



PROPOSAL FOR SERVICES: Value Engineering



Monterey Peninsula Water Supply Project – Desalination Infrastructure

May 2014

Prepared by

Value Management Strategies, Inc.





"Value Leadership"

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Date: May 8, 2014

Monterey Peninsula Regional Water Authority (MPRWA)
Attn: James M. Cullem, Executive Director
735 Pacific Street
Monterey, CA 93940

Subject: ***Value Engineering Study Proposal for
Monterey Peninsula Water Supply Project – Desalination Infrastructure***

Value Management Strategies, Inc. is pleased to submit this proposal to conduct a 5-day Value Engineering (VE) study for the Monterey Peninsula Water Supply Project (MPWSP) Desalination Infrastructure. Per the Request for Proposal scope of services we received on April 17, 2014, the following information is respectfully enclosed in the attached document:

- ◆ Understanding of the scope of work, with proposed delivery schedule
- ◆ Qualifications and experience of proposed VE facilitator and team
- ◆ Brief biographies of the proposed personnel
- ◆ A lump-sum fee proposal is submitted under separate cover from this technical proposal

We propose Mark Watson, PE, CVS-Life, PMP to facilitate the VE workshop and a highly experienced team of subject matter experts from HDR to perform this study. We are confident that the proposed team will provide the highest level of service during this VE study to ensure the objectives are achieved, resulting in optimal project functionality and performance.

I am the VMS officer authorized to negotiate this contract on behalf of VMS, Inc. Thank you for your consideration of our proposal. We look forward to working with you.

Sincerely,
VALUE MANAGEMENT STRATEGIES, INC.

A handwritten signature in black ink, appearing to read "R. Stewart", with a long horizontal line extending to the right.

Robert B Stewart, CVS-Life, FSAVE, PMP, PMI-RMP
President

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1.0 INTRODUCTION AND FIRM OVERVIEW

1.1 Introduction

Value Management Strategies, Inc. (VMS) is pleased to submit this proposal for the facilitation of a 5-day Value Engineering (VE) workshop on the *Monterey Peninsula Water Supply Project – Desalination Infrastructure* for the California American Water Company (CAW) and the Monterey Peninsula Regional Water Authority (MPRWA).

For this contract we have teamed with HDR Engineering, Inc. to provide the technical depth necessary to successfully complete the requested VE effort. The individuals selected for this VE study include some of the most experienced design and construction personnel available in the industry today. In addition, our team has experience working with and for MPRWA on Value Engineering/Constructability Review workshops, Project Cost and Schedule Estimating assignments, and/or Project Design.

While VMS understands the potential benefit of bringing together diverse experience and perspectives, the synergy afforded by building a team of HDR subject matter experts far outweighs any benefits of building a team from different firms. A major challenge that often faces VE teams not accustomed to working together is the time it takes during the study to build familiarity, strong communication and a good working relationship among all team members. This issue is entirely eliminated, for the proposed team of technical experts from HDR is familiar not only with this type of work in general and MPRWA projects specifically, but also with municipal agencies in the state of California, and working together as a team. All of their energy and effort will be focused directly on the goals and objectives of the VE effort rather than any team building typically needed to get up to speed. VMS has observed that the most successful VE studies and greatest results are generally achieved by teams of highly experienced subject matter experts who have worked together before, and enjoy doing so. It is for these reasons we selected the HDR team, and look forward to sharing their experience and strong working relationship with you.

Special attention was given to ensure the selected team members have experience with this type of project, with particular emphasis on design and construction expertise in water treatment facilities and seawater desalination, inclusive of prior experience conducting similar value engineering reviews. We believe our team is especially qualified to provide the type of value optimization needed to make this a successful workshop in terms of meeting the stated objectives of optimizing project performance while balancing cost, and schedule; improving project value; review the 30% design for potential issues related to constructability, durability, adaptability, operability, safety and maintainability; identifying solutions that enhance the project's sustainability profile, and reducing risk. Additional objectives identified during the pre-study phase of the workshop will be incorporated into the process to provide the most comprehensive value engineering effort possible.

1.2 Value Management Strategies, Inc. Firm Information

VMS was founded in 1990, and is a certified small business based in San Diego County, California. VMS is structured to address the specific and localized needs of our clients, and to manage, plan, coordinate, conduct and document comprehensive value-based services. We specialize in the application and facilitation of Value Analysis and Value Engineering, Constructability Reviews, Risk Assessment and Management, Quantitative Modeling and Analysis, and Training in order to assist clients in their goals of successfully delivering their projects and programs. VMS team leaders have facilitated over 3,000 value focused studies and receive excellent feedback, resulting in many long-standing client relationships.

