



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
SOUTH PACIFIC DIVISION, CORPS OF ENGINEERS
1455 MARKET STREET
SAN FRANCISCO, CALIFORNIA 94103-1399

South Pacific Division

June 8, 2015

The Honorable Sloan Gibson
Deputy Secretary of Veterans Affairs
810 Vermont Avenue NW
Washington, DC 20420

Deputy Secretary Gibson:

It is with distinct privilege that I submit the US Army Corps of Engineers (USACE) Diagnostic Assessment for the Department of Veterans Affairs (DVA) Denver-Aurora Medical Center. The enclosed report provides detailed evaluations of more than thirty (30) tactics, techniques, and procedures across the three specific phases of project delivery, namely, Planning-Programming, Engineering-Acquisition, and Construction Management-Commissioning.

Through direct engagements with your staff, the contractor, the designer of record, and key stakeholders at the project site from the period April through May 2015, strengths and weaknesses were assessed against comparable standards that Department of Defense (DOD) and USACE use for major medical infrastructure. It should be noted that all observations, analytics, and recommendations offered are based on informed and reasonably defensible conclusions; however, due to the scale, scope, and term of the effort, this assessment should not be construed as conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS).

Our USACE Review Cadre found the spirit of collaboration, candor, and professionalism from every member of the DVA workforce we engaged as nothing short of exceptional. As such, we look forward to any future opportunity to assist and advise your efforts supporting our Nation's Veterans. As always, I may be reached on 415-503-6550 or at joseph.f.calcara@usace.army.mil if you require any further engagement regarding this effort.

Very Respectfully,

A handwritten signature in blue ink that reads "Joseph F. Calcara". The signature is fluid and cursive, with a large loop at the end.

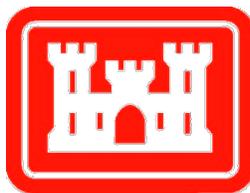
Joseph F. Calcara, SES
Director, Programs

**MAJOR MEDICAL CONSTRUCTION
UNITED STATES DEPARTMENT OF VETERANS AFFAIRS**

**A DIAGNOSTIC ASSESSMENT
BY THE
UNITED STATES ARMY CORPS OF ENGINEERS**

DENVER-AURORA MEDICAL CENTER

8 JUNE 2015



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Note: This USACE Report details in-depth observations, analytics, and diagnostics used to reach informed and reasonably defensible conclusions contained herein. It should be noted, however, that due to the scale, scope, and term of the effort, this assessment should not be construed as an audit conducted in accordance with Generally Accepted Government Auditing Standards (GAGAS) and related Federal standards.

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EXECUTIVE SUMMARY

In April 2013, the Government Accountability Office (GAO) concluded that costs substantially increased and schedules were delayed for Department of Veterans Affairs' (DVA) largest medical-facilities construction projects located in Aurora, Colorado; Las Vegas, Nevada; New Orleans, Louisiana; and Orlando, Florida. In April 2014 Congressional testimony, GAO reported the cost increases for these projects were ranging from 66% to 427%, with schedule delays ranging from 14 to 86 months. The Denver-Aurora medical center project, alone, required upward of an additional one billion dollars to complete construction, with further unwelcomed news arriving in December 2014 when the Civilian Board of Contract Appeals (CBCA) found in favor of the Denver-Aurora construction contractor that DVA had materially breached contract. In reaction to the CBCA ruling and GAO audits, in January 2015 DVA senior leadership approached the US Army Corps of Engineers (USACE) to evaluate the tactics, techniques, and procedures (TTPs) which had been used at these projects. The USACE developed a detailed diagnostic screening tool to assess the TTPs used at those four projects. DVA strengths and weaknesses across the phases of a project life cycle were assessed against comparable standards that Department of Defense (DOD) and USACE use for major medical infrastructure construction program. A separate report is made for each of the four projects, and this report addresses the Denver project.

Detailed diagnostic evaluations of more than thirty (30) line item inputs across the three specific phases of project delivery — Planning-Programming, Engineering-Acquisition, and Construction Management-Commissioning — were performed, and contractor, designer, and key stakeholder interviews were also conducted at the project site. Consensus observations and conclusions for the Denver-Aurora VA Medical Center Project are as follows:

DVA met or exceeded a majority of standards in the Planning-Programming and Engineering-Acquisition phases. Facilities Criteria Requirements Validation, Adoption of Energy and Sustainability Goals, and Project Concept Development through 35% Design were all commendable and consistent with typical DOD and USACE TTPs. Conversely, DVA had significant shortfalls in the Construction Management-Commissioning phase, as well as critical deficiencies in Project Baseline Pricing, Acquisition Strategy and Contracting, Change Management, and overall Disciplined Governance. Moreover, while each of these weaknesses contributed to the myriad challenges the Denver-Aurora medical center project has encountered, the single biggest driver of cost and schedule delays is unquestionably the fundamental mismanagement of Integrated Design and Construction (IDC) methodology, resulting in material breach by DVA Contracting Officers in transacting with the construction contractor.

Lastly, while USACE was tasked with developing prescriptive recommendations on process, structures, and oversight controls to drive predictable cost and schedule performance, root causes driven by mis-alignment of organizational priorities, expectations, and accountability across all levels of DVA must be addressed first. Specifically, conflicting lines of authority between requirements generation policies, programming decisions, engineering/construction protocol, and facilities management prerogatives have proven to be detrimental to defensible standards, effective governance, and attaining reasonable project outcomes. The DVA has initiated evolving changes: e.g., locking budgets at 35% design, incorporating medical equipment planners earlier, enhancing onsite contract authority, and driving accountability through a vested project executive, which will certainly help; but without a transformative change in organizational processes that enfranchises engineering/construction proponents to manage with disciplined leadership, DVA will undoubtedly continue to experience major delays and cost overruns in medical infrastructure delivery, regardless of adopting DOD-comparable process, structures, and oversight controls.



