Value Management Strategies, Inc.

R. Terry Hays, CVS-Life
Chief Executive Officer

Qualifications

Terry Hays, CVS-Life is a mechanical engineer with over 40 years of experience in engineering, design and value management for a variety of applications. He has extensive experience in leading value engineering training seminars and workshops for government, municipal and industrial clients and has participated in many detailed value engineering studies of technical facilities and processes.

Mr. Hays has served as project manager and principal team leader for indefinite quantity VE contracts with California Department of Transportation (7), Southwest and Pacific Divisions—Naval Facilities Engineering Command (4), New York City—Office of Management & Budget (6), and US Army Corps of Engineers—Sacramento, Portland, Kansas City, Fort Worth and Alaska Districts (3), City of San Diego Metropolitan Wastewater Division, Southern California Metropolitan Water District (2), LA DWP and the U.S. Department of State.

Mr. Hays has conducted over 400 VE studies on a wide range of Construction projects. These projects have ranged in size from $400,000 to over $3 billion. Project experience includes: government buildings with significant security requirement, waterfront projects (piers, wharves, jetties and dredging); environmental restoration projects; water resource projects (dams, fish facilities, levees); UXO and environmental cleanup projects; maintenance facilities; various military and training facilities and schools; warehouses; complex laboratories and clean rooms; water and wastewater treatment plants, collection systems, distribution systems, and outfalls; nuclear facilities; airfields; highways and bridges; industrial buildings; municipal facilities; and mass transportation projects.

Mr. Hays has been a leader in applying the Value Engineering process to the development of program concepts (FACD) and planning strategies. Terry is experienced in conducting customer/user focus panels to identify and understand critical project issues. Results of the focus panel are directly used during the VE study. Terry has integrated focus panel and VE techniques into the Partnering Sessions, Concept Development and Planning Studies he conducts.

As Chief Executive Officer, Mr. Hays focus is on efficient, professional execution of task orders to ensure that the client's needs are met through high quality VE studies; and at the same time works with the client to improve their programs and maximize the value of their internal VE efforts.

Mr. Hays wrote the chapter on value engineering for Maynard's Industrial Engineering Handbook – fourth edition, published by McGraw-Hill, Inc., 1992, and he has published several papers on Value Engineering and written training manuals on value engineering that covers construction projects, product designs, manufacturing processes, and administrative systems and procedures.

Education

B.S., Mechanical Engineering,- Lawrence Institute of Technology, Southfield, Michigan 1965

Registration

Certified Value Specialist, Life — No. 870202 - SAVE International

Employment Record

Value Management Strategies, Inc., President (1995-Present)
Lewis & Zimmerman Associates, Inc., Vice President (1992-1994)
Value Analysis, Inc., Vice President (1984-1991)
Hoover Universal, Engineering Manager (1983-1984)
General Motors Corporation, Engineering Staff (1965-1982)

Professional Affiliations

SAVE International:

- President 2005-2007
- National Director of Conferences, 1992-1995
- SW Regional Vice President, 1990-1992
- Annual Conference Chairman, 1992

Society of Automotive Engineers

Representative Experience

Terry Hays has performed as a Value Engineering Team Leader (VETL) and Training Workshop Instructor in many fields, including manufacturing, industry and construction. He has conducted over 300 studies in the last twenty years for public agencies such as:

- California Department of Transportation
- Metropolitan Development Transit Board, San Diego County
- San Diego Association of Governments
- The City and County of San Diego
- City and County of Honolulu
- County of Los Angeles
- City of Long Beach
- Port of Long Beach
- The City of New York
- US Naval Facilities Engineering Command, Pacific & Southwest Divisions
- US Army, Corps of Engineers, Alaska, Sacramento, Baltimore & Louisville Districts
- U.S. Department of Energy (Livermore, CA; Oak Ridge, TN; and Idaho Falls, ID)
- University of California, Irvine and Davis
- General Services Administration
- Veterans Administration
- Alameda Corridor Transportation Authority
- City of Davis
- City of Vacaville, CA
- City of San Francisco, CA
- Santa Clara County
- Utah Transit Authority
- Valley Highway Association, San Jose, CA
- Valley Transportation Authority, San Jose, CA