Although a small business, VMS is the largest and most experienced VE firm in the country with 15 employees, 9 of whom are Certified Value Specialists. Today we facilitate over 200 value-focused workshops every year for organizations around the world on a wide range of projects.

2.0 UNDERSTANDING OF SCOPE OF WORK

VMS team leaders apply their focus and effort on the facilitation of studies using the same VE process outlined in MPRWA's RFP scope of services. The VE Job Plan defined by SAVE International and the specific tools and techniques implemented by VMS represent a tested and proven methodology that will lead the stakeholders and project team toward the stated objectives in an efficient, professional and enjoyable manner.

Access to the following documents (listed in the RFP), will prove invaluable to the VE team's effort and will support the study's relevance and ultimate success:

- ♦ Preliminary site plans
- ♦ Floor plans
- ♦ Elevations
- ♦ Geotechnical report
- ♦ Schematics for the process, treatment residuals handling and chemical systems
- ♦ Preliminary cost estimate
- ♦ Energy consumption model

With submission of this proposal, VMS acknowledges its understanding of the objectives, expectations and timelines stated for the requested 40-hour VE effort. VMS takes pride in working with each of our clients to provide the highest quality of work in a flexible and efficient manner to meet the needs of each project. The requested study dates of June 23-27, 2014 are easily accommodated by the proposed CVS facilitator and VE team members, as is the timeline set forth for the deliverable submittals including the preliminary and final VE reports.

3.0 PROPOSED METHODOLOGY AND DELIVERY SCHEDULE

3.1 VE Study Work Plan

Based upon our extensive experience conducting similar design and technical review services, VMS believes that the most effective way to organize and conduct this VE study will be to follow the Value Methodology Job Plan. Using the core principles of the Value Methodology, the process would consist of the following elements:

- ♦ A multi-disciplinary team of engineers, sustainability experts, stakeholders and owner representatives administered by a Certified Value Specialist (CVS).
- ♦ A thorough presentation by project management and the design team outlining specific issues and concerns relating to the project's design and construction.
- ♦ A systematic review of the project's 30% plans, cost estimate, and energy consumption models by the VE team utilizing a systematic analysis process and a system of checklists and forms to document recommendations.
- ♦ A formal presentation of the VE team's recommendations to project management and the design team, and a discussion of these findings.
- ♦ Preliminary and Final Reports documenting the results of the study including the VE team's recommendations, the analyses performed during the workshop, supporting documentation.

As noted in the RFP Scope of Work, the VE effort will consist of a 5-day workshop. The first day will include a workshop kick-off meeting to include the VE team members, CAW project representatives and design team members at or near the project site, and a site visit. The study will continue with additional information gathering, function analysis, creativity, evaluation and development of VE alternatives, prior to a formal outbrief held the final day of the workshop. The outbrief presentation will provide MPRWA and their design consultants an overview of the VE team's findings and provide an arena for discussion to clarify any of the concepts prior to publishing the Preliminary VE report.

An implementation meeting will be scheduled at/after the end of the VE workshop to support decision making and implementation activities, as well as to document any additional comments or results of the study. Feedback and decisions from this implementation meeting will be incorporated into the Final Value Engineering Report, indicating completion of the project. Further details of each step of the process are included in the following section.

3.2 VE Workshop Methodology

VMS proposes to utilize the tools, techniques, and job plan from the Value Methodology and SAVE International best practices as a guide and format for the VE workshop. The methodology to be employed will utilize a function-based system that quickly focuses teams on a task, facilitates communication, builds consensus and achieves results in the optimization of the project with respect to functional performance, initial cost, lifecycle cost, and duration for construction delivery.

The direct and active involvement of the project's stakeholders is at the core of this process. The VE team leader will guide stakeholders through the methodology, using the power of the process to distill subjective thought into objective language that everyone can relate to and understand. The dialog that develops then forms the basis for the VE team's understanding of the requirements of the project and to what degree the current design concept is meeting those requirements. From this baseline, the VE team can focus on identifying issues with the current design and perhaps identify alternative concepts that will quantify both performance and cost, contributing to an improved project value.

