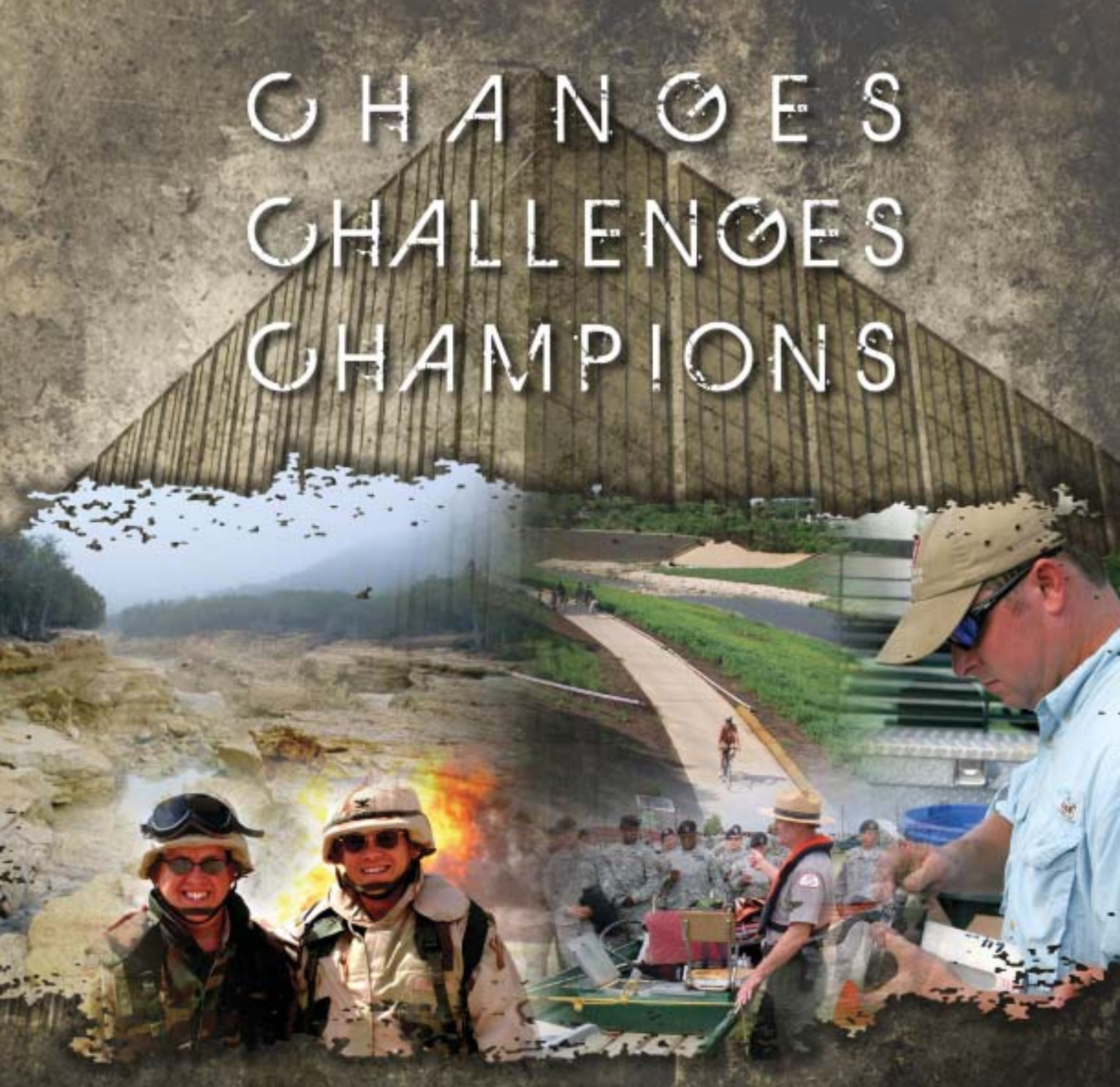


CHANGES CHALLENGES CHAMPIONS



A HISTORY OF THE
FORT WORTH DISTRICT
U.S. ARMY CORPS OF ENGINEERS

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**C H A N G E S
C H A L L E N G E S
C H A M P I O N S**



A HISTORY OF THE
FORT WORTH DISTRICT
ARMY CORPS OF ENGINEERS
2000-2011



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Foreword

This illustrated history is the third publication to highlight the history of the U.S. Army Corps of Engineers, Fort Worth District. The first, *Rivers, Rockets and Readiness: Army Engineers in the Sunbelt*, by Dr. Clayton Brown, tells the story of the creation of the District and the first 25 years of its operations. The second publication, *Service—Tradition—Change*, by Lisa Mighetto and William F. Willingham, captures the District's environment, challenges, and accomplishments from 1975 through 1999.

As the 24th Commander of this distinguished Engineer District, it is with great pride that I introduce this update to the Fort Worth District history from 2000 to 2011, *Changes—Challenges—Champions*. This book highlights an extraordinary period not only within the Fort Worth District boundaries but also inside and outside of our nation's borders. It goes without saying that we could not have achieved our mission goals, nor met our many challenges and accomplishments, without being set up for success by those who came before us. The bar has always been set high here in Fort Worth and it is our people that continue to carry that standard forward.

Created in the aftermath of an iconic flood in 1949, the Fort Worth District primarily focused on flood control and the construction of large dams during its first decade. In the 1960s and 1970s the District became more involved in watershed management and restoring wetlands. In the 1980s the Fort Worth District saw an increase in military construction. And the Water Resources Development Act of 1990 established environmental protection as a primary mission for the Corps of Engineers, which the District had already been doing throughout the prior decade.

The District headed into the new millennium with an ominous start due to the overshadowing possibilities of technological disaster with Y2K, and then faced new challenges with the 9/11 attacks, followed by an incredible flood at Canyon Lake in 2002. Again and again the people of the Fort Worth District showed their resiliency and resolve to support their communities and the nation both domestically and overseas. The ever-increasing high operations tempo fueled by the Global War on Terrorism, two major military operations, Base Realignment and Closure Commission mandates, a restructuring Army, and a full dossier of civil works projects didn't stop this amazing team, but allowed it to accomplish the District's mission better, faster, and more cost effectively, while remaining environmentally friendly.

As the nation, the U.S. Army, the U.S. Army Corps of Engineers, and the Fort Worth District continue to evolve to meet future challenges, we remain true to our heritage. We will give America our best in planning, designing, building, and operating water resources and other civil works projects. We will provide our military, their families, and communities with the best-designed, constructed, and managed facilities. And during national emergencies or disasters those counting on us will continue to receive what they deserve—our best.

As you peer into this window in the life of a living organization called the Fort Worth District, I hope you will gain knowledge and appreciation for what the people of the District do in the service of their country. They are an engineer force of highly trained, qualified civilians and soldiers standing tall, and ready to answer the call to duty.

Richard J. Muraski, Jr.
Colonel, U.S. Army

Former Commander, Fort Worth District,
and current Deputy Commander, Southwestern Division



Acknowledgments

This book could not have been completed without the help of many people, including USACE friends, History Associates colleagues, and family members throughout this nine-month project. Consequently, a round of acknowledgements is in order for those who helped make this work possible in such an aggressive time frame.

First, I would like to thank USACE Fort Worth District Public Affairs Specialist Ed Rivera, who served as the District's project manager and was a true collaborator in this effort. Ed made available all of the significant historical materials that the Public Affairs Office had maintained over the years and performed on-call yeoman duty as a research assistant throughout the manuscript's preparation. He also scheduled oral history interviews and served as a proofreader, selected all of the photographic illustrations from his extensive catalog of images, and then captioned them. In Fort Worth, he introduced me to the Trinity River Vision Authority and the Central City Project, and then guided me to the Canyon Lake Dam about thirty-five miles northeast of San Antonio, where together we hiked the breathtaking gorge created there by the July 2002 flood. Ed likewise traveled with me to Fort Bliss in El Paso, the White Sands Missile Range in southern New Mexico, and to San Antonio to help me do field research on the various large-scale District projects located within those areas, especially at Joint Base San Antonio and the San Antonio Mission Reach. Without his input and help, this book would never have come to fruition.

Ed's colleague Clay Church led an expedition to Dallas, where he gave us a detailed tour of the Johnson Creek project, the Dallas Floodway Extension project, and Wetland Cell D, before taking us through what will become Trinity Uptown in Fort Worth. Jeff Watts at District headquarters provided an excellent formal briefing of the Fort Bliss Expansion project, while Mark Lane similarly briefed us in San Antonio on the important BRAC 2005 and MILCON projects there.

Penny K. Foster, Hords Creek Lake, came up with the book's title and Andre Mayeaux, ACE-IT, designed the cover. On the contracting front, District Contract Specialist Sue Jones did an outstanding job in handling the original award and ensuring that no administrative issues arose throughout the project on USACE's end.

Oral histories were key to this history update. I therefore want to sincerely thank the following Fort Worth District leaders and project managers who took time out from their busy schedules to speak with me to share their stories and perspectives: Colonel (ret.) Gordon Wells, Colonel (ret.) John Minahan, Colonel Christopher Martin, Colonel Richard Muraski, Lieutenant Colonel (ret.) Robert Morris, Troy Collins, Peggy Grubbs, Steve Wright, Paul Krebs, Tony Semento, Charlie Burger, Elston Eckhardt, Bill Fickel, and Jimmy Baggett.

At History Associates, I also want to thank my History Division director, Dr. Kenneth Durr, for his support and encouragement; first in preparing our original proposal and then while I was working long hours to meet the project's necessarily tight deadlines. Manuscript Specialist Gail Mathews and editor Vanessa Lide clarified my prose and identified and corrected the obscurest of typographical errors in the manuscript. Additionally, my historian colleague Kim Silvi served as an outstanding research assistant early in this project, locating and capturing key documents and publications from USACE's virtual online library.

History Associates' front office support staff members Camille Regis and Nancy Crenca also provided logistical support for the project, making travel arrangements and handling routine administrative functions at our Rockville, Maryland office. Finance and Contracts Director Donald Donoghue also expertly managed billing and contractual issues for History Associates throughout the project. I likewise want to extend my sincerest thanks to History Associates' President Emeritus and Board Chairman Phil Cantelon, President

Brian Martin, and Division Directors Mike Reis and James Lide, who shared their wisdom and guidance with me, based on their own unique experiences as professional historians and researchers in the federal arena.

Finally, I want to thank my wife Samantha, my two children Joshua and Cassandra, my par-

ents Fay and Phillip Rife, and my mother-in-law Donna Hummel, all of whom who helped hold down the home front while I traveled back and forth to Texas through the spring and summer working on this project. Without their support, I would have never been able to complete it. Thanks to all!

Jamie Rife

The Author

James P. Rife is a Senior Historian with History Associates Incorporated, joining the company in 2001 as a public historian, with wide experience in military, naval, and Native American history. He authored *The Sound of Freedom: U.S. Naval Weapons Technology at Dahlgren, Virginia, 1918-2005*, published in 2007, as well as *Caring & Curing: A History of the Indian Health Service* and *Bridges to Baghdad: The U.S. Navy Seabees in the Iraq War*, both of which were published in 2009. Mr. Rife earned a bachelor of science degree in electrical engineering technology at Bluefield State College in May 1993, and a bachelor of arts degree in history (magna cum laude) at King College in Bristol, Tennessee in June 1997. From August 1997 to June 1999, he studied American history at Virginia Tech, earning a master's degree in 1999.





Preface

“*Essayons*” is French for “Let us try.” The phrase’s military subtext originated during the Revolutionary War when professional French military engineers joined the nascent U.S. Army Corps of Engineers (USACE) and helped turn the tide of battle against the British. USACE adopted the phrase as its motto before the War of 1812, and has faithfully lived up to its spirit and meaning while carrying out its military construction and civil works missions through the years. USACE’s determination to continue this distinguished legacy of success is embodied in its famous march, appropriately called “*Essayons*,” the lyrics of which go:¹

Essayons, sound out the battle cry.
Essayons, we’ll win or we’ll die.
Essayons. There’s nothing we won’t try.
We’re the U.S. Army Corps of Engineers.

Pin the Castle on my collar.
I’ve done my training for the team.
You can call me an engineer soldier.
The warrior spirit has been my dream.

We are builders, we are fighters.
We are destroyers just as well.
There’ve been doubters who met with the
sappers
and then we blew them all to hell.

Our brothers fighting on the battle field
look to us to point the way.
We get there first and then we take the risks
to build the roads and airstrips
and bridge the might river streams.

We don’t care who gets the glory
we’re sure of one thing this we know
somewhere out there an engineer soldier
designed the plan for the whole darn show.

Essayons, whether in war or peace
we will bear our red and our white.

Essayons. We serve America
and the U.S. Army Corps of Engineers.
Essayons.
Essayons.

Essayons became the motto of USACE’s Fort Worth District by extension when the new District was created in 1950 out of the Galveston District following the 1949 Fort Worth Flood. The Fort Worth District immediately embraced the “Let us try” heritage and became USACE’s lead district for military construction (MILCON) and civil works, in both peace and war, during its first fifty years of existence. This early history was captured in two previous works: *Rivers, Rockets, and Readiness: Army Engineers in the Sunbelt: A History of the Fort Worth District, U.S. Army Corps of Engineers, 1950-1975* by D. Clayton Brown of Texas Christian University; and *Service—Tradition—Change: A History of the Fort Worth District, U.S. Army Corps of Engineers, 1975-1999* by Lisa Mighetto and William F. Willingham.

Much has happened since 1999, and the United States, USACE, and the District have all significantly changed after meeting a series of intense challenges, foreign and domestic, and natural and man-made, that forever altered the fabric of American society and culture, our security and foreign relationships, and even the landscape. Each time, the District rose to the occasion and contributed solutions to seemingly unsolvable problems, often under difficult circumstances and occasionally in the line of fire. Consequently, the District’s leadership decided to commission this history update in March 2012, under Contract W9126G-12-P-0073, to tell the story of the Fort Worth District’s key staff members, expansive activities, and cutting-edge projects since 1999 before that corporate memory is lost through retirements, transfers, and promotions.

Although the District comprises a close-knit, 800-strong team of champions, all of whom have contributed to the organization's long-term success, this book necessarily takes a "top down" approach by focusing on key leaders and project managers, as they struggled to carry out the District's local and regional missions while also supporting USACE's larger efforts at the national and international levels, in accordance with federal law and the requirements of its customers, co-sponsors, and partners.

The book is organized into five chapters and follows a roughly chronological narrative. The first chapter begins in early 2000, as Colonel James S. Weller relinquishes command to Colonel Gordon Wells, who discovers the true size and scope of the District's military and civil works responsibility as he leads the Fort Worth District into the twenty-first century. The chapter covers the District's organization as it existed from 2000 to 2002, and focuses primarily on civil works and lake operations, which dominated the District project portfolio during that time. It concludes with the Canyon Lake Flood of July 2002, which carved a geologically significant new gorge below the dam's emergency spillway. Chapter 2 begins with 9/11 and the District's response to the Global War on Terror, and then recounts the story of USACE's Forward Engineers Support Teams (FESTs) as well as Colonel Wells's deployment to Iraq and the early nation-building work of Task Force Fajr and Task Force RIO in 2003.

The third chapter picks up after Wells and Task Force Fajr return home in 2003. It highlights USACE's regionalization and transformation efforts, followed by the massive military construction (MILCON) projects at Fort Bliss in El Paso, Joint Base San Antonio, and elsewhere within the District from 2005 to 2011, which were legally mandated by the Base Realignment and Closure

Commission of 2005. Chapter 4 focuses on the District's Emergency Operations since the 2002 Canyon Lake Flood, with Branch Chiefs Paul Krebs and then Tony Semento leading the recovery and relief teams through such notable natural disasters as Hurricanes Katrina and Rita in 2005, the Central Texas Floods of 2007, and the tornado outbreak of April and May 2011, among other events.

The fifth and final chapter deals with the District's new emphasis on civil works in a post-Katrina environment, such as the Dallas Floodway Extension (DFE), the Central City Project in Fort Worth, and the Mission Reach in San Antonio, as the wars in Iraq and Afghanistan slowly wind down and the great MILCON and BRAC projects are completed on schedule. The last chapter also covers the impact of the American Recovery and Reinvestment Act (ARRA) of 2009 on the District and then closes with a discussion of the changes on the horizon as the Fort Worth District wrestles with declining budgets and a more difficult political atmosphere for earmarked projects.

From a historical perspective, we hope that this work will educate and inform general readers, USACE staff members, members of Congress, policy makers, and the military engineering community about the Fort Worth District's activities and operations since 1999 and how its role has changed in recent years. The District is not only a regional asset for the states of Texas, Louisiana, and New Mexico, but also a national asset for USACE, the U.S. Army, and the country at large. We are therefore pleased to present this book as a testament to the hard work and dedication of the Fort Worth District champions who have made it a worldwide leader in both military and civil works engineering through their indomitable "Essayons" spirit.

James P. Rife,
Senior Historian,
History Associates Incorporated



CHAPTER 1

The Fort Worth District Enters the Twenty-First Century

In the spring of 2000, Colonel James S. Weller still led the Fort Worth District of the U.S. Army Corps of Engineers (USACE), a command he had held since November 1997. Both he and his predecessor, Colonel Peter T. Madsen, had overseen fundamental changes in the Fort Worth District's organizational structure, its professional staff, and how it had operated as a result of the Clinton administration's "Reinventing Government" initiative and post-Cold War military down sizing. Under Weller and Madsen, the Fort Worth District also experienced a technological revolution by embracing more powerful personal computers, the Internet, Geographic Information Systems (GIS), and computer-aided design (CAD) software, among many other advanced engineering innovations that marked the 1990s. These stories and others were recounted in the District's updated history, *Service—Tradition—Change: A History of the Fort Worth District, U.S. Army Corps of Engineers, 1975-1999*, published under his authority in 2000. Weller's command was drawing to a close, however, and in the history's Foreword, he briefly reflected upon the District's first fifty years of achievement and predicted that its

missions would continue to evolve and incorporate even newer technologies, while providing a skilled and dedicated work force to the region and the nation. He also hoped that the success stories presented in that history would "serve as a reminder of what we have accomplished and as a beacon to the possibilities of achievement that lie ahead of us."¹

Indeed, Weller had good reason to be optimistic. Despite the challenges of restructuring and realignment in the 1990s, the Fort Worth District remained a robust organization with a rich history as it marched toward the twenty-first century. It was originally established in 1950 within the Southwestern Division of USACE as an offshoot of the much older Galveston District because of disastrous flooding in central Texas, as described in *Rivers, Rockets, and Readiness: Army Engineers in the Sunbelt: A History of the Fort Worth District, U.S. Army Corps of Engineers, 1950-1975*, by D. Clayton Brown of Texas Christian University. That flood was memorialized in a famous photograph of a local downtown Fort Worth landmark, the Montgomery Wards building (now Montgomery Plaza), inundated up to its

The Montgomery Wards Department Store near downtown Fort Worth during the 1949 flood of the Clear Fork of the Trinity River.



(USACE photograph)

second story with water. So flood control had necessarily been the District's civil works priority during those early years, epitomized by the construction and operation of large dam projects, the last being completed in 1991.²

The District had also successfully managed a wide range of other civilian works projects, most of which required regulatory oversight and compliance under a growing body of environmental and cultural resources preservation legislation, including the Watershed Protection and Flood Prevention Act of 1954, National Historic Preservation Act of 1966, National Environmental Policy Act of 1970, Federal Water Pollution Control Act of 1972 (renamed the Clean Water Act in 1977), Endangered Species Act of 1973, and Water Resources Development Act of 1974 (reauthorized and amended in subsequent years). Navigating and enforcing these laws while playing the role of honest broker, often of competing priorities and interests, had forced the District to become more sophisticated and attuned to state and local concerns, particularly on environmental and cultural issues. Additionally, District personnel had participated in many emergency and disaster relief operations throughout its first fifty years of existence, most recently during Tropical Storm Charley and Hurricane Georges in 1998, and also after the tornado outbreak of May 1999, when fifty-one tornadoes had torn through Oklahoma. Water rights issues were likewise at the forefront of District operations and would undoubtedly remain there in the distant future, as new census data from 2000 showed that the population of Texas had ballooned to 20.8 million residents and was projected to double to 40 million by 2050. There was only so much water to go around, and the District had the unenviable task of allocating it through the reservoirs. The population explosion promised to make the job even tougher.³

On the military front, the District had spearheaded numerous major construction projects for the Army and Air Force at some of the country's largest—and most important—military facilities. It had then supported several high-profile federal civilian agencies as their engineering needs materialized, grew, and changed over the years. Moreover, the District had developed very close working relationships with state and local authori-

ties and also with grass roots community partners, with whom it had collaborated on a variety of business, environmental, and ecological issues. By 2000, the Fort Worth District had earned a stellar reputation for its engineering prowess and its ability to negotiate agreements and solutions with project stakeholders, and was recognized by USACE as a leading district, a distinction that filled the outgoing Weller with great pride.

On July 17, 2000, Weller formally relinquished command of the Fort Worth District and moved on to his next assignment as the new commander of the U.S. Army Engineer Research and Development Center in Vicksburg, Mississippi. His successor was Colonel Gordon M. Wells. A Virginian by birth and a registered professional engineer in the Commonwealth, Wells's USACE roots ran deep. His father was a career Army officer whose last job had been as the Deputy Chief of Engineers before his 1984 retirement. So Wells virtually grew up in the Corps and around its projects, and he developed a natural inclination for a military engineering career during his youth. He graduated from West Point in 1979 and later earned two master's degrees, one in civil engineering from Virginia Tech and another in military arts and sciences at the School of Advanced Military Studies at Fort Leavenworth, Kan-



(USACE photograph)

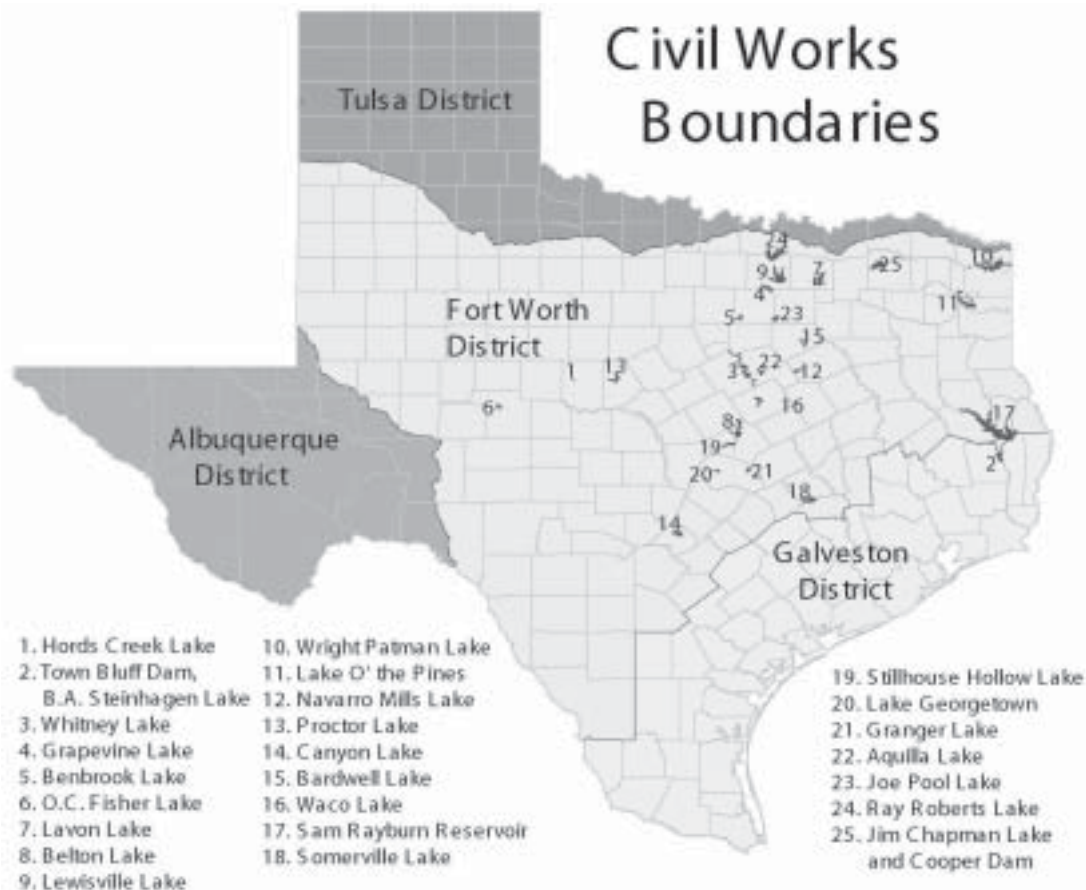
Colonel Gordon M. Wells, while deployed in support of Operation Iraqi Freedom. Wells was the Fort Worth District Commander from July 2001 through May 2003.

sas. His subsequent career had been command track, and he spent much of it overseas in either Germany or Japan, with intervening assignments at Fort Drum, New York, Fort Lewis, Washington, and Fort Ord, California. After attending the U.S. Army War College in Carlisle, Pennsylvania, he spent a year at USACE headquarters before his selection as the twenty-first District Engineer in Fort Worth.⁴

Since Wells had served mostly as a combat engineer during his career, he was relatively new to the world of domestic civil works. He set out to survey his new command and its myriad responsibilities over the next few weeks. What he learned during his briefings and site visits was daunting. Bounded to the west by the Albuquerque District, to the north by the Tulsa District, to the east by part of the Little Rock District, and to the south and southeast by the Galveston District, the Fort Worth Dis-

trict was big by most standards and one of the largest of USACE's forty-one districts.⁵

Geographically, the District sprawled across central Texas, but because of its divergent civil works and military construction missions, it had two different operating boundaries. The civil works boundary, drawn according to the central region's natural waterways and drainage basins, encompassed roughly two-thirds of the state and a small portion of Louisiana. Within this large area, the District managed and operated twenty-five multiple purpose water resource projects and dams and portions of ten river basins from the Rio Grande River in the Southwest to the Red River in the Northeast, with the Trinity, San Antonio, Guadalupe, Nueces, Brazos, Sulphur, and Lower Colorado River basins lying in between. The District's lakes and dams included Aquilla Lake (completed in 1983), Bardwell Lake (1965), Belton



(USACE Files)

Fort Worth District civil works boundaries.

Lake (1954), Benbrook Lake (1952), Canyon Lake (1964), Jim Chapman Lake/Cooper Dam (1991), Georgetown Lake (1979), Granger Lake (1980), Grapevine Lake (1952), Hords Creek Lake (1948), Joe Pool Lake (1985), Lake O' the Pines (1959), Lavon Lake (1953), Lewisville Lake (1955), Navarro Mills Lake (1963), Proctor Lake (1963), Ray Roberts Lake (1987), Sam Rayburn Lake (1965), Somerville Lake (1967), Stillhouse Hollow (1968), Town Bluff Dam/B.A. Steinhagen Lake (1953), Waco Lake (1964), Whitney Lake (1951), and Wright Patman Lake (1953). The District also ran three hydroelectric power plants and 197 fully staffed parks, with over 25 million visitors each year. Altogether, the District maintained water resources and provided flood control across a 410,000-square-mile area, supplying Texas with about 35 percent of its potable water and protecting 58 percent of the state's population. It estimated that the reservoirs had prevented billions of dollars of flood damage since their construction, a benefit-to-cost ratio of 8.2 to 1.

The District's military boundary was somewhat larger since it was also responsible for design and construction at the region's principal military installations not only in Texas but also in parts of New Mexico and Louisiana. Design and construction of barracks, family housing, training and aircraft facilities, schools,

child care centers, clinics, and hospitals were typical District projects at such posts as Fort Hood, Fort Sam Houston, Fort Bliss, and Lackland, Dyess, Randolph, and Laughlin Air Force bases in Texas, Fort Polk in Louisiana, and the White Sands Missile Range in New Mexico. The Galveston District and part of the Tulsa District had relinquished their military construction missions years before, so the Fort Worth District oversaw military construction within their boundaries as well. Among the most notable District projects over the years were support facilities for the B-1B bomber at Dyess (1985), the U.S. Army Sergeants Major Academy at Fort Bliss (1987), the III Corps Headquarters at Fort Hood (1989), and the Large Blast/Thermal Simulator at White Sands (1994). Likewise, from 1992 to 1996, the District had built the new 475-bed Brooke Army Medical Center at Fort Sam Houston, the largest military hospital in the world, at a cost of \$238 million. It also handled office space leasing for more than four hundred recruiting stations. All of these facilities were vital to the national defense, and maintaining them in a high state of readiness was a heavy responsibility to bear.

For fiscal year 2001, the District's work load amounted to \$689 million, with \$417 million allocated for Army projects, \$126 million for the Air Force, \$76 million for civil works, and \$30 million



Fort Worth District military boundaries.