TASK & PURPOSE

In late January 2015, Department of Veterans Affairs (DVA) senior leadership approached the US Army Corps of Engineers (USACE) acting by and through their Senior Executive at South Pacific Division in San Francisco to:

- (1) Devise and perform a diagnostic evaluation to determine strengths and weaknesses in Tactics, Techniques, and Procedures (TTPs) used by DVA in delivery of their medical facility and infrastructure construction projects;
- (2) Conduct project executive, designer, construction contractor, facility manager, and other key stakeholder interviews to refine and/or validate conclusions; and
- (3) Provide prescriptive recommendations on process, structures, and oversight controls to drive predictable cost and schedule performance in DVA medical facility and infrastructure construction projects.

PROJECT SCOPE

The VA Medical Center in Aurora, Colorado consists of approximately 940,000 BGSF new buildings and 120,000 BGSF of renovations. Key components of the project include:

- *Inpatient bed unit for approximately 150 bed (spinal cord included)*
- *Community living center*
- *Outpatient clinics*
- *Diagnostic and treatment center*
- *Research laboratories*
- *Renovation of an existing office building for administrative offices*
- *Below grade patient parking for approximately 960 cars*
- *Staff parking deck for approximately 1000 cars*
- *Central concourse (spine) for public functions, amenities and circulation*
- *Central energy/utility plant, off-site utilities, and infrastructure improvements*
- *Receiving materials facility*
- *Advanced alternative energy features and sustainable design*

PROJECT BACKGROUND

The Denver-Aurora VA Medical Center (VAMC) project dates to the 1990s in conception, in response to the region's growth in veteran population. In earliest concept, DVA and the University of Colorado intended to establish a collaborative facility. DVA's Veterans Health Administration (VHA), however, did not formalize a Strategic Capital Investment Planning process at the time of project identification. In mid-2001, VHA submitted its plan to the DVA Secretary for commitment. By April 2002, DVA prepared its OMB 300, recommending that the Denver-Aurora VAMC and University of Colorado Hospital be integrated into the 2004 budget for a 753,000 BGSF facility, including additional collaboration with DOD under the DOD-VA healthcare sharing initiative for Wounded Warriors. In 2003, Veterans Integrated Service Network (VISN) 19 identified need for a 912,000 BGSF facility including additional space for a spinal cord injury (SCI) center. This plan was concurrently reflected in the report published by the Capital Asset Realignment for Enhanced Services (CARES) Commission, whose recommendations regarding Denver-Aurora were accepted by the DVA Secretary in 2005. By 2007, discussions for a collaborative facility between DVA and



the University of Colorado had ended, and the partnership with DOD was altered to allow for a DOD Medical Health System clinic on site rather than a joint collaborative facility (the dissolution of such partnerships was not unique to Denver-Aurora). By 2009, a second OMB 300 was submitted for the FY11 budget calling for 945,000 BGSF in newly constructed space and additional 116,000 square feet in renovated space for a total of 1.06 million BGSF (not including parking).

Multiple alterations in scope, size, major partners and functionality followed. Even as the design matured and construction started, the contractual relationships between DVA, the designer, and the construction contractor deteriorated. Establishing and maintaining rational cost and schedule baselines became exceedingly challenging.

A further and significant factor was DVA's project acquisition strategy decision to utilize an Integrated Design and Construction (IDC) acquisition methodology. IDC as defined by DVA is the procurement by the Government, under one contract, with one firm or joint venture (JV) for both pre-construction and optional construction services for a specific project. (In Denver-Aurora, DVA selected an A/E Joint Venture Team led by local Denver firm H+L Architects, and construction contracting partners Kiewit-Turner.) This construction contractor would work with a design firm separately contracted to the Government. This contract type is similar to private sector Construction Management at Risk (CM@R) or USACE Early Contractor Involvement (ECI). The intent of this contract type is to select a construction contractor early in the design development (15-35% design) and allow that contractor to review, price, and otherwise collaborate with the designer in the continued maturation of the design, focusing on budgetary and constructability issues. The contractor is selected via a "Best Value" (with both cost and technical factors) competitive source selection process. Contract award includes target and ceiling prices, and profit adjustment factors. IDC (and ECI delivery methods in general) utilize Federal Acquisition Clause 52.216-17 (Fixed Price Incentive, Successive Targets) as the basis for contract type and contract administration.

ASSESSMENT APPROACH & METHODOLOGY

Industry-authenticated TTPs have been adopted by DOD and utilized successfully by USACE in delivering medical facilities and infrastructure projects for the Defense Health Agency, and other military organizations. Based on DOD practices a diagnostic screening tool was devised to evaluate strengths and weaknesses across three key phases of project delivery: Planning-Programming (see Tab 1), Engineering-Acquisition (see Tab 2), and Construction Management-Commissioning (see Tab 3). DVA Senior Leaders from the identified projects were briefed and concurred with the specifics and methodology of the diagnostics screening tool, which included more than thirty (30) Movements, Measures, & Milestones that are the key enablers to driving predictable cost and schedule results.

The USACE Review Cadre of highly qualified experts in engineering, construction, program management, and acquisition contracting conducted extensive on-board assessments through collaborative presentations and discussions that included documentation and other pertinent information from DVA, GAO, and other sources, including a site visit to interview contractors, facility managers, medical center directors, and other key stakeholders. The USACE Review Cadre asserts the enclosed information and observations contained herein has provided a reasonable basis for informed and defensible conclusions. Following are findings of the assessment arranged by three key phases of project delivery.