Our approach to performing a VE study yields the following benefits:

- ◆ Builds consensus among project stakeholders (especially those holding conflicting views)
- ◆ Supports a better understanding of a project's goals and objectives
- ◆ Develops a baseline understanding of how the project meets performance goals and objectives
- ◆ Identifies areas where project performance can be improved through the VE process
- ◆ Develop and understand the relationship between performance and cost in determining value
- ◆ Uses value as the true measurement for selecting the optimal design concept

The following narrative provides an overview of the specific activities proposed for the VE workshop.

Pre-Study

Meaningful and measurable results are directly related to the work performed prior to the VE workshop. All or part of the following information will be determined during the pre-study phase:

- ◆ Clear definition of the current situation and study objectives
- ◆ Identification of VE team members and project stakeholders
- ◆ Definition of how stakeholders are impacted by the project
- ◆ Identification of key issues and concerns
- ◆ Identification of criteria to be used for evaluation of project performance
- ◆ Gather project data and distribute to VE team members

In preparation for the VE workshop, the team leader (CVS) will meet with MPRWA and stakeholders to confirm and finalize the workshop process and agenda, initiate data gathering, refine workshop scope and objectives, coordinate with the VE team members, and finalize study plans. Following the initial planning meeting, the team leader will review the data collected for the project and develop a cost model. The team leader will also consult with the technical specialists to prepare them for the workshop.

VE Workshop (Study)

VMS proposes a 7-phase Job Plan for this VE study. The elements and activities conducted during the study will include: Information phase, Function Analysis phase, Creative phase, Evaluation phase, Development phase and Presentation phase, followed by Implementation.

1. Information Phase: At the beginning of the VE study, the background and decisions that have influenced the development of the project or process are reviewed. The VE study begins with a meeting with representatives of the stakeholder agencies. Analysis of the project proceeds based on the data provided. The analysis includes reviewing the cost model(s) and becoming familiar with the issues and constraints communicated by the stakeholders. Each of the focus areas identified in the previous section will be discussed, and specific comments and recommendations will be recorded.
2. Function Analysis Phase: Development of the functional requirements of a project are key to assuring a stakeholder that the project will meet the stated criteria. The analysis of these functions in terms of actual cost is a primary element in a VE workshop. A Function Analysis System Technique (FAST) diagram is developed to help the team better understand the functional relationships of the project. Cost and performance are related to the project functions on the FAST diagram to direct the team to the functions where they should focus their efforts.
3. Creative Phase: During this phase, the VE team generates as many ideas as possible to provide the necessary functions for the project and meet the criteria identified. Judgment of the ideas is not permitted during this phase, and all ideas are recorded.
4. Evaluation Phase: The VE team evaluates each idea with respect to the functions and evaluation criteria. Each idea is evaluated against the specific performance criteria established by MPRWA during the Information Phase. Once each idea is fully evaluated, the idea is ranked based upon the team's concurrence of its significance to prioritize the development of the ideas.
5. Development Phase: During the development phase, each idea deemed worthy of additional consideration is expanded and documented on VE Alternative forms. Each recommendation is documented with a brief narrative to compare it with the original concept, including sketches, discussion of performance and risk, and cost comparisons as applicable.
6. Presentation Phase: The final step of the VE study is a formal presentation of the study's results to the project stakeholders. This will provide MPRWA an opportunity to preview the recommendations developed by the VE team before the Preliminary VE Report is published.
7. Written Reports & Implementation Phase: Following the completion of the VE study, the team leader compiles the information developed during the VE study into a Preliminary Report. This report documents all recommendations, and will be provided to MPRWA under the stated deliverable timeline. The report includes an Executive Summary, detailed descriptions of each recommendation, and all supporting documentation.

Once the Preliminary Report review is complete and comments are received from MPRWA, the report is edited to reflect the comments and any implementation decisions, and is reissued as the Draft Final VE Study Report. Further comments, edits and feedback will be addressed prior to publication and delivery of the Final VE Study Report as indicated in the RFP.

3.3 VE Study – Areas of Focus

The following paragraphs identify some of the areas that VMS believes may require special attention with respect to the MPWSP VE effort. Additional elements will likely be identified during the VE workshop; the list below illustrates topics we will cover to ensure a thorough review of the project.