(USACE Files)

for environmental-related projects. Forty million dollars was also allocated for the District's "Support For Others" (SFO) program, which included projects for federal agencies outside the District: the Immigration and Naturalization Service (INS), Drug Enforcement Agency (DEA), Bureau of Prisons, Federal Emergency Management Agency (FEMA), Federal Aviation Administration (FAA), General Services Administration (GSA), International Boundary and Water Commission (IBWC), Bureau of Engraving and Printing, Environmental Protection Agency (EPA), U.S. Postal Service (USPS), Fish and Wildlife Service, Occupational Health and Safety Administration (OSHA), National Park Service (NPS), Joint Task Force Six, and the Departments of Justice, Commerce, Energy, State, and Housing and Urban Development. These represented a growing customer base outside the District that recognized its unique engineering, design, and project management capabilities and sought to take advantage of it through long-standing collaborations. It was a win-win deal for all involved.⁶

The INS was a key customer, having chosen the District to serve as the agency's national account manager for planning, design, and construction activities across the United States. The INS account manager resided in Fort Worth and served as the "one door to the Corps," managing an annual multi-million-dollar program in which work was forwarded to appropriate geographic civil district project managers for right-of-first-consideration for execution.

The District also had a very important environmental mission as part of its portfolio. As the Environmental Compliance Assessment System district for the Southwestern Division, the Fort Worth District assisted U.S. Army, Army Reserve, and National Guard facilities with environmental assessments of their operations in accordance with the extensive environmental legislation and regulations on the books. The District also acted as the project manager for environmental remedial operations at active duty military bases for the Installation Restoration and Base Realignment and Closure (BRAC) programs. The District's work on the Formerly Used Defense Sites (FUDS) program, started by the Army in 1986 to repair environmental damage caused by

past military activities, was a top priority for safety reasons since unexploded ordnance and toxic wastes, including asbestos and other dangerous substances such as polychlorinated biphenyls, trichloroethylene, perchlorates, and heavy metals still contaminated the sites of old military posts located within the District's area of operations. The District also issued permits for and monitored waste discharges into waterways. As career USACE environmental manager Bill Fickel later put it, "Anything you do in the waters of the United States, you've got to come to the Corps for a permit." Many of the District's civilian customers took advantage of its environmental expertise and contracted for all types of assessments, surveys, investigations, testing, design, and remediation at their own sites. The work load became so heavy that the District created a new Environmental Division to handle it all.⁷

From an organizational standpoint, Wells now led an Executive Office and six divisions, with some nine hundred mostly civilian staff members, all working together as a well-oiled team. The six divisions included the Programs & Project Management Division, Operations Division, Contracting Division, Engineering & Construction Division, new Environmental Division, and Real Estate Division. The Executive Office served as the District's administrative and budgetary nerve center, carried out USACE policies and regulations, and coordinated all of the District's activities. The Programs & Project Management Division supervised a wide range of projects for the District's military, civil works, environmental, and other customers, while the Operations Division was responsible for managing the dams, lakes, and recreational areas. The Contracting Division handled District procurement matters such as solicitations, bids, and contracts, while the Engineering & Construction Division carried out actual design, site preparation, and construction work on the projects. And the new Environmental Division served as the District's principal investigator, planner, and enforcer of federal regulations concerning the environment and cultural resources.

The Real Estate Division played a quiet but equally important role in District operations, especially in the BRAC era. It was responsible for

the appraisal, acquisition, and disposal of land for both military and civil works projects located throughout the District. Additionally, the Real Estate Division administered the Homeowners Assistance Program (HAP) for the region. HAP was created in 1995 to financially help eligible civilian and military property owners who were unable to sell their homes under reasonable terms and conditions when the local real estate market was adversely affected by the closure or partial closure of a military installation or a reduction in its scope of operations. HAP offered three types of benefits. The first was the reimbursement of losses sustained in selling a home on the open market if that home's value had suddenly dropped below the amount owed on its mortgage because of BRAC. The next benefit was the government's acquisition of the home if reasonable efforts to sell it failed. Finally, the government offered reimbursement to affected homeowners for foreclosure expenses if it came to that.⁸

Fortunately for Wells, he had strong support from the Deputy District Engineer, Michael J. Mocek. Mocek had served both as Deputy District Engineer and as Chief of the Programs & Project Management Division since 1996 and was well respected among his peers. A retired Lieutenant Colonel in the U.S. Army Reserves, Mocek was a professional engineer and an adjunct faculty member at the U.S. Army Command and General Staff College at Fort Leavenworth. He had earned both his bachelor of science in agricultural engineering and his master of science in civil engineering at Texas Tech University before joining USACE in 1971. Most of his career had been spent in the Fort Worth District, with a detour through the Albuquerque District from 1980 to 1985 where he had been a project engineer for the Southern Colorado Project Office. Mocek would ably serve as the commander's right-hand man and ultimately play a key role in future District operations, even after Wells finished his three-year rotation.⁹

Wells could also count on a strong leadership team among the divisions to keep the District functioning smoothly. Larry O. Rogers, who led the Engineering and Construction Division, and Rogers's Assistant Chief, James D. "Jimmy" Baggett, became key advisors, as well as Dwight

Quarles, who ran the Operations Division. He also came to trust the judgment of Ronald J. "Ron" Ruffenach, who served not only as his Public and Legislative Affairs Officer but also as his Executive Assistant. Ruffenach became a good friend of Wells and helped him navigate the occasionally difficult waters of community and congressional relations, particularly on environmental and cultural resources matters.¹⁰

One of the very first issues that Wells had to address after taking command concerned damage to a Caddo Indian burial mound at Lake O' the Pines. He was summoned by Texas State Historic Preservation Officer Bill Martin to a meeting in Jefferson with the Caddos to explain why the District supposedly had cut through the mound during a park improvement project. "It was not an initial happy meeting," he recalled, but "we worked through it in a fairly friendly manner." The issue was resolved following discussions with Martin, Caddo chairperson LaRue Parker, Lake Manager Jerry Thomas, and District Archaeologist Dan McGregor, in which USACE drafted a Programmatic Agreement to identify a more comprehensive approach to enforcing federal laws and protecting cultural sites on federal property. The District also later facilitated a reburial and dedication ceremony at Jim Chapman Lake, and from that point forth, Wells enjoyed a good relationship with the Caddos.¹¹

Despite the abrupt introduction to the District's cultural resources issues, Wells's command transition was seamless. He soon settled into his office and, through the divisional leadership and staff, began managing the District's civil works and lake and recreational functions on a daily basis, reviewing and adopting new operating and use policies, updating hunting and fishing regulations, and authorizing maintenance, improvements, and repair to District parks, dams, and other related facilities. He took a special interest in water safety, and in May 2001, the District kicked off an extended water safety campaign targeting the three peak summer holiday weekends, Memorial Day, Independence Day, and Labor Day. "With another hot Texas summer approaching, thousands of people will be coming to our lakes to cool off," he said. "We want everyone to have fun and enjoy our lakes, but

we want them to be extremely careful so they can come back next year.”¹²

Water safety was a deadly serious business for USACE. In 1971, before any water safety programs existed, 475 drownings occurred at Corps lakes throughout the country. As the problem became endemic, USACE established a national campaign in 1986 with the theme “Your Safety—Our Concern,” and the number of drownings began decreasing significantly, to 230 that year even though visitation had doubled. By 1994, the number had decreased to 154 nationwide.¹³

The Fort Worth District had previously counted thirty-eight drownings at its lakes in 1996, twenty-four in 1997, thirty in 1998, thirty in 1999, and forty-six in 2000. This upward trend was unacceptable, particularly for young children, and since water levels were high because of heavy spring rains, Wells redoubled the District’s efforts to combat it. He directed Ruffenach and the Public Affairs Office to heavily promote a life jacket giveaway program at several lakes, in partnership with local safety and medical organizations. This program had originally begun in 1998 as a way to educate the public on water safety and correct usage of personal floatation devices, and he fully intended to continue it. “We see so many children at our lakes who either don’t wear life jackets or wear them and other personal floatation devices that are worn out, sized wrong, or totally unacceptable as life-saving equipment,” Wells said. He hoped that the public would heed the warning, but by late June, there were already thirteen confirmed recreational drownings in District lakes, all preventable. With the July 4 holiday coming up, Ruffenach issued an even more insistent Media Advisory, noting the deaths and the District’s concern that “many more may die if they don’t take water safety seriously.” “Please help us get this water safety message out to your audiences,” he pleaded, “because any body of water is a potential death trap.” His campaign was somewhat effective—there were only twenty-two drownings in 2001.¹⁴

Boating congestion was likewise becoming a major issue for Wells and the District, as Texas’s population was growing at an exponential rate and more and more people were using District



(USACE photograph)

James Murphy and park rangers from Lavon, Bardwell, and Whitney Lakes talk to the public about ecosystem restoration and water safety in downtown Dallas during the EPA Environmental Fair, April 25, 2002.

lakes for fishing and recreation. There were simply too many boats now cruising the lakes, resulting in higher incidences of collisions and near misses, and a new policy was clearly needed for water-related recreational development.

Requests for new marina development at Lewisville Lake in the 1990s had already sparked District action. In the fall of 1997, the District undertook a comprehensive study of Lewisville Lake, in partnership with the North Central Texas Council of Governments, acting on behalf of eleven governmental bodies and several leaseholders who agreed to share half of the study’s cost. The effort consisted of two phases, the first being a water-related recreation use study and the second a lake-wide programmatic environmental assessment. The entire study was completed in December 1998 and provided the District with the base-level information necessary to “determine and prudently allocate facilities and services required for new water-related development, including marinas.” On the basis of the study, the

District enacted a water-related development policy that went into effect in February 1999, which established a median safety standard of eighteen acres of water per boat. Fourteen acres per boat was considered the minimum and twenty-two acres per boat the maximum. The policy would be carried out by regulating future development and controlling the number and location of available facilities, including ramps and parking spaces, that contributed to the numbers of boats on the lake.¹⁵

With the Lewisville Lake policy thus set, the District realized that to some degree all of its lakes were experiencing increasing demand for surface space and little previous consideration had been given to future development. While the other lakes did not necessarily have the same boating use characteristics as Lewisville, there were common factors that contributed to water surface congestion, including the presence of USACE and outgranted boat ramp parking spaces, wet slips, and dry stack slips at marinas, yacht clubs, and private docks. Since the District's main concerns were resource protection, water safety, and user enjoyment as affected by the number of vessels

on a lake during peak use hours on peak use days, it decided to enact a blanket water-related development policy for the other twenty-four lakes. The restrictions were in line with other District resource management policies that placed constraints on visitors' use, such as requiring campers to use only designated areas, limiting the size of parking lots at beaches and picnic areas to reduce crowding, and limiting the numbers of hunters at some lakes to improve safety and enjoyment.

On April 30, 2002, Operations Division Chief Dwight Quarles and Real Estate Division Chief Hyla J. Head jointly signed a comprehensive new policy that established "a goal of 22 acres of water per boat during peak use times as the District's standard for resource protection and user enjoyment," effective immediately. This figure was derived from the more conservative (protective) extremity of the median range determined in the Lewisville study. Any proposal for development that would cause the protection level to fall beneath twenty-two acres per boat would automatically be rejected, but exceptions could be made on a case-by-case basis at the discretion of the



Park Ranger Justin Berndt at Lewisville Lake.

(USACE photograph)

Operations and Real Estate Division chiefs. The policy applied not only to future development to be done by the District but also to any new water-related development proposed by concessionaires and other lessees. "The impact of this policy will vary from lake to lake," Wells commented. "The biggest impact will occur at lakes which currently experience a high density of boating use."¹⁶

Along with boating congestion on the lakes, the District had to contend with another related issue arising from Texas's growing population and encroaching residential areas around its parks—that of off-road vehicle (ORV) use. Historically, the District had allowed recreational ORV use in designated areas at the lakes when there were no adjacent property owners who might be bothered by the noise. However, new residents who had bought lakeside property near the parks quickly became annoyed at the ORVs and started complaining to their elected officials, who in turn asked the District to intervene. For example, in July 2001, the City of Lavon formally requested that the Fort Worth District close an ORV area at Lavon Lake because of citizen complaints. The seventy-acre riding area had opened in the mid-1970s and was located in an old borrow pit where soil had been taken for use in the construction of the Lavon Dam. The District issued a public notice of the request, accepted comments from interested individuals and groups, and ultimately decided to permanently close the area, effective October 1, 2002.¹⁷

In another instance, the District was able to avoid taking such a drastic measure at Grapevine Lake by sponsoring a one-day workshop attended by District representatives, several ORV groups, the Grapevine Lake Preservation Association, the City of Flower Mound, and the Town of Trophy Club. The issue concerned the popular, highly used ORV area at the 877-acre Marshall Creek Park, which the District had established in 1974 as an alternative for ORV enthusiasts who were then riding in environmentally sensitive areas and prime wildlife habitat long the shores of Grapevine Lake. But as at Lavon, residential encroachment resulted in more pronounced conflicts between users and adjacent landowners. During the workshop, the District recognized that ORV riding was a "legitimate rec-

reational activity enjoyed by many individuals and groups," and that "ORV areas are becoming scarce around the Dallas/Fort Worth area as more and more of the existing areas or facilities close down." Consequently, after hearing all sides of the matter, the District then negotiated "reasonable operational rules and guidelines for ORV use in Marshall Creek Park consistent with federal, state, and local laws." These included: 1) removing the peninsula area/Marshall Creek Beach from ORV use and enclosing the remaining ORV area with pipe rail fencing; 2) controlling access to the park in such a way that allowed the managing agency to maintain an appropriate carrying capacity; 3) creating desired user features such as trails with differing difficulty levels and special features such as bowls, mud pits, and sand runs; and 4) monitoring use and performing regular patrols to enforce rules and regulations. This approach worked for Grapevine, but the District found itself embroiled in other conflicts both on the lakes and in the parks as the population of Texas kept climbing and new adjacent property owners kept complaining. Each was handled on a case-by-case basis.¹⁸

Formerly Used Defense Site (FUDS) work likewise occupied Wells during his first two years as commander, with the District continuing to remediate several World War II vintage sites, often with assistance from the Huntsville, Alabama, office, which was USACE's center of expertise in removing old ordnance and explosives. Among the latest sites discovered was the 52,000-acre former Camp Swift in northeast Bastrop County, about twenty miles east of Austin. It was used as an Army training post from 1942 to 1947 and was now occupied by the Lower Colorado River Authority, Bastrop Lake State Park, Texas National Guard, a medium-security federal prison, and agricultural and residential lands.¹⁹

The 40,000-acre former Camp Maxey, located approximately ten miles north of Paris, was also a problem. It too was used for World War II Army training and was now occupied by Pat Mayse Lake, a wildlife management area, a Texas National Guard training site, and private lands. Old ordnance and explosives still remained at the 60,000-acre former Camp Howze northwest of Gainesville, which had reverted to private agri-



The former U.S. Navy practice bombing range at Five Points Outlying Field is one of more than 800 Formally Used Defense Sites managed by the Fort Worth District.

(USACE photograph)

cultural use with some residences established there, and needed immediate removal. The District also had to deal with the former Navy Five Points Outlying Field, a dud-littered 1940s practice bombing range that had become a heavily populated residential and business area now known as South Ridge Hills and Twin Parks Estates in Southeast Arlington. In August 2002, the District launched an ordnance investigation of old Camp Bowie, yet another former Army training area comprised of 122,000 acres, located in the southern part of Brown County and the northern part of Mills County.²⁰

World War II ordnance was also turning up elsewhere. In one case, a farmer plowing his field in Palo Pinto County uncovered live hand grenades and ammunition. Explosive Ordnance Disposal (EOD) experts from Fort Hood retrieved the ordnance, but the District knew that a lot more was still hidden or lost out in the countryside, representing a potentially life-threatening hazard for private citizens. FUDS therefore remained a high priority for the District.²¹

The District's continuing flood control and risk management mission was an equally high civil works priority. In Texas, as Wells discovered, the climate was one of two extremes: years of

droughts separated by periods of excessive rain and flash flooding. All the rivers and waterways within the District were susceptible, but the Trinity River basin in the Dallas–Fort Worth Metroplex was especially vulnerable. The original Dallas Floodway had been completed in 1932, and the District had rebuilt it in the 1950s, finishing work in May 1960 at a federal cost of \$8.3 million. Flash flooding continued, however, and in the 1960s, local business interests prodded the District to include in its master plan the construction of a large, environment-altering canal to divert the water. Environmentalists vociferously opposed the proposal for a Trinity River and Tributaries Project, and a messy political and legal fight ensued in the early 1970s. A 1973 federal court injunction barred the District from doing further work on it and any of its components, and a failed bond referendum effectively killed the canal.²²

Meanwhile, a Dallas Floodway Extension (DFE) had been authorized by the Rivers and Harbors Act of 1965 (Public Law 89-298) for flood damage reduction in the Trinity River basin. Because of the fallout from the failed canal project, the federal injunction, and vigilance from emboldened environmentalists, USACE made little effort to pursue the DFE until the 1980s. The

project suffered yet another setback in 1985 following another failed bond election in the city of Dallas, but in 1987, the Fifth Circuit Court of Appeals vacated the 1973 injunction and dismissed that original case in its entirety, thus clearing the way legally for the future. Flooding in 1989 and again in 1990 prompted the City of Dallas to ask the District to ramp up the DFE project, and the District agreed, but on the condition that a General Reevaluation Study be done before any new construction took place to ensure that the project, as originally authorized, was still feasible under the current laws and regulations.²³

The reevaluation revealed that the original DFE plan was no longer cost effective, environmentally acceptable, or even socially acceptable from the City's standpoint. So from 1991 through 1998, the DFE plan underwent an extensive redesign with close coordination and involvement of the local sponsor, interested stakeholders, and the general public. In 1998, USACE released the new DFE plan, which satisfied both federal and state laws and regulations as well as other political, environmental, and social criteria that were important to the City. Rather than making heavy, concrete-based structural alterations to the river and its tributaries, which environmentalists

had long reviled, DFE now incorporated such features as earthen levees on both sides of the river, a 3.7-mile chain of wetlands, and new recreational use features such as thirty-one miles of nature trails. Since the thick growth within the Great Trinity Forest typically slowed water flow during heavy rain and flood events, the proposed wetland cells were vital. These narrow, shallow pools of water would be interconnected, and would provide a secondary path for the floodwaters to flow through the Great Trinity Forest more quickly, both reducing water levels upstream in the downtown area during floods and serving as diverse habitats for the native wildlife.²⁴

The DFE plan also included new levees at Cadillac Heights and along Lamar Street, and, at congressional direction, the improvement of the Rochester Park and Central Wastewater Treatment Plant levees within the system. The Great Trinity Forest itself was likewise expanded through the acquisition of almost 1,200 acres of environmental mitigation land. To help pay for it, Dallas voters authorized the largest bond package in city history in May 1998—some \$246 million—for flood control, transportation, and recreation projects in the Trinity River Corridor. The city's cost sharing portion for DFE was \$24.7

Dr. Gary O. Dick supervises the Dallas Floodway Extension wetlands project for the Lewisville Aquatic Ecosystem Research Facility. The project uses an adaptive management strategy to create the new wetlands, building on lessons learned at each site. Cell D, the most mature of the wetland cells, was first excavated in 2004. The cages help aquatic plant colonies get established by protecting them from grazing by turtles and common carp.



(USACE photograph)

million. For its part, USACE provided \$127 million in federal dollars as its fundamental contribution. If built, the DFE would provide most of Dallas with 800-year flood event protection.²⁵

In December 1999, the District completed a required three-year environmental study of the overall project and issued a draft Programmatic Environmental Impact Statement. In September 2000, after a two-month public review process earlier in the year in which the District received numerous comments both at public meetings and through telephone calls and correspondence, Wells released a Record of Decision, thereby clearing the final internal administrative hurdle for DFE construction to begin. Two complications intervened, however. The first was a couple of lawsuits filed in May 2000 by environmental groups seeking to stop the project. In the first suit, the Sierra Club accused the District of violating the 1973 injunction against further work on the Trinity River Project, including DFE, and sought a permanent injunction. The second suit was jointly filed by several other environmental groups and accused the District of:

- Manipulating Computer Model Analysis;
- Ignoring the Cumulative Impact of the DFE Project and Past Actions on Water Surface Elevations;
- Failing to Meet “Full Disclosure” Requirements Regarding Overtopping of Levees;
- Failing to Fully Disclose Extent of Flooding in Downtown Dallas;
- Failing to Fully Disclose Economic Analysis of Benefits to Downtown Dallas;
- Failing to Consider Reasonable Alternatives;
- Failing to Consider “Connected Actions” and their “Cumulative Impacts;”
- Failing to Follow the District’s Own Record of Decision; and
- Inconsistently Applying the Water Resources Development Act of 1999.²⁶

In late 2000 and early 2001, the District went to court to fight for DFE. In the first case, the U.S. Attorney, representing USACE, argued that the Fifth Circuit Court of Appeals had already lifted

the 1973 injunction and thus rendered the suit moot. The Federal District Court for the Southern District of Texas (Houston) agreed and dismissed it in March 2001. In the second case, filed in the Northern District (Fort Worth), the U.S. Attorney argued that the allegations were baseless, and in April 2002 the court dismissed all of them except one. In his summary judgment, Judge Terry Means ruled that USACE needed to “further consider the cumulative impacts of other similar, reasonably foreseeable future projects in the same geographical area as the DFE project.” Means, therefore, ordered USACE to stop work on DFE until this matter was resolved. The District complied, and Wells directed the preparation of a supplement to the recent Environmental Impact Statement addressing the judge’s concerns. Since the order did not require the Corps to re-evaluate any flood reduction features or the environmental benefits of the DFE project, Wells noted that design work would continue on the remaining wetlands and levees, construction of which would be delayed for about a year.²⁷

The second complication for DFE was a hesitant White House Office of Management and Budget (OMB), which balked at DFE’s price tag and believed that USACE had ignored other, more cost-effective options such as raising the existing Dallas Floodway East Levee and buying out homes of willing sellers in Cadillac Heights rather than building new levees. OMB Director Mitchell E. Daniels, Jr., wrote to Secretary of the Army Thomas E. White on October 3, 2001, and expressed his objections to the project. Under Federal Principles and Guidelines, USACE had to evaluate all reasonable alternatives and their impacts and identify the option with the greatest net economic benefits consistent with protecting the nation’s environment. “Based on our review,” Daniels wrote, “the Corps has not done so in this case, and a renewed effort that may well lead to a fundamentally different project appears to be in order.” Moreover, the Corps had, in Daniels’s opinion, “presented an incomplete picture of the available choices and their impacts, and prevented an informed public discussion of the merits of the proposed project.”²⁸

Daniels’s letter stung USACE. In response, the Fort Worth District prepared a point-by-point

rebuttal and forwarded it to Assistant Secretary of the Army (Civil Works) Mike Parker, who then sent it to Daniels along with his own cover letter defending the project. Parker told Daniels that "I am of the firm opinion that the Corps followed the Federal Principles and Guidelines and formulated a technically sound, economically justified, and environmentally and socially acceptable project." He then briefly outlined the project's history and forcefully argued that "the authorized multi-purpose DFE project is complete, acceptable, effective, and efficient, and solves flooding problems in a manner that is consistent with protecting the Nation's environment."²⁹

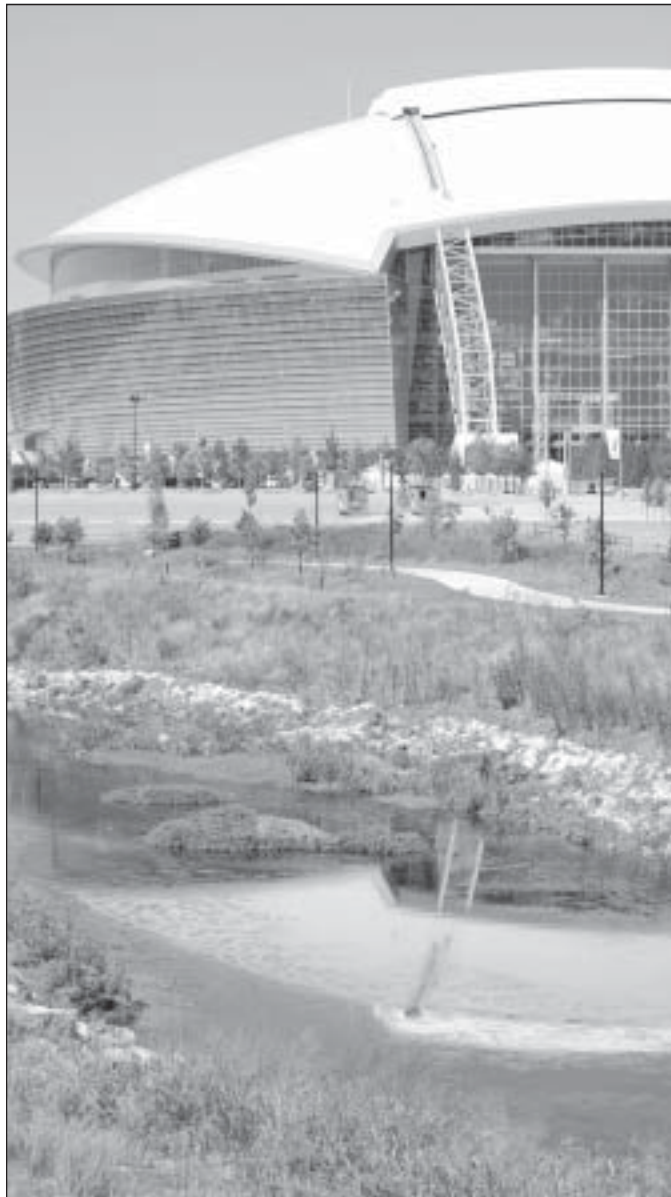
Additionally, Daniels's proposal for a limited buy out at Cadillac Heights was uninformed, Parker said, since the remaining homes and businesses would continue to be subject to frequent flooding and damage. Moreover, the cost of evacuating all the structures in the Cadillac Heights area would be more expensive than the levee proposed in the DFE project. Finally, Parker pointed out that Daniels's suggestion of raising the Dallas East Levee in lieu of the DFE project would leave the Lamar Street area subject to continuing flooding. OMB's alternatives were therefore unworkable, and he urged Daniels to "reconsider your position and join the citizens of Dallas and the Congress in supporting construction of the Dallas Floodway Extension Project." Ultimately, federal funding remained in place for DFE, but the project was slowed even further by the bureaucratic wrangling.

OMB's concern over cost reflected the conservative budget-cutting agenda of the new administration of President George W. Bush. Bush planned to reduce USACE's budget by 14 percent for fiscal year 2002, and the Fort Worth District's flood control projects were on the table. Because of OMB's intense scrutiny and the looming budget cuts, USACE changed its flood control philosophy in 2001. Chief of Engineers Lieutenant General Robert B. Flowers accordingly issued a new directive ordering the District to review all other options before proceeding with future levee construction in flood plains. "We have been told to take a hard look at the way we do things in flood plains," he said. "More and more, there is going to be a press to find alternatives."

Therefore, there would no longer be an automatic assumption within USACE that structures were the best solution for flood control.³⁰

The Johnson Creek flood control project had been under the same OMB microscope as DFE and became representative of the new policy. Johnson Creek was a relatively small, seemingly harmless stream that originated south of Interstate 20 and ran northeast through Arlington. During periods of heavy rain, though, it often overflowed its banks and flooded nearby residences and businesses, including the Six Flags over Texas amusement park. In the past, USACE had proposed turning the creek into a concrete-lined channel, but in the 1990s, Arlington authorities proposed a \$115 million-plus plan to create an eleven-mile green belt that could absorb storm-water runoff and provide recreation opportunities through hike-and-bike trails. But proposed sales tax hikes to pay for the project failed at the ballot box in 1998 and 2000.³¹

Congress had originally authorized a federal flood control project for Johnson Creek in 1999 but did not fund the federal share of \$11.7 million. President Clinton had not funded it either in 2000, but area congressmen were successful in getting \$6 million included in the fiscal year 2001 budget to get it started. The City of Arlington provided \$6.67 million in matching funds. Most of this money was spent buying out 140 flood-prone homes between Park Row Drive and Collins Street. The rest was allocated for seventy picnic areas, 2.25 miles of hiking and biking trails, and the purchase of about 150 acres of forested land for ecosystem restoration. Although the District was confident that the project would survive due to previous budget negotiation practices in which projects already underway kept their funding, the Bush administration slashed \$3.1 million out of the \$6 million. Local legislators again went to work and lobbied President Bush directly. Enough funding was eventually restored to finish the project, which ultimately cost \$26 million, with timely help from Dallas Cowboys owner Jerry Jones and Texas Rangers owner Tom Hicks, both of whom wanted to build new stadiums along Johnson Creek and promised \$4 million to the flood control effort.³²



(Clayton A. Church, USACE, Ft. Worth District)

Johnson Creek in Arlington, Texas, with Cowboy Stadium in the background.

