



David A. Hamilton, PE, CVS, CCE, LEED® AP
Senior Associate

Qualifications

David Hamilton is a registered professional civil engineer, Certified Value Specialist (CVS), Certified Cost Engineer (CCE), and a LEED® Accredited Professional with more than 30 years of experience in project management, design, construction inspection, and value engineering (VE) of large complex civil and architectural engineering projects. In his career, he has been responsible for the design, cost control, coordination, and administration of engineering efforts on commercial, institutional, industrial, governmental, and municipal projects. His work has directly aided hundreds of clients in their quest to control budgets, identify and mitigate project risk, minimize change orders, and complete their projects on time and within budget. His proactive approach and ability to work with large groups to build consensus has proven to be a successful combination in optimizing projects and improving overall value.

Mr. Hamilton has organized and directed more than 600 VE activities on projects ranging in size from \$2 million to \$2 billion throughout North America and overseas. He is one of a handful of professional engineers in the U.S. with this level of expertise. He has structured multidisciplinary teams of specialists to study a variety of projects such as wastewater and water treatment and conveyance systems, major transit systems, tunnels, buildings, healthcare facilities, communications systems, military bases, defense facilities, airports, bridges, piers, petrochemical, and highways.

Education

- ◆ B.S. – Civil Engineering, 1978 – Seattle University

Registration

- ◆ Professional Engineer – No. 23471, Washington
- ◆ Certified Value Specialist – No. 910506, SAVE International
- ◆ Certified Cost Engineer – No. 1984
- ◆ 2001 LEED® Accredited Professional, 2002

Employment Record

- ◆ Value Management Strategies, Inc., (2010-Present) Senior Associate
- ◆ Lewis & Zimmerman Associates, (1997-2010) Vice President
- ◆ U.S. Cost, Inc., (1987-1997) Vice President
- ◆ Camp Dresser & McKee, Inc., (1984-1987) Senior Engineer
- ◆ Thousand Trails, Inc., (1982-1984) Chief Engineer
- ◆ Hammond, Collier & Wade-Livingston Associates, (1980-1982) Project Engineer
- ◆ Associated Grocers, Inc., (1974-1980) Cost/Pricing Analyst

Professional Affiliations

- ◆ SAVE International
- ◆ American Society of Civil Engineers
- ◆ AACE International

Areas of Expertise

- ◆ Value Engineering Team Leader
- ◆ Partnering
- ◆ Value Management/Value Planning/ Value Analysis Facilitation

Representative Experience

David has served as a Value Engineering Team Leader on hundreds of value studies in the last ten years, for organizations such as:

- ◆ Georgia Department of Transportation
- ◆ Massachusetts Bay Transportation Authority
- ◆ New York State Department of Transportation
- ◆ Southeastern Pennsylvania Transportation Authority
- ◆ Metropolitan Atlanta Rapid Transit Authority
- ◆ New York City Transit Authority
- ◆ Greater Vancouver Regional District
- ◆ California Department of Water Resources
- ◆ Upper Blackstone Water Pollution Abatement District (Massachusetts)
- ◆ Milwaukee Municipal Sewerage Division
- ◆ Centers for Disease Control and Prevention
- ◆ New York City Department of Corrections
- ◆ Atlantic Division, Naval Facilities Engineering Command
- ◆ Pacific Division, Naval Facilities Engineering Command
- ◆ US Army Corps of Engineers (Numerous Districts)

Value Analysis/Value Engineering Project Studies

HIGHWAY AND TRANSIT PROJECTS

**Massachusetts Bay
Transportation Authority**

- ♦ VETL under several open-ended contracts for VE services conducted on more than 30 projects including station renovations, tunnels, maintenance facilities, and commuter rail facilities.

**Southeastern
Pennsylvania
Transportation Authority**

- ♦ VETL under several open-ended contracts for VE services including the following studies; Blue Line Market Street Elevated Guideway Reconstruction. VETL of three studies on two reconstruction packages for the elevated guideway above Market Street, including 63rd Street Station and the Millbourne Station. The project included complex phasing required to keep the Blue Line in operation, except for specific weekend outages. ECC for the two packages totaled \$77 million.

**Metropolitan Atlanta
Rapid Transit Authority**

- ♦ VETL on over 15 VE studies resulting in over \$30 million in implemented savings. Also acted as Project Manager on this contract for 7 years and wrote the VE Policy Manual for MARTA. VE studies included economic comparisons between deep open cut and cover excavations and mixed face tunneling techniques. Also included in these studies were aerial sections where various options including steel, segmental concrete, and CIP concrete were considered. Specific projects including Doraville Station, Perimeter Center Station, Sandy Springs Station, North Springs Station.