1. Design Concept Enhancements: Identification of changes to the project design that will improve/enhance the essential functions and concept(s) at a lower initial capital cost or lifecycle cost as proposed in the design documents.
2. Operations and Maintenance: Review of the design concept to identify the optimal configuration that best represents ideal operability, reliability, maintainability, and personnel safety.
3. Design Concept Validation: Review of the baseline design concept for validation of the effectiveness of the design in ensuring it represents the most efficient combination of cost, performance, and reliability.
4. New Alternatives: Identification of new functional approaches to optimizing the essential functions of the project, solving issues, and meeting the goals set forth for the project for the best overall value, including incorporation of the latest technologies and advancements.
5. Sustainability Assessment: Review and validation of the project for identification of opportunities to attain an “Enhanced” level (equivalent to Silver) of sustainable design under the Envision rating system of the Institute for Sustainable Infrastructure. Identification of opportunities to attain a Silver award level of design under the US Green Building Council LEED Rating system.
6. Architectural Composition: Suggestions that will align the design of the facility in terms of optimal functional performance and operations and aesthetic presence with the environment and location.
7. Future Design Considerations: Recommendations to the designer regarding specific ideas, components, details, materials or products that should be considered as the design progresses.
8. Staging/Access: Assessment of whether adequate space and facilities are available to stage the project including the provision of utilities, and if access to the site will be restricted with alternatives provided to make the flow of labor, equipment and materials more efficient.
9. Environmental Impacts: A review of the project’s environmental impacts to assure that the construction process can meet the requirements of the EIR permitting agency demands, defining alternatives that will address and support conflict resolution.
10. Construction Impacts: Ideas promoted to minimize or eliminate impacts of construction on the existing streambed or existing facilities and infrastructure. This area will also consider temporary environmental conditions related to construction activities.
11. Cost Control: Not to be confused with cost cutting, this area will focus on maintaining the desired budget or provide a more cost-effective way to achieve the same design objectives. This includes a

cursory assessment of the cost estimate for the selected alternative.

12. Schedule Control: Recognizing timely completion is important relative to overall risk reduction, this area will focus on the potential to meet the project schedule deadlines or the possibility of completing the project ahead of schedule.
13. Additional Constructability Issues: Suggestions regarding project construction, at a feasibility level, that will assess specific areas of construction difficulty. Key subjects include:
 - ♦ Reducing total construction time by creating conditions that maximize the potential for concurrent (rather than sequential) construction, while minimizing work and wasted time.
 - ♦ Reducing work-hour requirements by creating conditions that promote better productivity or creating designs that demand less labor, minimizing the need for high cost special equipment.
 - ♦ Reducing potential change orders, work delays and added costs by checking the drawings and specifications for dimensioning errors, omission of necessary detail, interdisciplinary conflicts, etc.
 - ♦ Identifying the appropriateness of the project's construction installation technology, methodology and materials.
 - ♦ Identifying project-specific issues, their probable consequences, and proposed mitigation recommendations.
14. Risk Analysis: Given the potential project complexities relative to technical design issues, environmental and permitting issues, and construction issues, VMS proposes to conduct a Qualitative Risk Analysis of the project during the VE workshop. Through its Risk Assessment tools and techniques, VMS will work with project stakeholders to identify and prioritize those risks most in need of proactive response and management. This allows issues that may otherwise result in significant impacts to be addressed by developing proactive risk response strategies and action plans to minimize threats, maximize opportunities, and optimize the relationships of project and program performance, cost, and time.

3.4 Delivery Schedule

VMS team leaders are equipped with the experience and tools to quickly transform the project information, analyses performed and the electronic or hand-written content developed during a VE study into comprehensive, professional quality VE reports. VMS support staff assist team leaders in documenting the results of each study to ensure the reports being delivered are polished, easy to navigate and arrive on time. VMS practices a highly effective QA/QC procedure to ensure the content and format of each project's deliverables are produced quickly, consistently and accurately.

The VE study is currently scheduled for the week of June 23-27, 2014. The Preliminary VE Report will be submitted per RFP request, three (3) days following completion of the workshop, on June 30, 2014. An implementation meeting will be scheduled after the desired review period, at which point VMS will consolidate and incorporate all comments and decisions. The Final VE Report will be issued within 14 days of receipt of comments and confirmation from the project manager that no further comments or changes are anticipated.

VMS proposes to deliver the Preliminary and Final VE reports in electronic (PDF) format via email by or before the deadlines stated above. Hard copy delivery of printed reports (6 copies) and CDs (2 copies) for each submittal can typically be expected 2-3 business days following the email submittal due to the length of time required to produce and ship hard copies to the MPRWA office(s).