Following Flowers's directive to develop and implement alternative flood control measures for future projects, the District also presented an environmentally friendly plan for Little Fossil Creek at Haltom City in June 2001. Seeking to reduce flood damage between the Belknap Street bridge and the corporate border with Fort Worth, the plan recommended the improvement of 7,350 feet of channel beginning upstream of Midway Road and extending downstream

about 1,100 feet beyond the Railtrain railroad bridge. It would involve the removal of 369 structures from the 100-year floodplain and would cost an estimated \$11.8 million, with annual net benefits of \$1.6 million. The District likewise prepared a similar flood reduction plan for Pecan Bayou and Willis Creek in Brownwood, which included a draft feasibility report and an Integrated Environmental Assessment.³³

Despite USACE's new flood control philosophy, the District's twenty-five dams were still the primary means of controlling large-scale flooding events such as at Lake O' the Pines, where excessive rains and severe flooding severely damaged a number of parks and boat ramps in March 2001. This particular flood revealed to Wells the inherent tension between USACE's flood risk management mission and facilitating recreational and economic use of the lake. Since the dam was originally built to protect downstream interests in Shreveport, Louisiana, at a time when there were few residents or businesses at the non-flood control Caddo Lake, which sat squarely between the dam and the city, the District had allowed the water to remain high behind the dam over the years for recreational purposes. When the heavy rains came that winter, culminating in the March flood, businesses and residences in Caddo were swamped after the District Lake manager had to release water at Lake O' the Pines as required by the dam's master control plan. The Caddo residents there were furious at USACE. They demanded that the District change its policy and that Lake O' the Pines dam revert back to its original flood control mission, even if that meant hurting recreation and businesses there. The concessions and businesses at Lake O' the Pines, on the other hand, wanted no changes in how the District managed the dam and its water. The District was caught in the middle with no easy answers for either competing group but promised to talk to the Caddo residents and review the water control policy at Lake O' the Pines.³⁴

The true value of the District's flood control dams became readily obvious a year later

when Canyon Lake, located about thirty miles north of San Antonio, experienced a historic 250-year flood of record, with spectacular results. The flood began when a low pressure storm system swept in over the Hill Country from the Gulf and then stalled, dumping a year's worth of rainfall between June 29 and July 6. During this week long deluge, the rainfall averaged about twenty-two inches per day, but a few places were apparently subjected to over fifty inches at times. A previous flood had occurred in 1998 further downstream, doing extensive damage and killing forty-three people as well as some 75,000 head of cattle. That flood paled in comparison with this one, however, in which the Guadalupe River overflow reached biblical proportions as the rain kept pouring down into the watershed.³⁵

Canyon Lake was already full at a normal 909 feet above mean sea level (msl) because of heavy spring rains. The high-hazard dam itself was large and very strong—it was designed as an impervious earth fill embankment. It was 4,410 feet long and had a maximum height of 224 feet above the streambed. Because the dam was much wider than it was tall, it was inherently stable and unlikely to fail. But there was a real danger that the excess water would crest the top of the emergency spillway, a 300-yard-wide earthen chute at 943 msl that served as a relief valve, and perhaps even the dam itself, and then roar down the valley towards New Braunfels, some twenty miles away. Seguin, Cuero, and Victoria, located farther downstream, were similarly threatened.

Colonel Wells remembered that week well. Ironically, he had just been in San Antonio several days before with the District's Engineering & Construction Chief Larry Rogers discussing the drought that was then gripping central Texas and its impact on the Edwards Aquifer, which was very low. After he left, the storm arrived and parked itself over the Upper Guadalupe. Reflecting on the flood later, he described how the storm was unusual in that it kept circulating over and over again, and how from a satellite image it looked like a "bull's eye over the Guadalupe River watershed, leading into Canyon Lake."³⁶

Wells was at a July 4th picnic when the flood began reaching a critical stage. Operations

Chief Dwight Quarles finally called him and said, "I think it's probably time to head down there." Leaving his brand new deputy commander, Lieutenant Colonel Robert Morris, to run the Fort Worth District headquarters, Wells packed up and immediately headed for Canyon Lake. He traveled with Quarles, Public Affairs Officer Ron Ruffenach, and Deputy Public Affairs Officer Judy Marsicano, who was driving. When they arrived, they found the lake water high but very quiet. However, water was beginning to dribble over the spillway.³⁷

At the dam's office, Lake Manager Jerry Brite briefed Wells and Quarles on the current status of the dam and its recreational areas. All the USACE campgrounds, day-use areas, and boat ramps were already under water, and he predicted that the impending overflow could dump up to 50,000 cubic feet of water per second (cfs) into the river, more than one hundred times the normal flow rate. As directed by his boss, District Chief Reservoir Officer Paul Rodman back in Fort Worth, Brite had not released any water yet beyond the 150 cubic feet per second flow normally authorized for the Guadalupe Blanco River Authority, in accordance with USACE regulations, which did not allow dam operators to open the floodgates if the river was full downstream. The determining point was at Gonzales, where the river reaches flood stage at 12,000 cfs. On July 3, the river was already flowing at close to 17,000 cfs, and sending more water downstream would only worsen it. Brite thought that it would take several days before USACE could begin making controlled flood releases from Canyon Lake.³⁸

Wells ordered his team to start contingency planning and then met with local government figures, including New Braunfels Mayor Adam Cork, Sheriff Bob Holder, County Emergency Management Coordinator Carol Edgett, County Engineer Tom Hornseth, and Comal County Judge Dan Scheel, with whom he would develop a close working relationship during the coming days and weeks, taking helicopter rides up and down the Guadalupe River together looking for potential trouble spots. The two Public Affairs Officers dealt with the media and issued daily news releases to keep the public fully informed about what was happening at the lake and dam.³⁹

The watershed absorbed much of the water above the reservoir, which was exactly what USACE wanted to happen during major floods. As a result, the District and local authorities had time to get residents out before the water reached the top of the spillway. However, Brite's prediction about when the first releases would be made proved to be off the mark. At 3:30 p.m. on the afternoon of July 4, the water finally reached 943 msl and began emptying through the spillway and into the channel toward the Guadalupe at an initial rate of 20,000 cfs. This was the first time that floodwater had ever gone over the spillway since the dam's completion in 1964. The spillway was designed to carry flows greater than 500,000 cfs, so it was more than able to handle the flood. Still, to take some pressure off the spillway, Rodman, who had been up all night in Fort Worth monitoring the weather forecast and watching the hydrographs, ordered Brite to open the floodgates. They both now thought that if the rains continued, the spillway discharge might exceed 100,000 cfs in the coming days. It would take approximately six hours for the rushing water to reach New Braunfels and nine hours to reach Seguin.⁴⁰



(USACE photograph)

On July 4, 2002, the water level at Canyon Lake reached 943 meters above sea level and began emptying through the spillway. This was the first time the floodwater had ever gone over the spillway since the dam's completion in 1964.

By July 6, the spillway discharge had become a raging torrent, achieving a maximum discharge rate of 66,800 cfs, comparable to Niagara Falls on an average day. The lake itself reached a record height of 950.32 msl, or 7'4" above the spillway. Observers who witnessed the billions of gallons of water surging out of the dam stood in awe of the spectacle and never forgot what they saw. The flood became a sensational media story, with hundreds of news articles and television broadcast reports covering events at the dam, accompanied by dramatic photographs and video of the overflow. Unbeknownst to USACE and local officials at the time, the water was gouging away an enormous amount of loose rock, gravel, limestone, and woody material at the base of the spillway. The dam's heavily used South Access Road, which lay directly in the path of the water, was cut in half and would be out of service indefinitely, with serious political and economic consequences for the community. The debris was swept about a mile and a half downstream before piling up and plugging the Guadalupe River. The 100,000-cubic-yard plug then backed the river up all the way to the discharge channel, causing more rock and debris to slide into the stilling basin, making further operation of the floodgates unlikely because of potentially excessive turbulence, which might damage the concrete structures of the outlet works and stilling basin.⁴¹

By July 9, the danger was over. The storm had dissipated and the rain mostly stopped. Nine people had died during the deluge, and some 48,000 homes had either been damaged or destroyed along a twenty-mile stretch of the Guadalupe River. The District quickly assessed the damage to the lake, the overflow channel, and the surrounding recreational areas and began the cleanup. It estimated that throughout the crisis, approximately 700,000-acre-feet of water had entered the reservoir (one acre-foot of water is the volume of water that would cover an acre of land to a depth of one foot). This was enough to fill the Canyon Lake flood pool twice. If the dam had not been there, the District calculated that the flows in the Guadalupe would have crested three times at rates in excess of 80,000 cfs, with a maximum discharge of over 126,000 cfs at New Braunfels. Since the observed peak

there was about 69,300 cfs, the dam cut the maximum flow roughly in half.⁴²

Peak flows reached 64,700 cfs at Cuero and 72,600 cfs at Victoria. Without Canyon Dam in place, the flows at Cuero would have been about 103,000 cfs and about 113,000 cfs at Victoria. Initial District estimates indicated that the dam prevented \$38.6 million in damage at New Braunfels, \$41.6 million at Cuero, and \$6.1 million at Victoria. All in all, the dam did its job well, despite post-flood public questions about the timing of the first releases, which ultimately made no difference in New Braunfels considering the sheer amount of rain that drenched the Guadalupe watershed.⁴³

On July 11, volunteer divers, under District direction, examined the dam's underwater structure and found it undamaged. But because of the huge jumble of rocks and debris laying in the stilling basin, it would take nearly a month to clear it all out and allow operation of the floodgates to resume. The lake elevation in the meantime was 944.5 feet msl, approximately one and a half feet over the spillway, with approximately 4,700 cfs of water still flowing. The flood channel was still covered in deep water because of the plug a mile and a half downstream. To remove it, the District issued an emergency contract on July 15 to Phillips and Jordan, Inc. of South Carolina. The contractor moved in quickly with heavy excavation and debris removal equipment and cleared the blockage by July 26. A smaller second plug located at the confluence of the spillway channel and the Guadalupe was cleared on August 8 and 9.⁴⁴

Meanwhile, the District installed a temporary coffer dam in the outlet channel below the stilling basin, pumped out the remaining water, and removed the jumbled rocks and debris there. On August 10, the District reopened the floodgates and began lowering the still dangerously high flood pool behind the dam. Its strategy was to make enough releases to bring the lake level down to several feet below the spillway, at which point lower volume releases would begin so that the heavy equipment could continue the debris removal operation. Lake Manager Jerry Brite started out by ordering minimal releases of be-

tween 400 cfs and 500 cfs, but he hoped to achieve a maximum rate of approximately 5,000 cfs with the gates wide open in order to regain flood control storage capacity at the lake. District rangers were stationed downstream along the Guadalupe River to monitor water levels and channel conditions as the release rate was increased. Weather forecasts predicting more rain complicated operations, but by August 14, the lake level had dropped to 941.88 feet msl, and the water flow over the spillway stopped.⁴⁵

By August 28, the lake level had dropped more than twenty feet and boating was allowed to resume, with the caveat that the lake still contained a lot of floating debris and submerged trees, picnic shelters, utility poles, and other unknown objects, which could cause injuries or even death and considerable damage to boats. All other recreation facilities remained closed, including roads, parks, campgrounds, and day-use areas. Another month was needed to draw the reservoir down to the conservation pool of 909 feet, at which point the District inspected the park areas and decided to keep most of them closed indefinitely, considering the damage sustained and lack of repair funding.⁴⁶

On that same date, the District hosted a meeting with representatives of Comal County, FEMA, the National Resources Conservation Service (NRCS), the State of Texas, and the project sponsor, the Guadalupe-Blanco River Authority (GBRA), to discuss lingering flood-related issues, find workable solutions to the problems facing Comal County concerning the debris cleanup, and outline each agency's authorities in that area. During the meeting, USACE informed the other participants that the extent of its legal authority was limited to 1) missions assigned by FEMA under the Stafford Act, and 2) debris removal necessary to bring the flood control project back to its full operating capability. The NRCS representative outlined its program of cost sharing on a 75/25 basis, with the local sponsor, Comal County, determining the locations and priorities for the work. This, along with FEMA's program to buy out homeowners whose dwellings were destroyed by the flood, solved most of Comal County's immediate problems. USACE, for its part, formed a Post-disaster Team to do a project

review to determine whether any engineering solutions could be developed to prevent future events from rendering the flood control dam inoperable as had happened this time.⁴⁷

Another meeting was held on October 17 between District representatives and Comal County Engineer Tom Hornseth to discuss county plans for re-opening the South Access Road and replacing a nearby bridge that was also washed out. After finding Hornseth's proposal and cost estimate acceptable, the District expedited its internal USACE permitting processes to get things moving. A January 31, 2003, deadline was set for completing the road and bridge replacement work. In Washington, Colonel Wells met with local Congressman Lamar Smith's Chief of Staff, emphasizing that USACE would continue to work closely with all key parties during the rebuilding and restoration process. In Fort Worth, Ruffenach maintained close communications with Smith's district representative, O'Lene Stone.⁴⁸

Phillips and Jordan completed its excavation work on the channel and reestablished its capacity to pre-flood conditions on October 30. By then, the excess waters below the spillway and basin had receded enough to reveal that a scenic new gorge had been carved out of the limestone by the overflow, exposing the Edwards aquifer, the Hidden Valley Fault, and 110-million-year-old fossils and dinosaur footprints, as well as creating a wholly new ecosystem with natural springs, waterfalls, and pools. The gorge was nearly a mile long, hundreds of yards wide, and seventy feet deep in places. It was a naturalist's dream, and after USACE re-opened the area to the public in 2003, a large number of geologists, paleontologists, hydrologists, biologists, and experts in other scientific fields began visiting it for research purposes. When members of the GBRA toured it, they were astounded. "It is absolutely phenomenal," said GBRA Director Myrna McLeroy. "I never dreamed it was like this. This is something



(Edward Rivera, USACE, Ft. Worth District)

Roaring down the spillway at a peak flow of 70,000 cubic feet of water per second, a flow rate greater than Niagra Falls, the water carved a gorge hundreds of yards wide and 50 feet deep.

the people of Texas need to see. It's educational. It's beautiful."⁴⁹

In November 2005, USACE and the GBRA signed a cooperative agreement to begin developing the Canyon Lake Gorge as an educational and natural resource. County Judge Danny Scheel was on hand at a celebratory picnic held on a limestone shelf near the spillway. "If it weren't for the leadership and the positive attitude of the Corps of Engineers and all of those involved, things could have been much worse," he said. "It's fitting that we celebrate this agreement here and continue our partnership to preserve and share this resource with everyone."

To protect the new ecosystem, the exposed rock strata, and the fossils, USACE restricted access to the gorge only to credentialed researchers and guided tour groups. In November 2006, a local nonprofit citizens group called the Gorge Preservation Society formed to promote the enjoyment and conservation of the gorge by encouraging responsible, quality access opportunities through academic partnerships, economic initiatives, and citizen involvement. The society partnered with the GBRA and USACE to help achieve these goals and assumed responsibility for managing the guided tours and for certifying guides and docents.

Most of the USACE parks were re-opened by Memorial Day 2003. But the affected communities took several years to recover from what was truly a historic flood that fundamentally changed both the landscape and their economic livelihoods. Most of the property owners downstream whose homes were wrecked or obliterated were able to

obtain FEMA buy outs and got on with their lives. In the following months and years, USACE conducted a number of internal analytical studies of the flood and how the Canyon Lake dam performed in order to prepare itself for similar events that might occur in the future, both at Canyon Lake and the twenty-four other dam projects in the Fort Worth District. Among the "lessons learned" were that flood plains below the dams needed to remain free of residences and other structures, and that the well-designed and -built flood control projects were good investments that had already paid for themselves many times over, since the damage could have been even worse, with many more lives lost, if they did not exist.

Despite the frightening 2002 Canyon Lake flood and the intense public scrutiny that accompanied other major rainfall events—as well as the pressure associated with other high-profile environmental, recreational, and park issues—Colonel Wells found civil works interesting. However, as he later observed, "If you're the Fort Worth District Engineer, you almost always get pulled into military-type issues." And thus he did, with the country now engaged in a Global War on Terror (GWOT) following the terrorist attacks of September 11, 2001, and the start of Operation Enduring Freedom in Afghanistan. USACE was at war too, and Wells returned to Fort Worth to begin planning the District's participation in the forthcoming Iraq campaign, a brand new front in GWOT in which he and others would actually deploy as key members of the Army's in-country reconstruction team once the regime of Saddam Hussein was toppled.⁵⁰



CHAPTER 2

The Fort Worth District at War

On the bright, sunny morning of September 11, 2001, Al Qaeda terrorists hijacked four airliners and flew two of them into the twin towers of the World Trade Center in New York City, another one into the west side of the Pentagon, and the last one into a field near Shanksville, Pennsylvania. Nearly three thousand innocent people were killed during the attacks on that fateful day, now remembered as 9/11. The nation was gripped by fear, heightened soon after by the mailing of anthrax-laced letters to two U.S. senators and several news media offices. These actions suggested that an extended, multi-level, internal terrorist campaign was under way. On October 7, after a three-week federal investigation unveiled the identities of the nineteen hijackers, President George W. Bush announced the “global war on terror” (GWOT) against Al Qaeda, along with its affiliates, and any government that either harbors terrorists or supports them. Air strikes in Afghanistan, followed soon after by the arrival of U.S. special forces and intelligence operatives, signaled the start of Operation Enduring Freedom, which was aimed at overthrowing the Taliban government that sheltered Al Qaeda, as well as the destruction of the terrorist organization itself.¹

Colonel Wells was in a management meeting at the Fort Worth District headquarters on 9/11 when Ron Ruffennach came in and told him that a small Cessna-type plane might have flown into one of the World Trade Center towers, as news outlets initially reported. Wells’s reaction was muted, but when Ruffennach returned with an update that the crashed airplane might have been bigger than previously thought, he turned on a television just in time to see the second airliner plow into the South Tower. As it became clear that this was no accident, Wells noticed a palpable fear descending on the room, with his staff members asking “Oh, my gosh, what’s going to happen next?” News soon came about

the Pentagon strike, and then the Shanksville crash. Like many others, particularly in the military, Wells understood the enormous implications of what had just happened. “That day is burned in my memory,” he later recalled, and once it sank in that the country was now at war, he invited those in the room to pray with him. He then said, “Now, let us get about our business and figure out what we need to do moving forward.”²

The immediate priority was to account for all of the District’s personnel. There were several people that Wells was concerned about, especially Larry Rogers, the chief of the Engineering and Construction Division, who was in Washington, D.C., that morning. After several tense, worrisome hours, Rogers and the others finally reported that they were safe but could not get back to Fort Worth for at least several days since the Federal Aviation Administration had grounded all U.S. air travel indefinitely. Instead of waiting for flights to resume, Rogers rented a car and drove all the way back to Fort Worth from Washington. Meanwhile in Fort Worth, the Fritz G. Lanham Federal Building, which housed the District headquarters, was locked up, with many of its employees leaving voluntarily by midday.³

Relieved that his staff had survived the attacks uninjured, Wells now swung the District onto a war footing. He placed the District on Force Protection Condition Delta, the highest in the U.S. military. He directed USACE employees to be alert for anything suspicious or out of the ordinary, especially at the District’s twenty-five dams and reservoirs. The dams controlled thirty-five percent of Texas’s water supply, and were accessible to the general public. Roads crossed many of the dams, making them particularly vulnerable to attack. Conceivably, terrorists might drive trucks laden with explosives or chemical or biological contaminants over the dams and either blow up key structures or poison the reser-

voirs. The resulting damage to the water supply could be catastrophic.⁴

Within days of 9/11, the threat within the Fort Worth District area soon became abundantly clear. In one incident, somebody planted a pipe bomb near a dam water works. The local bomb squad quickly arrived and defused it. In another, perhaps even more ominous incident, a very questionable group of individuals, appearing to be of Middle Eastern descent, appeared at Lewisville Lake, which supplies the city of Dallas with its water. They asked the USACE rangers at the lake some very strange questions. "If we wanted to do damage to the outlet works," one of them queried, "how would we do it?" Alarmed, one of the rangers whipped out a digital camera and surreptitiously snapped some photographs of the group, their car, and its license plate. He then emailed it to District headquarters, which forwarded it to the Federal Bureau of Investigation (FBI). The FBI responded within minutes, telling Wells that, "We've been looking for those people. Is there any way you can detain them?"⁵

USACE did not have the legal power to arrest anyone at its lakes, but Wells agreed to stall the suspicious men until the FBI could get to Lewisville. As it happened, the group was signing up for annual passes for access to the central Texas lakes. The rangers used an old



(USACE photograph)

Robert Chapman, Operations Manager for the Little River Project, was deployed to Ground Zero in New York as a Resident Engineer and Debris Quality Assurance Inspector.

bureaucratic trick of adding more and more paperwork to the permitting process to keep them onsite. "Well, here're the forms you've got to fill out... Oh you know, I think we gave you the wrong form. Here, let's try this one." The ruse worked. The FBI swooped in and picked the men up, and took them back to the FBI Field Office in Dallas for interrogation. Wells later learned that their visas were not only expired, but that their travel was supposed to be restricted only to New York City. Moreover, they had engaged in some computer misconduct at the University of North Texas in Denton. They were later deported after the FBI was finished with them. Wells praised the rangers for their vigilance. "Our guys did a fabulous job... we have some real heroes out there in this district."⁶

This incident, and others, sent shivers throughout USACE. Paul Krebs, the District Chief of the Emergency Management and Security Law Enforcement Office, later remembered the fear that permeated the District, as the public tried to do its part by reporting people showing undue interest in the lakes and the Lanham Federal Building in Fort Worth, taking pictures and acting suspiciously. "It was like we saw terrorists underneath every bush," he said, but considering that the April 1995 Oklahoma City bombing was still raw in law enforcement minds and that bomber Timothy McVeigh had apparently considered targeting Dallas-Fort Worth, "we took every report just totally seriously."⁷

Krebs activated the Emergency Operations Center (EOC) at the District headquarters with daily briefings for Wells and the command staff. While the General Services Administration (GSA) installed security equipment at new checkpoints in the Lanham Federal Building, the District followed USACE's lead by tightening security at its lakes and parks. Public tours of the dams ended and the rangers limited vehicle access near sensitive infrastructure. The District also placed the lakes under twenty-four hour surveillance, with increased ranger patrols, and restricted foot traffic near the dams themselves. Local law enforcement and the Texas Parks and Wildlife Department teamed with USACE to help secure the vulnerable dams. Further, a two-lane county road that connected Avalon and Lavonia was

closed indefinitely because it crossed Lavin Dam. Speaking for the District, Anita Horky told local news media that, "It's really hard to know what a terrorist might think, so we are adding security measures to all of our facilities." Likewise, Ron Ruffennach warned that the rangers would be questioning anyone, even lake patrons, who engaged in anything that could be considered suspicious, including taking pictures.⁸

While USACE was locking down access to its dams and other related facilities, the U.S. government began building an international coalition to take on Al Qaeda, and launched Operation Enduring Freedom on October 7, 2001. Military planners at the Pentagon and at the U.S. Central Command at MacDill Air Force Base in Tampa, Florida, anticipated a long war requiring significant engineering support. They turned to Colonel Wells and the Fort Worth District to develop new ways of bringing USACE expertise to the combatant commands, particularly in the emerging Middle East and Southwest Asia war zones.

Wells was the obvious choice for leading the effort. Before taking command of the District, he had been involved in a project at USACE headquarters called Field Force Engineering that studied the theoretical deployment of highly skilled military engineers into the theater of operations. These deployed engineer teams would provide onsite engineering services and be able to "reach back" to USACE specialists in the United States for additional support using organic networked satellite and computer communications. It was a new concept and utilized cutting-edge technology, but had never been tested in a real war.⁹

Wells accepted the mission and the District went into rapid response mode as Operation Enduring Freedom was ramping up. Deputy District Commander Lieutenant Colonel Emmett "Lem" DuBose took charge of setting up a global communications strategy for secret-level discussions and conferences. To provide the necessary supporting high-tech equipment, the District relied on the Waterways Experiment Station



(USACE photograph)

Lt. Gen. Robert Flowers (front and center), Chief of Engineers, attends a briefing while in Iraq. Also pictured are Brig. Gen. Steven R. Hawkins (front left), Commander, Combined Joint Task Force-IV; Brig. Gen. Robert Crear (front right), Commander, Task Force Restore Iraqi Oil; Col. Gordon Wells (second row, left); and Maj. Gen. Carl A. Stock (second row, right), Director, USACE Military Programs.

(WES) of the U.S. Army Engineer Research and Development Center (ERDC) in Vicksburg. On very short notice, it came up with portable tele-engineering kits that allowed deployed engineers to conduct secure video-conferences with other USACE personnel anywhere in the world.¹⁰

Through the winter of 2001 and spring of 2002, the Fort Worth District turned the theoretical Field Force Engineering concept into an operational Forward Engineering Support Team (FEST). In June 2002, the District sent USACE's first FEST to Bagram Air Base in Afghanistan, where it was placed within the headquarters for the Army's XVIII Airborne Corps. There, the FEST supported continuing Coalition operations against the Taliban and Al Qaeda, which by then had been driven out of the cities and into the remote and rugged border area between Afghanistan and Pakistan. The concept was so successful that the XVIII Airborne Corps requested that FEST support continue beyond the initial four-month trial. Fort Worth District recruited, readied, and rotated other FESTs into the fight until relieved of the mission in late 2003.¹¹

By late 2002, after dealing with the Canyon Lake flood, Wells was considering retirement from the Army. Before he finished submitting his paperwork, he took an important telephone call from Brigadier General Steven R. Hawkins. Hawkins was the commander of the USACE Great Lakes and Ohio River Division. The Joint Chiefs of Staff had asked him to lead a new military engineer organization as part of the upcoming Operation Iraqi Freedom. Authorized by National Security Presidential Directive 24 on January 24, 2003, the new unit was called the Combined Joint Task Force-IV (CJTF-IV). Its mission was to coordinate with CENTCOM Commander General Tommy Franks in planning and carrying out post-combat reconstruction (Phase IV) in Iraq. Hawkins had taken the job, but after reporting to CENTCOM headquarters in Florida, he realized that he needed further engineer support. Since the Fort Worth District FESTs in Afghanistan were doing phenomenal work, he called Wells. "I know you're retiring, but would you mind doing this one last thing?" he asked. Wells immediately put all thoughts of retirement aside and said, "Yeah, I'd love to."¹²

Hawkins briefed Wells on the mission and authorized him to recruit anybody he wanted for

the task force's new engineer (C7) cell. Wells quickly formed a twelve-member FEST comprised of both military and civilian engineers. Two Afghanistan FEST veterans, Major Brad Westergren and civilian Mark Valentino, joined the new FEST, bringing some vital experience into the core group. Wells also gathered team members from USACE's 249th Prime Power Battalion, USACE headquarters, the Kansas City District, the Army Public Affairs Office, the Individual Ready Reserve, the U.S. Marine Corps, and the United Kingdom Royal Engineers.¹³

Wells and Westergren traveled to Camp Doha, Kuwait, in January 2003 to scout out their operating space, to meet with the Combined Forces Land Component Command (CFLCC) to find out where they would fit in, and to get the lay of the land. Back in the United States, the colonel then consulted with CENTCOM planners and USACE's Director of Military Programs, Major General Carl A. Strock, to discuss what other personnel and assets might be needed in the coming days and weeks. At the Pentagon, he linked up with the new Office of Reconstruction and Humanitarian Assistance (ORHA), created on January 20 and led by retired Lieutenant General Jay Garner. ORHA would act as Iraq's caretaker government once the Coalition forces removed



(USACE photograph)

Maj. Brad Westergren is awarded the Legion of Merit Medal by Col. John R. Minahan, Commander, Fort Worth District, during his retirement ceremony. Westergren, the district's Deputy Chief of Contracting, deployed as a Forward Engineer Support Team Operations officer.



(USACE photograph)

Mark Valentino, Forward Engineer Support Team, GIS Specialist, stands in front of Saddam Hussein's palace in the Green Zone, Baghdad. Valentino deployed from the Fort Worth District's Planning, Environmental and Regulatory Division.

Saddam Hussein from power, and start the rebuilding process even before hostilities ended.