SUMMARY of FINDINGS

PLANNING-PROGRAMMING

STRENGTHS

- ***Facilities Criteria*** – OMB 300 used, with good rigor on form-fit-function.
- ***Planning Guidance*** – Good rigor in requirements.
- ***Site Selection*** – Valid proximity to medical community affiliates.
- ***Project Pricing*** – Good parametric estimates used.
- ***NEPA / LEED*** – Efficient NEPA documentation, with early adoption of LEED sustainability goals.

WEAKNESSES

- ***Planning Guidance*** – Weakness in maintaining final decision.
- ***Site Selection*** – Multiple site changes created schedule, design challenges.
- ***Project Pricing*** – Failed to account for IDC risk.
- ***Prioritization / Programming / Authorizations & Appropriations*** – Programmed amount and scope requested and published too early in the planning and design processes.

As much as a Change Management Plan is necessary in the Construction phase a similar doctrine needs to be instituted in the Planning-Programming phase. Changes in planning, programming and appropriations activities and the 'next best idea' should be documented and evaluated for benchmarking, risks and rewards. During the Planning-Programming phase, assumptions and facts must be documented and reviewed frequently to determine ongoing relevance.

With multiple alterations in design, scope, size, functionality along with terminated and altered partnerships, DVA planning struggled with maintaining a final, well-defined project. With respect to prioritization, programming, authorizations and appropriations, DVA published both the requested programmed amount and project scope prematurely. Although DVA appeared to utilize satisfactory parametric estimates in the early phases of project pricing, DVA encountered challenges accounting for ongoing changes in design, Denver regional market volatility and IDC delivery system risks. Additionally, project baseline pricing was subject to adjustment with Congressional approval early on, a significant impact resulting in conflicting references for measuring project cost growth.

In summary, the Denver-Aurora VAMC project experienced a high volume of Planning-Programming changes with apparently insufficient regard to project budget impact. The aforementioned project may have significantly benefited by the use of Planning charrettes as a tool in its formative stage as well as its later evolutions; Planning charrettes would likely have aided in identifying and resolving issues of standardization, functionality, location, scope, and cost (e.g., use of DD1391 by USACE for military construction projects). An additional Best Practice recommendation is the independent validation of project and programmatic assumptions for scope and cost prior to seeking final authorization and appropriation (e.g., use of DD3086 by DOD/USACE).



ENGINEERING-ACQUISITION

STRENGTHS

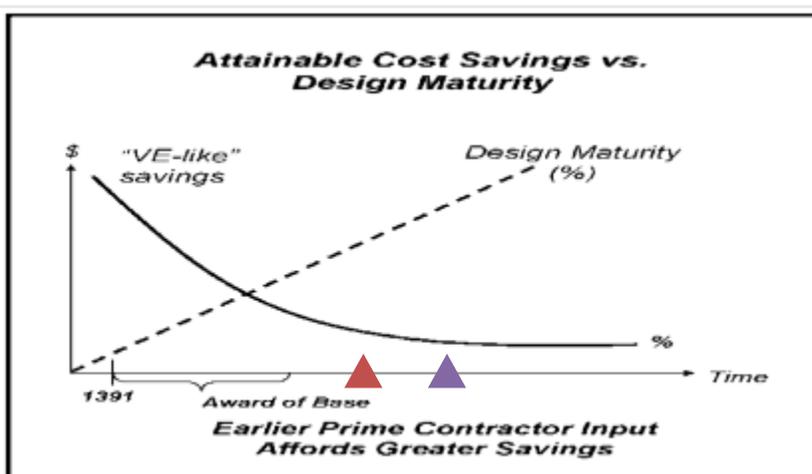
- **Develop Project Mgt Plan** – Met intent (though not referred to as "PMP").
- **Pre-Design Conference** – Robustly attended.
- **Concept Design** – Well attended and received; unanimous agreement on way forward.
- **35% Design Approval** – All submitters (five in total) were below ECCA.
- **Advertising & Award** – No protest.

WEAKNESSES

- **Acquisition Strategy** – IDC awarded late; increased risk exposure.
- **Develop Project Mgt Plan** – Project not fully resourced.
- **Medical Functional Criteria** – Medical requirements fluid over time though cost increase minimal.
- **Solicitation Documents** – Too long and too late to effectively be part of IDC.
- **Schedule Discipline** – Lack of all-around alignment.
- **Governance** – Change management process not practiced in early stages of project.

DVA experienced substantial cost increases and schedule delays on the Denver-Aurora Veterans Affairs Medical Center (VAMC) construction project, largely resulting from the DVA decision to use Integrated Design and Construction (IDC) as the acquisition delivery method. IDC is an adaptation of commercial sector construction management-at-risk (CM@R) method. Since there is no direct public/Federal sector equivalent to CM@R, IDC utilizes a Federal contracting type and clause known as Fixed Price Incentive Successive Targets (FPIS) as a surrogate for the incentive and ceiling features of CM@R. However, FPIS is recognized to be an imperfect adaptation for fixed price construction contracting, especially when the Government has individual contracts with the designer and construction contractor.

In the case of the Denver-Aurora facility, the IDC procurement methodology appears to have been selected at a later stage of the design than is typical or recommended for this methodology. At an earlier stage, IDC would have allowed the Denver-Aurora project the benefit of improved design and performance potential by enabling the construction contractor to identify issues earlier, minimize change management costs and accelerate the construction process as a whole:



USACE Learning Center Manual, Early Contractor Involvement (ECI), p. 1-10. (1391 is short for Department of Defense Form 1391, Military Construction Project Data.

