.com
X	X	X	X	James Haussener	Executive Director	CMANC	925-82-6215	jim@cmanc.com
X	X	X	X	Mo Chang	Navigation Manager	USACE Los Angeles District	213-452-3405	mohammed.n.chang@usace.army.mil
X	X	X	X	Joe Ryan	Coastal Engineer	USACE Los Angeles District	213-452-3679	joseph.a.ryan@usace.army.mil
X	X	X	X	Jessica Burton Evans	Navigation Program Manager	USACE San Francisco District	415-503-6862	jessica.l.burtonevans@usace.army.mil
X	X		X	Jim McNally	West Coast Reg Manager	Manson Construction	562-983-2344	jmcnally@mansonconstruction.com

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Final Value Engineering Study Report
USACE SOUTH PACIFIC DIVISION REGIONAL DREDGING PROGRAM
NOBLE CONSULTANTS

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