On February 14, 2003, Valentine's Day, Wells and his FEST flew to Kuwait, leaving the Deputy Commander, Lieutenant Colonel Robert Morris, behind as acting District Commander. In theater, they went to work for the CFLCC under the U.S. Third Army Commander, Lieutenant General David McKiernan. It was a fairly chaotic environment since the Department of Defense, CENTCOM, and CFLCC were planning the post-war reconstruction efforts on a largely ad hoc basis. The engineers' first task was to perform a baseline analysis of Iraq's infrastructure. This effort later became the cornerstone of a more comprehensive Iraqi Infrastructure Database and Geospatial Information System (IID & GIS), a web-based application built with help from the Mobile District. Lieutenant Colonel Todd Skoog and Major Andy Backus were in charge of the infrastructure and power systems analysis, while Major Bob Smithers developed engineer intelligence and maps. Major Smithers's products were provided to the CFLCC staff and to ORHA, which arrived in Kuwait in early March, just before the start of Operation Iraqi Freedom.¹⁴

Iraq was known to be one of the most landmine-infested countries in the world, with

estimates of over twenty million unexploded devices lying buried throughout the country, amounting to a quarter of the world's total. Most were haphazardly planted during the 1980-1988 Iran-Iraq War and the first Persian Gulf War of 1990 without their locations being recorded. The mines were not only a threat to Coalition forces, but also to Iraqi citizens. If not dealt with, the mines would certainly hinder reconstruction and the future development of the Iraqi economy. Unexploded ordnance (UXO) from air and ground operations was similarly dangerous. With a clear need, CJTF-IV took responsibility for planning post-regime demining and UXO removal operations.¹⁵

As Coalition forces approached Baghdad in early April, CJTF-IV co-hosted a two-day demining conference in Kuwait City. Representatives from CENTCOM, CFLCC, the United Nations, and several non-governmental organizations participated. After two days, punctuated by SCUD missile alerts, the conference attendees agreed to establish a Mine Action Center (MAC) within ORHA to handle traditional U.N.-style humanitarian demining and a Mine and Explosive Ordnance Information Coordination Center (MEOICC) to build and maintain a special database for tracking mines, UXO, and other munitions as a force protection measure for CFLCC. Major Regan McDonald took charge of the project, and through the U.S. Army Engineer School Countermine and



(USACE photograph)

USACE contractors catalog unexploded ordnance in the Rumaila oil fields in Iraq, May 15, 2003.

USACE contractors prepare a pile of unexploded ordnance for demolition in the Rumaila oil fields, Iraq, May 3, 2003.



(USACE photograph)

Booby Trap Center at Fort Leonard Wood, Missouri, he brought the Army Reserve 1138th Engineer Team to Baghdad in May to operate as a MEOICC. Clearing and destroying mines and unexploded ordnance was excruciatingly slow work, and it would take years to complete the mission. By December 2010, the U.S. State Department was able to report that Coalition engineers had cleared some 190 million square feet of land since 2003.¹⁶

Shortly after Saddam fled and Baghdad fell on April 9, 2003, Lieutenant General McKiernan was faced with an immediate humanitarian crisis. The city's electrical power grid had mysteriously shut down and nobody could figure out why. McKiernan knew that Coalition forces were not responsible because CENTCOM had issued specific orders against targeting Iraqi infrastructure in order to preserve it for Phase IV reconstruction. Roughly the size of Los Angeles, Baghdad was a city of seven million people. A prolonged lack of electricity would be catastrophic for its inhabitants. Water and sewer systems and hospital equipment would stop functioning, possibly resulting in widespread disease and death as the lethally hot summer months approached. A humanitarian crisis of this magnitude would make pacification of the city much more difficult and likely lead to prolonged instability and lawlessness. The Coalition had to keep the city alive,

which meant getting the infrastructure back on line, or else its credibility would be irreversibly damaged.¹⁷

McKiernan called Hawkins and Wells to his office and said, "Look, you guys are engineers. I know you're doing this CJTF-IV thing, but I need to send you into Baghdad immediately...you have got to figure out how to get the power back on as quickly as possible." Within twenty-four hours, Hawkins and Wells pulled together a new twenty-eight member team, comprised largely of Wells's CJTF-IV engineers. Their job was to investigate the source of the outage and to restore electrical service. They also were joined by several military doctors who would assess Iraqi hospitals. Major David Hurley named the new Task Force "Fajr," meaning "dawn" or "first light" in Arabic. It was an appropriate name considering the mission and circumstances.¹⁸

Led by Hawkins, with Wells as his deputy, Task Force Fajr boarded a C-130 cargo plane in Kuwait near midnight on April 12 and departed for Baghdad. It was a wild three-hour ride. The pilots blacked-out the C-130 as a counter measure against Iraqi shoulder-fired anti-aircraft missiles and flew over the still-active battle space using night-vision goggles. At 2:30 a.m., the plane touched down at the newly renamed Baghdad International Airport (formerly Saddam International Airport), now the headquarters of the U.S.

3rd Infantry Division, which was still engaged with the remnants of Saddam's regime. The team off-loaded and soon linked up with the commander of the Division's Engineer Brigade, Colonel John Peabody. After a quick orientation to the Task Force Fajr mission, Peabody rounded up several Iraqi electrical engineers familiar with Baghdad's power system, a minor miracle with combat operations still under way and the city in chaos, and brought them to the airport. The initial pre-dawn meeting between the Americans and Iraqis was awkward, with both countries still at war, but both sides soon found common ground in their desire to improve Iraqi living conditions. As Wells later recalled, the engineers sat down together, took out butcher paper to scribble on, and figured out how to get the power back up and running.¹⁹

They soon identified the cause of the problem. The manager of the South Baghdad Power Plant, a Mr. Bashir, had systematically turned off his power generators to prevent damage to them as the fighting threatened to destabilize the city's power grid. It was a courageous decision born out of his love for his own people and his country, since he too wanted to preserve Iraq's critical infrastructure for the future. Now that the mystery was solved, the question became how to restart the generators and reenergize the grid from a "black start."²⁰

Another Iraqi engineer had the answer. Through Major Hurley, who was fluent in Arabic, the engineer told Wells that the Karkh Water Treatment Plant, located thirty kilometers north of the city, had a ten megawatt back-up generator. The plant was still functioning and its electricity could be routed through a nearby substation to a blacked-out generation plant, which could be used to jump start Baghdad's power system. It would be an incremental, systematic process, beginning with an initial small energized grid, onto which additional grids could be brought online one at a time.²¹

A joint American-Iraqi visit to the Karkh facility got things moving. Wells remembered that the Iraqis at the water plant were hesitant at first. They doubted that their generator alone could supply enough power to start the reenergizing of Baghdad's grid. The Task Force Fajr engineers and their Iraqi counterparts were adamant, however, and finally they convinced the skeptics at Karkh that they knew what they were doing.

Karkh's electrical power was diverted to the targeted generation station and, over the next few days, other stations were brought back on line. Task Force Fajr began repairing the city's other generation and transmission equipment and by April 21, Baghdad's power began returning on a limited basis. Within several weeks, enough electricity was being supplied throughout the metropolitan area that Hawkins and Wells reported to McKiernan that the humanitarian crisis was averted. An overjoyed McKiernan next ordered Task Force Fajr to expand its mission to restore Iraq's nationwide 400 kVA supergrid, which provided electricity throughout the country. The concept was the same as in Baghdad, but on a much larger scale. On April 30, Hawkins, Wells, and other Task Force Fajr team leaders briefed U.S. Defense Secretary Donald Rumsfeld on their power restoration efforts when he made a surprise visit to the Iraqi capital on April 30.²²

During this immediate post-Saddam period, the Iraqi Army was dissolved and civil authority collapsed. Saddam and his sons, Uday and Qusay, escaped Baghdad before it fell and were trying to organize a Sunni-based guerrilla movement to oppose the Coalition. Former Fedayeen fighters, terrorists, Iranian agents, and isolated former members of his regime were likewise roaming Iraq and causing trouble. Although President Bush declared a formal end to major combat operations on May 1, over fifty American troops were killed in Iraq between his announcement and mid-June, including about a dozen because of hostile fire. It was the "wild west," in Wells's words, and very dangerous.²³

And it did not take long for these "dead-enders," as Secretary Rumsfeld famously called them, to target Iraq's electrical infrastructure and its engineers and technicians. Rocket-propelled grenade attacks against substations became a daily occurrence, and many of the Iraqis who worked with Task Force Fajr received death threats. In one of the most heinous attacks, a senior Iraqi distribution engineer was shot and killed in front of her children as she left for work.

The Coalition did not have enough manpower to guard every electrical power facility in the country. Since ORHA, renamed the Coalition Provisional Authority (CPA) on April 21, was still working to establishing an Iraqi national police

force, Task Force Fajr also accepted responsibility for setting up an Iraqi-run and -managed power facility police force to secure the country's electrical infrastructure from both terrorists and looters. The Task Force hired the guards from the local population and issued them captured AK-47s, recording the serial numbers first to maintain at least some control over the weapons. It was an imperfect solution but the attacks and looting were minimized for the time being.²⁴

The Task Force Fajr team members also experienced several close calls. On the very first morning in country, while they were driving up to the Karkh Water Treatment Plant to commandeer its generator, they pulled off the road to examine some downed transmission lines. An Iraqi surface-to-air missile battery was visible in the nearby woods, surrounded by unexploded cluster munitions and abandoned Iraqi army uniforms that had obviously been stripped off. The smell of death permeated the air. The team got the information they needed about the downed lines and left the area as fast as they could.²⁵

In another incident, an Iraqi sniper took aim at Task Force Fajr during its daily morning meeting. The sniper missed his mark but posed enough of a threat that Hawkins asked for help from higher command. The U.S. 101st Airborne Division was responsible for security at the site, and posted a highly trained two-man counter-sniper team on the roof to deal with the troublesome Iraqi. The first day out, the Iraqi sniper reappeared with three companions armed with AK-47 assault rifles. When the American counter-sniper prepared to take them out, his spotter stopped him after seeing that one of the Iraqis was also carrying a baby. The Iraqi sniper fired again at Task Force Fajr and then scampered away with the others, leaving the disciplined U.S. counter-sniper team quietly frustrated. The next day the Iraqis reappeared, this time without the child. After the spotter confirmed that he was clear to engage, the counter-sniper fired twice, killing two of the insurgents. The other two threw up their hands and surrendered.²⁶

Roadside bombs and Improvised Explosive Devices (IEDs) became serious threats on the roads in and around Baghdad, especially on the highway leading from the Coalition headquarters to the airport. One day, Wells and Mark Valentino

were traveling to the airport in an unarmed, unhardened Humvee when they saw a package lying in the middle of the road. Valentino was at the wheel. He had been an Army driver during Operation Desert Storm and something did not seem right. He reflexively swerved wide to miss the package, telling a startled Wells that "I just wasn't comfortable with it." A few seconds later he looked back and saw an Iraqi garbage truck explode as it passed over the package. It was an anti-tank mine that insurgents had deliberately placed to attack Coalition vehicles. Wells subsequently saw another vehicle, this time in a military convoy, destroyed by a similar device before he left Iraq.²⁷

While dodging Iraqi snipers and IEDs and fixing the country's electrical grid, Task Force Fajr accepted other missions, many of which were familiar to the Fort Worth District engineers. Geographically, Iraq somewhat resembles central Texas, with its rivers and waterways flowing through arid plains and deserts, amid extreme weather and temperature conditions. Iraq's dams and hydraulic structures play enormous roles in the country's "fertile crescent" agriculture and economy and soon the dams became a focus of Task Force Fajr's meetings with the Irrigation Ministry. During these meetings, U.S. and Iraqi hydrologists and engineers considered competing interests such as balancing water releases through upstream hydroelectric dams for power against releases in downstream dams to meet water supply needs, an issue commonly encountered in the Fort Worth District. Early on, an Iraqi hydraulic engineer complained that the Tigris River was about two meters too high. Too much water was being released upstream, but he did not think that it was caused by hydropower or water supply releases. Instead, he suspected that upstream irrigation gates had been opened wider than normal by water looters.²⁸

A survey of the Iraqi nationwide water resource distribution system revealed that Iraqis had created, over hundreds of years, a complex system of dams and other hydraulic structures called "barrages," very similar to USACE diversion structures. The Irrigation Ministry was responsible for operating and maintaining them and used historical information and operations manuals to manage the Tigris-Euphrates basin to make

Task Force Fajr accepted missions familiar to Fort Worth District engineers. Security escorts and dam specialists fanned out across the Tigris and Euphrates basins to inspect every major hydraulic structure in Iraq and within a few weeks developed a prioritized game plan for fixing them.



(USACE photograph)

sure that there was sufficient water supply for multi-purpose, year-round use. Again, this was not very different from the Fort Worth District's mission in central Texas. However, after Coalition forces toppled Saddam's regime, looters attacked and destroyed the Irrigation Ministry's Baghdad headquarters, obliterating a full century's worth of hydrological and meteorological data.²⁹

To overcome the lack of data to help govern the water structures, FEST hydrologist Major Regan McDonald used the new tele-engineering capability to reach back to the Mobile District and the Waterways Experiment Station for help in building a numerical model of the Tigris and Euphrates basins and their hydraulic structures. Within days, the model effectively replaced the lost data, and the Iraqis were able to properly manage the gates and stop the water loss, averting water shortages at a critical time.³⁰

As the Iraqis began looking at their dams and barrages, they noticed that some had been damaged or were in disrepair, and alerted Task Force Fajr to their condition. During another video-conference, Wells asked for additional reach back support from USACE. "I think we really need some experts from the Corps to come and help us figure out what's going on here," he said. USACE responded by assembling a crack team of specialists in hydroelectric power, dam safety, and hydraulic structures and quickly pushed them forward to Iraq. After Task Force Fajr arranged

for security escorts, the dam specialists fanned out across the country to inspect every major hydraulic structure in Iraq and over the next few weeks developed a prioritized game plan for fixing them. Another crisis was averted.³¹

In reestablishing electrical power and dealing with the Irrigation Ministry, Wells learned that there was an intrinsic link between the electrical infrastructure and the fuel infrastructure, which in Iraq's case was oil and natural gas. In Wells's mind, it was the classic "chicken or egg scenario," as power plants needed fuel to operate, while refineries required electricity to produce fuel for the power plants. Both essentially needed to be kick-started together and so Task Force Fajr and their Iraqi counterparts began relying on the country's hydroelectric generators to supply base load power until the power plants and refineries were up and running at full capacity. This was a tricky proposition, since the necessary water releases had to be carefully balanced against the competing need to store enough water for the country's general use through the rest of the year.³²

To negotiate the necessary tradeoffs, Task Force Fajr began participating in summits between the Iraqi Oil and Electricity Ministries, in which new, more complicated issues arose, such as balancing the different types of petroleum production for transportation and domestic household consumption. However, questions concerning oil and petroleum production fell within the purview of a

parallel USACE group called Task Force Restore Iraqi Oil (RIO). Led by Wells's boss, Brigadier General Robert Crear, Task Force RIO was run by the Fort Worth District's parent command, the USACE Southwestern Division. It was established at the same time as CJTF-IV in January 2003, but its original mission had been to extinguish any Iraqi oil fires that Saddam's troops might ignite in a repeat of their 1991 sabotage of the Kuwaiti oilfields.³³

During the Coalition's drive to Baghdad, only nine Iraqi wells were damaged, though, with seven burning and two gushing oil out onto the ground. Task Force RIO, which included civilian oil well fire specialists from the firm of Kellogg Brown & Root (KBR), handled these quickly, and then made the transition into a new Phase IV reconstruction mission, restoring Iraq's oil infrastructure and its production to pre-war levels. Task Force RIO reestablished oil production with the first post-war exports occurring on April 23, 2003. As a result, Task Force Fajr coordinated with Task Force RIO only briefly and ultimately left all non-electricity oil production matters to Crear.³⁴

Task Force RIO did integrate Fort Worth District personnel into its organization, where they performed superbly. Most notable was civilian employee Michael D. Jaso, a District support services specialist at Grapevine Lake. He deployed with Crear on March 23 and served in theater until July 8. Jaso made such a difference as Operational Assistant and Battle Captain that Crear honored him in a special ceremony held in Dallas in March 2004. Crear said of Jaso, "He continually provided unselfish service to all members of the Task Force RIO family, and has sacrificed personal time and comfort on numerous occasions to support the organization and its people."³⁵

In mid-November, Lieutenant Colonel Morris also deployed to Iraq, where he served as a deputy for operations and security under Colonel DuBose, who assumed leadership of Task Force RIO after Crear returned to Dallas to resume his duties as Southwestern Division Commander. During his deployment, Morris spent much of his time in Kirkuk managing security operations for the restoration projects in Iraq's northern oil fields. Projects included revitalization of the Baiji power plant, replacing 30 kilometers of pipeline from



(USACE photograph)

USACE contractors work on extinguishing an oil fire in southern Iraq, March 29, 2003.



(USACE photograph)

Fort Worth District deployed civilian Jeffrey L. Mahaffey speaks with Kuwaiti oil field workers on April 5, 2003 in the Southern Oil Fields in Rumaila, Iraq. The Iraqi government allowed the Kuwaitis to cross the Demilitarized Zone to assist with oil well fires.

Kirkuk to Baiji, and the emplacement of seven pipelines to carry oil and natural gas underneath the Tigris River. It was potentially dangerous work, as the Iraqi insurgency was ramping up that winter, and he regularly had to travel "outside the wire" on USACE business. "We went through some areas where vehicles had been ambushed, and people had been killed before," he remembered, and that "obviously caused the hairs to stand up on the back of your neck as you're transiting those." But he avoided injury and safely returned to the Fort Worth District in late March 2004.³⁶

With Task Force RIO taking charge of Iraq's oil sector, Task Force Fajr undertook several other

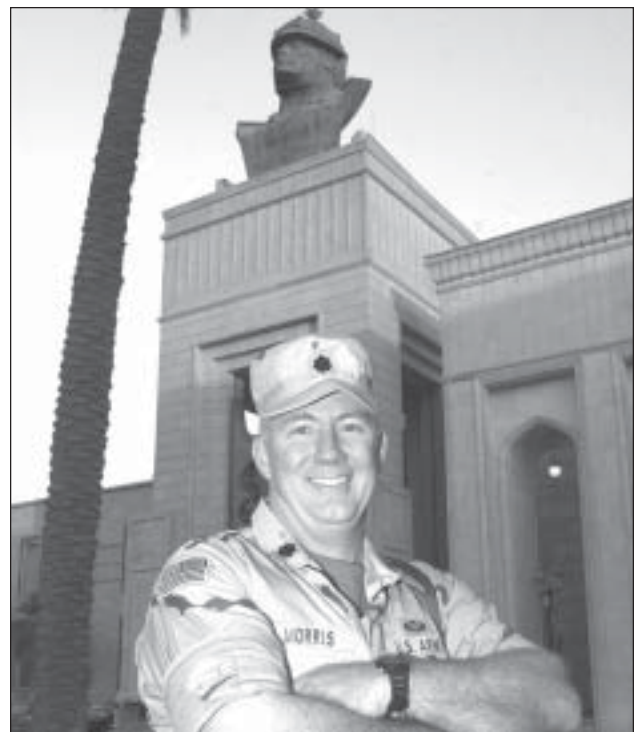


(USACE photograph)

Michael D. Jaso, Battle Captain, briefs Lt. Gen. Robert Flowers, Chief of Engineers, prior to escorting him to a work site in Iraq. Jaso was a Fort Worth District Services Support Specialist at Grapevine Lake prior to his deployment.

critical tasks as the Coalition struggled to gain control over the country in the weeks following Saddam's rout. Among these was the development of a comprehensive plan by Fort Worth District environmental engineer Rich Heine for repairing Baghdad's water and sewer systems. The Task Force also collaborated with CPA to plan the rebuilding of Iraq's bombed-out highway bridges and government buildings and they restored electricity at Baghdad International Airport, where a number of Coalition commands had established their headquarters.³⁷

Although well-intentioned, CPA became problematic for Wells and other senior Coalition officers during Phase IV reconstruction. Defense Secretary Rumsfeld abruptly fired original administrator Jay Garner on May 11 because he refused to carry out the Bush administration's ill-advised post-regime de-Ba'athification policy, based on the model of the post-World War II de-Nazification of Germany. Ambassador L. Paul Bremer replaced him and immediately banished all Ba'athists from the Iraqi public sector. He then disbanded the Iraqi army, and built CPA into a stifling, heavily centralized bureaucracy, not unlike Saddam's own regime, which it was replacing. CPA soon became a barrier to any funding



(USACE photograph)

Lt. Col. Robert P. Morris, Jr., Deputy for Operations and Security, Task Force Restore Iraqi Oil, December 2003 in front of Saddam Hussein's palace in the Green Zone, Baghdad, shortly before U.S. forces removed the four busts of Hussein from the palace roof.

of local reconstruction efforts, with the American dollars seemingly locked up inside the newly christened Baghdad “Green Zone.”³⁸

Wells and a number of his military colleagues realized the value of putting the Iraqis back to work. Gainful employment would let the Iraqis earn money to take care of their families and make them less likely to be recruited by opposition forces. At this time, Task Force Fajr was finding pallets of dinars emblazoned with Saddam’s face—still the recognized currency of the country. Wells and Hawkins resorted to a creative use of the seized regime currency to get Iraqis back to their local jobs. Wells sought and secured permission from CPA to use the dinars to pay the Iraqis, on the condition that USACE would be formally accountable for the money. He had been a pay officer while a second lieutenant in Germany in the early 1980s and he knew how to set up and administer wages. Utilizing this knowledge, he worked with local Iraqis to come up with pay schedules based on what workers in the power industry normally earned. Once the pay rates were set and the employee lists compiled, tables were then set up once a week at the work sites for pay day. “Okay, you’re so-and-so? Here’s your dinars!” The scheme worked and Task Force Fajr was able to pay both the power plant employees and the facility guards with their own currency and keep them gainfully employed.³⁹

By late May 2003, Task Force Fajr’s overall mission was being assumed by other engineering organizations, and on June 15 the unit was disbanded. Wells and the original FEST members collocated with CPA in Baghdad to brief and coordinate with new USACE FESTs that were arriving to help continue Phase IV reconstruction. In July, most of the first group went home. Back in Fort Worth, Wells started out-processing from the Army and retired on January 1, 2004. Before leaving, he donated to a 39” x 66” carpet to the Fort Worth District that Dr. Kareem Hasan, the Interim Director of the Iraqi Electricity Commission, had presented to him on June 25, 2003. The carpet had been given to Wells as a token of farewell and thanks for his work as the Deputy Commander of Task Force Fajr. The other team members redeployed to their regular jobs, proud of what they had accomplished in helping stabilize Baghdad and beginning the difficult nation-rebuilding process. Later, more District employees, both men and women, volunteered to go to Iraq for four- to six-month deployments to staff the follow-on FESTs and Contingency Real Estate Support Teams (CRESTs), even after a violent insurgency broke out in the so-called Sunni triangle and the southern Shi’ites launched attacks of their own against both the Sunnis and Coalition forces.⁴⁰

USACE’s reconstruction role in Iraq continued to expand, even as the country virtually exploded into a multi-faceted guerrilla war. Brigadier

In September 2004, a team of archaeologists and forensic anthropologists exhume human remains and document evidence from a mass grave believed to have been used by Saddam Hussein and his henchmen to cover-up the murders of thousands of people.



(USACE photograph)

General Hawkins returned to Baghdad in October 2003 at CPA's request to take command of a provisional organization called Task Force Restore Iraqi Electricity (RIE). It was modeled on Task Force RIO and its purpose was to assist the CPA and the Iraqi Electricity Commission manage new contracts for continuing reconstruction the country's power grid on a priority basis, even as insurgents stepped up their attacks against power plants and transmission equipment.⁴¹

By the end of the year, it was obvious that Operation Iraqi Freedom would be a long-term nation-rebuilding commitment for the Coalition, lasting years. To better support the long-term effort, USACE leaders decided that USACE's separate elements in theater needed to be brought together into a more cohesive organization for better command, control, communication, coordination, and continuity. On January 25, 2004, USACE stood up the Gulf Region Division (Provisional) to unify the various FESTs, CRESTs, and task forces that were rotating in and out of Iraq. Major General Ronald L. Johnson, former USACE Director of Military Programs, was named commander of the forward deployed provisional division. The Division was organized into three districts, the North in Mosul, the Central in Baghdad, and the South in Basrah. Its major components were the former Iraq Provisional Command, the Iraq Reconstruc-

tion Office, Task Force Restore Iraqi Oil, Task Force Restore Iraqi Electricity, and the Iraq Area Office. The Gulf Region Division was lean in numbers at first, but relied on Iraqi engineers and extensive reach back support from USACE's 35,000 employees worldwide to continue the nation-rebuilding mission.⁴²

By mid-2004, USACE counted about five hundred employees in theater, with anywhere from six to twenty from the Fort Worth District at any given time. One of these was Paddie Patterson, an archaeologist with the Fort Worth District, who joined a carefully chosen team of archaeologists and forensic anthropologists summoned to Iraq to work on a mass graves project. The project, directed by the U.S. Department of Justice, was organized for the Regime Crimes Liaison Office in Baghdad. Patterson's task was to exhume the human remains of Saddam's victims and to document evidence from two of an estimated 270 mass graves believed to have been used by the regime to hide the murders of thousands of Iraqis. This evidence she and her teammates collected that summer was critical for the prosecution of the former Iraqi dictator and his cronies in 2005 and 2006.⁴³

On August 3, 2004, the District, USACE, and the City of Fort Worth honored sixty-nine employees who had served in Operation Enduring Freedom and Operation Iraqi Freedom, including



(USACE photograph)

Paddie Patterson, an archaeologist with the Fort Worth District, was part of a carefully chosen team of archaeologists and forensic anthropologists summoned to Iraq, to work on the Mass Graves Project in September and October 2004. Directed by the U.S. Department of Justice, the project was organized for the Regime Crimes Liaison Office in Baghdad and tasked with exhuming the human remains and documenting evidence from two of an estimated 270 mass graves believed to have been used by Saddam Husein and his henchmen following the murders of thousands of people. The evidence would be critical to the legal case against the former Iraqi dictator and his regime members. Patterson was asked to be part of the Mass Graves Team because of her previous experience in 1997 when she went to Vietnam and led an MIA Recovery Mission for the Department of Defense. Her team found the remains of two men who were lost there in 1971.



(USACE photograph)

Col. John R. Minahan, commander, Fort Worth District presents Col. (ret.) Gordon M. Wells with a drop of oil collected from Operation Restore Iraqi Oil and a copy of a proclamation from Fort Worth, Texas Mayor Mike Moncreif (right).

Colonel Gordon M. Wells. Each was presented with a City of Fort Worth proclamation and a commemorative token of appreciation containing a drop of Iraqi oil from the Rumaila oil field in southern Iraq, which was collected on April 23, 2003, the first day of operations following the downfall of Saddam's regime.⁴⁴

The Fort Worth District's early support for GWOT, through the FESTs and Task Force Fajr, was therefore recognized by USACE as an unqualified success. In fact, members of the District were recognized with two awards of the Army Superior Unit Award.

The war continued unabated and the District continued to provide both specialist personnel and reach back capability to the Gulf Region Division in Iraq and to Coalition forces in Afghanistan in the ensuing years. After 2004, though, the District diverted its attention to another series of tasks that were equally important for national defense, which altogether involved a major realignment and expansion of U.S. military facilities within the District brought on by the forthcoming Base Realignment and Closure Commission of 2005.



(USACE photograph)

Ronald J. "Ron" Ruffennach (right), Public and Legislative Affairs Officer and Executive Assistant with Col. Gordon Wells, Fort Worth District Commander at his retirement ceremony. Ruffennach was posthumously inducted into the Gallery of Distinguished Civilian Employees in 2005. The U.S. Army Corps of Engineers, Communicator of the Year Award was named after him.