VA award of EDC contract, past opportunity for savings, approximately at ▲

VA award of SA007, prior to 100% design. ▲



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At the Denver-Aurora project, DVA struggled to reconcile inputs and objectives for these individual variables. As the designer and construction contractor estimates of cost diverged, DVA elected to defend the designer's position. In the adjudicated dispute resolution, the construction contractor's position prevailed, which led to dissolution of the construction contract for breach. This problem was further complicated by DVA's lack of experience using the IDC procurement methodology and the oversight the IDC methodology requires. Large and complicated construction projects can overcome a slow start or suboptimal acquisition method through teamwork and cooperation, overseen by effective governance tracking schedule and cost, to effect prudent change management, and to identify and resolve conflicts and problems at the earliest stages. These elements posed a significant challenge at the Denver-Aurora site.

CONSTRUCTION MANAGEMENT-COMMISSIONING

STRENGTHS

- **Constructability Review** – Performed by Kiewit-Turner in accordance with IDC model.
- **Final Criteria Revisions** – Requirements fluid over time, though cost increase minimal.
- **Final Acceptance** – Phased turnover allowing for application of lessons learned progressing through project.

WEAKNESSES

- **Partnering Resolution** – Conducted but not effective.
- **Contract Administration** – Delegated authority insufficient at site.
- **Change Management** – Not timely, not effective; lack of resources.
- **Equipment Installation** – Delivery of site-specific design deferred, documentation lagged, impacted contract.

As previously noted, DVA's use of the IDC procurement methodology at the Denver-Aurora facility was inadequately implemented from its earliest stage, delaying and ultimately preventing transition from a cost reimbursable to a firm fixed price model, as envisioned in an FPIS Contract. Further, when DVA and the contractor executed Contract Modification SA-007 (prior to 100% design) to attempt this transition, the way forward amongst the parties remained unsynchronized. The central tenant of SA-007, controlling and revising the design to meet the budget targets, was ill-defined and differently interpreted by the various parties. The United States Court of Appeals judgment of December 9, 2014 highlights the many failures of this contract modification and acquisition, including DVA's material breach of contract.

The flawed acquisition strategy and subsequent administration was significantly complicated by the change management process. Successful construction demands rapid approval of mandatory changes; strong scrutiny, prompt action to approve or disapprove user changes; and close control of field changes. Every effort to match cost increases with cost reductions should be made to achieve cost neutrality at every opportunity. In the case of the Denver-Aurora project, changes were often subject to lengthy reviews (and in some cases, revision or disapproval) at DVA Headquarters, further delaying decisions, and impacting cost and schedule.

Constructability review was performed in accordance with the IDC methodology. Having the construction contractor directly involved with the design afforded some benefits; however, the lack of independence served as a drawback in confirming the design was complete and ready for bid prior to solicitation. Due to the identified lack of independence, the construction contractor's review was not viewed to have sufficient credibility versus the designer's estimate.



Final design features were fluid over time; nevertheless, direct cost increases and time extensions were not out of the normal tolerance range for medical facility construction. However, the lack of timely and decisive action on these changes, coupled with the inability to negotiate agreement on budget targets (e.g., Contract Modification SA-007), produced large impact delays and costs. This lack of agreement led to disputes, and ultimately, an adjudicated breach of contract.

Formal partnering with the contractor and stakeholders was conducted at all levels. A tiered conflict resolution process was conducted yet proved to be ineffective, failing to maintain communication and resolve major issues.

Contract Administration was self-assessed by participating DVA senior leaders as having failed, identifying that onsite delegated authorities were inadequate to provide timely direction to the contractor. For Engineer Administrative Contracting Officers (ACOs), the delegated authority levels for onsite DVA staff were too low to be effective both in terms of dollars per transaction as well as in dollar and action monthly authority limits. For contract specialists, requirements for VA Central Office (VACO) review and approval made warrant authority irrelevant. Onsite staffing in general was viewed as being under-resourced to efficiently and effectively perform the required functions. As a relatively new acquisition tool for DVA, IDC was not a fully understood contract type with an imbedded need for partnering mechanisms to resolve issues. Further, decisions concerning changes were elevated to VACO for review and concurrence, which was not timely. In consideration of these factors, it is recommended that the change order process be reviewed in greater detail.

Change Management was attempted under tier structure, however, significant delays in approving changes impacted the steady flow of project execution. It is recommended that the change management process undergo significant review.

Additionally, quality of the constructed work has not been identified as a problem with Quality Assurance processes conducted. It was noted that the implemented quality assurance process was observed as similar to quality control with Government inspectors, rather than, for example, the USACE three-phase process of documenting quality which places greater responsibility upon the contractor with less risk placed upon the Government.

The Contractor performed Safety Management at the Denver-Aurora site, with Government enforcement by OSHA inspections. However, onsite safety effectiveness could not be evaluated against other safety programs, as a DVA construction safety program does not exist; measurable data is not retained for comparison. It is recommended that all parties joint hold responsibility for safety management, noting that significant accidents can delay project completion.

Equipment installations were significantly and adversely impacted by the lack of timely site-specific designs, determined to be (1) a critical factor with the selection of equipment, as well as (2) causing potential rework of construction in order to accommodate equipment selection. While it is recognized that medical technology evolves across the timeline of any given project, greater accommodation must be made at the Denver-Aurora project in synchronizing efforts by design, construction and hospital administration teams to allow for maximum cost-effective flexibility in fitting out newly constructed space.

Project Commissioning and Final Acceptance of the contracted facility has not been completed, therefore these review areas cannot be evaluated at the time of this assessment.



INFORMED CONCLUSIONS

The key elements identified as adversely affecting the completion of the Denver-Aurora VA Medical Center Project are as follows:

Risk-Informed Acquisition Strategy — The selection of the IDC procurement methodology compounded by an apparent lack of understanding of its complexities placed the greatest cost risk upon the Government, a risk which might have been mitigated by selecting other acquisition strategies such as Design-Build or Design-Bid-Build.