Value Analysis/Value Engineering Project Studies

VALUE ENGINEERING TRAINING SEMINARS AND INDUSTRIAL CLIENTS

Terry Hays has led over 110 VE Training Seminars and trained over 6000 people for a wide variety of industries. Much of this training was conducted for clients intending to establish in-house VE programs, and included follow-up activities to assist the clients with the development and implementation of their program. In addition to the training seminars conducted for industrial clients, numerous VE studies were also conducted for these clients:

Chemical & Process Manufacturing	◆ Ciba-Geigy ◆ DuPont ◆ Rohm and Haas
Transportation Systems and Components	◆ General Motors Corporation (32) ◆ Rockwell International (2) ◆ TRW, Inc. (2) ◆ Behr ◆ Calsonic ◆ Orschlin ◆ Lord Corporation
Consumer Products and Manufacturing	◆ Eastman-Kodak ◆ Steelcase, Inc. (2) ◆ Whirlpool ◆ Alto Shaam ◆ Garden Way ◆ Batesville Casket Company
Construction	◆ EG&G, Inc., Idaho National Energy Laboratory (4) ◆ Martin Marietta Energy Systems, Oak Ridge National Energy Lab (2) ◆ California Department of Transportation (6) ◆ Fluor Daniel ◆ The Kingdom of Saudi Arabia ◆ Meng Associates, AIA (2) ◆ Army Corps of Engineers ◆ Linde/Union Carbide ◆ Air Products Company ◆ Cooperative VE Training Seminars (3) (Individuals from various A&E Firms and Government agencies) ◆ Anderson DeBartolo Pan
Industrial Products/ Manufacturing	◆ Northwest Manufacturing (2) ◆ Hudson Products ◆ Parker-Hannifin Corporation ◆ TLT Babcock ◆ Air Supply Components

Heavy Industrial Equipment	◆ Kearney & Trecker ◆ Diamond Power ◆ Thomassen International bv ◆ Deutz Allis ◆ John Deere (2)
Pharmaceuticals & Health Care Products	◆ Merck Pharmaceuticals (4) ◆ CooperVision ◆ Ross Laboratories (2) ◆ IMED (3) ◆ Baxter Pharmaceutical (2) ◆ V. Mueller Company (3)
Defense and Aerospace	◆ Textron-Lycoming (7) ◆ Aeroquip Corporation ◆ Cessna Aircraft Company (2) ◆ Ford Aeronutronics (2) ◆ LTV (2) ◆ Marquardt
Electronics	◆ Bendix/Siemens (4) ◆ Northern Telecom (4) ◆ Datatape ◆ Finnigan ◆ Sargent Industries ◆ Physio Control ◆ Granville Phillips ◆ Rosemont Analytical

HIGHWAY AND TRANSIT PROJECTS

California Department of Transportation	◆ SR99 Rehabilitation in Madera ◆ Inland Empire Transportation Mgmt Center and Park & Ride Facility ◆ Southern Regional Laboratory ◆ I-215/SR 74 Interchange Modification ◆ SR 101/SR 46 West Interchange ◆ Reconstruct Valley Wells Rest Area ◆ SR 138 - Construct 12-Meter Paved Section on New Alignment ◆ SR 79 Widen from Two Lanes to Four ◆ SR 79 Corridor ◆ Extend SR 52 Freeway from SR 125 to SR 67 ◆ SR 52/67 Interchange ◆ North I-15 Corridor Managed Lanes Project, San Diego ◆ San Francisco-Oakland East Bay Bridge Replacement ◆ I-5 Widening at Magic Mountain Parkway ◆ LA 710 Atlantic and Bandini Boulevard Interchange ◆ SR 67 Interchange at Riverford Road ◆ I-15 Noise Abatement ◆ SR 67/Bradley Interchange, San Diego County ◆ SR 163/Friars Road Interchange ◆ Third Bridge Crossing of the Feather River ◆ SR 98 Corridor Development ◆ SR 76 Interim Project Development ◆ SR 99/Dana Drive