CHAPTER 3

Wartime Military Construction in the Fort Worth District

Colonel Wells was still in the Middle East when his command of the Fort Worth District formally ended on May 30, 2003. Since Task Force Fajr was winding down its operations, he was able to fly home to participate in the Change of Command ceremony held at the Fort Worth Convention Center. “As the commander of the Fort Worth District,” he said in bidding farewell, “I have had the daily privilege to work with some of the most talented and highly skilled members of the finest public engineering agency in the world.” His successor, Colonel John R. Minahan, graciously accepted command of the District while expressing his appreciation for the important work that Wells and the other FEST members were doing in support of Operation Iraqi Freedom.¹

Minahan was a 1981 West Point graduate and professional military engineer who had earned master’s degrees in business administration from George Mason University, and in strategic studies from the Army War College. Like all District engineers, he had risen in rank through a number of Army and Joint command and staff positions. He had done his junior officer “troop time” at Fort Bragg as a company commander in the 27th Engineer Battalion (Combat) (Airborne) before spending three years at the Pentagon as a senior captain. Afterward, he was assigned to Hawaii, where he had served as Executive Officer, Operations Officer, and Assistant Division Engineer in the 65th Engineer Battalion of the 25th Infantry Division at Schofield Barracks. He then had returned to the Washington, D.C., area in 1995 to serve as a Special Assistant to the Under Secretary of the Army and Executive Officer to the Chief of Engineers. From 1997 to 1999, he was back at Fort Bragg to command his old unit, the 27th Engineer Battalion. After relinquishing command in 1999, he went to El Paso to serve as the Southwest Border Division Chief and the Engineer Division Chief in the Op-

erations Directorate for Joint Task Force Six. In 2001, he then became the Combat Support Division Chief of the Enlisted Personnel Management Directorate of the U.S. Army Personnel Command (PERSCOM), his last assignment before USACE selected him to be the new Fort Worth District Commander.²

Minahan inherited some administrative and operational challenges from Wells as he settled into his job. Aside from continuing FEST and reach back support for GWOT, one of the most pressing was implementing a new “regionalization” plan called *USACE 2012*. It was a top-down, leadership-driven initiative by the 50th Chief of Engineers, Lieutenant General Robert Flowers, aimed at improving the efficiency and effectiveness of USACE.³



(USACE photograph)

Colonel John R. Minahan, Commander, Fort Worth District, speaks to a group of more than 600 contractors about the Fort Bliss Expansion Program and contracting opportunities with the U.S. Army Corps of Engineers during a January 2006 Industry Day hosted at El Paso Community College.

Up to that point, USACE's forty-one districts were semi-autonomous and acted independently of one another, resulting in duplication of effort, personnel redundancy, and a "stovepipe" approach to projects. Flowers wanted to change that by streamlining staff, consolidating functions, and allowing the divisions to play a more prominent role in managing and allocating district resources. After taking command of USACE in 2002, he organized a Corps study team to review and recommend ways to improve how the organization operated. The resulting report, entitled *USACE 2012: Aligning the Army Corps of Engineers for Success in the 21st Century*, outlined a series of comprehensive strategies, procedures, and changes that USACE needed to implement over the next nine years.⁴

Flowers later explained his rationale behind USACE 2012, pointing to a recent meeting with



(USACE photograph)

Chief of Engineers Lt. Gen. Robert Flowers addresses the Fort Worth District about the USACE 2012 initiatives during a town hall meeting in 2004.

USACE customers and stakeholders. They had bluntly told him that "You all aren't listening," and then sent two very clear messages. The first was, "You've got great people in the Corps of Engineers and we love working with them," but the second was, "Your processes are daunting; we don't understand them. You don't partner like a partner. When we deal with one part of the Corps, it's not like dealing with another part. We're frustrated!" Flowers suddenly realized that he was "standing on a burning platform." "I could stand there and hope that it held until the 51st Chief of Engineers showed up," he said, "or I could grab a fire extinguisher called *USACE 2012* and fight the fire."⁵

Consequently, Flowers order the Corps-wide implementation of *USACE 2012*. In its introduction, he noted that "the nation's priorities have shifted with the global war on terrorism, homeland security, and Iraq," but complained that USACE's internal processes took too long and that the Corps risked irrelevancy unless it transformed itself. He warned that Congress would likely intervene, and that USACE would lose Homeland Security and GWOT missions to other agencies, if the organization failed to do so. "Change or be changed," he demanded, or else USACE would end up like the Civil Aeronautics Board, a previously powerful federal agency that refused to adapt to airline deregulation and was accordingly abolished by the Reagan administration in January 1985. "They had an opportunity to change their culture," Flowers later explained, but the agency was stubborn. "We like the way we've always been," its administrators insisted, "so we're not changing." And so now it no longer existed. He was therefore determined to avoid the same fate for USACE.⁶

USACE 2012 sought to transform the Corps' culture by developing a new "objective organization design" that met both its unique civilian public service engineering role and its military construction mission. This new design would set it apart from other Defense Department organizations that were typically based on Doctrine, Organizations, Training, Materiel, Leadership and Education, and Personnel and Facilities. Flowers instead wanted to use the "Seven S" model for redesigning USACE, specifically Stakeholder

Values, Shared Values, Strategy, Style of Leadership, Skills, Systems, and Structure, which would result in a “greater understanding of the organization as a ‘system.’”⁷

Four broad concepts were at the heart of *USACE 2012*. These were One Corps, Regional Business Centers, Regional Integration Teams (RITs), and Communities of Practice (CoP). Under “One Corps,” each echelon (Washington headquarters, division, and district) would have discrete responsibilities, authorities, tasks, and activities that were commensurate with their role in the overall organization. For instance, USACE Headquarters (HQ) in Washington would handle the strategic needs of the organization, including planning, direction, national relationships, policy development, and learning. The divisions would manage USACE programs, policies, and business at a regional level, while the districts focused on mission execution and doing the actual work. Flowers expected that the One Corps concept would promote mutual interdependence throughout the organization while aligning expertise with the work.⁸

Regional Business Centers were intended to serve as USACE’s primary business operating units, with divisions and districts working together like private companies to optimize quality. The centers’ stated purpose was to operate most effectively (doing the right things) and efficiently (doing things right) to meet the needs of USACE customers by making all their regional resources, and those of the Corps at large, available when needed. A Regional Management Board, comprised of representatives from the divisions and districts, would act as a sort of board of directors, with division commanders serving essentially as chairmen and chief executive officers. The districts would perform the actual work and, in Flowers’s words, make the Corps “shine.”⁹

Since Flowers believed that significant cultural and structural changes were necessary to break the existing “three echelon, competing-functional paradigms” for USACE to operate as One Corps and One Headquarters, he expected the new Regional Integration Teams to provide the structural change necessary to enable the cultural change. The RITs would be comprised of employees focused on civil works and military

construction missions, primarily civil, military, or environmental program managers, planners, regulators, real estate specialists, general operations staff, and engineering and construction staff. Senior Executive Service officers would lead them, and they would be embedded within each division. A central duty station at USACE HQ would make the RITs a “primary portal of entry” into Washington for the divisions. Flowers believed that the RITs would clear the way for regional business success, whether it was answering a national policy question early in the process or making sure that a congressional response on the status of the project was accurate.¹⁰

Communities of Practice (CoPs) were groups of specialists and experts who shared professional experience or practiced in a major USACE mission area or business line. They did not necessarily have to be employees of USACE, but could come from academia, other government agencies and service branches, professional organizations, and the general public. CoPs would extend through USACE at all levels and represent its corporate memory. As Flowers explained it, what held communities together was a common sense of purpose and a real need to know what each other knew, and not simply blind adherence to the organizational structure requirement. It was this last point, he believed, that gave rise to stovepipes and “islands of isolation” over the free exchange of knowledge and information within the various USACE professional communities. “Communities of Practice are not a new kind of organizational unit to the Corps,” Flowers said. Instead, “they are a different cut on the organization’s structure, one that emphasizes the learning that people have done together rather than the unit they report to, the project they work on, or the people they know.”¹¹

He predicted that once implemented the CoPs would yield significant benefits across USACE. These included significant time and cost savings, preservation of corporate memory, critical job knowledge sustainment, the promotion of innovation, and internal access to high-quality information from both inside and outside the respective communities. The stovepipes would be eliminated, much to USACE’s advantage.¹²

Regionalization was attractive from the Southwestern Division's perspective for several reasons. The Division was responsible for more USACE water resource projects than anywhere else in the country, and its four districts (Fort Worth, Galveston, Little Rock, and Tulsa) were all tied together geographically, economically, agriculturally, and industrially, especially through petroleum production, refining, and transportation. The Division also included a large proportion of the country's military infrastructure, with ten Army installations and eleven Air Force bases, amounting to almost a quarter of the U.S. military's facility strength. And with the increased complexity of procurement, information management, technology, personnel, emergency operations, and environmental concerns, as well as the contingency demands of GWOT, the districts might well benefit from more regional management and coordination.¹³

However, Flowers's plan caused much anxiety within the Fort Worth District since it mirrored the Clinton administration's Reinventing Government initiative of the 1990s and seemed to indicate that Reductions in Force (RIFs) were on the horizon. Some of the District's jobs might be in jeopardy, or at the very least, certain staff members might be required to relocate. Flowers in fact held a mock RIF at USACE headquarters, but promised there would be no lay-offs. "I've been in the Army for thirty-five years," he said, but "I have never RIFed an employee, and I do not intend to start now." There was also concern that District managers would lose their authority to do their jobs since control would clearly be relegated back to the Southwestern Division.

Another issue was the regionalization of overhead rates, which became a major point of contention during initial discussions. USACE districts had always managed and measured their budgetary and financial effectiveness through their overhead rates, but under *USACE 2012*, the Southwestern Division would dictate the Fort Worth District's rates. As Minahan later observed, USACE thought that the higher divisions would be more disciplined in charging its customers than the individual districts, which might be more inclined to pad costs. Regardless of which echelon was best able to determine overhead,

Flowers's order stood and Minahan and his successors carried it out.¹⁴

In January 2004, Minahan announced to the Fort Worth District that USACE officially had entered the *USACE 2012* era, and that the headquarters' directorates and divisions had already moved their offices into RITs. USACE also stood up a Division Support Team in the Fort Worth District to strengthen coordination with the Southwestern Division. In the future the District would thus see more regional approaches in contracting, resource management, information management, public affairs, and logistics; and a national approach in counsel, human resources, internal review, safety, equal opportunity, and the small and disadvantaged business unit. It would be a long process implementing *USACE 2012*, but by 2012, the District was fully regionalized.¹⁵

Flowers's transformation of USACE dovetailed with an even greater transformation that was then sweeping the U.S. military. After winning the 2000 election, President George W. Bush had called on his Defense Secretary Donald Rumsfeld to not only develop a new defense strategy reflective of the long-term security environment, but also to reshape and streamline the armed forces in such a way that they were better able to deal with potential regional contingencies of the twenty-first century. In the Quadrennial Defense Review of 2001, Rumsfeld abandoned the "two major theater war" construct for sizing, structuring, and equipping the military, a post-Cold War approach that called for maintaining two massive occupation forces capable of simultaneously defeating and occupying two aggressors, such as Iraq and North Korea, and changing their regimes. Instead, he emphasized deterrence in four critical theaters (Europe, Northeast Asia, East Asia, and Southwest Asia/Middle East), backed by the ability to swiftly and simultaneously defeat two aggressors, while preserving the option for a single massive counter-offensive to occupy an aggressor's capital and replace the regime.¹⁶

He also discarded the threat-based strategy that had dominated U.S. defense planning for nearly a half-century in favor of a "capability-based strategy," which focused on *how* an adversary might fight rather than specifically *whom* the adversary might be or *where* a war might

occur. The new strategy also recognized that it was not enough to plan for large-scale conventional wars in distant theaters, but instead, the United States needed to identify and build the capabilities required to deter and defeat those adversaries, like Al Qaeda, who relied on surprise, deception, and asymmetric warfare to achieve their objectives. Said Rumsfeld in January 2002, "Instead of building our armed forces around plans to fight this or that country, we need to examine our vulnerabilities, asking ourselves...what design would I be forming if I were the enemy, and then fashioning our forces as necessary to deter and defeat those threats." The Defense Secretary thus set about transforming the U.S. military into a leaner, meaner joint force capable of rapidly deploying to distant theaters and then striking adversaries swiftly, successfully, and with devastating effect.¹⁷

This over arching plan had profound implications for the U.S. Army. The service had actually started its own transformation in 2000 with the creation of the first Stryker Brigade Combat Team at Fort Lewis, Washington, under Secretary of the Army Louis Caldera and Chief of Staff Eric Shinseki. But it was still mostly organized around large, mechanized divisions of approximately 15,000 soldiers each, which were better suited for fighting massed Soviet armies in central Europe than chasing Al Qaeda fighters around the Afghan highlands or responding to small force attacks in far-off, undeveloped places like the Arabian Peninsula or the Horn of Africa. Indeed, during the Balkans campaign of the late 1990s, an Army task force inserted into Albania for potential action in Kosovo was too heavy for rapid air insertion and also too heavy for the unimproved roads and bridges found there.¹⁸

Army Chief of Staff General Peter J. Schoomaker carried out Rumsfeld's transformation directive, and by 2007 the Army had disbanded its ten active duty divisions, replacing them with forty-three smaller, more mobile brigade combat teams (BCTs) of about 3,000 to 4,000 soldiers each, with seventy-five support brigades. There were three types of combat brigades—Heavy Brigade Combat Teams (HBCTs), Infantry Brigade Combat Teams (including light, air assault, and airborne units), and Stryker Bri-

gade Combat Teams (SBCTs)—and five types of support brigades: Aviation, Fires (artillery), Battlefield Surveillance (intelligence), Maneuver Enhancement (engineers, signal, military police, chemical, and rear-area support), and Sustainment (logistics, medical, transportation, maintenance, etc.). Under the Army's Modular Force Program, the new units, including the support brigades, were all "modularized," meaning that they were standardized, self-sufficient combined arms formations, and were "plug-and-play" interchangeable. At the same time, the Army began "global re-posturing," a repositioning of units worldwide to locate them better to defend the American homeland and fight in GWOT.¹⁹

To facilitate the military's transformation, the Bush administration launched another Base Realignment and Closure Commission (BRAC) review of the military's physical infrastructure in 2003. There had been four previous BRAC rounds, in 1988, 1991, 1993, and 1995, all of which focused on reducing excess installation capacity. This BRAC, however, was aimed squarely at reorienting, reshaping, and expanding the country's bases to support joint and modular units. The final report was issued in May 2005 and President Bush approved its recommendations on September 15. Congress did not reject them and they became law on that date. The deadline for completion of the base changes was September 15, 2011.²⁰

BRAC 2005 had a tremendous impact on the Fort Worth District, which contained almost forty percent of the military's entire homeland inventory. Three of the Army's most important bases, Fort Bliss, Fort Sam Houston, and Fort Hood, resided there and necessarily needed significant military construction (MILCON) to accommodate the new BCTs that were likely headed for Texas as the Army repositioned its units. The BRAC commissioners identified Fort Bliss in El Paso as an ideal candidate for expansion to accommodate four HBCTs and a Combat Aviation Brigade (CAB) that the Army was planning to relocate along with the headquarters of the 1st Armored Division. Two of the HBCTs would be reactivated units from Germany, while the other brigades would relocate from other posts in the United States.²¹

Fort Bliss was an old and storied Army cavalry post, originally established in 1849 on the banks of the Rio Grande in far west Texas near the Mexican border. General John J. Pershing had launched his failed campaign to capture Pancho Villa from there in 1916, and it had been the headquarters of the 1st Cavalry Division up until World War II. The city of El Paso grew up around it over the decades and a core infrastructure already existed at the base. Further, its high-desert climate and geography were similar to places in the Middle East and Southwest Asia where the Army was then fighting, and the local weather conditions ensured a high number of training days. The million-plus acres of desert land necessary for the expansion and later training of the BCTs was likewise both plentiful and available.²²

Perhaps most importantly, there was a tremendous amount of community support. When BRAC first approached El Paso about potentially expanding Bliss and bringing the new units to the city, city leaders were enthusiastic. Whereas other communities might typically be reluctant and respond with a list of requirements or demands to accommodate the sudden growth, El Paso stepped forward with a generous list of support that it would voluntarily provide, including new schools, economic incentives, and even a pre-approved new freeway loop to service the installation, in coordination with the Texas Department of Transportation.²³

As a result, BRAC selected Fort Bliss to host the four HBCTs (subsequently reduced to three HBCTs) that were standing up while the 1st Armored Division was standing down in Germany, as well as a Combat Aviation Brigade from Fort Hood, totaling about 19,000 soldiers and 27,000 family members. Congress authorized a \$2.6 billion base expansion program to bring the units to El Paso, but the construction had to be done quickly. Colonel Minahan got word in April 2005, a month before BRAC's report was released. And Deputy District Engineer and Chief of Programs and Project Management Division Mike Mocek later remembered what one of their Washington contacts told him during a hallway encounter, "You'd better get ready, it's coming!" Thus warned, Minahan called one of the Southwest-

ern Division's most experienced military program managers, Steve Wright, and told him, "Have I got a deal for you!"²⁴

Wright was a civil engineer graduate from the University of Wisconsin-Platteville with nearly thirty years of MILCON experience and a strong practitioner of the Project Management Business Process. Most of his career had been spent in the Fort Worth District, where he had cut his teeth on BCTs at Fort Polk, but when Minahan called he was working for the Southwestern Division in Dallas. The Colonel wanted Wright to come back to Fort Worth and put a small team together to develop an execution plan for the Fort Bliss Expansion Program. Wright agreed and became the program's interim director.

He recruited two other engineers at the Southwestern Division, Lee Conley and active-duty Reservist Dan Patton, whose background was in land development, to assist with the initial brainstorming process. The project's scope, scale, and time frame were daunting. The District, in effect, was going to build a virtual new city out in the middle of a desert northeast of El Paso on part of the old Biggs Army Airfield. And it all had to be completed by September 15, 2011, or else USACE would be in violation of the law. From a leadership point of view, Minahan was the prime



(USACE photograph)

Deputy District Engineer and Chief of Programs and Project Management Division Mike Mocek was inducted into the Gallery of Distinguished Civilian Employees in 2010.

decision maker. After initial consultations with Wright, Conley, and Patton, he immediately issued firm guidance that the Fort World District could not do this alone, but would call upon the Southwestern Division and its sister districts for support, and even look for support from outside the Division. It would be the first real test of Flowers's regionalization concept.²⁵

Minahan also understood that USACE could no longer issue large construction contracts to

single large firms, as had been done in the 1980s when Morrison Knudson built Fort Drum in Watertown, New York, for the 10th Mountain Division, but that the contracts would now have to be broken down into smaller components. Under current law, contracts had to be made accessible to small businesses. The District therefore would have to come up with a whole new way of doing large-scale MILCON and do it fast. Since Fort Drum was the first major Army base built after



Lisa Billman (right), Fort Worth District Contracting Officer, talks to potential contractors during an Industry Day held in January 2006 at El Paso Community College. More than 600 prime and sub contractors attended the event to get an early look at the Fort Bliss construction opportunities.

(USACE photograph)

Lee Conley (left), Southwestern Division, Fort Worth District Team Leader and subsequently Fort Bliss Expansion Program Manager; and Craig Pearce (right), Fort Bliss Combat Aviation Brigade Program Manager for the Little Rock District, wait to be interviewed during a media day held in October 2007 at the Brigade Combat Team 1 site.



(USACE photograph)

World War II, Minahan used it as a model, with Wright's group consulting with Anthony F. "Tony" Leketa, the former area engineer for the Fort Drum Construction Management Office, to integrate the lessons learned from that project into the Fort Bliss expansion plan.²⁶

By mid-summer 2005, the initial core group had expanded to about a dozen members and Wright assembled them into a Project Delivery Team (PDT). Recognizing that the design and construction work was part of a much larger effort to transform Fort Bliss into a modern Army post, the team elected to become a part of "Team Bliss," the installation's moniker for unifying and empowering its workforce. In August, now totaling more than 50 members, the USACE arm of Team Bliss met for the first time with representatives from the Southwestern Division's other three districts and the Sacramento and Albuquerque Districts. During the three-day kick-off, Minahan, Wright, their key staff people, and the districts' representatives laid out the basic plan, identified problems, addressed questions, and drafted the first Project Management Plan. Afterward, they prepared Land Development Plans, Requests for Proposals (RFPs) with the technical requirements, built project delivery teams, and did the initial engineering investigation work while awaiting BRAC's recommendations to become law and for formal orders from USACE to begin design and construction.²⁷

In the interim, Minahan and Wright made a number of key decisions about carrying out the expansion. First, at Dan Patton's suggestion, they decided on a comprehensive land development engineering (LDE) approach, in which the new facilities would come together in a fully integrated fashion much like privately planned communities, with USACE functioning as a land developer. In conjunction with the LDE and private infrastructure contractors, USACE would develop the BCT sites and then have general contractors provide the actual buildings and associated structures. Minahan later recounted that "We looked at it as a city as opposed to just buildings."²⁸

To hone this technique, Minahan sent Wright, Mocek, Patton, and the District's Chief of Engineering and Construction Larry Rogers to con-

sult with Alliance Airport of the Hillwood Corporation, a company owned by Ross Perot, Jr., that specialized in large-scale community development. There, they gained insight into engineering and construction from a holistic real estate and land use perspective. They then applied these techniques in their planning and acquisition strategy to integrate roads, utilities, administrative and maintenance buildings, barracks, recreational and dining facilities, family housing, post exchanges and shopping areas, and mission-related structures into a single Area Development Plan for the HBCT complex areas. Since the Army wanted to keep costs under control, the new buildings and facilities had to be kept within a certain value, a requirement met by the best industry practice approach.²⁹

State-of-the-art training ranges and armored vehicle maneuver areas were part of the expansion as well, with some \$214 million allocated to expand the existing 400,000 acres of open training area to 700,000 acres. Simulated villages, bombing ranges, and night infiltration courses were included in the plan, with soldiers using everything from pistols and shotguns, to M1A1 tanks, mobile cannons, and Patriot missiles. The ranges had to be laid out so that commanders could move their soldiers up the training ladder, or as the Army says, "from crawl to walk to run," without running from one end of the range to the other. This was a critical requirement for the project because, as Wright described it, "you can bring all the soldiers you want there, but if they can't train to standard and get certified, they can't deploy." The ranges also needed to be able to accommodate grand-scale "force-on-force" training, and also test the prototype weapons being developed under the Future Combat Systems Program.³⁰

Minahan and Team Bliss decided to apply "product line" design and engineering to the project, in which supporting districts would be responsible for delivering specific building types to the various BCT Complexes. One of the strengths of this approach was that it fell in line with a developing initiative at USACE HQ to create what became known as "Centers of Standardization." The product-line approach ensured design consistency and applied a "cradle to grave"

responsibility to the supporting districts for key components of the overall plan and construction. For example, while the Fort Worth District specialized in the design and construction of the infrastructure, barracks, and training range product lines, the Tulsa District handled maintenance buildings and Albuquerque District took care of company operations facilities. The Galveston District was responsible for ammunition storage, landscaping, and parking facilities; Little Rock District built the dining and aircraft hangars (and later added child care facilities, physical fitness centers, and religious facilities); and Sacramento District took care of brigade and battalion headquarters buildings and unit storage facilities. As Minahan later described it, "The thought was that we would have an overall contractor, an infrastructure contractor, who would develop the roads, the utilities, and then the site. Then the other product lines would come in and we'd just say, 'Okay, here's your site. Put in your building.'" The other districts were eager to get involved and do their part because it not only meant work for their staffs, but they also realized that it was an important program for USACE and the country.³¹

Moreover, each component of the expanded base, at every level, was not only standardized but also modular, in keeping with the Army's Modular Force Program. Many of the buildings themselves were pre-fabricated and built "Lego style" with modular room components for simplicity in maintenance and repair. As a result, the HBCT complexes were structurally identical, both in terms of architecture and layout, and could easily be replicated during future expansion should the Army choose to base more BCTs at Fort Bliss. The only differences would be in the color scheme of the structures, as it varied from complex to complex, in order to allow the BCTs to highlight their individual identities.

Minahan and senior members of Team Bliss met with some six hundred business representatives at a USACE-sponsored Industry Day at El Paso Community College in January 2006. He informed the attendees about the expansion program and added that the "business community's support is essential in helping meet the challenge of building the improvements on schedule and within budget." This was going to be a division-

wide team effort and he needed all the help he could get from the El Paso private sector to get the job done.³²

That same month, Troy Collins joined Team Bliss as the overall Program Director, with Wright becoming Senior Program Manager. A Brooklyn, New York, native, Collins had earned his bachelor's degree in agricultural engineering from Rutgers University in 1974. Over the years, he had worked both for USACE and in private industry as a construction manager and engineer. He was uniquely qualified to lead Team Bliss with Wright since he had previously worked on infrastructure construction at Fort Drum under Tony Leketa in the 1980s and had then helped build the first modular Stryker Brigade complex at Fort Lewis before 9/11. In 2005, he had deployed to Iraq to serve as USACE's chief of construction there and manage the country's \$18 billion reconstruction program. His accumulated experience at Fort Drum and Fort Lewis and in Iraq would be vital for the Fort Bliss expansion program. Collins later recalled the sheer weight of his burden, noting that "I was responsible for everything, so there were no excuses for not getting the job done."³³

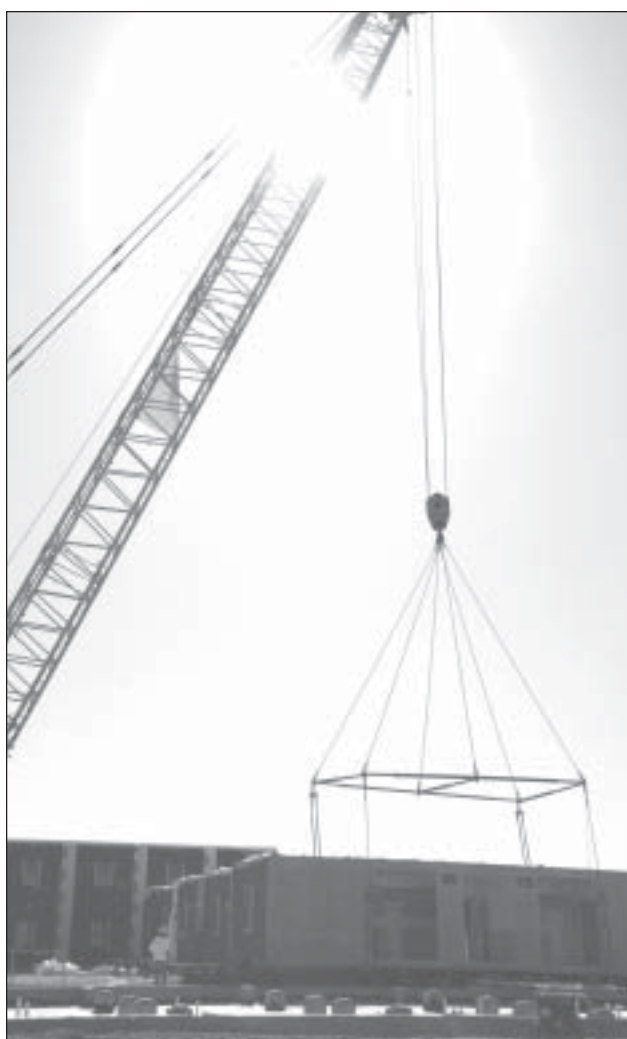
In March 2006, USACE finally ordered the Fort Worth District to "turn dirt" in El Paso. The District, which maintained project management responsibility, subsequently awarded its LDE contract in May to Jacobs/Huitt-Zollars, A Joint Venture, and in August awarded the first construction contracts. By the end of September, the main infrastructure and building contracts for the first complex, worth \$252 million, were awarded to six prime contractors. Mike Bormann, who came from Ford Hood, led the effort to get the infrastructure contracts awarded; and Norma G. Edwards, a professional engineer and native of El Paso, led the teams from the supporting districts in awarding the building contracts. On October 23, Fort Bliss held a ground breaking ceremony to formally mark the start of the project. El Paso was soon alive with construction activity as new roads and infrastructure began stretching into wide swaths of the adjacent east-side desert.³⁴

Congress authorized the full project, but rather than giving the Fort Worth District one large lump sum, used incremental funding to pay for it, in

When designing housing or barracks for unaccompanied enlisted personnel, USACE gave attention to methods used by private industry and to non-traditional construction methods, including pre-fabricated, pre-engineered, panelized, and modular construction.



(USACE photograph)



(USACE photograph)

This new barracks at Fort Bliss will house single soldiers and is intended to be similar to off-post apartment-type housing.



(USACE photograph)

A soldier's housing consists of a private sleeping area, walk-in closets, a shared bathroom, and kitchenette and will be wired for telephone, cable, and internet access.