**New York City Transit
Authority**

- ♦ Under an open-ended VE contract, performed as the VETL on over 50 studies, including the station renovations, signal/communication centers, and maintenance facilities.

**New York State
Department of
Transportation**

- ♦ Southtowns Connector/Buffalo Outer Harbor Project, Buffalo, NY. VETL on a study of this project to improve road access and facilitate redevelopment of sites in the vicinity of the Lake Erie waterfront. Project elements include replacing three bridges, constructing a diamond interchange, milling and overlaying the existing roadway, and creating a boulevard atmosphere to attract businesses, local residents, and tourists to the area. The VE team identified specific ways to increase the value of the project to the public and develop a waterfront destination environment. ECC \$35 million.

Various Clients & Projects

- ◆ BART Warm Springs Extension, Oakland, CA. VETL for a project that will extend the BART line 5.4 miles south from Fremont Station which focused on the 85% complete design/build package. The extension includes an optional station at Irvington, a new end-of-the-line station in the Warm Springs district of the City of Fremont (Fremont), and tail tracks south of Warm Springs Station. Total program cost for the Warm Springs Extension is \$890M and the project is scheduled to start revenue service in December 2014.
- ◆ Central Corridor Light Rail Transit, Minneapolis/St. Paul. VETL on this 10.9 mile east-west corridor that will serve the cities of St. Paul and Minneapolis as well as the University of Minnesota, the Midway District and the State Capitol complex. Fifteen stations and 9.8 miles of track are new construction. The Central Corridor light rail line also connects with the Northstar commuter rail line, and a variety of major bus routes along the corridor. Total program cost is \$914M.
- ◆ San Francisco, CA - Central Subway Project will extend the existing Muni Third Street Light Rail (T-Third Line) 1.7 miles north from the terminus at Fourth and King Streets via Fourth and Stockton Streets to the Central Subway terminus in Chinatown. The alignment will be cut and cover plus SEM tunneling methods. There would be one surface station on Fourth Street, north of Brannan Street, and three subway stations at Moscone (MOS), Union Square/Market Street (UMS), and Chinatown (CTS). ECC of \$1.3B.
- ◆ Sound Transit University Link Project, Seattle, WA. University Link is a 3.15 mile long light rail extension that will run in twin-bored tunnels from downtown Seattle north to the University of Washington. VETL on preliminary design level submittal including the transit stations at Capitol Hill and University, Interstate-5 crossing, and all associated tunneling. The VE team identified ways to improve the value and constructability of the project. The main area of focus for the VE team was waterproofing, tunnel liner segments, and the overall method of station phasing. An alternative to use a top-down construction method instead of bottom-up as currently planned could save the project \$50 million. The VE team identified other alternatives having the potential to save an additional \$25 million. ECC \$567 million.
- ◆ Sound Transit Central Link Light Rail Project, Seattle, WA. Project Manager and VETL on more than 30 VE studies for the new rail system, directing a full-time LZA team of four plus several dozen specialty consultants. This system includes 21 miles of at-grade, tunnel, and aerial track including 22 stations. The total cost of the Link project is approximately \$2 billion.
- ◆ Sheppard Subway, Leslie Station, Toronto, Ontario, Toronto Transit Commission. VETL on analysis of underground station. Major savings were achieved in relocating the GO Transit connector from underground to enclosed above grade. Accepted savings were \$2.5 million. ECC \$37 million.

Various Clients & Projects (continued)

- ◆ Kicking Horse Canyon Project, Golden, British Columbia. This area encompasses twenty-six kilometers of the Trans-Canada Highway. VETL on several concept and preliminary design level alignment options for the project, including tunneling, at-grade, and bridge concepts. The VE study revised capital cost estimates, explored flatter grade schemes, improved procurement options, created a rock fall mitigation program, and provided alternatives to reduce energy costs and optimize grading. ECC \$673 million.
- ◆ Yoho Bridge and Approaches, Trans-Canada Highway, Golden, British Columbia, Canada. VETL on study of 30% design submittal for a four-lane bridge to replace an existing two-lane bridge located in the Canadian Rocky Mountains approximately 140km west of Calgary. The approaches consisted of MSE walls with tie-backs and rock anchors to support existing avalanche outfall material. Constructability of the bridge in this very steep loose terrain became the major determining factor in route, alignment, and bridge configuration. ECC \$30 million.
- ◆ JFK Airport International Arrivals Building, Jamaica, NY, Port Authority of New York and New Jersey. VETL on the airside/landside improvements of this massive renovation project. Improvements include major reconstruction of the frontage road system, removal and repaving of 40 acres of taxiway/apron, and construction of a new expanded International Arrivals Building and parking structures. ECC \$1.2 billion.
- ◆ McGinnis Ferry Road Extension Project, Gwinnett County, GA, GDOT. VETL on this project to extend McGinnis Ferry Road from Satellite Boulevard across I85 to Lawrenceville-Suwanee Road. The project includes the construction of a major bridge over I-85 and the extension of Northbrook Parkway. The proposed construction will connect to the existing intersection of McGinnis Ferry Road and Satellite Boulevard. ECC \$54.2 million.