- Big Pine Rehabilitation
- SR 55 HOV Lanes and Three Overcrossings
- SR 101 –Safety Improvements – Mussel Shoals to La Conchita
- I-5 North HOV Lane
- SR 71 – Pico Avenue Interchange
- Harbor Drive – Pier 7 Interchange
- Passing Lanes on State Route 94 East of Jamul
- SR 70 – Bridge Rehabilitation/Retrofit
- SR 138 Road Widening East of I-15
- Century Freeway Storm Drain Repair, Phases I and II
- SR 3 Rush Creek Bridge Replacement
- SR 299 Road Realignment at Pit #1 Grade
- Route 4 Gap Closure – Road Widening
- Alameda Street, Phase 3
- I-405 HOV Lanes – From SR 105 to SR 90
- SR 76 Road Widening
- SR 125 Design Build Oversight
- I-15 Soundwalls
- Southern California Traffic Operations Strategic Plan
- Lake Britton Bridge Replacement, Redding
- SR 70 Road Replacement in Quincy
- SR 56/I-5 Traffic Interface
- I-80/I-505 Weave Correction
- Cherokee Road/Route 99 Interchange
- SR 99 Widening at Waterloo Interchange
- SR 165 Merced River Bridge
- SR 54 Utility Access Improvement
- SR 20/SR 99 Interchange
- I-8 HOV Lanes—Mollison to Magnolia Avenue
- Left-Turn Lane to SR 75 (Coronado Bridge)
- I-8 Median Barrier I-8 to I-15 Connector
- SR 75 Curve Realignment
- I-5 INS Checkpoint Relocation
- Sunset Avenue, Banning, CA
- SR 62 Realignment in Yucca Valley
- Brawley by-pass Stage III
- SR 91 Risk Management
- Golden Valley Road Bridge
- US 101 Widening-Monterey to SR 129
- US 101 Between Embarcadero Road Interchange and Marsh Road Interchange
- SR-15 Mid-City Corridor Bus Rapid Transit

Santa Clara Valley Transportation Authority

- Silicon Valley Rapid Transit Project, Maintenance Facility and Yard
- Silicon Valley Rapid Transit Project, Tunnel Segment
- Silicon Valley Rapid Transit Project, Line Segment
- Silicon Valley Rapid Transit Project, Stations

City of New York

- City Island Cable Stayed Bridge
- Belt Parkway at Ocean Parkway Interchange
- Belt Parkway Bridge over Mill Basin
- Belt Parkway Bridge over Paerdegat Basin

Metropolitan Transit Development Board, San Diego, CA	◆ Mission Valley West–Elevated Tracks ◆ Mission Valley West–3 Elevated Stations ◆ Mission Valley East–Alignment ◆ Mission Valley East–Structures and Stations ◆ Mission Valley East–Constructibility Review ◆ San Ysidro Intermodal Transportation Center
County of San Diego, CA	◆ Mission Road Improvement – Fallbrook, San Diego County, CA ◆ Bonita Road Improvement – Chula Vista, San Diego County, CA ◆ Woodside Avenue Flood Control Project – Lakeside, San Diego County, CA
Alameda Corridor Transportation Authority, Carson, CA	◆ Redondo Junction Grade Separation ◆ Washington Boulevard/Santa Fe Avenue Grade Separation ◆ Henry Ford Grade Separation
Various Clients & Projects	◆ Port of Long Beach – Gerald Desmond Bridge, National Constructors Groups ◆ West/East LRT Project, Utah Transit Authority, Salt Lake City, UT ◆ Interstate Max LRT Project, Tri County Metropolitan Transit Authority, Portland, OR ◆ VE, Peer Review, VECP reviews and Constructibility Review for the 20 mile extension of BART to San Jose, Valley Transportation Authority, San Jose, CA ◆ Caltrans PS&E Procedure, District 11, San Diego Association of Governments