Change Management — The lack of delegated authority to the onsite project executive, allowing for a firm managerial hand authoritatively overseeing inputs and execution by all onsite parties and their moving parts (hospital administration, A/E, contractors and subcontractors) controlling RFIs, change modifications, etc., has proven adverse in the extreme to this project. Its intended success and proper management could not/cannot be solely controlled from VACO 2,000 miles distant in Washington, DC.

Disciplined Governance — Both internal and external pressures continually shifting course on scope, size, etc., with little regard to schedule and cost shifts, have dramatically impacted project completion. Complicated and conflicting lines of authority between VHA and CFM have also proven to be detrimental to well-defined, tiered governance.

Contracting Capacity & Resources — Shortages of local DVA staffing, particularly the OPM series 1102 contract management staff, have proved challenging to the extreme toward completion of the Denver-Aurora facility, in consideration of its vast size and major changes in scope across its timeline. From interviews gathered, it became apparent that DVA staff was overwhelmed in trying to meet milestones, deadlines, expectations, and conduct decision-making while under-staffed; onsite authority to make timely decisions and contract changes during construction, particularly in the early days of the project's execution, was inadequate.



EPILOGUE

GAO has recently reported in its April 2015 testimony before the Senate Committee on Veterans Affairs additional observations regarding DVA actions to address problems managing its major construction sites:

“VA has taken actions to implement the recommendations in GAO’s April 2013 report. In that report, GAO identified systemic reasons that contributed to overall schedule delays and cost increases at one or more of four reviewed projects and recommended ways VA could improve its management of the construction of major medical facilities. In response, VA has

- *issued guidance on assigning medical equipment planners to major medical facility projects who will be responsible for matching the equipment needed for the facility in order to avoid late design changes leading to cost increases and delays;*
- *developed and disseminated procedures for communicating to contractors clearly defined roles and responsibilities of the VA officials who manage major medical-facility projects to avoid confusion that can affect the relationship between VA and the contractor; and*
- *issued a handbook for construction contract modification (change-order) processing that includes milestones for completing processing of modifications based on their dollar value and took other actions to streamline the change order process to avoid project delays.*

[...] VA had taken steps to improve its management of major medical-facility construction projects, including creating a construction-management review council. In April 2012, the Secretary of Veterans Affairs established the Construction Review Council to serve as the single point of oversight and performance accountability for the planning, budgeting, executing, and delivering of VA’s real property capital-asset program.

[...] In our April 2013 report we identified systemic reasons that contributed to overall schedule delays and cost increases, and recommended that VA take actions to improve its construction management of major medical facilities: including (1) developing guidance on the use of medical equipment planners; (2) sharing information on the roles and responsibilities of VA construction project management staff; and (3) streamlining the change order process. Our recommendations were aimed at addressing issues we identified at one or more of the four sites we visited during our review. VA has implemented our recommendations; however, the impact of these actions may take time to reflect improvements, especially for ongoing construction projects, depending on several issues, including the relationship between VA and the contractor. Since completing our April 2013 report, we have not reviewed the extent to which these actions have affected the four projects, or the extent to which these actions may have helped to avoid the cost overruns and delays that occurred on each specific project.”

[Source: “VA CONSTRUCTION: Actions to Address Cost Increases and Schedule Delays at Denver and Other VA Major Medical-Facility Projects,” GAO-15-564T, April 24, 2015]

With respect to USACE tasking to develop prescriptive recommendations on process, structures, and oversight controls to drive predictable cost and schedule performance, root causes driven by misalignment of organizational priorities, expectations, and accountability across all levels of DVA must first be addressed. Specifically, conflicting lines of authority between requirements generation policies, programming decisions, design/construction protocol, and facilities management prerogatives have proven to be detrimental to defensible standards, effective governance, and attaining predictable project outcomes.



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For example, ultimate decision authority in DVA appears to be vested with senior executives driven by medical service imperatives and other emergent personnel marketing doctrine that often conflict with risk-return and best value analytics typically considered in driving prudent engineering-construction governance. DVA further lacks a holistic process for managing user-driven changes within approved budget controls, further exacerbated by the flawed execution of an IDC Contract. Lastly, significant challenges in recruiting, training, and retention of quality professionals exists across Federal agencies whose core competencies are to deliver engineering and construction projects, not alone at DVA where the function operates in a smaller, adjunct specialty organization.

In light of these observations, specific recommendations include:

- (1) Incorporate the latest advances in medical technology no later than the 35% design milestone, unless determined as critically required for patient care certification;
- (2) Cost/Benefit analyses must be performed with independent peer review to determine defensible interpretation of Planetree® and other Evidence-Based Design standards;
- (3) Implementation of medical staff facilities features and amenities must be commensurate with reasonably defensible analytics for attracting/retaining medical service professionals;
and
- (4) DVA engineering and construction staff must be enhanced and upgraded at every level, in particular Resident Office and Region, to include comprehensive training in all aspects of project delivery, with special focus in acquisition contracting methods, such as Design-Build and Integrated Design and Construction.

In conclusion, while many DVA evolving changes such as locking budgets at 35% design, incorporating medical equipment planners earlier, enhancing onsite contract authority, and driving accountability through a vested project executive will certainly help, without a transformative change in organizational process that enfranchises engineering/construction proponents to manage with disciplined rigor, the Nation and its Veterans will highly likely continue to experience major delays and cost overruns in medical infrastructure delivery regardless of adopting USACE-comparable processes, structures, and oversight controls.



APPENDIX

Tab 1.