WATER/WASTEWATER PROJECTS

Greater Vancouver Regional District

- ◆ Seymour-Capilano Filtration Plant – Single Filtration Plant Preliminary Design. Preliminary design of a single filtration plant to treat raw water received by gravity from the Seymour Watershed and by pumping from the Capilano Watershed. The new treatment facility will have a capacity of 1,800 ML/d. The team made recommendations focusing on a clear definition of the functional requirement for the plant and recommended the more secondary functions be minimized or eliminated from the project. ECC \$171 million.
- ◆ Seymour-Capilano Filtration Plant – Twin Tunnels Project Preliminary Design Submittal. The proposed Seymour-Capilano Filtration plant would receive raw water by gravity from the Seymour Watershed, and by pumping from the Capilano Watershed via one bore of the proposed Twin Tunnels. Finished water from the filtration plant will flow by gravity to the Capilano distribution system through the second tunnel. The key concerns of the study were the potential to hit buried valleys, inflow into tunnels, tunneling downhill at a 2.2% slope, and the overburden at Rice Lake. ECC \$131 million.

Massachusetts Water Resources Authority

- ◆ MetroWest Water Supply Tunnel. VETL for this 18-mile-long, 14-ft-diameter water supply tunnel. This major tunnel project will be the primary water supply source to the City of Boston and will provide needed redundancy for the Hultman and Weston Aqueducts. ECC \$300M.
- ◆ East Boston Branch Sewer Relief Project. VETL on study at the 30% completion stage. Goal of the project is to eliminate CSOs in the East Boston area, as mandated by the state. Microtunneling technology will be employed to minimize the disruption to the area while sewers are installed. Team made design recommendations to the microtunneling and suggestions to improve areas such as claim mitigation, disruption to local neighborhoods, and bidability. ECC \$37.3 million.
- ◆ East Boston Branch Relief Sewer Project. VETL on CSO tunnels and rehabilitation of existing brick sewer interceptors. ECC \$49 million.

New York City Office of Management and Budget

- ◆ Central Residuals Building. Assistant VETL on project to address a Consent Order requiring the Newtown Creek WPCP to achieve secondary wastewater treatment at levels that meet U.S. EPA standards. The plant will rely on a wet stream process that consists of influent screens, grit tanks, step-feed aeration tanks, final sedimentation tanks, and chlorine contact tanks. ECC \$161.9 million.
- ◆ Queens, Jamaica, Station 6 Demonstration Groundwater Treatment Plant. VETL on this study of a project to improve the drinking water infrastructure, control groundwater flooding problems, establish consumer confidence in the safety and quality of the water, and provide administrative facilities for groundwater personnel. ECC \$92.2 million.

Greater Houston Wastewater Program

- ◆ VETL on over 20 wastewater collection service areas, which included over 30 pump stations and relief sewer projects. The studies also included the analysis of using a 70-ft deep, 15-ft diameter storage tunnel to eliminate numerous wastewater lift stations and to alleviate the hydraulic surcharge in many of the collection lines. This massive program is currently in the preliminary design phase, with extensive rehabilitation of existing sewer lines and lift stations. The analysis included alternatives that would provide deep microtunneled and tunnel boring machine-tunneled collection/storage systems. ECC \$1.3 billion.

City of Columbus, Department of Public Utilities, Division of Sewerage and Drainage

- ◆ Sludge Thickening Improvements and Additional Renovations at the Southerly Wastewater Treatment Plant, Capital Improvement Project. VETL on this study using the 40% Submittal documents as the basis of the team's work. The primary focus of this study was to identify improvements to the current project scope and construction schedule, and provide value engineering alternatives to optimize the sludge thickening process. The project includes the construction of centrifuge thickening units, polymer storage and feed systems, conveyors, piping, renovations to Thickening Facility West (TFW) (formerly Incinerator Building – North (NCR)), and renovations to Thickening Facility East (TFE) (formerly Centrifuge Thickening Building (CET)). \$60.9 million.
- ◆ Detailed Design Memorandum for Jackson Pike Wastewater Treatment Plant, Capital Improvement (CIP) Project. VE team reviewed construction schedule and provide suggestions for optimization, provided alternatives to optimize the scope and reduce construction cost, and provided suggested modifications to improve the overall procurement process.