(USACE photograph)

John Moreno, Area Engineer and administrative contracting officer for the Biggs Area Office, earned the 2007 Construction Management Award for his role working on a major portion of the \$4.4 billion Fort Bliss Expansion Program, considered the largest peacetime military construction effort in the country.

which money would be released over a period of time in annual appropriations for each BCT Complex. The Army initially authorized two increments for each complex, which worked fine since it would take the District two years to build the complexes. However, congressional and Army budget programmers soon increased the increment to three years, thinking that the District could start work on more complexes in a quicker time frame, even though Minahan and Wright explained that this would actually add six months to the construction process since the engineers and contractors could build faster than Washington sent the money.³⁵

The first BCT was scheduled to arrive in 2008, so Team Bliss, now numbering in the hundreds, engaged in creative thinking about how to build the complexes on an arbitrarily extended budget. The team determined that the best way forward was to build as much of the first BCT complex as possible using the first incremental funds, and when the second installment for the first complex arrived at almost the same time as the first increment for the second complex, to shift those funds toward the completion of the first complex. The next increment would then be used to start work on the second complex. Wright later explained that “We started this idea of using the different projects to fund a footprint so that we could continue a nice, clean build. Then we would have enough funds to get the next one started in the right time frame.”³⁶

To temporarily house transitional elements of the BCT that was standing up, the District first constructed a complex comprised of cheap, disposable, pre-fabricated buildings that would serve as the first brigade’s administrative center until the first permanent complex was completed and ready for occupancy. The District called this virtual sea of modular trailers “Long Knife Village,” in honor of the 4th Brigade of the 1st Armored Cavalry Division, nicknamed the Long Knife Brigade. Mike Mocek saw Long Knife Village as an opportunity for the District to test its plans and processes, telling interviewers later that “the temporary facilities...helped us a great deal when the permanent expansion program came along,” particularly in reaching out to a traditionally competing district like Albuquerque for support. Long

Knife Village demonstrated to Mocek that “we really can cooperate as districts ...and bring our processes together to get something done.”³⁷

Team Bliss also wanted all the facilities to be ready for occupation and use as soon as each brigade stood up, not just finished from a construction standpoint, but completely furnished and equipped with desks, bunks, storage facilities, communications systems, laundry rooms, vend-



(USACE photograph)

Robert E. Slockbower, Director of Military Programs, HQUSACE, presents Norma G. Edwards, Fort Worth District, East Fort Bliss Program Manager, with an award during the 2011 Great Minds in STEM annual conference’s Military & Civilian Honorees in Science, Technology, Engineering and Mathematics Dinner in Lake Buena Vista, Florida. For twenty-three years Great Minds in STEM, formerly the Hispanic Engineer National Achievement Awards Corporation, has recognized the achievements of America’s best and brightest engineers and scientists within the Hispanic community.



(USACE photograph)

The Fort Bliss Expansion Project Delivery Team's initial kick-off meeting in August 2005.



(USACE photograph)

Troy Collins (center), Director, Fort Bliss Program Office, speaks to several interested contractors at an Industry Day at the El Paso Chamber of Commerce in 2007. Collins would later assume the duties of the Deputy District Engineer, Programs and Project Management Division in 2008.



(USACE photograph)

Michael Bormann, Infrastructure Project Manager, Fort Bliss Expansion Program, during a groundbreaking ceremony for the 601 spur, which was aimed at easing traffic flow in the Northeast. Bormann later became the director of the Trinity River Corridor Project.

ing machines, and myriad other components necessary to make the buildings functional as soon as the soldiers arrived. Consequently, Wright established the “Troop Ready Program,” which was responsible for managing the procurement and installation of all furniture and equipment, and assigned the only non-government manager he had on staff to lead it, Cat Zultner of Jacobs/Huitt-Zollars. She subsequently developed all the schedules and coordinated delivery of all items that went into the buildings, often ordering them six months in advance to meet the targets. It was very precise and difficult work, but Zultner executed it perfectly. “She did a phenomenal job of managing that part of the program,” Wright recalled, and “without that Troop Ready Program being done the way it was, we would not have been successful.”³⁸

Plans changed in 2007 when the Army announced its “Grow the Army” initiative, which added some 75,000 soldiers to the force, with an additional three BCTs and eight modular support brigades. The Army accordingly added two Infantry BCTs, several other missions and ultimately a new medical center to the expansion program, which ended up more than doubling the size of the original plan, and bringing the total number of soldiers to be transferred to Fort Bliss to 37,494, with 53,295 family members.³⁹

Altogether the scope now included 138 projects, 350 buildings with 11,000,000 square feet of added space, the development of 4,500 acres of land, and the movement of 11,000,000 cubic yards of dirt. Additionally, the District had to build 94 miles of waterlines, 54 miles of sanitary sewers, 71 miles of storm drains, 62 miles of gas lines, 54 miles of electrical duct banks, 59 miles of communications duct banks, 80 miles of roads, and 22 miles of tank trails. It all cost \$4,800,000, and to help manage the overall process, USACE developed a secure online tool utilizing the USACE’s Engineering Knowledge Online (EKO), the site acted as a central data repository and clearing house so that Team Bliss and USACE project teams elsewhere in the United States could compile and share information and data more easily, thereby avoiding the stovepipes that General Flowers so despised.⁴⁰

The original plan had called for a \$50 million renovation to the old William Beaumont Army Medical Center, built in 1972 and tucked up against the Franklin Mountains. The facility was currently shared with the Department of Veterans Affairs. However, with the Grow the Army initiative the medical community began to realize that a makeover of the existing facility would not serve the needs of the expanded base and in 2011, the Defense Department funded the first increment and the Army announced that a brand-new, 1.13 million square foot complex, with four central buildings, was being designed and built to replace the old hospital. The new medical center was sited in east El Paso, at the southwest corner of the intersection of Loop 375 and Spur 601, and would serve wounded or ill soldiers serving at Fort Bliss and their families. The ground breaking took place in September 2011, with a

scheduled 2016 opening. This project made up almost \$1 billion of the overall base expansion project cost.⁴¹

As the new complexes went up, the facilities for the Aviation Brigade proved to be the most challenging task that the District tackled during the project. The designated site was the old Biggs Army Airfield, which had originally been an Air Force Strategic Air Command (SAC) Base built for B-52 bombers before the Army took it over. In the years since, it had been used as an alternative landing strip for the space shuttle because of its long runway, but the rest of its infrastructure was 1930s and 1940s vintage. Beginning in late 2007, led by Craig Pierce, a former active-duty Air Force officer now working for Little Rock District, Team Bliss rebuilt all of the airfield, including every road, utility line, and sidewalk, as well as its broken drainage system. It took four years to finish the work at a cost of \$480 million, not because the District needed that long, but because of the incremental funding parameters. As a side benefit to the extra time it took to redevelop the site, the engineering team was able to secure full funding for the project and avoid the cost-cutting measure of placing the new electrical lines above ground. Placing the electrical transmission lines underground made for a cleaner, neater, more professional environment than was there previously. Additionally, the team designed a new Tactical Vehicle Bridge on Haan Road connecting Fort Bliss with the Biggs airfield that could “accommodate two lanes of heavy military tactical vehicles on four lanes of civilian-type traffic as well as pedestrians.”⁴²

The first buildings were finished in April 2008, and in September, USACE declared the 1st Heavy BCT complex “Troop Ready.” Exactly a year later, in September 2009, USACE opened the 2nd Heavy BCT complex, and then completed the 3rd Heavy BCT complex in September 2010. In December, the 1st Infantry BCT complex was ready for occupation, and in June 2011, the 2nd Infantry BCT complex opened its doors. The aviation complex at Biggs was completed in March 2011, and the Aviation Brigade moved in soon after.⁴³

By September 2011, the entire project was complete. The Fort Worth District delivered 250 facilities to the Army valued at \$3 billion, includ-



(USACE photograph)

Brig. Gen. Jeffrey J. Dorko, Commander, Southwestern Division, tours a barracks under construction at Lackland AFB in 2005.



(USACE photograph)

Brad Hartell (right), Area Engineer, Southwestern Area Office, Fort Bliss Program Office briefs General Richard A. Cody, Vice Chief of Staff of the United States Army, on the Fort Bliss Expansion Program.



(USACE photograph)

(From left to right) Lt. Gen. Van Antwerp, Chief, U.S. Army Corps of Engineers; Col. Christopher W. Martin, Commander, Fort Worth District; and Troy Collins, Director, Fort Bliss Program Office, are briefed during the Chief's visit to Fort Bliss.

ing 86 projects specifically directed by BRAC. But because of last-minute Army decisions, one of the three heavy brigades slated to relocate there was re-designated as a Stryker Brigade, and only one additional infantry brigade was assigned to Fort Bliss, rather than two. It was a monumental piece of construction, leaving Fort Bliss larger than the state of Rhode Island, and ushering in a totally new era of Army base-building and expansion, based on the civilian-style LDE, standardization, and modularization techniques pioneered and tested by the Fort Worth District. And it had saved money, too, through the combination of repetition and a nationwide construction boom. Collins later observed, "It kept on getting less expensive and less expensive as we were building these structures...We capitalized on the economy to build that fort and we did it by standardizing work and muscle memory and having the work force."⁴⁴

Along with the Fort Bliss Expansion Project, the Fort Worth District undertook several other high-profile projects as a result of BRAC 2005. Most of them were in San Antonio, where BRAC ordered the consolidation of Fort Sam Houston and Lackland and Randolph Air Force Bases into Joint Base San Antonio, one of twelve new joint

bases created by BRAC. The merger took place on October 1, 2010, and the Defense Department placed the new joint base under the command of a U.S. Air Force brigadier general. Extending throughout the city of San Antonio, Joint Base San Antonio became the single largest Defense Department installation and enterprise in the United States.

Fort Sam Houston was a priority Army facility within the Joint Base considering that the Iraqi insurgency was then at its worst, with thousands of servicemen and women being wounded during continuing contingency operations. Known as the Home of Army Medicine and Home of the Combat Medic, "Fort Sam" served as the Army's primary medical training facility and host to the 275-bed Brooke Army Medical Center (BAMC). While creating the joint base, BRAC 2005 directed the realignment of inpatient services and related specialty care from the U.S. Air Force's 59th Medical Wing at Wilford Hall Medical Center (WHMC) at Lackland to BAMC, which the Defense Department renamed the San Antonio Military Medical Center (SAMMC).⁴⁵

BRAC also mandated the consolidation of all Army, Navy, and Air Force enlisted medical training at Fort Sam Houston, the construction of two

medical research and laboratory buildings for improved battlefield trauma recovery and patient treatment, and the construction and renovation of clinical facilities and the relocation of various headquarters and field operating agencies to Fort Sam Houston, as well as the realignment of Brooks City-Base. Congress budgeted \$1.9 billion for the BRAC work.⁴⁶

Outside of BRAC, Congress also authorized an additional \$1 billion for a number of concurrent MILCON projects in San Antonio, including the replacement of the main gate at Fort Sam Houston; a new airman training complex and a new ambulatory surgical center replacing Wilford Hall Medical Center, both at Lackland Air Force Base; and Air Force Personnel Center office renovations at Randolph Air Force Base. Another \$425 million was added for Sustainment, Restoration, and Modernization (SRM) construction at the Joint Base. From 2006 through 2011, the entire BRAC/MILCON/SRM Program consisted of 179 contracts delivering 217 facilities at a total cost of \$3.3 billion, with roughly half of that programmed for 2008.⁴⁷

USACE called upon the Fort Worth District to handle the BRAC/MILCON/SRM for Joint Base San Antonio. Colonel Minahan was surprised. He had expected the Fort Bliss expansion project but rumors suggested that BRAC was closing Fort Sam Houston and that Lackland and Randolph would receive little or no additional MILCON funding. When he and Mike Mocek learned about the new projects and the \$3.3 billion allocated for them, they found themselves in a quandary. MILCON specialists Troy Collins and Steve Wright were already heavily involved with Fort Bliss, as were many of the Fort Worth District's key engineering personnel. Minahan himself was fully occupied with time-sensitive temporary modularity construction at Fort Hood for two incoming brigades, and several senior staff members were also deployed in the Middle East working for the Gulf Region Division. Minahan ultimately turned to recently retired Deputy District Commander Bob Morris to lead the San Antonio effort. He was hired as a civilian in January 2006 and made BRAC program manager.⁴⁸

At this critical juncture though, Minahan's command of the Fort Worth District ended, and

on July 27, 2006, he passed responsibility for the massive construction effort to his successor, Colonel Christopher W. Martin, a highly experienced combat engineer, air assault and airborne-qualified Ranger, and Bronze Star recipient. Martin had graduated from West Point in 1983 and earned his master's degree in civil engineering from the University of Illinois in 1991. His career thus far had been decidedly combat oriented, as he had commanded the 887th Engineer Company (Light Equipment) (Air Assault) in the 101st Airborne Division and served as an operations instructor with the Expeditionary Warfare Training Group, Pacific, at the Naval Amphibious Base at Coronado, California. From 1996 to 1998, he had served in the 1st Infantry Division's Engineer Brigade in Germany and supported Task Force Eagle in Bosnia as the Brigade's Chief of Construction, and also as the Brigade Engineer for the Southern European Task Force (Airborne) in Vicenza, Italy. In July 2002, he took command of the 91st Engineer Battalion, the first engineer battalion in the Army to field the Bradley fighting vehicle, and led it during Operation Iraqi Freedom II from January 2004 through February 2005. Martin had earned his Bronze Star during this deployment, in which his unit was responsible for a large part of the western Baghdad area. After returning home, he attended the U.S. Army War College and graduated in June 2006, just before coming to Fort Worth.⁴⁹

Martin was already familiar with the Fort Worth District, having served in the Central Texas Area Office at Fort Hood from 1991 to 1994. And in time-honored USACE fashion, he was able to seamlessly make the command transition and bring himself up to speed on the District's various civil works and MILCON programs. The Fort Bliss Expansion Project was daunting enough, but he found that the San Antonio project was just as complicated and time sensitive. The "crown jewel" was the \$724 million BAMC/SAMMC component, which required the renovation of the existing medical building, the construction of a new 738,000 square foot consolidated tower and a 5,000-vehicle parking garage, and the addition of a new burn unit and a 22,400 square foot central energy plant. The separate \$92 million Battlefield Health & Trauma Joint

Center of Excellence and the Institute of Surgical Research were also located on the campus. These were absolutely critical facilities, with combat casualties, including severe burn and amputation cases, flowing back to the United States from Iraq and Afghanistan on a daily basis. Consequently, the 150,000 square foot Battlefield Health & Trauma Center was the first MILCON project to get started, breaking ground on January 11, 2008, while construction at BAMC/SAMMC started on December 8.⁵⁰

Martin and Morris also found that the \$2 billion project was not as clear cut as the Fort Bliss project since the Air Force and medical community were involved. Unlike Fort Bliss, which had plenty of room for expansion, San Antonio's pre-existing cityscape limited how and where the work could be done. Moreover, most of the funding did not come from typical MILCON sources or BRAC, but from the Defense Department's medical program. Complicating matters further was the fact that the Air Force had a different set of construction standards, which in some cases even exceeded USACE's.⁵¹

To manage the massive project, the Defense Department's BRAC Office, along with USACE, the U.S. Naval Facilities Command (NAVFAC),

and the U.S. Air Force Center for Engineering and the Environment (AFCEE), established the Joint Program Management Office (JPMO) in San Antonio in July 2006, with David Thomas (USACE) appointed as Director and Frank Simas (AFCEE) as Deputy Director. Randy Holman was selected as the Deputy Director for Strategic Communications, and became the public face of the San Antonio BRAC/MILCON project. JPMO started with a staff of about 75 employees, but that number doubled to 150 in 2008, and by 2010, it fielded a staff of over 200 as the project peaked in activity. For contractor support, JPMO hired the Parsons Corporation as the Architect Engineer Integrator (AEI). The contractor's scope of services included program integration and project management, Request for Proposal (RFP) design development, cost and schedule support, construction oversight and quality assurance on individual projects, and oversight of those activities when they were performed by other firms. The AEI arrangement allowed the JPMO to meet critical, comparatively short-term staffing demands without having to hire additional employees.⁵²

Construction proceeded at a brisk pace throughout San Antonio in 2009 and 2010, and under JPMO's watchful eye, contractors emplaced



(USACE photograph)

The Medical Education and Training Campus at Joint Base San Antonio includes five medical instruction facilities, an 80,000 square foot dining facility, four 1,200-person dormitories and a 600-person dormitory.



(USACE photograph)

The San Antonio Medical Center at Fort Sam Houston features a 305,000 square foot renovation of the existing Brooke Army Medical Center, combined with a new 767,000 square foot Medical Tower, a 5,000-vehicle parking garage, and a Central Energy Plant. The new facility includes an expansion to the Emergency Department and the U.S. Army Institute for Surgical Research Burn Center; provides new and additional locations for outpatient clinics, intensive care units, a behavioral health inpatient unit, and nursing units; and provides 15 operating rooms and additional administrative space.

the last structural beam at BAMC/SAMMC in late February 2010. With the structural beams “topped out,” the hospital expansion project suddenly ramped up from 500 workers to about 1,200 as it moved into the next phase of construction. Randy Holman told local news media that “This is the single largest and most complicated piece of the BRAC program. Reaching this key point is a major milestone and represents one of the final hurdles as we near the finish line.” With the clock ticking down, the contractors next installed the electrical, mechanical, and plumbing systems, and then added the skin of the building before installing all of the interior equipment and furniture. They finished in the summer of 2011, ahead of schedule, and the Army and Air Force held a joint ribbon-cutting ceremony on October 7. Some 2,000 Air Force and civilian personnel moved over to BAMC/SAMMC from Wilford Hall, which is projected for demolition in 2016 and will be replaced by the new \$476 million, 681,000 square foot Wilford Hall Ambulatory Surgical Center.⁵³

BAMC/SAMMC became the Defense Department’s largest in-patient hospital with 450

beds, 32 operating rooms, and a roof-top helipad, and is the military’s only Level 1 trauma center, capable of handling any life-threatening injury. The expansion added some 750,000 square feet of additional space to the structure for a total of roughly 2 million square feet. And about 280,000 square feet of existing space was revamped and remodeled. Its most prominent feature was the consolidated tower (CoTo), which housed the emergency department, new inpatient floors, clinics, and additional administrative space. The project’s architectural firm, RTKL Associates, paid particular attention to the building’s aesthetics and environmental cost, incorporating large windows and an entry hall lined with Minnesota limestone into the design, as well as energy-efficient lighting. Recycled water from its cooling towers was used to irrigate native plants on the grounds, while about 97 percent of the building’s steel was recycled from used cars and refrigerators. Because BAMC/SAMMC was absorbing inpatient care from Wilford Hall, JPMO opened a new Primary Health Clinic at Fort Sam Houston, to take over BAMC’s former outpatient care responsibilities.⁵⁴

Elsewhere in San Antonio, USACE also finished the thirteen facilities comprising the new Medical Education and Training Campus (METC) and transferred them to the Joint Base in 2011, including all five of the Medical Instructional Facilities (MIFs), an 80,000 square foot dining facility, and four 1,200-person dormitories and one 600-person dormitory. The MIFs housed classrooms and laboratories that were used to train a variety of medical specialists, such as combat medics, Navy corpsmen, radiology technicians, and biomedical equipment technologists. The first students began attending classes soon after METC opened, and the school held its first graduation ceremony before the end of the year, after a group of Air Force staff sergeants completed a pharmacy course. With an average daily enrollment of 9,000 students, METC was the largest institution of its kind in the world.⁵⁵

JPMO likewise completed a new headquarters building for the Army's Installation Management Command (IMCOM) and renovated nearly a dozen historic structures, most 75 years old or older, for additional space to house the Army Environmental Command, the Army Contracting Agency, the Network Enterprise Technology Command, and the

Family Morale, Welfare and Recreation Command. They opened in August 2011. At Camp Bullis, a sub-installation of Fort Sam Houston, JPMO completed construction of a modified urban assault course, which created a realistic environment for providing combat training to individual personnel and teams. A 201,000 square foot Armed Forces Reserve Center was built at Camp Bullis to provide permanent facilities for 23 Army Reserve units and four Texas Army National Guard units.⁵⁶

At Lackland Air Force Base, JPMO began building a new \$306.4 million Airmen Training Complex. It was comprised of two campuses and eight planned dormitories, two classroom and dining facilities, and a Recruit/Family In processing & Information Center, with construction funded from 2009 through 2016. A 40,000 square foot Intelligence Operations Center was also built to support units which monitor and assess worldwide Air Force communications and computer systems. Nearby, two existing structures, totaling more than 450,000 square feet, were renovated to create administrative space for 10 Air Force and joint agencies, including the Air Force Center for Engineering and the Environment (AFCEE).⁵⁷



(USACE photograph)

The tower has a unique rooftop helipad, the only one in the Department of Defense to facilitate emergency treatment. SAMMC is one of only 15 hospitals in the United States that hold both Level I trauma certification and accreditation from the American Burn Association. The facility is the only Department of Defense Level I trauma center in the continental United States and houses the Defense Department's only burn center.



(USACE photograph)

Fort Bliss Commander Maj. Gen. Howard B. Bromberg (far left), U.S. Sen. Kay Bailey Hutchison and U.S. Rep. Silvestre Reyes help cut the ribbon on the newly opened 1st Heavy Brigade Combat Team, 1st Armored Division's Headquarters building on East Fort Bliss during a ceremony on October 28, 2008. Also cutting the ribbon are Pfc. Daizy Hunter and Joshua B. Reed.

In October 2008, JPMO also delivered the \$15 million Lieutenant Colonel Daniel E. Holland Military Working Dog Hospital to care for the 2,500 dogs assigned to military units both in the United States and overseas. Called the "Walter Reed of the veterinary world," the hospital replaced a cramped building built in 1968 for dogs injured in Vietnam. It was named for Lieutenant Colonel Daniel E. Holland, a well-respected U.S. Army officer and veterinarian who was killed by a roadside bomb in Iraq on May 18, 2006. The new facility had world-class operating rooms, digital radiography, CT scanning equipment, an intensive care unit, and rehab rooms with an underwater treadmill and exercise balls, among other features. A canine behavioral specialist moved into an office near the lobby.⁵⁸

Outside of the JPMO, the Fort Worth District finished a new administration center at Randolph Air Force Base ahead of schedule. The building incorporated Civilian Personnel Offices from five other bases across the country to manage programs and carry out policies affecting Air Force civilian members. Also on the base, a hangar expansion project ended successfully, allowing for the realignment of an Introduction to Fighter Fundamentals (IFF) pilot training mission from Moody Air Force Base. At Fort Polk, in Louisi-

ana, the District designed and built 89 prefabricated modular buildings totaling almost 330,000 square feet, similar to those in Long Knife Village, and also seven stress membrane structures, to support the training of Foreign Security Forces. The project cost \$113.75 million and was finished in August 2009, only 270 days after authorization. Other similar BRAC-related and MILCON work was completed at the White Sands Missile Range, and Goodfellow Dyess, and Laughlin Air Forces Bases, on time and on budget.⁵⁹

By mid-September 2011, the District had met all of its statutory deadlines under BRAC. The expanded Fort Bliss was open and the BCTs and Aviation Brigade were operational, and the training ranges were active. SAMMC and its auxiliaries were also open and treating wounded warriors just back from the Middle East and Southwest Asia, while the other new facilities in and around San Antonio and elsewhere in the Fort Worth District were likewise functioning. Looking back on what the District and JPMO had done since 2005, Steve Wright simply reiterated that "the success of the program had the most to do with the fact that it was tremendously meaningful work" and that ultimately "This isn't about us. It's about the soldiers and about their families. That's all we're here to do."⁶⁰



(USACE photograph)

The Installation Management Command (IMCOM) Resident Office and San Antonio Area Office constructed the IMCOM Campus in Fort Sam Houston, San Antonio. The campus comprises seven projects with a total contract value of over \$120 million and over 330K square feet of facility space. It was built under a very compressed schedule in order to meet the Base Realignment and Closure requirements.



(USACE photograph)

Lt. Gen. Rick Lynch, Commander, Installation Management Command (IMCOM), Fort Sam Houston, Texas, recognizes the U.S. Army Corps of Engineers Fort Worth Team for the outstanding support, guidance, oversight, and technical expertise it provided during the construction of the new IMCOM campus under a tight BRAC deadline. "It cost our nation about \$120 million and by golly it is exactly what we needed and expected, so the building itself is superb," said Lynch.



CHAPTER 4

Post-9/11 Emergency Operations

While the GWOT and the high-profile Fort Bliss expansion and BRAC/MILCON projects occupied much of the Fort Worth District's attention and resources during the period, other District offices quietly carried out USACE's legislatively required missions. One of the most important missions was spearheaded by the Office of Emergency Management, led by Paul D. Krebs from 2002 to 2008. Krebs had grown up on a farm near Corpus Christi, Texas, and had earned a degree in agricultural engineering at Texas A&M University. His first experience with hurricanes and natural disasters occurred with the Category 5 Hurricane Carla in 1961, and again in 1970, when the Category 3 Hurricane Celia destroyed his family's farmhouse. He joined the District's Planning Branch in 1980, worked in Military Programs from 1984 to 1987, then returned to the Planning Branch. In November 1989, he transferred to Emergency Management, where he became an expert in disaster response and relief.¹

Krebs worked as the Flood Control and Coastal Emergencies Program Manager from 1989 until he was promoted in 2002. As the District's new Chief of Emergency Management, Krebs was responsible for planning and organizing its response to hurricanes, tornadoes, floods, wildfires, terrorist attacks, and major accidents involving federal property or equipment. These emergency operations were governed by two important laws. The first was the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988 (Public Law 100-707), which amended the original Disaster Relief Act of 1974 (Public Law 93-288). The Stafford Act authorized USACE to participate in the Federal Response Plan (now called the National Response Framework) as Emergency Support Function (ESF) #3 (Public Works and Engineering) under the direction of the Federal



(USACE photograph)

Paul Krebs, USACE
Fort Worth District
Chief of Emergency
Management,
2002-2008.

Emergency Management Agency (FEMA) when authorized by the President.