4.0 QUALIFICATIONS AND EXPERIENCE

4.1 Team Qualifications

As stated previously in this proposal, VMS is the largest pure value consulting firm in the country. VMS specializes in the application of Value Analysis and Value Engineering, Business Process Improvement, Decision Analysis Processes, Risk Assessment and Management, Quantitative Modeling and Analysis, and Training in order to assist clients in their goal of making sound decisions and getting the most out of their projects and programs. With 9 full-time Certified Value Specialist facilitators on staff, VMS has conducted over 3,000 studies during its 24 years of providing value services.

VMS has provided VM services for a multitude of local, state, regional, and federal government agencies. Types of projects include planning and design of water/wastewater treatment, healthcare facilities, offices, and administrative buildings; planning, design, and implementation of transportation and transit facilities and systems; recreational facilities; equipment and maintenance facilities; housing; fire stations; and an array of other projects. As a result of our involvement with numerous projects for various government and local agencies, VMS has developed a thorough understanding of federal/state government regulations, construction methods, and coordination requirements.

Finally, our long history and track record of building successful VE teams provides VMS access to some of the most experienced and sought after consultants in the various engineering disciplines. Based on a wealth of experience working on regional water authority projects and with government agencies in the state of California, the proposed team members from HDR Engineering, Inc. are seasoned veterans with extensive experience designing, optimizing and constructing similar projects. The following team members are proposed for this VE effort:

Proposed Role	Name and Credentials
CVS Team Leader / Facilitator	Mark Watson, P.E., CVS-Life, PMP
Civil/Structural Engineer	Omid Tavangar, P.E.
Architect & LEED Certified Evaluator	Michael Lambert, R.A., LEED Green Associate
Electrical/Instrumentation & Controls Engineer	Bill Ettlich, P.E.
Operation and Maintenance Expert	Craig Close, P.E.
ENVISION Evaluator, HDR Project Manager	Dave Reardon, P.E., ENV SP

VMS strives to provide the most cost effective means of delivery value improving services to our clients. As a result, please note that some of the requested roles/team members for this VE study have been consolidated. This has been done with the intent to provide the proper experience in the most streamlined and cost-effective manner possible. With the participation of additional stakeholder personnel being provided by CAW as stated in the RFP scope of services, the team members proposed herein provide the necessary level of experience and expertise required for the success of this study.

4.2 Relevant Project Examples / Experience

The following projects represent a small sampling of relevant VE and water/wastewater project optimization efforts the proposed VE team has facilitated or participated on in the state of California.

Joseph Jensen Water Treatment Plant Solids Dewatering Facility and Lagoons, Granada Hills – Mark Watson facilitated the VE study, for a project to construct a mechanical dewatering facility with belt presses, conveyors, and a cake storage area, as well as a series of lagoons for air drying solids. These facilities will allow LAMWD to reliably process solids at all anticipated production rates, while complying

with water quality regulations and existing permit conditions. The estimated cost, including all markups and contingencies, is \$22,740,000 for Contract No. 1 and \$13,130,000 for Contract No. 2.

The objectives of the VE study were to review the design relative to project purpose and need to identify more economical alternatives in providing a new solid dewatering facility and lagoons; and to develop VE alternatives that improve aspects of the solids processing by either reducing cost or improving performance.

The VE team, through the application of function analysis and cost modeling, evaluated the baseline concept. The VE team observed that there were opportunities for significant cost savings by relocating the Belt Press Building to locations of better soils and away from the sight line between the Administration/Control Building and lagoons. Further, given the relatively high costs related to the soil remediation measures, the VE team focused on identifying other methods that result in reduced costs and impacts, reduced schedule, and reduced risk of movement and damage during an earthquake event. Further, the VE team focused on the dewatering process itself to identify alternatives that maximize passive means of reducing the water content of the solids and simplifying the removal of the thickened solids. Finally, the VE team focused on the construction schedule and contract packaging to reduce risks and coordination issues of early critical path items and multiple construction contractors. The VE team developed 12 alternatives for improvement of the project, 7 of which will be considered for implementation when the design reaches the appropriate phase. If all alternatives are accepted as proposed a savings of nearly of \$20 million may be realized.

Seaside Ozone Treatment Facility, Monterey – The \$3.2 million construction improvements to the Seaside Ozone Treatment Facility completed in 1964. The MPWMD imposed a building moratorium in 1992 citing the lack of water supply on the Monterey Peninsula. Although it was a political move attempting to gain support for the proposed New Los Padres Dam, it actually caused a public backlash towards MPWMD and Cal-Am. Cal-Am again took a leadership role by discovering "new" groundwater in the Northern Coastal Aquifer in northeast Seaside along the Fort Ord border. A new 2500 gpm well was constructed to produce 2000 afy of additional water supply for the Peninsula communities. The MPWMD Board approved only a 1000 afy allocation and tied the lifting of the building moratorium with the start-up of the new well. However, the new Paralta well had high levels of hydrogen sulfide and was constructed on a small residential building lot, insufficient to build any treatment.