ENVIRONMENTAL FACILITIES, AND WATER WASTEWATER TREATMENT PLANT

San Diego Metropolitan Wastewater District	◆ Pump Station Design Criteria ◆ Pump Station 64
City of New York	◆ Bowery Bay WPCP ◆ Hunts Point WPCP ◆ Paerdegat Basin Combined Sewer Overflow Facility ◆ Brookfield Avenue Landfill Remediation ◆ Water Demand Flow Model
US Army Corps of Engineers	◆ Base Water Demineralization and Distribution Project, Dugway Proving Grounds, UT ◆ Base Water Supply System Upgrade, George AFB, Victorville, CA
San Diego County, California	◆ Valley Center Wastewater Treatment Plant and Collection System (15% Design) ◆ Valley Center Wastewater Treatment Plant and Collection System (45% Design) ◆ Penasquitos Sewer Interceptor
Yorkshire Water Services, Yorkshire, England	◆ Elvington Water Treatment Plant–Ozone Treatment Process ◆ Barnby Water Treatment Plant–Ozone Treatment Process

Pacific Division, Naval Facilities Engineering Command	◆ Sewage Collection System, NCTAMS EASTPAC, PWC, Wahiawa, Oahu, HI ◆ Sewer Outfall Extension, WWTP at Fort Kamehameha, Pearl Harbor, HI
City of Vacaville, CA	◆ Vacaville Wastewater Treatment Plant 30% Design ◆ Vacaville Wastewater Treatment Plant 60% Design
Various Clients & Projects	◆ HDWD Water Reclamation Facility, Hi-Desert Water District, Yucca Valley, CA ◆ Long Beach Water Treatment Plant Expansion, Long Beach Water Department, City of Long Beach, CA ◆ Los Osos/Baywood Park Collection, Treatment and Disposal Project, County of San Luis Obispo, CA ◆ 40 MGD Advanced Treatment Facility (RIX)–Santa Ana Watershed Project Authority, California State Water Control Resources Board ◆ Central Oahu Wastewater Treatment, Disposal and Reuse Master Plan, City of Honolulu, State of Hawaii, and US Army Pacific Command

CORPORATE/MUNICIPAL FACILITIES

City of New York, NY	◆ HHC/Elmhurst Hospital Center Revenue Enhancement ◆ Water Demand Flow Model ◆ GRVC Dormitory Addition and Core Upgrade ◆ Queens Long-Term Care Facility ◆ Bronx Housing Court ◆ Harlem Hospital Modernization
City of San Diego, CA	◆ Santee Fire Station ◆ Rancho Santa Fe Fire Station
Honolulu School District	◆ Waikele Elementary School Master Plan and Phase 1 Concept Development, Ho'okena, HI ◆ Ho'okena Elementary School Master Plan and Phase 1 Design, Ho'okena, HI
Port of San Diego	◆ Coordinated Support Facilities, National City, CA ◆ Teledyne Ryan Site Demolition ◆ Old Police Station Headquarters Project ◆ North Embarcadero Visionary Plan ◆ B Street Pier and Cruise Ship Terminal

Various Client & Projects	◆ Nuclear Facility–HVAC Systems (3 projects), Fluor Daniel, Irvine, CA ◆ Murrieta High School Master Plan and Buildings, Murrieta, CA, Murrieta Unified School District ◆ Dana Junior High Renovation, Point Loma, CA, San Diego Unified School District ◆ Science Library, CA (2 studies–Schematic and 30% Phase), University of California at Irvine ◆ LA County Emergency Operations Center, Los Angeles, CA (2 studies–Schematic and 30% Phase), Los Angeles County, CA ◆ Murietta Fire Station, City of Murietta, CA ◆ Oceanside Fire Station No. 2 Expansion, City of Oceanside, CA ◆ VA Hospital, Palo Alto, CA, US Veterans Administration ◆ Chrysler Technology Center, Avon, MI, Chrysler Corporation