Various Clients & Projects

- ◆ A.D. Edmonston Pumping Plant, California Department of Water Resources. Project Manager and VETL on this investigative study to evaluate premature wear and pump vibration in this major facility, which includes eleven (11) 80,000BHP water pumps. A multidisciplinary team evaluated pump performance, downtime, cavitation, corrosion, and corrosion-erosion and recommended methods to improve pumping capacity.
- ◆ Middle River Wastewater Treatment Facility Enhanced Nutrient Removal Upgrade, Augusta County Service Authority. VETL on the study to identify possible cost saving items and design modifications for the incorporation of Verona's WWTP 0.8 MGD capacity into the Middle River WWTP. The study was conducted under the guidelines of SAVE International and the U.S. Environmental Protection Agency (EPA). ECC \$19M.
- ◆ Proposed Municipal Water System, Town of East Hampton, CT. VETL on study of preliminary engineering submittal for large water system to replace small water systems. Some local wells in water districts are partially contaminated, and the goal of this project is to increase water quality for city residents. ECC \$46.18 million.
- ◆ Water Pollution Control Facility Upgrade, Town of South Windsor, CT. VETL/Civil participant on studies of 30% design and 60% design submittals to upgrade plant to meet increased permit limits and flow projections. ECC \$23.4 million.
- ◆ Water Pollution Control Facility Upgrade, City of Meriden, CT. VETL on study of preliminary design documents for this 11.6 mgd advanced secondary wastewater treatment plant. Existing equipment needs major repair or replacement. ECC \$28 million.
- ◆ Overpeck Valley Relief Sewer Project, Bergen County Utilities Authority, Little Ferry, NJ. VETL/Civil participant on 50% design submittal for a new sewer with a total length of approximately 28,000 LF and a combination of 72, 66, and 42 in-diameter reinforced concrete pipes. ECC \$47 million.
- ◆ Regional Wastewater Reclamation Plant Upgrade, City of Lompoc, CA. VETL on this study of 50% design submittal to upgrade a WWTP with current capacity of 5 million mgd. ECC \$57.1 million.
- ◆ Recycled Water Distribution System Facilities—Phase II, RP-1 South Zone Pump Station, Inland Empire Utilities Agency, Chino, CA. VETL on this study of 50% design documents for a new pump station with an initial capacity of 18,000 gpm and an ultimate capacity of 27,300 gpm. ECC \$3.7 million.
- ◆ RVSA Comprehensive Strategic Plan WWTP Improvements, Rahway Valley Sewerage Authority, NJ. VETL on study of this project to close two sewer overflows, to implement prescribed treatment processes at the WWTP, and to collect and treat 105 million gallons per day of wet weather flow to prescribed effluent criteria according to a set schedule. ECC \$137 million.

Various Clients & Projects (continued)

- ◆ Real Time Control Strategy Improvement Plan, Milwaukee Metropolitan Sewerage District, Milwaukee, WI. VETL of study to evaluate the goals, assumptions, benefits, and value of a proposed real-time control (RTC) system. The overall goal of the project was to maximize the use of existing facilities while minimizing separate sewer overflows (SSO) and reducing the number of combined sewer overflows (CSO). The team offered alternatives that addressed all facets of the control plan including meteorological projection, system flow projections, and control logic, as well as the overall goal of maximizing the use of the Inline Storage System and Management Information System. During the study, several items in the tunnel pumping facility and treatment of CSO flows were also noted, and recommendations for improvements were included in the report.
- ◆ Stadium High School Sewer Interceptor Failure, Tacoma, WA. Performed VE/hydraulic analysis of the drainage basin to simulate flow conditions in a 1917 brick interceptor, which caused a major landslide on the eastern bluff above Puget Sound. Findings showed that the sewer was surcharged and flow escaped through an exposed hole left in the top of the pipe for future (1917) side sewers, causing excess pore pressure to build up in the soil, resulting in liquefaction.
- ◆ Wastewater Treatment Facility Improvements, Galien River Sanitary District Authority, New Buffalo, MI. VETL of review of 85% contract Plans and Specifications. Improvements to wastewater facility are intended to accommodate expected new flows to the plant and address hydraulic considerations caused by a high peaking factor. The plant is designed for a peak instantaneous flow of 12.5 mgd. The study focused on phasing options, constructability issues, and methods to control the high peaking factors without major modifications to the existing drawings. The team suggested adding an equalization basin to reduce the high peak loads and to add additional basins in the future. ECC \$10.6 million.
- ◆ Wastewater Treatment Facility and Sewer Upgrade, Racine Water and Wastewater Utility, Racine, WI. VETL of study at the 30% design completion stage of the Wet Weather Process Optimization Improvements (WWTF project phase) North Side Storage Facility and the North Side Relief Sewer project. The state permit for discharging effluent was contingent upon the submission of a compliance schedule for upgrading the sewerage facilities, including a Facilities Plan for the Year 2020, and submittal of plans and specifications. The study was done on the facilities plan, the onsite facilities upgrade, and expansion for wet weather process optimization improvements. ECC for treatment plant improvement is \$56.9 million; overall ECC of the project is \$79 million.
- ◆ Plant No. 1 Expansion—Primary Clarifiers Nos. 16-31, Orange County Sanitation District, Fountain Valley, CA. VETL on the study of 30% design submittal to add 16 rectangular primary clarifiers and various additional facilities including pumping, piping, odor control, instrumentation and control, etc., to provide an additional 96 mgd of capacity. ECC \$66.4 million.
- ◆ Advanced Wastewater Treatment Facilities Expansion, City of Warwick, RI. VETL on study of 2.7 mgd expansion, including the addition of a BNR system and dechlorination facilities.
- ◆ Rocky River WWTP Upgrade, Water & Sewer Authority of Cabarrus County, Concord, NC. VETL on a study of this 10 mgd plant expansion. ECC \$17.5 million.