PLANNING-PROGRAMMING					
E ≡ EXCEEDED M ≡ MET F ≡ FAILED O ≡ OMITTED					
PROCESS POINT	DESCRIPTION	E	M	F	O
FACILITIES CRITERIA	Form – Fit – Functionality (DD 1391) and Real Property Planning, Analysis	X			
PLANNING GUIDANCE	Define & finalize medical clinical requirements. Walls, circulation, common area sitework / Amenities / Size / Room placement. Planning Charrette.			X	
REQUIREMENTS VALIDATION	Integration of scope & scale (Criteria Tracking System) and Value-Based Charrette, Project Definition		X		
SITE SELECTION	Validates site approval (Real Estate issues, Environmental Considerations, SHPO/Cultural)		X		
PROJECT PRICING	Parametric PLUS USI augments (Documentation). Determine impact, contingency funding requirements.			X	
NEPA / LEED	HQVA (VACO) signatory	X			
MEDICAL EQUIPMENT PLAN	Scale, Scope & Timing		X		
PRIORITIZATION / PROGRAMMING / AUTHORIZATIONS & APPROPRIATIONS	Traditional DVA PPBES			X	

Tab 2.

ENGINEERING-ACQUISITION					
E ≡ EXCEEDED M ≡ MET F ≡ FAILED O ≡ OMITTED					
PROCESS POINT	DESCRIPTION	E	M	F	O
ACQUISITION STRATEGY	DBB <\$300M; DB vs ECI vs CM/Risk >\$300M			X	
DEVELOP PROJECT MGT PLAN	Detailed R & R; Schedule Integration		X		
MEDICAL FUNCTIONAL CRITERIA	Med Standards & Functional Practices		X		
PRE-DESIGN CONFERENCE	Infrastructure & Medical	X			
CONCEPT DESIGN	Single Line Form & Fit	X			
35% DESIGN APPROVAL	Trigger for Final CWE	X			
SOLICITATION DOCUMENTS	RFP Source Selection			X	
AUTHORITY TO ADVERTISE	HQVA (VACO) Authorization		X		
ADVERTISING & AWARD	Best Value Selection		X		
SCHEDULE DISCIPLINE	Timely Decision & Action			X	
CHANGE MANAGEMENT	Formal Process Followed		X		
GOVERNANCE	Senior Project Executive, authority				X

Tab 3.

CONSTRUCTION MANAGEMENT-COMMISSIONING					
E ≡ EXCEEDED M ≡ MET F ≡ FAILED O ≡ OMITTED					
PROCESS POINT	DESCRIPTION	E	M	F	O
CONSTRUCTABILITY REVIEW	Design-Build Deliverables		X		
FINAL CRITERIA REVISIONS	Formal process and adherence		X		
PARTNERING RESOLUTION	Facilitated Formal Construction Partnering			X	
CONTRACT ADMINISTRATION	Onsite Professional Engineer / Administrative Contracting Officer			X	
CHANGE MANAGEMENT	Timely/effective process			X	
QUALITY ASSURANCE	Document Process with Independent Checks & Internal Verification		X		
SAFETY MANAGEMENT	Construction Safety Manual (EM 385-1-1, or similar OSHA)		X		
EQUIPMENT INSTALLATION	Integrated Master Schedule & Building Integration Model (BIM) to avoid conflict			X	
COMMISSIONING	Medical Center of Expertise and Bench of Internal and AE Support Contracts				TBD
FINAL ACCEPTANCE	Red-Zone Protocol				TBD



USACE REVIEW CADRE BIOGRAPHICAL INFORMATION

Possessing more than 200 years of cumulative experience in engineering, construction, acquisition contracting, program management, and legislative expertise, the following individuals participated in the development of this report:

JOSEPH F. CALCARA, SES, USACE South Pacific Division

Selected to Senior Executive Service in 2005, Mr. Calcara currently serves as the Programs Director for the U.S. Army Corps of Engineers (USACE) South Pacific Division (SPD). He is responsible for regional direction and management of a \$1.5 billion annual military, civil works, real estate, and environmental program. SPD is one of eight USACE regional commands. SPD oversees four operating districts, which are headquartered in Albuquerque, Los Angeles, Sacramento, and San Francisco, to provide Federal and military engineering support in California, Arizona, Nevada, Utah, New Mexico, and in parts of Colorado, Oregon, Idaho, Wyoming, and Texas.

From February 2008 through January 2012, Mr. Calcara served as the Deputy Assistant Secretary of the Army (Installations, Housing, & Partnerships) at the Pentagon in Washington DC. In this capacity, Mr. Calcara was the senior career executive responsible for worldwide policy, programming, and oversight of Army real estate, engineering and construction, housing privatization, base realignments and closures, energy conservation, and military infrastructure and facilities. During his tenure, Mr. Calcara enabled the largest transformation in Army history to proceed with successful stewardship over more than \$72 billion in capital investments driven by Global Defense Posture Realignments, Base Realignments and Closures, Army Modular Force, Grow the Force, Army Force Generation, Korea Transformation, Joint Basing, Army Soldier-Family Action Plan, and Army Medical Programs.

Additionally, Mr. Calcara steered the unprecedented transfer of over 22,000 acres of excess real property to further the goal of \$1.4 billion annual recurring savings to the Army. He also served as the Senior Executive for the Army Residential Communities Initiative, managing more than \$12 billion in capital construction and renovation for 84,000 housing units at more than 40 locations in the public/private portfolio.

Mr. Calcara served previously in Headquarters, U.S. Army Corps of Engineers from 2006 to 2008 as Director of Army Real Estate. He was accountable for worldwide program execution, policy, and technical expertise in realty acquisition, asset management, and property disposal for 24 million acres of Army-controlled land and improvements valued in excess of \$600 billion. He also served concurrently as the Chief of the South Pacific Division Regional Integration Team, a multi-disciplined vertical cadre charged with integrating regional infrastructure and facilities, products and services valued at more than \$1.5 billion in annual civil works, military, and environmental projects across ten western states.