USACE utilizes experienced emergency managers and response personnel to execute and manage its ESF #3 mission. The ESF #3 cadre is comprised of team leaders (TL) and assistant team leaders (ATL) who serve as USACE project managers and negotiate missions with FEMA during crises. Krebs became a member of the cadre serving as an ATL in 2004 and later as TL in 2006. Typical missions for USACE included commodities and water distribution, debris removal and disposal, temporary electrical power, temporary roofing, infrastructure assessments, critical facility restoration, urban search and rescue, and the deployment of a mobile tactical operations unit, which was essentially a self-contained van with a top-mounted antenna for communications and coordination. Under the Stafford Act, USACE never acted as the command and control element but always worked for FEMA, which by statute was responsible for all relief and recovery operations requiring federal civilian involvement.²

Additionally, to augment ESF #3 at the regional level, the Southwestern Division maintained a trained cadre of Planning and Response Teams (PRTs) within its Major Subordinate Commands (MSCs) to cover all of its major mission areas. These were organized within select districts after Hurricane Andrew in 1992, when ad hoc “pick-up teams” proved to be wholly inadequate for emergencies of that magnitude, resulting in confusion, frustration, and embarrassment. There were now eight of them ready for immediate deployment to bring all of the USACE’s resources to bear on a disaster, with the Fort Worth District fielding the debris team, the Tulsa District the power team, the Little Rock District the roofing team, and the Galveston District the commodities team. Teams located in other divisions were charged with different tasks.³

The second law that governed USACE emergency operations was the Flood Control and Coastal Emergency Act of 1955 (Public Law 84-99), which gave USACE the legal authority to respond to floods. It specifically allowed the Chief of Engineers, acting for the Secretary of the Army, to prepare for flooding disasters by taking advance measures to protect communities and USACE facilities, to conduct emergency operations before and after flooding events, to rehabilitate damaged or destroyed flood control works, to protect or repair federally authorized shore works either threatened or damaged by coastal storms, and to provide emergency water due to drought conditions or contaminated sources. Under the law, USACE supplemented state and local entities in fighting floods in urban and other non-agricultural areas under certain conditions but could not act as a first responder. Due to Texas’s long history of flooding, the Fort Worth District Emergency Operations Office most often responded under the Flood Control and Coastal Emergency Act rather than the Stafford Act.⁴

Over the years, the Emergency Office had developed annual “all hazard” concept of operations (CONOPS) plans for both hurricane response and flood fighting. “You really fight the way you train,” said Krebs, and so “We practice over and over so that it becomes second nature.” Moreover, Krebs liked “to have everything ready and pre-positioned to go so that the commander

doesn’t have to fret over stuff.” Consequently, he and the Planning and Response Teams regularly participated in both District and division-level Rehearsal of Concept (ROC) drills with representatives from FEMA, USACE’s Mississippi Valley Division, the EPA, and the state of Texas, in which they tested their responses to any number of potential disasters. The table-top practice sessions, which were very similar to military war games except that the participants portrayed themselves, were a high priority, Krebs explained, so that “everybody knows where they’re supposed to be,” and “what they’re supposed to be doing.” Since most disasters were hardly predictable, the operation orders that the Emergency Management Office wrote and tested were generic for flexibility, and were re-written each year to integrate updated policy directives from USACE headquarters and changes in Texas state law and regulations.⁵

The first crisis that confronted the Emergency Management Office after Krebs became chief was the 2002 Canyon Lake Flood. Krebs stayed behind in Fort Worth to activate the District’s Emergency Operations Center (EOC) to coordinate the District’s response while then-District Commander Colonel Wells and his team worked onsite at the dam and within the community. The EOC supported the flood recovery effort for approximately twenty days before standing down. Meanwhile, the District’s Debris Planning and Response Team deployed to San Antonio under Stafford authority to oversee FEMA’s debris-removal mission. Although the Emergency Management Office did its job efficiently and effectively, some local citizens at the time failed to understand the statutory limits of USACE’s authority and inability to perform certain tasks or buy out damaged properties during the clean-up.⁶

Next, the Emergency Management Office coordinated with the Fort Worth District’s Operations Division to support NASA’s recovery efforts in the aftermath of the Columbia space shuttle accident in February 2003. A number of orbiter parts fell into Sam Rayburn, Town Bluff, and Piney Woods lakes and their recreational areas as it disintegrated over southeast Texas. The lake managers provided as much assistance as they could to the NASA divers and search teams as

they combed the lake bottoms and scoured the landscape for debris. District rangers also joined the search on land and actually recovered some shuttle pieces in the parks, which were turned over to NASA for the ensuing accident investigation.⁷

In 2004, the Emergency Management Office refocused on hurricanes, which historically were the most dangerous threats to the Gulf Coast region and Texas. That season was particularly active, with sixteen tropical depressions, fifteen named storms, and nine hurricanes. Six of these were major hurricanes, and four made landfall in Florida in rapid succession—Charley (August 9-15), Frances (August 25-September 8), Ivan (September 2-24), and Jeanne (September 13-28). Although Texas was not directly threatened, the Fort Worth District assisted FEMA and its sister districts in the Southeast with response and recovery operations. Thirty-nine Fort Worth District team members deployed to Florida, Alabama, and Georgia in support of operations associated with these hurricanes. Additionally, the mobile command and coordination vehicle, staffed by District employees, deployed to Florida to support FEMA logistics operations.⁸

Krebs himself deployed to Pensacola as an ESF #3 assistant team leader for Hurricane Ivan, which was the worst of the storms at Category 5 and was later classified as the tenth most intense Atlantic hurricane ever recorded. He was there for thirty days and worked as a local government liaison with the Escambia County EOC, coordinating missions between the local government and FEMA. Krebs did such a good job that he was promoted to team leader. Local Florida citizens also thanked him for USACE's hard work there, stopping him several times to say "Hey, we appreciate you being here."⁹

The 2004 hurricane season was rough, but the 2005 season was worse, culminating in the twin disasters wrought by Hurricanes Katrina and Rita. Katrina was a Category 5 storm that passed over southern Florida into the Gulf of Mexico and then shifted north and made final landfall on August 29 at Buras-Triumph, Louisiana. It was the costliest and one of the five deadliest hurricanes to ever strike the United States, causing an estimated \$108 billion in damage and killing over 1,800 people. Although New Orleans was spared

the brunt of Katrina's winds, the storm's massive surge overwhelmed its levee system, breaching it in 53 places, and inundating eighty percent of the city. Other low-lying areas in Louisiana were likewise devastated, and Gulfport, Mississippi was virtually destroyed. The Mississippi Valley Division was responsible for managing USACE's activities in Louisiana and western Mississippi and became the USACE's lead element during the subsequent rescue and recovery effort, under FEMA's overall direction as required by the Stafford Act. As the scale of the disaster quickly overwhelmed the initial response, the federal government ultimately mustered resources from USACE headquarters, the six other divisions, and all forty-one USACE districts, as well as more than 3,000 personnel from overseas and from other agencies. Managed under the FEMA umbrella, the combined federal effort was called Task Force Hope.¹⁰

In Fort Worth, just as Katrina was turning toward Louisiana, the phone rang as Krebs was preparing to go to a high school football game to



(USACE photograph)

U.S. Forest Service crew members and Fort Worth District members search for debris after the space shuttle Columbia broke apart upon re-entry in February 2003. The team worked along a three-mile length of Bardwell Dam embankment downstream of the dam near the outlet works.



(USACE photograph)

The National Deployable Tactical Operations System (DTOS) is a vehicle-based tactical system with an 18-vehicle fleet spread throughout the Corps. DTOS provides command and control for disaster operations and is deployable within 36 hours of activation. Each is composed of two Emergency Tactical Operations Center (ETOC) trailers which are towed into position. These trailers have workspace, computer capabilities, communications systems, and can be manned by up to 38 personnel.



(USACE photograph)

A U.S. Army Corps of Engineers Debris Team member oversees a contractor in Orange, Texas.

watch his son march as a band member for the first time. On the line was David Sills, Chief of the Mississippi Valley Division's Emergency Management Office. Sills asked Krebs if he could go up to FEMA's Regional Response Coordination Center in Denton the next day as a precaution. Katrina was in the Gulf threatening Louisiana and Mississippi, Sills said, but he did not anticipate anything unusual happening with this storm. He was mistaken and Krebs ended up staying in Denton for two weeks.¹¹

As it happened, the Fort Worth District's immediate contribution was providing contract support for FEMA. In particular, the District issued a \$7 million contract to KBR as a readiness exercise to support law enforcement in New Orleans, Louisiana, on behalf of the Department of Homeland Security and Immigration and Customs Enforcement (ICE). This was a successful project which had to overcome numerous obstacles such as getting emergency commodities and services shipped to New Orleans, a major challenge with the city's infrastructure so badly damaged.¹²

Krebs returned home to Fort Worth just in time for the arrival of Hurricane Rita in September 2005, another Category 5 storm that was tracking in Katrina's wake and heading for the Texas coastline. By this time, FEMA and USACE were under withering public criticism, much of it unfair, for their perceived failures during the Katrina crisis. FEMA was taken to task for its inability to push relief supplies and personnel into the region fast enough, while many were already blaming USACE for the levee breaches. Questions were also raised about the use of single-source contracts awarded to large, politically connected corporations, particularly KBR, for disaster recovery in the region.¹³

Hurricanes Katrina and Rita both struck on Colonel Minahan's watch. As soon as Rita moved into the Gulf, and appeared likely to hit Houston and Galveston, Minahan coordinated with both the Southwestern Division and Galveston District Commander Colonel Steven Haustein to first evacuate the Galveston office on September 21, and then take the lead on dealing with Rita's imminent landfall. Because of the outcry over Katrina, Minahan took no chances and pre-positioned personnel, supplies, and equipment on the

outskirts of the Galveston District, ready to move as soon as the storm passed. "Everybody was really decisively engaged," he said, and "made sure we got off to a really good start."¹⁴

Acutely aware of the controversy over the government's contracting practices following Katrina, Minahan also moved to get agreements in place for clean-up operations. USACE in fact had already changed the way that it contracted for ice, water, debris removal/reduction, temporary power, and temporary roofing to support natural or man-made disasters. Previously, USACE awarded contracts only after an emergency or disaster occurred, delaying the response time, and heightening frustration among victims. Pre-disaster competitively awarded contracts, commonly referred to as "Advanced Contracting Initiatives" or "ACI" contracts, were developed and awarded by the USACE Readiness Support Center, in conjunction with the respectively assigned lead divisions and districts. Based on this authority, Minahan had seen to it that the District had ACI contracts in place with IAP Worldwide Services for ice and temporary power, D & J Enterprises for debris removal, and the Lipsey Mountain Spring Water Company for water delivery.¹⁵

Hurricane Rita came ashore on September 24, after suddenly lurching northwest between Sabine Pass, Texas, and Johnsons Bayou, Louisiana. It missed Houston and Galveston but severely damaged the Louisiana and southeastern Texas coasts. Seven people were killed directly, mostly by falling trees or drowning. At least fifty-five more were "indirect" fatalities, six of whom died in Beaumont due to carbon monoxide poisoning. A bus accident south of Dallas during the course of the evacuation also killed more than twenty people, mostly elderly evacuees from a nursing home. Others died because of heat exhaustion. Rita's storm surge devastated entire communities in coastal areas of southwestern Louisiana, including Cameron Parish's Holly Beach, Cameron, Creole, and Grand Cheniere. In the Fort Worth District, the parks and recreational areas at Sam Rayburn Reservoir, Town Bluff Dam, and B.A. Steinhagen Lake were extensively damaged by Rita's high winds, which downed trees and power lines within the watershed. These areas were closed indefinitely.¹⁶

At the direction of Southwestern Division Commander Brigadier General Jeffrey Dorko, Minahan traveled to Beaumont on September 27 and established a seven-person recovery field office to manage USACE's part in the relief effort. Krebs stayed behind in Fort Worth to run the District's EOC and push supplies and equipment to Minahan in Beaumont. In the meantime, President Bush had already issued preemptive emergency declarations for Texas and Louisiana and invoked the Stafford Act, giving FEMA overall supervision of the operation. FEMA immediately assigned the Fort Worth District the power, water, and ice missions. On that same day, Krebs began shipping three-day supplies of water and ice to the disaster zone from a depot located at the Fort Worth Federal Center. By October 5, some 532 truckloads of ice and 594 truckloads of water were distributed. Each truckload of ice weighed 40,000 pounds, while a truck of water carried 18,000 liters. USACE then managed ice and water stations where people could come by and pick up the needed commodities.¹⁷

Rita's path took her away from coastal population centers in Texas but into the state's heavily wooded northeast area, resulting in widespread electricity outages as thousands of trees knocked down about ninety percent of the transmission lines. Initial estimates indicated that it would take two to three months to restore power. In the post-Katrina environment, this was unacceptable, and so getting the regional power grid back on line became Minahan's highest priority during his first week in Beaumont.¹⁸

On September 26, 2005, the Jasper-Newton Electric Cooperative (JNEC) formally asked Sam Rayburn Power Plant Superintendent Mike Carver to connect the lake's hydroelectric generators to JNEC's collapsed power grid and give it a "black start." This was no small request. A black start typically involved using an external hydroelectric or fuel combustion generator to boost a dead power plant and bring both it and the grid back to life. Once the plant was jump-started, local load areas would then be energized and synchronized in sequence and reintegrated into the regional and national grids. It was very similar to what Task Force Fajr had done in Baghdad in April 2003.¹⁹

Sam Rayburn was one of the District's three hydroelectric dams. It was equipped with two

generators, each capable of transmitting twenty-five megawatts of power, but they were not certified or approved for a black start, and there were some associated risks. USACE in fact had a long-standing prohibition in place against black starts using its hydroelectric generators. "The Corps normally wouldn't attempt something like this," Carver said, "but due to the circumstances and the urgent need to get power to critical-need facilities, our commanders decided to just do it."²⁰

With JNEC's request tentatively approved by Minahan and District Operations Division Chief Thomas Fleeger, Carver assembled a virtual, multi-disciplinary, twenty-three member Project Delivery Team (PDT), comprised of electrical and hydraulic engineers, power plant electricians, mechanics, operators, technicians, and attorneys from both within and outside the Fort Worth District. Carver then developed a short Project Management Plan (PMP) and coordinated with JNEC and its customers, the Southwestern Power Administration (SWPA), and also USACE hydro-power experts in the Omaha District to start the complicated process. JNEC prioritized hospitals, water supply systems, gas stations, municipal buildings, police stations, oil refinery distribution centers, and even stores like Walmart and Lowe's for restoration of service.²¹

To ensure that USACE acted within the law, the PDT attorneys helped Minahan navigate several legal and administrative hurdles. This was the first time that a black start had ever been attempted at Sam Rayburn Lake, and there were laws and regulations on the books that prohibited it. Over the next four days, they secured the necessary waivers and permissions and finally got the green light from USACE's General Counsel and the Justice Department to go ahead.²²

Meanwhile on the technical front, the onsite power plant engineers tackled the complex equipment capability and safety issues that arose, despite their own personal hardships. Their homes were uninhabitable and their families were displaced, and some had no choice but to live in the Sam Rayburn powerhouse while preparing for the black start. Food, fuel, and water shortages and the disruption of phone lines and e-mail service added to the desperation, leaving the operators feeling isolated and frustrated amid the devasta-

tion. To support them, Minahan shipped in fuel to run emergency generators, provided water, brought in food supplies from other USACE lake projects, and maintained communications through a limited number of satellite phones.²³

On Saturday, October 1, JNEC notified USACE that its line repair crews had restored power lines to targeted critical facilities. At 2:00 p.m. Carver threw the switch at Sam Rayburn, and three megawatts of electricity began flowing, first to the Mill Creek Substation near Jasper, and then the Peachtree and Union Substations. A failed circuit switch at the Kirbyville Substation temporarily halted the black start, but the engineers quickly fixed the problem and gradually increased the load to seven megawatts before other power agencies began connecting to the new grid.²⁴

As JNEC work crews repaired additional transmission lines, the Sam Rayburn engineers closed more circuit breakers that night and carefully applied more power. On Sunday, they switched the load over to a temporary feed through Pineland to gain more stability. The Rayburn generators remained connected to system, though, and provided as much power as needed until TXU and Entergy finally took over. During this period, the power plant operators remained vigilant, closely guarded the controls, monitored frequency changes, and maintained voltage levels within safe limits. By October 5, the black start was accomplished. Carver and the PDT had effectively restored electricity to eastern Texas, western Louisiana, and the southeastern power grid in only five days, rather than the two to three months originally projected.²⁵

Carver's PDT was later widely acclaimed by USACE, the Federal Executive Board, JNEC, the Sam Rayburn Municipal Power Agency, Entergy, and the cities of Jasper, Liberty, and Livingston, Texas, for its "Herculean efforts." Minahan's successor, Colonel Christopher W. Martin, later observed while nominating the project for USACE PDT of the Year that:

This project was the first of its kind for the Fort Worth District and region and required great initiative, personal fortitude, and closest possible coordination and communications among multiple agencies. The project

went from "you're not approved to do Black Start" to "we will find a way" to "we did it," in a span of just five days. This was truly one of the great successes achieved in the midst of mass destruction caused by Hurricane Rita. Not only were they "heroes" for accomplishing a Black Start to provide power to critical facilities in the region, but they also took care of their own employees, families, and other emergency responders. The PDT worked long hours, communicating around the clock, to ensure that the emergency restoration of power was a permanent solution and not just a temporary fix.

Martin concluded that "the team provided a quick result that helped relieve suffering and undoubtedly saved lives." In terms of "Lessons Learned," Entergy and the region's other hydro-power customers subsequently requested that Sam Rayburn be formally dedicated to future black starts during future power emergencies.²⁶

Outside of the power restoration mission, the Fort Worth District accepted the temporary roofing assignment from FEMA on October 2. Called Operation Blue Roof, this was a joint FEMA program in which USACE utilized contractor forces to make residences habitable again by covering damaged, leaking roofs with rolled blue plastic sheeting used in tarps. The idea was that the sheeting would patch a living area, mitigate additional damage, and get homeowners out of the shelters quickly and back into their residences where they would be most comfortable and better able to oversee repair of their properties.²⁷

USACE estimated that some 20,000 Texas Gulf Coast structures needed patching, which would require about 2.2 square miles of blue plastic roofing material. Under FEMA and USACE guidelines, blue roofs would only be installed on those homes that did not have a flat roof, were structurally sound, and had not sustained more than 50 percent structural damage. Installation was completely free of charge, but for legal purposes and to protect private property, anyone seeking a temporary blue roof had to sign a right-of-entry form at one of four disaster recovery centers established in Orange, Jefferson, Galveston, and Chambers counties. The documents allowed USACE representatives to come

onto their property to assess the structure and its eligibility and to then assign the job to a contracted roofing team. Residents could check the status of their work orders or find out additional information about the program by calling 1-888-ROOF-BLU. Once the program started, the roofing teams were able to get the work done at a rate of about a hundred roofs per day.²⁸

On the contracts front, District Contracting Officer Maureen Weller, Contracting Specialist Lisa C. Billman, and the Field Contracting Officer for the Power Team, Diane Cianci, overcame a number of legal and administrative hurdles to get the funds and contractors moving into the disaster area. The first problem was that Rita struck at the busiest time of the year for them, with the normal September end-of-fiscal-year rush to award contracts and task orders under way, and they had to double their workload overnight. Next, Dorko and Minahan decided that the money from FEMA would be sent to the Galveston District to make the transition easier for when they could stand back up. This meant that Weller and her team needed access to the Galveston and Corps of Engineers Financial Management System (CEFMS) databases to issue and administer the contracts, not an easy task under the pressing circumstances. Moreover, the overall funding ceiling was reached twice during the deployment, requiring the officers to work with the Great Lakes and Ohio River Division and the Pittsburgh District to expand the contract's capacity and keep funds flowing.

Complicating matters further was the need to scrutinize awards made to large businesses as a result of the political climate following Hurricane Katrina, to determine fair and reasonable prices under the strain of getting the power temporarily restored, and to make sure all procurement regulations were followed while getting the job done in a timely manner. "Without a doubt it was the most challenging year end I have ever been involved with," Weller later reported. In the end, the District Contract Office awarded task orders worth \$15 million in USACE funds and \$14 million of FEMA funds to support the recovery effort through October 27.²⁹

On October 10, FEMA also gave the Fort Worth District the debris-clearing mission, requiring the deployment of the Debris Team. In short

order, USACE collected about 100,000 cubic yards of vegetation debris, including trees and limbs. By the end of October, the Galveston District had recovered enough to resume management of its own emergency operations. The Fort Worth District made the command transition and Minahan returned to Fort Worth after spending four weeks in Beaumont. Despite USACE's trouble in New Orleans, he was pleased with how the District had performed during Hurricane Rita and its aftermath. "I think it went pretty well," he later recalled, "considering the amount of damage that the hurricane inflicted."³⁰

Hurricanes Katrina and Rita brought about a number of changes in how FEMA and USACE conducted emergency operations. In the past, the federal government had usually waited for the states to formally request assistance during disasters, in accordance with the Stafford Act, before activating response teams and getting relief supplies on the road and in the air. Indeed, before 2005, FEMA, USACE, other federal agencies, and the military traditionally supplemented state and local recoveries but did not act as first responders. As an example, Krebs recalled that after Hurricane Celia hit in 1970, his family did not see anybody from the government until a full week to ten days after the storm passed.³¹

That old system fell apart, though, following Louisiana's breakdown during Katrina, causing a major public relations problem for most of the responding agencies, which appeared to be overly slow and confused in getting into the disaster area. The 24/7 news cycle, sensationalized reporting, and nearly instantaneous web-based journalism exasperated the situation, as irate Louisiana city and parish officials regularly appeared on satellite and cable news shows, furiously asking sympathetic reporters and the national audience, "Where's the Corps?"³²

USACE was there, but was powerless to act under existing law, policies, regulations, and guidelines. In the aftermath of Katrina, FEMA transformed itself from a "pull" system to a "push" system, as Krebs later described it, in which "They start pushing stuff in to the states rather than having to worry about it being pulled in" once a disaster occurred. USACE similarly adjusted its emergency planning and operations so that it

could launch much earlier than before in anticipation of state requests for help. As a result, expected response time went from a typical 48 hours before an event, as happened during Katrina, to a full 120 hours minus landfall.³³

Better interaction, coordination, and joint exercise drills among FEMA, USACE, and state and local officials were among other “lessons learned” benefits that were derived from the Katrina disaster. “We don’t exchange business cards [anymore] when we walk into a disaster office,” said Krebs. “We’ve already met everybody...so that when something happens, and we walk into a FEMA joint field office or state operations center...they immediately know who we are. That’s not what it used to be.”³⁴

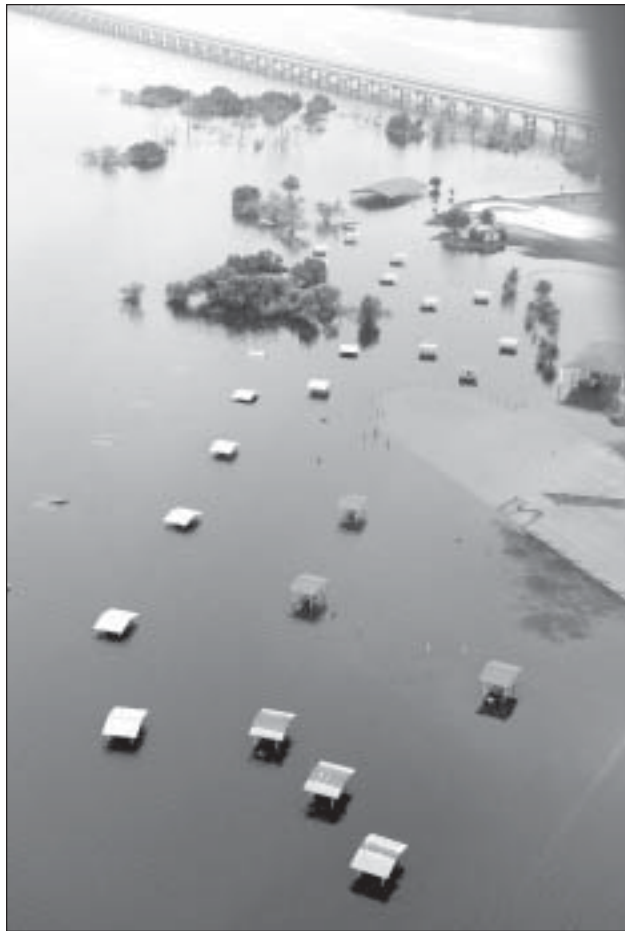
The vital experience gained during hurricanes Katrina and Rita paid off almost two years later when Central Texas experienced the wettest spring and summer on record after one of its regular drought periods suddenly ended in March 2007. Lake levels had been low, with water restrictions previously in effect, but they quickly reached normal levels that month. In late April, a low pressure trough developed over Central Texas and remained stationary for the next two months, with persistent rains saturating the soil. Slow-moving trains of thunderstorms rumbled across the region in June, soaking the landscape even further. Two of the storm cells were especially severe and spawned major regional flooding events. The first was on June 17, when North Central Texas was hit hard, with ten inches of rain flooding Gainesville. About 700 homes and properties were damaged, and six people were killed. However, the Upper Trinity Lakes and the Dallas Floodway Extension did their jobs and prevented catastrophic losses in Dallas County.³⁵

The thunderstorms of June 26-27, 2007 were worse. They roughly followed Interregional Highway 35 from Austin into Oklahoma. That night almost nineteen inches of rain poured down on Central Texas, with the Elm Fork in the Trinity Basin and the upper Little River and the San Gabriel River in the Brazos River basins bearing the brunt of it. On the early morning of June 27, the Emergency Management Office leapt into action as authorized by the flood-fighting provisions of Public Law 84-99. Under the overall

supervision of District Commander Colonel Christopher Martin and his Deputy Commander Lieutenant Colonel John Dvoracek, Krebs and fourteen of his cadre members set up an EOC and a 24/7 emergency contact number to begin coordinating with the State EOC and with regional and local authorities. While Krebs’s EOC responded to state and local requests for assistance and resources, the District’s Reservoir Control Section placed all of its dams and levees under twenty-four hour surveillance, as heavy rains continued through the July 4th holiday, five years to the day of the Canyon Lake Flood.³⁶

During the deluge, the water surface elevations at twenty-three reservoirs rose into their flood pools, with two lakes, Lewisville and Ray Roberts, actually exceeding their flood control capacity. There was also a scare at Proctor Lake where the water level reached thirty feet into its flood pool. The earthen dam started seeping and multiple sand boils appeared around its toe. The possibility of “piping,” in which water could erode an open flow path through weak spots in the embankment, concerned the District’s dam safety specialists, and so they moved quickly to stabilize the dam with sand bags and gravel. The Reservoir Control Section and lake manager also increased the lake’s discharge rate to relieve the pressure on the dam before the problem escalated. At no point, though, was there any real danger of a dam failure.³⁷

Meanwhile, the Mid-Brazos dams performed as designed, preventing major damage to Waco, but their parks and recreational areas sustained significant damage. Likewise, the Upper Trinity dams once again saved Dallas County from disaster, even though thirteen shallow slides were spotted on the Dallas levees, ranging from 90 to 170 feet in length and 5 to 10 feet deep. Because of the two-year drought, the compacted clays in the levees had dried and cracked and the slides had then occurred when those cracks filled with water. But the District did not consider the cracks to be a serious threat to the city. By July 9, the rains had diminished, and the District began releasing more flood water at all of its affected dams. It took well over a month to safely get all the lake levels back to normal, while repairs to the damaged roads and recreational areas were not completed until almost a year later in June 2008.³⁸



(USACE photograph)

One of the Waco Lake parks affected by the 2007 floods.

Throughout the floods, District civil works operations staff, safety inspectors, geotechnical specialists, and the lake and levee/floodway managers performed brilliantly, working together around the clock to control the water levels as much as possible. Ultimately, the Fort Worth District flood control projects sustained damages of about \$43.6 million to their facilities and recreational areas, but prevented an estimated \$7.9 billion in flood damages to the region.³⁹

In July 2008, Krebs accepted a promotion to the Southwestern Division, and subsequently deployed during hurricanes Dolly (July 20-July 25) and Edouard (August 3-August 6), both of which struck the Texas coast, and again during Hurricane Gustav (August 25-September 4), which made landfall near Cocodrie, Louisiana. When the strong Category 2 Hurricane Ike landed near Galveston in the early morning hours of September 13, 2008, Krebs's old



(USACE photograph)

The Whitney Lake Dam releases water during the 2007 floods. The Whitney Lake Dam and powerhouse are located approximately 30 miles north of Waco, Texas.

leadership billet at the Fort Worth District's Emergency Management Office was still vacant. At six hundred miles in diameter, Ike was a very large storm that followed roughly the same path as the Great Hurricane of 1900 that destroyed Galveston. After coming ashore, Ike was followed by a devastating storm surge that killed eighty-two people, forty-eight of them in Texas. Hurricane Ike caused \$29.5 billion in damage, making it the most destructive of the 2008 Atlantic hurricanes. The Galveston District had closed its offices on September 11 to ride out the storm, and so the Fort Worth District stepped up again as the lead district for recovery operations. Despite the lack of an emergency management chief during the event, Colonel Martin staged water, power, ice, and generators at the Fort Worth District Resident Office at Fort Sam Houston, and also got additional personnel and equipment on the road to San Antonio and Austin, under federal authority as part of Emergency Support Function #3 of the National Response Framework. As the storm passed, he then muscled all the supplies to the coast and re-activated Operation Blue Roof to get homeowners back into their residences as quickly as possible. Within the District itself, there was only minor damage at Sam Rayburn Reservoir and Town Bluff Dam/B.A. Steinhagen Lake, which was quickly repaired after brief closures.⁴⁰

Tony Semento, Krebs's successor at the Fort Worth District Emergency Management Office, arrived in 2009. He was a thirty-year veteran of the

U.S. Army, and had just retired from active duty. He held two master's degrees in business, one from Harvard and the other from the University of Texas. Although he had emergency management experience in the Army, Semento found that USACE was different in that it did not have the same structure as the rest of the Army; it lacks the staff offices, the S1 through S7. The Emergency Management Office essentially served the District in the capacity of the S3 training, operations, plans, and exercises section. He also discovered how tiny the District's permanent staff was, with just himself as Chief, three others in emergency management, and two in security. During quiet times, he and his office wrote all of the District's operations orders and acted as "firefighters" to deal with small-scale, localized incidents as well as putting out internal administrative "fires." But during disasters, the EMO could quickly scale up to over a hundred people using volunteers and then deploy straight into recovery areas on a moment's notice. It was very much a "matrix organization," as he later called it, in which everyone who supported emergency operations volunteered to do it, based on specific skills sets and the individual requirements for each event. It was not their day job, but they invariably were eager to help.⁴¹

Semento's first job was to wrap up the finances and paperwork left over from Hurricane Ike. "That

was brutal" he recalled, since "there wasn't really any one person to go to who could figure it out." He managed to grind through the task, though, and balanced the books for the event using in-house tools like Corps of Engineers Financial Management System (CEFMS), the USACE tool for financial transactions; and Engineer Link Interactive (ENGLINK), a centralized database for the collection, analysis, and dissemination of information throughout USACE's emergency operation community. Rolled out in 1997, ENGLink served as USACE's "one-stop-shop" for tracking reports, data, and personnel information collected during each and every emergency event since its inception. He also learned that coordination with the National Weather Service's Southern Region Office—which was also located in the Lanham Building, along with the Fort Worth District offices—and with the Louisville District, which managed USACE's simulation and modeling capabilities, including a web-based application developed by the USACE Readiness Support Center called SimSuite, allowed the District to estimate the impacts of any hurricane that might hit the Texas coastline.⁴²

Under Semento, the Emergency Management Office continued operating virtually the same way that it did when Krebs was chief. Semento's first year in 2009 was a relatively quiet year for



(USACE photograph)

Col. Christopher W. Martin, commander, Fort Worth District, talks to City of Houston Police Department representative Michael Macha, during Hurricane Ike recovery efforts.



(USACE photograph)

Brig. Gen. Jeffrey J. Dorko, Commander, Southwestern Division, does a live interview with Fox News from the Joint Field Office in Austin, Texas, discussing the U.S. Army Corps of Engineers missions in support of Hurricane Ike.