**Various Clients &
Projects (continued)**

- ◆ Bucklin Point Wastewater Treatment Facility Improvement Project, Narragansett Bay Commission, Providence, RI. VETL on study of 30% submittal to add four new primary clarifiers, new disinfection facilities, and a new plant pretreatment facility, including four new influent screw pumps, followed by four catenary screens. ECC \$43 million.
- ◆ Hill Canyon Wastewater Treatment Plant Expansion and Upgrade Project, Thousand Oaks, CA. VETL on study of 3.2 mgd expansion, including a new bioreactor process for nutrient removal, one secondary clarifier, expanded intermediate filter pump station, additional deep bed monomedia tertiary filters, UV disinfection, and various support facilities, buildings and sitework. ECC \$58 million.
- ◆ Regional Wastewater Reclamation Plant Expansion, Elsinore Valley Municipal Water District, Lake Elsinore, CA. VETL and Civil participant on this project to expand a plant capacity from 4 mgd to 6 mgd. This upgraded facility will allow for planned growth in the community and establish a new planned layout for future expansions up to 20 mgd. ECC \$30,200,000.
- ◆ North Bay and Reserved Channel Consolidation and Reserved Channel CSO Facility Project, Massachusetts Water Resources Authority. VETL on study performed at preliminary design report stage. Study focused on the 600 mgd effluent pump station; dewatering pumps; fine screening facilities; disinfection of the CSO effluent; odor control; and twin 10-foot-diameter, 300-foot long outfall pipes. ECC \$68.9 million.
- ◆ Wastewater Treatment Plant Expansion, City of Redmond, Oregon. VETL on this study of a 3.4 mgd Advanced Waste Treatment (AWT) plant that includes a new Orbal disc aeration system. Permit limits on the plant have been restricted to 10-10-5-1 to prevent possible pollutant buildup in the spray irrigation fields. ECC \$15 million.
- ◆ Wastewater Treatment Facility Upgrade and Combined Sewer Overflow Abatement Program, City of Rockland, ME. VETL on analysis of 30% design completion documents. Proposed upgrades to the 2.9 mgd facility are aimed at reducing the CSOs that include waste from both municipal and industrial sources, thereby improving the water quality of the surrounding harbor. ECC \$3 million.
- ◆ South Bay International Wastewater Treatment Plant, San Diego Clean Water Program, CA. Project Manager and VETL on three studies of a 50 mgd (ADF), 100 mgd peak flow plant located on the U.S./Mexico border. This international project is being funded by the U.S. EPA, State of California, City of San Diego, and the Mexican government. Approximately \$43M of savings was accepted from the VE study, representing a return on investment of approximately 580:1 for the owner. ECC \$143 million.
- ◆ South Bay Reclamation Pump Station, City of San Diego, CA, Metropolitan Water Department. VETL on project that included an 18-mgd four-plex pump station adjacent to Interstate 5, 13,854 lf of 30-in. force main from the pump station to the treatment plant, and 16,722 lf of 8-in. sludge force main to transport sludge for treatment at the Point Loma WWTP. ECC \$12 million.
- ◆ Cedar Creek WWTP, Louisville-Jefferson County Metropolitan Sewer District. VETL on study of plant expansion.
- ◆ North of River WWTP Expansion and Detention Ponds, City of Bakersfield (with Boyle Engineering).