US DEPARTMENT OF ENERGY

Oak Ridge National Laboratory, Department of Energy, Oak Ridge, TN	◆ Y-12 Sanitary Sewer Upgrade ◆ ORNL Sanitary Sewer System Upgrade ◆ K-25 Site Sewer System Upgrade ◆ VE Training Workshop for Oak Ridge Personnel ◆ OSHA Compliance VE Study ◆ K-25 Site Property Sales Facility ◆ Y-12 Oil Dike 7/8 Upgrade ◆ B-25 Waste Containers, Y-12 ◆ K-25 Waste Management Operations Center ◆ Waste Management Operations Health and Hygiene Support Facility, X-10 ◆ UF6 Cylinder Refurbishment Process
Lawrence Livermore National Laboratory, University of California	◆ Fiber Optics Communication Backbone Project
Idaho National Energy Laboratory, Department of Energy, Idaho Falls, ID	◆ TRA Radioactive Liquid Waste System ◆ ATR Off Gas Treatment System ◆ RWMC/TSA Retrieval Containment Building ◆ PCDP Rod Consolidation Enclosure ◆ RWMC Waste Treatment Storage Facility ◆ Waste Treatment and Disposal Research Facility ◆ ICPP Anti-Contamination/Safety Equipment Handling Facility ◆ TRA Off Gas System

POLICIES AND PROCEDURES

California Department of Transportation	◆ San Francisco-Oakland Bay Bridge Review and Analysis of Financing and Risk Management Aspects of Construction ◆ District 11 IID Imperial Irrigation District Process ◆ Maintenance Work Plan Procedure

	◆ District 7 (Los Angeles) Business Plan ◆ District 11 (San Diego) Business Plan ◆ District 8 (San Bernardino) Business Plan ◆ Headquarters (Sacramento) Business Plan ◆ District 7 (Los Angeles) Help Desk ◆ Database Planning ◆ Construction Contract Administration Business Plan ◆ Project Funding Process ◆ I-5 Corridor Enhancement Strategies ◆ Noise Abatement Policy
City of New York	◆ DHS Men's Intake and Vacancy Control Process ◆ Change Control Process
San Diego Metropolitan Wastewater District	◆ Construction Document Review ◆ Pump Station Design Criteria ◆ Pump Station 64
Metropolitan Water District of Southern California	◆ VoIP Telephone Replacement Procurement Workshop

MILITARY FACILITIES

Pacific Division, Naval Facilities Engineering Command	◆ Futenma Replacement Facility, Okinawa, Japan ◆ PRSOC Options Study, Oahu, HI ◆ Blast and Paint Facility, PHNSY, Pearl Harbor, HI ◆ P192 Multi-Purpose Fuel Interface, FISC, Pearl Harbor, HI ◆ Fire Protection Systems Improvements, NCTAMS, Guam, M.I. ◆ SURTASS Berthing Pier, Pearl Harbor, HI ◆ AFDB Berth, SUBASE, Pearl Harbor, HI ◆ Y-2 Berthing Pier, SUBASE, Pearl Harbor, HI ◆ S8-9 Pier, SUBASE, Pearl Harbor ◆ Replace Fuel Pipeline (16 Miles), NAS Agana to Anderson AFB, Guam ◆ Oily Waste Collection System, Naval Base, Pearl Harbor, HI ◆ Child Development Center, MCAS, Kaneohe, Oahu, HI ◆ BEQ Modernization, Building 229 & 230, NCTAMS EASTPAC, Pearl Harbor, HI ◆ BEQ Modernization, Building 321, NCTAMS EASTPAC, Wahiawa, HI ◆ New 17-floor BEQ, SUBASE Pearl Harbor, HI ◆ General Purpose Submarine Berthing Wharf and Relocation, Pearl Harbor, HI ◆ Hawaii Air National Guard FCAP Facility, Barking Sands, Kauai, HI ◆ Sewage Collection System, NCTAMS EASTPAC, PWC, Wahiawa, Oahu, HI ◆ Ordinance Facilities, MCAS Kaneohe, Oahu, HI ◆ Advance Seal Delivery System Facility, Ford Island, Pearl Harbor, HI ◆ Family Housing Project, Whole House Revitalization, Pearl City Peninsula, HI ◆ Sewer Outfall Extension, WWTP at Fort Kamehameha, Pearl Harbor, HI ◆ AIMD Additions/Alterations, MCB Hawaii, Kaneohe Bay, Oahu, HI ◆ Replace Fuel Pipeline, Andersen Air Force Base, Guam, Mariana Islands ◆ Defense and Accounting Services Operating Location, Honolulu, HI ◆ Replacement of Family Housing- Kaneohe Marine Corp Base, Hawaii