From 1983 to 2006, Mr. Calcara served in various capacities with the Naval Facilities Engineering Command at its Headquarters in Washington, D.C., and their component commands at Pearl Harbor, San Diego, and Philadelphia, and in the Office of the Assistant Secretary of the Navy. For 23 years, Mr. Calcara supported delivery of global shore installation management products and services for real estate, mechanical engineering and design, housing, asset privatization, base closure and realignment, military construction, energy conservation, and facilities sustainment, restoration and modernization programs.



JAMES PATRICK MOORE, P.E., CCM, *Lead and Senior Civil Engineer for Construction Management, HQ USACE*

Jim is the Lead and Senior Civil Engineer for Construction Management, developing and implementing policy for USACE Mega Project Management, Design-Construction Evaluations (DCE) for civil works and military construction programs and projects throughout the Corps. Jim is also the USACE Subject Matter Expert (SME) for earth and rockfill embankments; complex mechanical and HVAC systems, concrete; and standard, modular and panelized building systems. A voting member of the USACE Dam Safety Senior Oversight Group, Jim also performs evaluations of risk-based and risk-informed models, guidance, and applications, developing and analyzing causal factor analysis tools for cost and time growth of civil works projects.

Jim earlier served as Director of Public Works, Tobyhanna Army Depot (2002-2003); at USACE Baltimore District (1978-2002); and Lane Construction Corporation, Binghamton NY/Princeton WV (1976-78).

Jim holds a Master of Science, Management of Technology, Lehigh University (1999) and Bachelor of Science, Civil Engineering, The Pennsylvania State University (1976).

JOHN A. KEEVER, P.E., *Chief, Construction Division, USACE Los Angeles District*

John A. Keever joined the staff at the U.S. Army Corps of Engineers, Los Angeles District in June 1980 as an engineering intern and was selected for Chief of Construction Division in April 2007. As Chief of the Construction Division, John is responsible to the District Engineer for managing a large, complex and diverse construction program. The mission assigned to the Construction Division includes planning, coordinating and directing a construction program in support of civil works, military and environmental remediation, and Interagency support. Construction division Budget is approximately \$600,000,000 with over 210 employees in Southern California, Arizona, the southwestern tip of Utah and southern Nevada.

In 1980 John began as an Engineer Intern for the Los Angeles District. Once he had completed the intern program he elected to go into Construction Operations Division where he has held positions of increasing responsibility (Quality Assurance, Office Engineer, Project Engineer, Area Engineer and now Chief of Construction Division). John has worked on all programs assigned to SPL (Civil Works, Military, Environmental, and IIS) and has been at a number of Field Offices in California, Arizona, and Nevada. John has also served on details as the Chief of Construction Branch (120 days), Chief of Military & Environmental Programs Branch in PPMD (1 year), E-Rate Program Manager for LAUSD (90 days), and 1st Calvary Division Area Engineer for GRC in Baghdad (120 days).

John was selected to attend USACE Sponsored Long Term Training and attended Washington University in St. Louis and obtained a Master's Degree in Construction Management. He is a registered civil engineer in California. John was selected for the SPD Construction Management Excellence Award in 1993.



ROD MARKUTEN, P.E., *Regional Civil Engineer for Construction, USACE South Pacific Division*

Rod Markuten is the Regional Civil Engineer for Construction and the Dam and Levee Safety Officer for the South Pacific Division. He's held this position since 2009 when he transferred from the Chief, Engineering and Construction for the Pacific Ocean Division position where he was responsible to provide technical leadership and support to the region for high quality cost-effective design and construction services throughout the Pacific-rim. Rod will be become the Chief of Construction for the Japan Engineer District in May.

Rod has 40 years of service with the Army Corps of Engineers. His first assignment was with the New Orleans District as a Hydraulic Engineer. In 1978 he transferred to the Europe Division where he served for 13 years in various positions in Germany and Italy. First, as Project Manager for NATO projects throughout Europe, then as Senior Program Manager for the Air Force design program, and finally as Resident Engineer for the Ground Launched Cruise Missile (GLCM) bed-down in Germany and construction at the Hahn, Bitburg and Spangdahlem Air Force Bases.

He was assigned to the South Atlantic Division in 1991 as the construction technical lead for the Military and Civil Works Programs. In 1996, he became the first Corps' Resident Engineer in Russia for construction of the Fissile Material Storage Facility. After two years in Russia, he returned to the Atlanta, and then transferred to the Pacific Ocean Division, Honolulu Hawaii as the construction lead. April 2007 he was promoted to Chief of Engineering and Construction for the Division.

Awards include; DeFlurey Medal (Bronze), Society of Military Engineers' Ralph A. Tudor Medal for Construction Achievements, Superior Civilian Service Award (Iraq), Joint Civilian Service Medal, Commander's Awards.

Native of Pennsylvania and a graduate in Civil Engineering from the University of Miami with a Masters' in Civil Engineering from Tulane University. Rod is a registered professional engineer in the state of Florida and member of the Army Acquisition Corps.

JAMES D. BARTHA, *Regional Chief of Contracts, USACE South Pacific Division*

James D. Bartha is the Region Chief of Contracts for the South Pacific Division of the Army Corps of Engineers. He is responsible for the management of four District contracting offices, and the award and administration of all contracts issued by the South Pacific Division

Before joining the Army Corps, he was the Western Region Chief of Contracts for the United States Department of Transportation, Maritime Administration. In this capacity, he was responsible for the Region's acquisition program, including the administration of ship management contracts for the operation and maintenance of 22 ships in the Ready Reserve Force program for military sealift. Mr. Bartha was selected for the inaugural Maritime Administration Transportation Senior Leadership Program.

Prior to joining the Maritime Administration, he was a Contracting Officer with the Naval Sea Systems Command. His career at NAVSEA began in 1988, and included assignments at the Naval Surface Weapons Center, White Oak, Maryland (research and development) NAVSEA headquarters, Ship Construction, Coastal Mine Hunter Program) , and the Naval Surface Warfare Center, Port Hueneme, California (Head, Combat and Weapons Systems Contracts).