**Various Clients &
Projects (continued)**

- ◆ Otay Valley Wastewater Reclamation Plant, San Diego Metropolitan Wastewater Department. Feasibility Study on Advanced Integrated Pond Systems, City of San Diego, CA. VETL on study of a 7 mgd plant that will treat secondary wastewater up to California Title #22 levels for distribution as reclaimed water. The concept would include additional aeration, addition of polymers, final sedimentation, tertiary filtration, ultraviolet disinfection, and pumping to storage and distribution facilities.
- ◆ Wastewater Treatment Plant, Shelby County, NC. VETL on a study of this 7mgd activated sludge plant.
- ◆ Upgrade Patapsco Wastewater Treatment Plant, Baltimore, MD. RDI Plant Expansion (Reverse Osmosis Deionized Water System), Intel Corporation, Phoenix, AZ. The City of Baltimore will upgrade its Patapsco Wastewater Treatment Plan (WWTP) to achieve the Maryland Department of Environment's (MDE) enhance nutrient removal (ENR) water quality goals for the Chesapeake Bay. A proposed \$110M ENR facility will be constructed at the plant to meet the new permit requirements. The ENR facilities will be located within a site known to be contaminated with chromium.
- ◆ Sweetwater Creek WWTP, Douglas County Sewer Authority, GA. VETL on this study of Phase I plans for this new 12mgd activated sludge plant. The first phase included two "Carrousel" extended aeration basins plus sludge processing facilities. The discharge limits were 20/20, with nitrification.
- ◆ Wastewater Outfall, City of Portland, Oregon. VETL on this project to create effluent holding basins to reduce peak flows and the resulting pipe size increase required to pass these higher diurnal and CSO flows.
- ◆ Sludge Drying and Processing Plant, City and County of Honolulu, HI. VETL on a cost reduction/VE study analyzing the constructability of this privatized processing plant. Final product will be dried/bagged for retail sales. ECC \$5.8 million.
- ◆ Duteau Creek Water Treatment Plant, Vernon, British Columbia. This is Stage 1 of the implementation of the GVS-W Master Water Plan addressing water treatment for the Duteau Creek source. The Duteau Creek source will provide the majority of the flow to meet the demands for both potable and irrigation water. A staged approach was detailed in the Conceptual Design Report. This stage involves clarification treatment of water from the Duteau Creek source complete with a 5-ML treated water clear well. The key water quality issues for the Duteau Creek source are turbidity, pathogens, protozoa such as Giardia and Cryptosporidium, true color and natural organic matter, and disinfection by-products. The study identified ways to streamline the front end of the plant, improve water taste and odor, reduce operating costs, and optimize building structure. ECC \$28.36 million.
- ◆ Louanis Water Treatment Plant, Town of Reading, Massachusetts. VETL on study of 60% design submittal to improve the quality of finished water treated at the 4 million gpd plant to meet current and future water quality goals. ECC \$11.8 million.
- ◆ Roseland Pumping Station Conversion Project, Chicago Water Partners, Chicago, IL. VETL on a \$28-million project that will convert the existing pumping station from high-pressure steam-powered pumps to electric-driven pumps.

Various Clients & Projects (continued)

- ◆ Walnut Hill Water Treatment Plant Filtration Plant, Massachusetts Water Resource Authority, Boston, MA. VETL on the 30% design stage study of this 405 mgd water treatment plant. The process includes chemical addition, rapid mix, flocculation, dissolved air flotation (DAF), ozone disinfection, GAC filtration, and a 46-million gallon storage tank. The VE team addressed sensitive environmental and public relations concerns as well as cost issues and site constraints. ECC \$283 million.
- ◆ Secondary Inlet—Eastside Reservoir Project, Metropolitan Water District (MWD) of Southern California, Riverside, CA. Project Manager and VETL on this major project that will provide raw water for over thirty (30) municipal water customers of the MWD. This project consists of three dams, plus two inlet/outlet structures. The 11-person team included 2 operations staff from MWD. The basic function of the Secondary Inlet structure is to relieve surge in the upstream feed piping. ECC \$17.1 million (part of a \$2.1 billion project).
- ◆ Olentangy Augmentation Relief Sewer (OARS) Project, Phases I through IV, City of Columbus, Ohio. VETL on study of Draft Design Report of this project, which consists of the construction of a wastewater conduit that provides relief to the existing OSIS. The VE team evaluated different construction methodologies including cut and cover, shallow tunnel, and deep tunnel. The team recommended the deep tunnel solution as the lowest-cost and least risk solution. ECC \$145 million.
- ◆ East Side Combined Sewer Overflow Tunnel, City of Portland, OR, Bureau of Environmental Services. VETL for 30% design submittal. ECC \$388 million.
- ◆ Milwaukee County Grounds Floodwater Management Facility, Milwaukee Municipal Sewerage Division. VETL on this project that project was in an overbid condition and being reviewed for possible re-bid at the time of the workshop. Structures within the scope of this VE study include the following: Diversion structure along Underwood Creek, 2,722-foot-long and 17-foot-diameter tunnel, Tunnel outlet stilling basin, Basin low level outlet and spillway, and Canadian Pacific Railway crossing structure. Resulted in the development of 26 alternatives and 19 design suggestions. ECC \$52.4 million.
- ◆ Wastewater Treatment Facility Improvements Project, Millbury, Massachusetts, Upper Blackstone Water Pollution Abatement District. VETL on the Phase I design to upgrade the plant process. Upgrade will meet recent permit changes requiring the plant to move from a conventional activated sludge process to a process with biological nutrient removal (BNR). Team reviewed the 30% preliminary design report; focus of their concerns was on the high cost of site remediation. The team made recommendations to address the new headworks, soil remediation issue, phasing of new process tanks, and the type of instrumentation proposed for the plant. ECC of Phase I \$71.5 million; ECC of total project \$135.8 million.
- ◆ Grounds Floodwater Management Facility, Milwaukee, Wisconsin. VETL on this project that project was in an overbid condition and being reviewed for possible re-bid at the time of the workshop. Structures within the scope of this VE study include the following: Diversion structure along Underwood Creek, 2,722-foot-long and 17-foot diameter tunnel, Tunnel outlet stilling basin, Basin low level outlet and spillway, and Canadian Pacific Railway crossing structure. Resulted in the development of 26 alternatives and 19 design suggestions. ECC \$52.4 million.