- Planning Study Pearl Harbor Naval Shipyard and Concept Study New Blast and Paint Facility, Pearl Harbor, HI
- P-097 Berthing Pier, Subase, Pearl Harbor, HI
- BEQ, Subase, Pearl Harbor, HI
- BEQ Modernization, Building 55, Ford Island NAVSTA, Pearl Harbor, HI
- Family Housing Project, Revitalization by Replacement, MCBH, Kaneohe Bay, HI
- Add to and Alter Aerial Port Training Facility, Anderson AFB, Guam
- AUW Support Facility, Marine Corps Base, Kaneohe, HI (two scenarios)

Alaska District, US Army Corps of Engineers

- Flight Simulator Facility, Elmendorf AFB
- Fort Wainwright Utilidor Programming Charrette

Louisville District, US Army Corps of Engineers

- Renovation of Three Dining Halls, Fort Campbell, KY
- Fort Campbell Army Airfield Runway Improvements, Fort Campbell, KY

Southwestern Division, Naval Facilities Engineering Command

- Wharf Concept Study, Naval Weapons Study, Seal Beach
- Naval Coastal Warfare Group Complex, Imperial Beach, CA
- Building 77 Renovation/Expansion, NWS Seal Beach
- Military Operations on Urban Terrain Facility, San Clemente Island, CA
- All Hands Club, Marine Corps Mountain Warfare Training Facility, Bridgeport CA
- Consolidated Base Support Complex, Los Angeles Air Force Base, Los Angeles, CA
- Dredging Along Quaywall and Turning Basin, Naval Air Station North Island, Coronado, CA
- Aircraft Carrier Pier, Naval Air Station North Island, Coronado, CA
- Pier Electrical Upgrade, Naval Air Station, North Island, Coronado, CA
- Upgrade to Pier 3, 32nd Street Naval Station, San Diego, CA
- Child Development Center, Naval Training Center, San Diego, CA
- Small Arms Range, Naval Training Center, San Diego, CA
- Bachelors Enlisted Quarters and Messing Facility, Fleet Combat Training Center, San Diego, CA
- Secure Electronic Assembly and Test Facility, Naval Oceans Systems Center, San Diego
- Tactical Vehicle Maintenance Facility, Camp Pendleton, CA
- BRAC Waterfront Operations, Naval Amphibious Base, Coronado, CA
- Communications Maintenance Facility, Camp Pendleton, CA
- Special Warfare Desert Training Facility, Niland, CA
- Special Warfare Maritime Training Facility, NAB, San Clemente Island, Coronado, CA
- Missile Production and Test Facility, Fallbrook Annex – Seal Beach, CA
- Electronics Maintenance and Test Facility, San Diego, CA
- Bachelor Enlisted Quarters, Marine Corps Air Station, Coronado, CA
- Training Center, Fleet Training Center, Naval Station, San Diego, CA
- Airfield Communications & Electrical Infrastructure Upgrades, Marine Corps
  Air Station, Camp Pendleton, CA
- Bachelor Enlisted Quarters & Parking Structure, Naval Station, San Diego, CA
- Child Development Center, SUBASE, San Diego, CA