He started his career in Washington D.C. as a congressional intern for Representatives Clarence Long (D-MD) and Don Ritter (R-PA). He joined the Federal Government in 1985, as an analyst for the General Accounting Office, where he studied the Navy's Strategic Homeport Plan and other Government programs. His career in acquisition and contracting began at the Federal Aviation Administration, where he negotiated a wide variety of contracts in the areas of aviation security and air traffic control systems. In 1988, he was detailed to the Executive Office of the President, Office of Management and Budget, where he helped prepare the President's FY90.

He received a Bachelor of Sciences degree from the American University in December 1983, majoring in Economics and Political Science, and in 1985 a Master of Public Administration degree from American University, concentrating in Procurement and Grants Management. He graduated in June 1991 from the Naval War College, Newport Rhode Island, College of Command and Staff, where he graduated with a Diploma in National Security and Strategic Studies. He is a 2011 graduate of the Federal Executive Institute Leadership for a Democratic Society Executive Leadership Program.

Professional certifications include Certified Professional Contracts Manager, Certified Professional Supply Manager, and certification in the career fields of Contracting and Program Management by the Defense Acquisition University. He is member of the Army Acquisition Corps, and a lifetime member of the Navy League, Naval Order, Naval War College Foundation, the National Contact Management Association, and the National Defense Transportation Association. Publications include Army Acquisition, Logistics and Technology Journal, September 2010, "U.S. Army Corps of Engineers (USACE) Recovery Project Presented at International Workshop"

CESAR YABOR, Chief, Interagency & International Services, USACE South Pacific Division

Mr. Yabor is the Chief and Program Manager for the Army Corps of Engineers' South Pacific Division (SPD) Interagency and International Services (IIS) programs, serving as regional team leader for execution of intergovernmental relationship building and strategic communications (STRATCOM) planning. As IIS chief, Mr. Yabor promotes Federal partner outreach, development of Interagency Agreements, and provides guidance to Corps of Engineers districts for local/regional 'One Door To The Corps' support for the Division's portfolio of Federal and State partners, managing a broad portfolio USACE partnerships which includes DVA, EPA, DOE, DHS, NASA, the United States Coast Guard, the National Park Service, NASA, and the Native American Tribal Nations of the Southwest.

Prior to joining USACE, Mr. Yabor served as a Legislative Affairs and Regional Public Affairs Officer for the United States Department of Veterans Affairs in Washington, DC and Atlanta, Georgia (2002-2009), and served as Senior Professional Staff on the Senate Committee on the Judiciary (1995-2002) under former Chairman Orrin Hatch (R-UT) as well as on the personal staffs of former Senate Armed Services Committee Chairman Sam Nunn (D-GA) and Rep. Ileana Ros-Lehtinen (R-FL) during his 15 years of service on Capitol Hill.



ROBERT KLEIN, DVA Program Manager, USACE Los Angeles District

Bob Klein is the Program Manager for the Veterans Affairs program at the Los Angeles District and has worked for the Corps of Engineers for over six years. Current responsibilities include managing over a hundred projects at five VA Medical Centers in two states and overseeing the budget for the entire DVA program. He manages five Project Managers who have over the last six years executed over 250 projects worth more than \$ 500 million.

He joined the Corps after retiring as a Colonel from the Army with over 44 years of service. He was branched qualified and commanded in three different branches (Infantry, Engineer and Signal), serving in combat as an Infantry officer in three wars (Afghanistan, Iraq and Panama). He also commanded a Counter-drug task force. He is a graduate of the Army War College, the Command General Staff College, the Engineer Advance Course and the Engineer Basic Course (Honor Graduate) as well as being a DEA Fellow. He is also a graduate of the FEMA Institute and the United Nations Institute for Training and Research. He holds a Bachelor's in Business and a Master's in Religion. He has his PMP certification.

He was an engineer company commander and an engineer brigade commander as well as a commander for a battalion-size engineer task force on active duty. His awards include: USACE Program Manager of the year (2013), Bronze Star, Defense Meritorious Service Medal, Meritorious Service Medal (6 OLC) 7th Award, Army Commendation Medal (5 OLC) 6th Award, Army Achievement Medal (1 OLC) 2nd Award, German Armed Forces Badge (Bronze), and the Army Corps of Engineer's Order of the de Fleury medal (Bronze).

TASHA L. PARGALI, Deputy Regional Chief of Contracts, USACE South Pacific Division

Tasha L. Pargali is the Deputy Regional Chief of Contracts for the South Pacific Division of the Army Corps of Engineers, serving as the regional team leader and technical authority for assuring acquisition compliance of contracts issued and administered by the South Pacific Division.

Before joining USACE, Ms. Pargali was the Management Support and Administration Division Chief for Defense Logistics Agency Aviation (DLA) at Oklahoma City. In this capacity, she was responsible for Policy, Pricing, Post Award Administration and served as the Ombudsman, Competition Advocate, and Small Business Program Manager. Ms. Pargali also served as the DLA Aviation Best Practices Team Lead identifying and standardizing contracting best practices across DLA, Air Force, Army and Navy detachments that were realigned to DLA Aviation as a result of the 2005 Base Realignment and Closure.

Ms. Pargali began her career as a Defense Career Intern at Tinker Air Force Base in 2005 where she negotiated a wide variety of aviation service and supply contracts. She has also worked as a Contract Negotiator and Procurement Contracting Officer with an unlimited warrant.

She has a BBA in Finance and a M.Ed. with an emphasis in Workforce Learning & Development from the University of Oklahoma. Ms. Pargali is a member of the Army Acquisition Corps and is Level III Certified in Contracting by the Defense Acquisition University. She is also a Certified Federal Contracts Manager (CFCM).