PUBLIC/GOVERNMENT FACILITIES

Federal Bureau of Prisons

- ◆ Federal Bureau of Prisons Correctional Complex, Yazoo City, MS. Project Manager and VE leader on this 1,532-bed (485,000 ft²) low-security prison, a minimum security Federal Prison Camp, and a warehouse facility sited on a 1,000-acre parcel. A total of 21 VE proposals were developed for consideration by the FBOP, resulting in a potential savings of \$17 million. ECC \$61.8 million.
- ◆ Federal Bureau of Prisons Correctional Complex, Forrest City, AR, Cromwell Architects/Engineers. VETL for a VE study of this 583,000-ft², 1,000-bed correctional facility. The project included full support spaces including food service, counseling, medical, recreation, and visitor access. A total of 31 VE proposals were developed by the team for consideration by the FBOP. The study focused upon reducing construction risk to the owner and contractor. ECC \$64 million.

Various Clients & Projects

- ◆ Infectious Disease Laboratory, Building 17, Centers for Disease Control and Prevention (CDC), Atlanta, GA. VETL on this 104,000-ft² space for Biosafety Levels Class II, Class III, and Class III+ Category Labs. The building will be seven stories high, with an extensive HVAC system to guard against contamination leakage. A total potential savings of \$9 million was presented to the General Services Administration and the CDC for their consideration. ECC \$51 million.
- ◆ Staten Island Correctional Facility, Staten Island, NY. VETL for study conducted at schematic design level. VE team identified various building configurations and space program requirements for this 1,000-bed detention facility. One accepted VE idea was the use of precast concrete cells to reduce cost and construction time. ECC \$204 million.
- ◆ Federal Courthouse, Baton Rouge, LA. This four-story facility will house all courthouse functions and includes a connection to the existing courthouse, secure inmate holding cells, underground parking for police and judicial staff, and a total of four courtrooms. ECC \$23 million.
- ◆ Rikers Island Jail, Secured Infirmary/Mental Health Center, New York City Department of Corrections and Office of Management and Budget. Project Manager and Team Leader to perform a Value Analysis study on the program submittal and a Value Engineering study on the schematic design. This 1,000-bed medical care facility includes an isolation section. The study resulted in savings of \$58 million. ECC \$330 million.
- ◆ New York City Police Training Academy, Bronx, NY. VETL on this study of a state-of-the-art training facility that will support 2,600 new recruits, 28,000 uniformed officers, and 9,500 civilian employees each year. The VE study produced 40 recommendations. ECC \$182 million.
- ◆ Federal Courthouse Renovation, Tulsa, OK, Walk-Haydel Associates, Inc. This project included a major renovation to the existing courthouse, including removal of asbestos materials, demolition and remodeling of the interior spaces of two floors, and the complete renovation of three courtrooms and judicial spaces.
- ◆ Building #56 Renovation, Denver Federal Center, CO, Walk Haydel Assoc. Inc.
- ◆ Rikers Island Jail Kitchen Reconstruction, New York City Department of Corrections.