Sacramento Division, US Army Corps of Engineers

- Reserve Training Center, Fort Ord, CA
- Unaccompanied Enlisted Personnel Operations & Barracks Complex, Fort Huachuca, CA

- East Side Development – Phase II, Nellis AFB, NV
- Unaccompanied Enlisted Personnel Housing, Presidio Reserve Center, San Francisco, CA
- Stand-By Generator, Presidio Army Hospital, San Francisco, CA
- Jet Fuel Storage, McClelland Air Force Base, CA
- Demineralization and Irrigation Project, Dugway Proving Grounds, UT
- Flight Test Engineering and Management Facility, Edwards AFB, CA
- Titan IV Warehouse, Vandenburg AFB, CA
- APAL Hypergolic Maintenance and Checkout Facility, Vandenburg AFB, CA
- North Parallel Taxiway, Nellis AFB, NV
- Conformation Storage Facility, Defense Depot Tracy, Stockton, CA
- Marina and Boat Launching Facility, Petaluma, CA
- Alter Audio Visual Service Center, Edwards AFB, CA
- Battalion Headquarters and Classroom Buildings, Fort Ord, CA
- Alter Base Water Supply, George AFB, Victorville, CA

Baltimore Division, US Army Corps of Engineers

- Army Research Laboratory, Phase I & II, Adelphi, MD (office, laboratory, emergency response center, parking structure, power plant expansion, and vehicle test garage)
- Army Research Laboratory, Phase I & II, Adelphi, MD (clean room, laboratories and offices)

Unique Value Management Applications

Terry Hays has facilitated numerous studies applying the value management techniques to focus on management systems and issues. These projects include:

California Department of Transportation

Mr. Hays was project manager for a study with Caltrans and the San Diego Association of Governments, that analyzed the Caltrans Design Process to identify process changes that could reduce design time, cost and improve their response to their customer's needs (the San Diego community). This study involved not only Caltrans personnel, but personnel from local agencies, NHTSA, and local design and construction firms were also involved

City of Honolulu, State of Hawaii

Mr. Hays facilitated an analysis of Wastewater Treatment, Disposal and Reuse for Central Oahu. The study brought together representatives from 15 state, local and federal agencies to develop and gain consensus for the best solution to the Central Oahu wastewater treatment, disposal and reuse problem.

M. W. Kellogg

Mr. Hays led a study of the Program Management Operations for the $1 billion dollar upgrade to the Maravin Refinery in Venezuela. The refinery was being upgraded to meet U.S. standards for gasoline. Involved in the study were representatives from the Venezuelan Oil Refinery management team, and their consultants, M. K. Kellogg, British Petroleum, and Fluor.

City of New York – Office of Management and Budget

Mr. Hays facilitated a study of the new FAIRTAX Computer System being developed by Anderson Consulting to combine all City tax records into one system. This project cost ~$26,000,000 in systems development. The study resulted in identifying numerous modifications to the program that would result in more efficient computer operation, avoiding additional capital for larger computers, and a plan that would save the city ~$375,000 a month in

staffing costs.

Merck Pharmaceuticals

Mr. Hays facilitated several studies for Merck, including:

- *International Purchasing Procedures* – Mr. Hays led the purchasing managers from seven European countries through a study of if and how their purchasing procedures should change with the pending European Common Market changes effective January 1993. The resulting procedural changes saved over one million dollars the first year.
- *Samples Distribution Procedure*
- *Chemical Requirements Planning*

Armstrong Industries

Mr. Hays facilitated development of the Ceiling Tile Division's Strategic Marketing Plan. The study involved the VP of Marketing and four marketing directors.

Idaho National Engineering Laboratory

Mr. Hays facilitated several non-construction studies for INEL. These studies include the following:

- Computerized Data Systems Enhancement
- Computer System Records/Data Storage Process
- Micro Computer Acquisition Process
- Industrial Engineering Organization Analysis