Craig Close was responsible for finding a solution and constructing a facility immediately to avoid public criticism. He evaluated both hydrogen peroxide and ozone treatment processes, since using GAC pressure filters was not feasible due economic, space limitations, and backwash waste disposal problems created by the high H₂S concentrations. An in-line treatment process was considered the best solution. The hydrogen peroxide process was eliminated due to the large quantities of chemicals needed and the long contact time necessary for the chemical reaction to convert the H₂S to sulfate. Therefore, a 5mgd ozone treatment plant was constructed at Cal-Am's Ord Grove well site, treating both the Paralta and Ord Grove wells. Two 60-lb/day ozone generators were used to supply ozone to the injectors 30 feet upstream of the facility in a 24-inch header pipe routed through the chemical containment area of the treatment building. Zinc orthophosphate for corrosion protection and sodium hypochlorite for post-disinfection used at the facility. The ozone treated water would then go through an ozone destruct unit prior to entering the 0.5 MG Ord Grove tank located adjacent to the treatment building. Finished water was then pumped out of the storage tank in to the distribution system via three submersible can pumps. The fully automated treatment facility went on line in early 1994. The Seaside Ozone Treatment Facility was the first ozone facility in the American Water System.

VE, Design Document QA/QC, and Cost Estimating for Sacramento River and E.A. Fairbairn Water Treatment Plants Rehabilitation Projects, City of Sacramento – Omid Tavangar, P.E. and Bill Ettlich, P.E. of HDR provided the Structural and Electrical engineering services for a VE study, design document QA/QC, and cost estimating services for rehabilitation upgrades to the city's two surface water treatment plants to replace aging facilities and provide new solids handling. Improvements to the 160 mgd Sacramento River Water Treatment Plant were valued at \$145 million and included a new 80 mgd flocculation/sedimentation basin with mixers, eight new dual-medial filters, retrofit of the existing filter waste washwater basins with mechanical sludge collection system and larger 2,500 gpm pumps with variable frequency drives (VFDs), sludge lagoons, two thickeners, new two-story dewatering building with 1,200 pound per hour centrifuges with conveyor, paved sludge drying area in the earthen lagoon, replacement of the treated water pumping station with a high-service pumping station with four 600 hp vertical turbine pumps.

Improvements to the 200 mgd E.A. Fairbairn Water Treatment Plant were valued at \$16 million and included retrofit of mechanical sludge collection systems, two sludge thickeners, a new single-story, 6,000-square-foot dewatering building with two 1,200 pound per hour centrifuges and conveyor, expansion of the chlorine gas feed system, and a new medium voltage transformer.

Soscol Water Recycling Plant VE Study, Napa Sanitation District, Napa – Dave Reardon participated as sustainability expert and facilities optimization consultant for a VE workshop to review the 100 percent contract documents and construction drawings for the 11.8 mgd Soscol Water Reclamation Facility design, as well as a wetlands facility for the treatment of primary effluent. The VE team was called in after this \$55 million project was bid over budget. Areas of the VE study included headworks, primary clarifiers, aeration basins, secondary clarifiers, effluent filtration, chlorine disinfection, reclaimed water pumping station, dissolved air flotation (DAF) thickening, anaerobic digestion (egg-shaped) belt press dewatering, support facilities, yard piping, and electrical/instrumentation systems. Generated 156 alternative ideas and evaluated 51 in detail. Despite severe constraints placed on changes for many of the key processes, 39 ideas were recommended for consideration by the owner and design engineer that represented savings of over \$5 million.

Lodi Surface Water Treatment Facility, City of Lodi – HDR is the Designer and Architect of Record for the city's new 11.5 mgd surface water treatment plant, which includes raw water pumping station, sedimentation basin followed by automatic strainers for pretreatment, 8 mgd Pall Microza pressure membrane system, chemical and disinfection systems, plate settlers for residual handling, storm drain system, 10 mgd (25 mgd buildout) high-service pumping station with end-suction centrifugal pumps and CMU building, 3 million-gallon (MG) prestressed concrete tank, water transmission main, modifications of 26 groundwater wells, operations building, chemical building, and corrosion control. The architecture of this plant was inspired from local residential neighborhoods. Craftsman inspired detailing of raftertails, window proportions and trellis features contribute to the residential theme. Materials used were contemporary; examples being standing seam metal roof, concrete masonry, and composite wood panels, but incorporated into traditional forms. There are four buildings total in this plant: Administration, chemical, high-service pumping station, and raw water pumping station. The raw water pumping station is a standalone building on a separate lot closer to the intake source. It is located just outside a historic district in Woodbridge, California, where at least two buildings are on the National Register of Historic Places.