Various Clients & Projects (continued)

- ◆ New York City Court Facilities Program, State Street Criminal Court Annex, New York City Office of Management and Budget. VETL on this 14-story (182,000GSF) addition to the existing State Street Criminal Court Building located in Brooklyn, NY. This facility included secure underground parking, inmate holding cells, and public court spaces. A total of 51 VE proposals were presented for review by the city, of which 27 recommendations were accepted for a net cost savings of \$1.43 million. ECC \$53 million.
- ◆ United States Courthouse, Jacksonville, FL, U.S. General Services Administration. The courthouse is a fourteen-story, 37,295 gross square meter facility with 17 courtrooms, plus associated judges' chambers, U.S. Marshall's services, and U.S. Bankruptcy courtrooms. Alternatives identified included the use of "off-peak" energy storage, flat plate post-tensioned concrete slab, and site coordination to reduce export of soil materials. ECC \$67 million.

EDUCATIONAL FACILITIES

Dade County Schools

- ◆ VETL on more than 30 VE studies.

Various Clients & Projects

- ◆ Woodinville High School, Northshore School District, Seattle, WA. VETL on this project to complete major modernizations and additions a high school currently consisting of five buildings. Evaluations considered the full range of project value objectives and resulted in the development of a number of recommendations. ECC \$117 million.
- ◆ Prototypical Elementary School, Stafford County, VA.

MILITARY FACILITIES

Atlantic Division, Naval Facilities engineering Command

- ◆ P-462, SDVT-2 Command and Operations Facility, Naval Amphibious Base Little Creek, Norfolk, Virginia. VETL on this Charette concerning the construction of a command operations and maintenance facility which will complete the consolidation of the SDVT-2 command structure with all operations support personnel and SEALs. ECC \$27.9 million.
- ◆ P-094 Naval Station Norfolk, Virginia, Pier 11 Replacement. Assisted with facilitation of an FACD workshop for a double deck, general purpose berthing pier with a lower deck utilidor for a total of 869 meters of berthing (MB) that will be capable of supporting a range of ships. The project must include combating terrorism features on the pier. The final concept of the workshop offered a design that is \$94,000 less than the design-to-construction cost of \$120 million. ECC \$131.7 million.

Naval Public Works Center, Pearl Harbor, HI

- ◆ Industrial Wastewater Treatment Plant. Project Manager and VETL for this 10,000gpd facility that will treat all industrial wastes generated within the Pearl Harbor area. The project includes tanker unloading facilities, pH reaction tanks, sludge settling tanks, sludge dewatering, an administration/lab building, and a bulk reagent storage facility. ECC \$17 million.
- ◆ Wastewater Treatment Plant Improvements, Ft. Kamehameha. VETL and Project Manager on the preliminary engineering report study of plant expansion from 7.5mgd to 13mgd to meet increasing flows from Pearl Harbor.



Various Clients & Projects

- ◆ Pacific Missile Range Facility (PMRF), Whole Site Revitalization, Barking Sands, Kauai, HI, Pacific Division, Naval Facilities Engineering Command. FACD study on project to renovate 69 housing units of varying sizes of 2-, 3-, and 4-bedroom units. Renovations include new roofing, air conditioning, layout updates to the kitchen and bathrooms, new plumbing fixtures, lanais, garages, insulation, light fixtures, and electrical distribution. ECC \$10.2 million.
- ◆ Replace Family Housing, Malmstrom Air Force Base, MT, Seattle District, U.S. Army Corps of Engineers. VETL on study of 35% design plans for this project involving demolition and construction of 493 housing units. PA \$140,252,000.
- ◆ Explosive Ordnance Mobile Unit 10 Operations Facility, FY09 MCON Project P-010, Naval Amphibious Base Little Creek, Norfolk, Virginia. Assistant VETL on this Request for Proposal Design Charrette. The final concept developed during this effort established adjacencies, boundaries, functional necessities and develop a path forward for the EODMU 10 Operations Facility's RFP.
- ◆ BRAC Medical Education and Training Campus, Fort Sam Houston, San Antonio, Texas. VETL for a study on a METC campus that will accommodate medical training students from the Army, Navy and Air Force, and will comprise new dormitories, administration facilities, a dining facility, physical fitness center, and medical instructional facilities.
- ◆ Grow the Force Barracks – EAB, Fort Campbell, KY, Louisville District, U.S. Army Corps of Engineers. VETL on a value engineering workshop pertaining to the Design/Build project phase. Construction of two 60,000 SF two-story buildings containing apartment-style units. Participants included Jacobs Engineering and US Army Corps of Engineers, Louisville District. VE study to improve value, reduce risk, and establish cost estimate credibility, escalation, and bid options. Over \$7 million in cost savings were realized. ECC \$26 million.