5.0 BIOGRAPHIES OF KEY PERSONNEL

5.1 VE Team Leader: Value Management Strategies, Inc.

CVS Facilitator – Mark Watson, P.E., CVS-Life, PMP

MARK WATSON is a registered Professional Engineer, Certified Value Specialist (Life), and Project Management Professional. He has a degree in Geological Engineering from the University of Missouri-Rolla (now the Missouri University of Science and Technology). Mark's experience includes 15 years of facilitating value studies on a wide array of projects that cover the gambit of the design and construction industry. He has conducted over 200 value analysis, value engineering, and value planning studies on water/wastewater facilities, roads, bridges, transit facilities, airport facilities, and drainage facilities, as well as buildings for education, health care, prisons, U.S. military, and U.S. embassy and consulate operations. The size of these projects and programs has ranged from a few hundred thousand dollars in capital costs to as high as \$6 billion. Mark has facilitated workshops on projects in all stages of design from the schematic/planning stage to 100% complete.

One of Mark's particular specialties is the facilitation of large, diverse groups. Over the course of his career, he has had the opportunity to facilitate teams ranging from small, technically-focused participants to large, management-based participants to teams of multiple stakeholders with multiple technical backgrounds and objectives. Mark has developed a broad range of facilitation techniques that allow him to adapt his style and approach to support the dynamics of the group being facilitated. In addition, he has the ability to communicate the detailed technical aspects of projects and alternatives so all stakeholders will understand, regardless of their technical background.

5.2 VE Team Members: HDR Engineering, Inc.

Civil/Structural Engineer – Omid Tavangar, P.E.

OMID TAVANGAR is a California registered professional civil engineer with more than 30 years of experience as civil/structural engineer for water and wastewater projects. His experience includes design and construction of water and wastewater treatment plants, solids handling facilities, pumping stations, pipelines, and storage facilities. He has expertise in analyzing and improving structural systems to achieve optimum cost effectiveness. He is also effective in facilitating communication between the client and project team, and has a proven record for maintaining schedules. Mr. Tavangar recently participated in the value engineering efforts for City of Sacramento's two Water Treatment Plants and Sunnyslope County Water District's treatment plant improvements. He was structural engineer for the barrier water treatment improvements project for West Basin Municipal Water District, which protects the treatment plant against saltwater intrusion.

Architect & LEED Certified Evaluator – Michael Lambert, R.A., LEED Green Associate

MICHAEL LAMBERT is a California registered architect and certified LEED Green Associate. As a project architect, Mr. Lambert is responsible for synthesizing client program needs into exciting architectural solutions. He has more than 29 years of experience in all phases of architecture, with emphasis in project management, programming, design development, master planning and construction administration for a variety of project types. His specialties include water and wastewater distribution and treatment facilities, and code compliance. Mr. Lambert recently participated in value engineering efforts for City of Sacramento's two Water Treatment Plants.

Electrical, Instrumentation, and Controls Engineer – Bill Ettlich, P.E.

BILL ETTLICH is a California registered electrical and control systems engineer with more than 55 years of technical and managerial experience in water and wastewater treatment facilities design in both the consulting engineering and process equipment fields. His experience includes the direction of water and wastewater treatment projects through all phases, including planning, design, construction, field services, operator training, and/or startup assistance for over 250 water/wastewater facilities. He provides process, control and instrumentation design for many of the projects he directs, and designs telemetry systems for various water and wastewater systems. Having designed and directed into operation a number of fully automated treatment plants, he is widely recognized as a telemetry and automated control specialist. He has also served as the electrical, instrumentation, and control engineering specialist on over 15 value engineering studies.

Operations and Maintenance (O&M) – Craig Close, P.E.

CRAIG CLOSE is a Vice President with HDR and serves as the National Business Class Director for Management and Planning Services (MAPS) business unit. He provides professional and project management services to municipal agencies and private companies encompassing the engineering planning, design, permitting, and construction management of unique, complex, and innovative water and wastewater infrastructure and facility projects. He has more than 33 years of engineering experience in the water, wastewater, and electrical power industries. His unique water and wastewater operational management experience provides an owner's perspective in solving increasingly challenging technical and regulatory compliance issues.

Mr. Close brings a broad and diverse background to his clients that were founded from his long tenure at American Water Service Company. He served as the Vice President of Operations for the Western Region Companies of American Water Works Company. He was responsible for the day-to-day operation of water and wastewater utilities owned by American Water that served over 500,000 people in 26 communities and four states. His responsibilities included the management of the technical departments that supported the district operations, which included planning engineering, construction, water quality (including the operation of two state certified laboratories), risk management, customer service and billing, and rate recovery. During his tenure here, he was very involved in the early stages of the Monterey Peninsula Desalination project; his familiarity with the project location and history will provide valuable insight other O&M consultants would not provide.

ENVISION Evaluator and HDR's Project Manager – Dave Reardon, P.E., BCEE, ENV SP

DAVE REARDON is HDR's National Director for Water/Wastewater Sustainability and process engineer with more than 41 years of consulting and engineering experience for water and wastewater facilities. He is a Certified ISI Envision Sustainability Professional and Verifier and a California registered professional civil engineer. Mr. Reardon offers extensive experience in the area of process troubleshooting, facility optimization, and energy conservation for water, wastewater, and industrial facilities nationwide, and is considered one of the leading experts in the industry in terms of lower energy, demand, and chemical usage. He has conducted over 125 sustainability studies at water and wastewater facilities nationwide, and has also participated in over 10 value engineering studies.

Being mindful of overall study cost, it is being proposed that Mr. Reardon perform his ENVISION evaluation from his office in Folsom, CA.

6.0 REFERENCES

6.1 Project References and Reviews

Galveston Channel Pelican Island Study, USACE Galveston District, 2011 Exceptional Rating

“The A-E is rated as ‘Exceptional’ because the VE Team came up with practical, creative ways of addressing issues with the planned placement area rehabilitation. The report the VE Team delivered was a quality product that presented the VE proposals very well and was thorough in its discussions of the proposals. The report was well laid out, formatted well, and concise such that it was an easy, understandable read and got to the point of the VE study results. The VE Report was formatted as prescribed by the SOW. After doing several VE studies for the Galveston District, the A-E has established a consistent track record of meeting or exceeding the Galveston District's expectations as evidenced by the VE proposals the VE Teams come up with that have relevancy to the projects studied and where those projects are in their development and by the fact that several of these ideas have been implemented which has resulted in substantial cost savings.”

– ACASS Evaluation, Jon Plymale, VE Officer, 409-766-6375

John Day Monolith/Drainage Repairs VE Study, USACE Portland District, 2013 Exceptional Rating

“VMS did a great job of getting the right team members and facilitator for the VE study. All did a great job...” – ACASS Evaluation, Jason Weber, VE Officer, 503-808-4799

New York Office of Management and Budget, Value Engineering Services on Task Order Basis, 2012 Excellent Rating

“The schedules for the assigned complex projects were very aggressive and the consultant worked diligently to accommodate the short time frames. The production of deliverables was on a more demanding level than previous assignments, and the consultant was able to meet these requirements. The technical facility of the consultant staff and sub-consultants is at a high level of technical sophistication. We are very impressed with the quality of the team work and rely on the consultant to produce outstanding deliverables.” – Jill Woller, NYOMB, 212-788-6137

6.2 Firm / Team Leader References

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7.0 OTHER CONSIDERATIONS

7.1 Quality Assurance

VMS is committed to providing high quality, effective services without unexpected changes to the project budget. Our internal Quality Assurance (QA) and Cost Control Programs are structured to ensure we not only meet, but exceed the customer's expectations for our services. VMS realizes that each client has specific requirements that need to be addressed to assure quality and continuity in their studies. As we work with new clients we seek feedback on our services to better serve their needs. In addition, we analyze what they are trying to accomplish and use our collective experience to suggest ways to improve their program and ensure delivery of services in the most efficient and effective manner possible.

VMS has internal quality checks including technical editing, internal reviews by all key staff of project deliverables and documents, and a client-focused review process that assures the products and services provided by VMS exceed expectations.

7.2 Cost Control

Cost controls will consist of assessing weekly progress and measurement of hours utilized in comparison to the planned number of hours for task completion. This is consistent with an earned value approach that will allow for both cost and duration to completion to be forecasted and managed such in collaboration with the client. This earned value approach ensures the expected delivery schedule and allocated budget will be managed effectively.