Fort Worth District team members Chris Byrd, Robert Jordan, and Lionel Castillo help Orange, Texas homeowners affected by Hurricane Ike fill out Right of Entry Forms allowing contractors to place FEMA temporary Blue Roofs on their homes. FEMA representatives were set up in the parking lot along with representatives from the Small Business Administration for loan assistance.



(USACE photograph)

emergency operations, but in June 2010, the EMO and a scaled-up team deployed during Hurricane Alex, a Category 2 storm that struck South Texas and northern Mexico. Very soon afterward, in July, the District's emergency operations team supported South Texas again after a tropical depression poured more rain on the Laredo area, which was already saturated from the remnants of Hurricane Alex. The Rio Grande River overtopped its banks by almost thirty-five feet and swamped Laredo, Rio Grande City, and outlying areas in the worst flooding in forty-five years.⁴³

In the spring of 2011, the Fort Worth District supported a number of emergency operations outside of Texas after a series of extremely intense tornadoes struck the South and Midwest, particularly in Alabama and Missouri, where monster EF-5 storms laid waste to several cities and towns. Altogether, over five hundred people were killed during the outbreaks and five thousand more injured. On May 22, 2011, 158 alone were killed in Joplin, Missouri, where a twister that was three-quarters of a mile wide tore a twenty-two mile swath through the city.⁴⁴

Just four months later, in August, Semento and several other Fort Worth District volunteers went to New York for a thirty-day deployment to support recovery efforts there after the Category 3 Hurricane Irene made landfall in Brooklyn. Paul Krebs and other members of the Southwestern Division Emergency Manage-



(USACE photograph)

Charlie Burger,
Chief of Operations
Division since
January 2009.

ment Office also deployed to Trenton, New Jersey, where they bolstered FEMA's area office during the clean-up. After returning from the Northeast, Semento and the EMO cadre then supported FEMA again by helping manage debris-removal efforts throughout Texas following the worst wildfires in state history, which had consumed over 3.5 million acres of land, an area comparable to the size of Connecticut. The most dangerous fire was in Bastrop County, thirty miles southeast of Austin. It was sixteen miles long and, fueled by high winds and severe drought conditions, was not fully extinguished until October 29. The fire killed two people and inflicted an estimated \$325 million in damage.⁴⁵

Emergency Operations remained a key District function at the end of 2011, and although it could be grim work, like Krebs before him Semento found it exhilarating. "I went from kicking in doors as an Airborne Ranger in the Infantry to helping people recover in their time of need," he said. "The hours are long," he added, "but at the end, I think the emergency management job is the best job in the Corps because we're there when the people need us most. We get to see it in their faces, and we get thanked by them personally...there's nothing more rewarding than that."



(USACE photograph)

Tony Semento,
USACE Fort Worth
District Chief of
Emergency
Management,
2009-present.



CHAPTER 5

War-End Civil Works and District Changes

The Iraq insurgency reached its violent peak in 2006. But after President George W. Bush announced on January 10, 2007 that he was ordering the deployment of five more brigades into the country, totaling over 20,000 troops, the war's slow endgame began. Over the next two years, this "surge" in U.S. military strength, coupled with General David Petraeus's counter insurgency strategy and new covert tactics by Coalition intelligence and special forces, restored order and systematically destroyed most of the terror cells operating in Iraq. By 2009, the war there was clearly drawing to a close, and in October 2011, President Barack H. Obama announced that it was effectively over. On December 17, 2011, the last U.S. troops left Iraq.¹

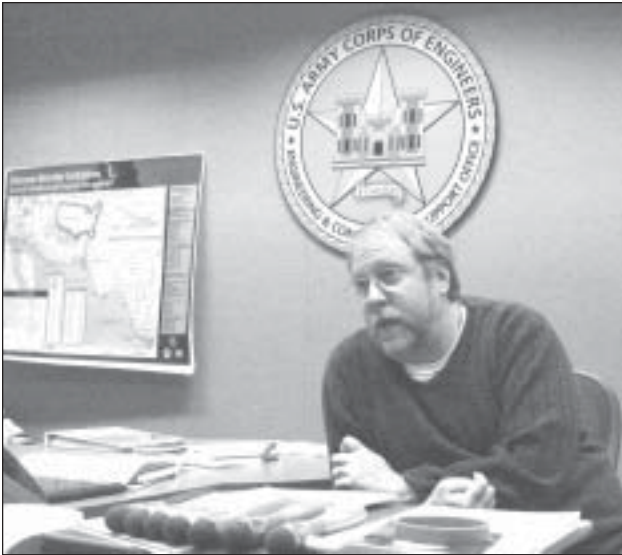
Meanwhile in Afghanistan, the violence escalated as the Taliban, Al Qaeda, and their Haqqani affiliates stepped up their attacks against the NATO-led International Security Assistance Force (ISAF), the Afghan National Army, and Afghan civilians. Coalition casualties mounted, and the extremists appeared to be on the verge of success as they took back control of large areas of the country by the summer of 2009. During a televised address at West Point on December 1, 2009, President Obama announced a second surge of 33,000 additional American troops for Afghanistan, but he made it clear that it was not an open-ended commitment and that he wanted them out in eighteen months. Petraeus himself took command of ISAF on July 4, 2010, and implemented a re-tailored counter insurgency strategy for Afghanistan. On May 1, 2011, U.S. Navy SEALs killed Osama bin Laden at his compound near Abbottabad, Pakistan, removing one of the primary reasons for the U.S. and NATO presence in Afghanistan. Obama accordingly announced on June 22 that the United States would withdraw 10,000 troops from Afghanistan that year and bring another 23,000 home by Sep-

tember 2012. "The tide of war is receding," the President said, and "the light of a secure peace can be seen in the distance." He therefore expected to bring the remaining 68,000 troops home by 2014.²

With operations in Iraq ending and the Afghanistan war grinding down, and the Fort Bliss Expansion and BRAC Projects nearing completion, the Fort Worth District military commanders were able to begin devoting more time to the District's civil works mission as priorities again shifted. District civil works projects had not stopped after 9/11 but had steadily continued in the background while the country was at war. One of the most high-profile projects that USACE undertook on behalf of the Department of Homeland Security (DHS) and U.S. Customs and Border Protection (CBP) was the construction of the border fence along the U.S.-Mexico border, which was sensitive both from a national security and political standpoint. A 2006 sub-committee report from the House Committee on Homeland Security highlighted the porousness of the southwest border and increasing illegal cross-border activity.

The border became a hot-button political issue in the run-up to the 2006 elections, and Congress passed the Secure Fence Act, Public Law 109-367, on September 26, 2006, which required the construction of hundreds of miles of additional fencing along the Mexican border to extend the existing barrier. President Bush signed it into law on October 26, stating that "This bill will help protect the American people. This bill will make our borders more secure. It is an important step toward immigration reform."³

Even as DHS was engaged in extensive discussions for giving USACE a new leading role in this fence construction push, USACE was already working with the agency on a precursor project called Pedestrian Fence (PF) 70. It proved to be



(USACE photograph)

Eric Verwers, Director, Engineering and Construction Support Office, at his desk with Border Fence map in the background.

a very dynamic program since it was the first tactical infrastructure program to integrate multiple projects from several different entities throughout various geographic areas under a single effort. It paved the way for the main fence programs to follow, Pedestrian Fence (PF) 225 and Vehicle Fence (VF) 300.

DHS tapped USACE as the lead agency for carrying out PF225 and VF300, and the Engineering and Construction Support Office (ECSO), a Southwestern Division Program Office that operated out of the Fort Worth District, drew the job of building the fence. The sense of urgency was palpable. DHS Secretary Michael Chertoff personally asked the Chief of Engineers, Lt. Gen. Robert L. Van Antwerp, for a full commitment of USACE resources to ensure project delivery. "This was not just a job," Chertoff said, "it was national security mission." Van Antwerp agreed and sent word down the USACE chain of command that the border fence was now a top priority.⁴

With a little more than two years to build it—a goal set by Congress—USACE had to work hand in glove with DHS and CBP to find new ways to accelerate procurement and logistics to meet the mission goals. The project also required a far-flung coalition of more than 500 USACE employees from twenty-eight districts and laborato-

ries spread across eight divisions. An operating order codifying the relationships among all of the involved USACE geographic districts and with the ECSO was therefore signed to govern the project. Additionally, the national architect-engineer firm of Michael Baker Jr. Inc. was hired to assist the government representatives as program integrators. It truly was a pioneering and pace-setting organizational effort.

The legal timetable severely compressed the usual planning, environmental compliance, design, contracting, and real estate acquisition routines, and set the stage for a flurry of construction in late 2008. To achieve all of this, ECSO first formed a virtual contracting team from four USACE districts—Los Angeles, Albuquerque, Fort Worth, and Galveston—for the procurement. It eliminated differences in procurement procedures across the districts. The USACE Engineering Resource and Development Center in Champaign, Ill., also created a Request for Proposal (RFP) "wizard" to streamline mass development of RFPs for separate fence segments. USACE next created fifteen Multiple Award Task Order Contract pools with fifty-two contractors and \$3.4 billion in contract capacity to streamline task order awards and construction. "We had to reinvent every aspect of the way we deliver projects," said Todd Smith, who was ECSO's program manager for PF225. "There really is no 'business as usual' anywhere within the fence program. We had to continuously challenge people working in the program to think outside the norm and not fall into the old comfortable ways of doing business."

To clear the way, the USACE real estate team navigated a maze of laws, regulations, and policies concerning international stakeholders, other Federal agencies, Native American tribes, local government authorities, and private property owners. Tracts in Texas often had unclear and somewhat wobbly title histories and poor land maps, and so nearly 150 USACE professionals nationwide helped untangle tricky land ownership issues. These included retired real estate personnel, many of whom were veterans of Hurricane Katrina, who came back to work at the Fort Worth District in order to apply their specialized knowledge to the project. A thirty-person real estate



(USACE photograph)

Brian Giacomozzi, Chief, Business Technical Division, Southwestern Division, and Karyn Adams, a civil engineer from the Little Rock District, brief Lt. Gen. Robert Van Antwep, Chief of Engineers, on January 17, 2008, near Nogales, Arizona.



(USACE photograph)

VF300 vehicle fence construction along the southwestern New Mexico “bootheel” border, 2008.

office was established in McAllen, Texas, and many Fort Worth staffers worked evenings and weekends—some for two years straight. An interagency legal team, which included USACE, CBP, and the Department of Justice, utilized a new technology and a model condemnation package that enabled them to share, process, and win approval for legal documents quickly.

For his part, Secretary Chertoff, pursuant to his authority under Section 102(c) of the Illegal Immigration Reform and Immigrant Responsibility Act (IIRIRA), waived more than thirty environmental and land management laws to speed up construction of the fencing, roads, and detection equipment across 470 border miles. However, he insisted that the government hue to the spirit of the National Environmental Policy Act, and so the ECSO coordinated with CBP to develop “Environmental Stewardship Plans” to comply with Chertoff’s wishes. USACE subsequently helped complete eight Environmental Assessments, two Biological Opinions, twenty-five Environmental Stewardship Plans, ten Biological Resource Plans, and over a hundred Environmental Site Assessments. It then spent tens of millions of dollars for environmental planning for the main PF225 and VF300 projects, and developed information not only on seventy-five threatened and endangered species and critical habitats, but also for over six hundred cultural/archaeological sites. “Critter holes” would be built into the fence to allow small animals to pass through, while saguaro cacti and sabal palms in the fence’s path were relocated. USACE worked with CBP to align the fence according to the agency’s operational needs while also taking into consideration constructability, engineering, and the environmental impact. DHS pledged up to \$50 million to the Department of the Interior to mitigate unavoidable environmental damage from fence construction. Such intense investment in archaeology and environmental survey work was previously unheard of in USACE.

While Chertoff and the legal team were clearing the title to the land, USACE survey crews overflowed the entire border zone and developed topographical contours so that the fence footprint could be accurately plotted. Construction then began in Fiscal Year 2007 on the first section of

PF70, which added more than 70 miles to the original fence. During its construction, PF70 became a valuable learning laboratory for building the ambitious cross-district, cross-agency structure that followed. The mileage goals for PF225 and VF300 were far steeper, though, requiring the erection of more than four hundred miles of new fence in only fifteen months, nearly six times the length of PF70.

Fortunately, after decades of fashioning fence out of leftovers—military surplus aircraft landing mat panels—the designers had developed and tested a “Tool Kit” of fence designs that met operational requirements and could be built quickly. All of the designs were transparent—giving Border Patrol agents clear sight lines and early warning of illegal cross-border activities. In the field, contractors modified the Tool Kit designs further to meet local conditions as needed. For instance, the rugged A-1 Pack Trail fence in California used sixteen separate fence designs based on only two original Tool Kit designs. Another innovation was a 15-foot fence that floated atop dunes and could be adjusted as the sand shifted.

However, the raw material requirements were staggering. So were the demands on Service Supply Chain Management to deliver needed materials to the border on time. A team comprised of CBP, USACE, and Boeing personnel was created to mitigate the cost and schedule risks. Fence construction during 2008 consumed over 120,000 tons out of the 145,000 tons of steel purchased—enough to build two aircraft carriers the size of the *USS Enterprise*. At its peak, a dozen prime contractors worked simultaneously across four states to meet the project’s deadline, ultimately erecting *two and a half miles of fence a day* during the final quarter of 2008. Priority government purchases of materials such as wire mesh, panels, and bollards prevented bottlenecks from the steel suppliers and kept the project moving forward. Beyond the materials acquisition challenge was the logistics problem. Three distribution centers were established along the border, where materials were handed off to USACE construction contractors. The contractors were responsible for trucking material from the distribution centers to the work site for use in construction. Due to the vast amount of material



(USACE photograph)

A Border Patrol vehicle drives along the fence that “floats” on the Imperial Sand Dunes along the U.S. border with Mexico in 2008.

needed, a robust scheduling system was developed to track all shipments. Over 6,000 truckloads had to be scheduled. During peak demand times, the system allotted for material pick-ups every single hour.

Once the construction task order was awarded, the contractor could submit an order to USACE and Boeing asking for the necessary materials. Boeing would schedule it, and USACE would monitor the life cycle of the government furnished materials supply chain. This required tracking quantities picked up, monitoring the quantity installed, and ensuring that any excess beyond a minimum threshold was returned to the government.

The various USACE teams not only had to work fast but they had to be creative in how they dealt with the rugged southwest geography and the challenges associated with its remoteness. In a section of border west of Nogales, Arizona,

a geotechnical survey team actually used mules to haul in its tools, reminiscent of the state’s old prospecting era. Elsewhere, USACE fortified the last 3.5 miles at the Pacific Ocean by using 1.3 million cubic yards of earth to fill Smuggler’s Gulch. The berm built across the filled canyon was then topped with a secondary fence and patrol roads. Work camps also provided construction crews with food and lodging in remote areas, while satellite phones were the only link to the outside world. These were the smallest components of an extensive communications system that fed information from the field to the ECSO in Fort Worth and the CBP offices in Washington, D.C. Team leaders also used a Web-based shared project-tracking database called the Tactical Infrastructure Program Overview (TIPO) to coordinate with each other and maintain control over materials, construction, and the schedule.



(USACE photograph)

At right, the old San Diego-Juarez border fence can be seen; in the center is the new border fence with all-weather Border Patrol roads on either side, shown in 2010.

By October 2010, the border fence was mostly finished. It stretched 649 miles along the U.S.-Mexico border from California to Texas, out of the nearly 652 miles planned, and was comprised of 350 miles of pedestrian fence and 299 miles of vehicle barriers. “Frankly, almost no one believed we could do this well,” said Mark S. Borkowski, Executive Director of the Secure Border Initiative, in a 2008 year-end assessment. “Between our Tactical Infrastructure [program], the Army Corps of Engineers, and our contractors, we exceeded almost everybody’s expectations.” “By taking it all on as ‘one team, one fight,’ the bumps all of us faced became a lot smaller,” ECSO Director Eric Verwers reiterated. “It’s one of the Army’s virtues. Everybody bent over backward to do things to help, to cross boundaries. There was no parochialism, no one saying ‘mine, mine, mine.’ It was always ‘How can we help?’”

While the border fence project attracted national attention, flood control remained a vexing local issue in the Dallas-Fort Worth area. The most complicated project remained the Dallas Floodway Extension (DFE), which had been stalled since a federal injunction halted work in April 2002. In November 2003, the Fort Worth District completed and submitted to the U.S. District Court for the Northern District in Fort Worth an augmented environmental impact statement that Judge Terry Means had ordered to address questions about the cumulative impacts of other similar, potential future projects in the Metroplex area. Means was satisfied with USACE’s response and lifted his injunction on May 5, 2004. Officials in both the District and Dallas were relieved. “This is great news for the citizens of Dallas,” said Colonel Minahan. “We are looking forward to getting a contract awarded to get this project back on track.” Jill Jordan, Dallas Assistant City Manager, also welcomed the good news. “We are pleased with the judge’s ruling that allows us to proceed with this project, which will provide much-needed flood protection to thousands of Dallas citizens.”⁵

The last legal hurdle now cleared, construction began in August 2004 in accordance with the original levee and wetlands plan outlined in 1998, which had two primary components. The first required the Fort Worth District to repair and im-

prove the existing levee system, bringing it up to USACE’s 800-year-event standard, which meant protection against catastrophic floods that had approximately one-eighth of a one percent chance of occurring in any given year. The second was the extension of 800-year-level protection into South Dallas, and the provision of 500-year protection near the Central Water Treatment Plant.⁶

The ground breaking took place on August 17 at the condemned Sleepy Hollow Golf and Country Club, on the banks of the Trinity River near Interstate 45 and Loop 12 in southwest Dallas, where one of the project’s first wetland cells would be located. Mayor Laura Miller, U.S. Senator Kay Bailey Hutchison, local Congressmen, and city council members all turned out for the event. “We’re transforming a river that looks like a drainage ditch into trails, lakes, and soccer field,” said Miller. “It all begins today.”⁷

USACE worked with local officials to integrate the DFE into the City of Dallas’s new long-range Balanced Vision Plan, which was written in 2003 during the court-imposed work stoppage. This urban renewal plan superseded existing blueprints and focused on balancing economic and environmental factors for managing the Trinity River, turning it from “a desolate floodway to an open space amenity.” It also sought to reclaim the river as a great natural resource, a unique public domain, and a model of environmental stewardship, as originally envisioned by the famous Progressive Era city planner George Kessler. The plan incorporated the five major components of what the city called the Trinity River Corridor Project—Flood Protection, Recreation, Transportation, Environmental Restoration, and Economic Development. Section 5141 of the Water Resources Development Act of 2007 authorized the flood risk management, recreation, and ecosystem features of the Trinity River Corridor Project at a total cost of \$459 million, with a federal share of \$298 million and a non-federal share of \$161 million. Although USACE was responsible solely for the DFE portion and could only use federal funds towards the levees, wetland cells, and related environmental mitigation efforts, the entire Trinity River Corridor project hinged on the DFE’s successful completion. This

would necessarily generate some friction in the ensuing years among USACE, the City of Dallas, and Trinity Corridor's private sponsors as inconsistent congressional appropriations repeatedly hampered progress.⁸

Complicating the DFE project further was the political and regulatory fallout from the failure of the New Orleans levees during Hurricane Katrina. Chief of Engineers Lieutenant General Carl Strock admitted to a Senate committee in April 2006 that design problems had contributed to their collapse, and a federal district court subsequently found USACE negligent in November 2009 for failing to properly maintain a shipping channel linking New Orleans to the Gulf of Mexico. USACE appealed, but the 5th Circuit Court of Appeals upheld the ruling in March 2012. Moreover, Congress passed the National Levee Safety Act of 2007 (as Title IX of the Water Resources Development Act of 2007) over President Bush's veto, which set up a National Levee Safety Commission to establish uniform nationwide standards and ensure more rigorous enforcement of the USACE existing regulations. As a result, USACE implemented a completely new Levee Safety Program in 2008 and significantly tightened the application of its own standards for levee construction, evaluation, and safety.⁹

USACE's stringent new post-Katrina enforcement of standards became an issue in March 2009 after the Fort Worth District issued Periodic Inspection Report #9 to the city of Dallas, based on careful inspections of the East and West levees and the Rochester Park and Central Waste Water Treatment Plant levees. These were the first such inspections since Katrina, and of the 214 items examined, USACE rated only ninety-one of them as "acceptable." Eighty others were classified as "minimally acceptable," and forty-three as "unacceptable." The major identified problems were seepage and riverside slope stability, resulting in an overall "unacceptable" rating under the basic federal 100-year standard. USACE notified FEMA that it was withdrawing its support for continued 100-year-event certification of the Dallas Floodway System, even while the District was working on the 800-year improvements. FEMA in turn began the de-accreditation process, as required by law, and under agency guidelines

started remapping the 100-year event Flood Insurance Rate Map (FIRM) for the Dallas Floodway System into a much larger flood plain, based on the assumption that Dallas had no flood protection at all. FEMA estimated that it would complete the remapping by August 1, 2011, at which point the new flood plain boundaries would go into effect and Dallas would lose its certification. If the city could make the necessary repairs and regain the federal standard 100-year protection by that date, then it would avoid de-certification.¹⁰

Periodic Inspection Report #9 landed with a thud in Dallas City Hall. USACE had historically rated the levee system in years past as "good," "very good" or "excellent," and so the sudden failing grade and prospective loss of FEMA certification both shocked and confused local authorities. Not only was the entire Trinity River Corridor project now jeopardized but FEMA's enlargement of the Trinity flood plain could also cost the city billions of dollars. Expensive flood insurance would be required for federally backed mortgages and loans for remapped properties and the planned commercial development would be severely constrained. Residents would likewise be burdened with higher taxes, deflated property values, soaring insurance premiums, and the possible exposure to catastrophic recovery costs if FEMA withheld federal post-flooding aid because of the accreditation loss. Anger soon overcame the initial shock since it appeared to city officials that the federal government was moving the proverbial goal posts after the Trinity River Corridor Project had already started. Dallas therefore demanded answers from USACE as it began its unexpected race against time.¹¹

The decertification was not isolated to Dallas, but was a nationwide problem. USACE had also found more than 124 levee systems in twenty-four states to be deficient and notified communities that their levees might not withstand a major flood. And in such instances, like in Dallas, FEMA's policy was to redraw flood plain lines on the assumption that the levees did not exist. Additionally, the two-year deadline was almost impossible to meet, especially with conflicting USACE and FEMA standards. This created a dilemma for the affected cities. Should they invest in higher 800-year levels of protection but

fall short of FEMA's deadlines due to necessarily longer construction times, or should they authorize expensive temporary 100-year repairs to meet the deadlines, only to later rebuild their levees to the higher 800-year standard at even greater cost?¹²

USACE understood the City of Dallas's quandary and moved to calm the uproar by opening a Trinity Program Office at City Hall to aid collaboration and communication in developing a remedy. Mayor Tom Leppert made a personal request to Colonel Martin that the Fort Worth District appoint a single individual with authority over the Trinity project, and USACE obliged by assigning a senior staff member, Kevin Craig, to the new office. With USACE help, the city quickly produced a Floodway Maintenance Deficiency Correction Plan, which the District approved in June 2009, and then awarded a \$25 million contract to the engineering firm HNTB to test the levees and devise a plan to fix them. In the meantime, the city had a tough decision to make, implement the short-term fix or go with the long-term strategy.¹³

In April 2010, the City of Dallas chose to try and meet FEMA's deadline by shifting \$150 million in city funds to make the repairs as quickly as possible. "There's little choice; we need to address this," Mayor Leppert told the local media. "There's an awful lot that's at stake. In a flood we run the risk of loss of life, [and] clearly an economic loss with somewhere between \$7 billion and \$8 billion worth of tax base that would be in danger at some point." HNTB completed its preliminary evaluation that summer, and based on the results of some 1,500 boring samples, city officials recommended the construction of 36-inch concrete walls from the levees' heels down into bedrock to prevent water from seeping through their sandy cores. But the District questioned the firm's soil sampling techniques and withheld approval until "Fully Softened Strength Tests" could be carried out by experts from the USACE Engineering Research and Development Center in Vicksburg. Leppert and City Council members were furious at the delay and a fierce debate erupted between the city and USACE. "We'll go down one path and be told that's the path that we need to go down, and then all of a sudden there's another path," Leppert said. In late August, city

and District officials, along with geotechnical experts, met for two tense days to argue about HNTB's methodology. In the end, the city grudgingly agreed to six more months of additional soil testing, with Dallas and USACE sharing the cost.¹⁴

Although the troubled DFE had started in the 1990s and continued through the commands of Colonels Madsen, Weller, Wells, Minahan, and Martin, the burden of dealing with the unhappy Dallas city government now fell upon new District Commander Colonel Richard J. Muraski who succeeded Martin on July 24, 2009. A native of Kansas City, Missouri, Muraski had originally graduated from St. Mary's University in San Antonio, Texas with a bachelor of science degree in geology. He had been a Reserve Officer Training Corps (ROTC) cadet with a four-year scholarship and joined USACE because he enjoyed its lakes and dam-building mission which gave so much value to the nation. Somewhat ironically, he became a demolition specialist and combat engineer, with very little civil works construction experience. A Bronze Star recipient from his service in the Middle East, he had also earned the Ranger and Sapper Tabs as well as the Combat Action Badge, Airborne, and Air Assault Badges.¹⁵

Colonel Muraski had followed the normal Army command path for military engineer officers during his early career by first serving in a number of increasingly important billets at Fort Carson, Colorado, and at Schofield Barracks, Hawaii. In 1994, he had deployed to Haiti in support of Operation Uphold Democracy before continuing his education at Purdue University, where he earned a master's degree in geodetic sciences. After teaching at the Defense Mapping School of the National Imagery and Mapping Agency at Fort Belvoir, Virginia, he had attended the U.S. Army Command and Staff College, and then had become the Assistant Division Engineer, 4th Infantry Division, and the S-3 and Executive Officer for the 299th Engineer Battalion, at Fort Hood, Texas.

Following that assignment, Muraski served as Executive Officer and Military Assistant to the Deputy Director and Military Executive at the National Geospatial-Intelligence Agency (NGA) in Springfield, Virginia. He deployed with a NGA

support team to Afghanistan and Kuwait in support of OEF and OIF I in 2002 and 2003, and had then assumed command of the 588th Engineer Battalion in June 2004. Under the Army's modular reorganization, he transformed the 588th into the Special Troops Battalion, 2nd Brigade, which deployed to Babil province in Iraq in November 2005. There, Muraski's battalion conducted combat operations and trained Iraqi security forces in the midst of the insurgency. After returning home in March 2007, he relinquished command and became the Military Assistant to the Secretary of the Army Pete Geren. Following the Pentagon assignment he was selected and attended the National War College, where he earned another master's degree, this time in national strategic studies. When he went before his colonel's board in 2009, he selected the Fort Worth District as his next preferred command because he "knew Texas."¹⁶

Muraski found the DFE project extremely challenging and at the leading edge of USACE's Levee Safety Program. It was essentially a test-bed application of USACE's post-Katrina "lessons learned" and although DFE was only a small part of the Fort Worth District's civil works and MILCON portfolio, he ended up spending about forty percent of his time on it. He empathized with the citizens of Dallas but as far as he was concerned "It's all about public safety." "You want to make sure that the levees minimize the risk of flooding," he later said. "In this particular case," he added, "we came up with an issue that needed to be resolved, we held that two-day workshop, we resolved the issue and we're moving forward, and we're doing everything we can to expedite that testing."¹⁷

Meanwhile, under pressure by Congress, FEMA repeatedly delayed its schedule, pushing the final remapping back to 2014, and then agreed to abandon its "without levee" analysis altogether and find a suitable alternative out of fairness to property owners living near the existing levees. These concessions gave Dallas enough leeway to finish the necessary repairs, especially after experts from the Fort Worth District's Risk Management Center and the Engineer Research and Development Center (ERDC) determined that the levees were more

resilient than originally thought. In fact, newly developed Risk Assessment techniques based on structural performance and breach consequences showed that the levees were tall enough to withstand a flood with a frequency of between 1/1,000 and 1/5,000 years. Muraski thus reported that "With our partners at the City of Dallas we have now put this project back on track."¹⁸

Muraski had to deal with another difficult issue in September 2011, this time from the accounting side of DFE. In 2004, under the 1996 Water Resources Development Act, USACE had begun sending the City of Dallas cash payments for design and construction work previously done at the Rochester Park and Central Wastewater Treatment Plant Levees. This happened because of a 2001 agreement between Dallas and the Army stipulating that some of the city's prior improvements to the two levees were compatible with the DFE and that it might be eligible for a credit not to exceed \$22.2 million, provided that the work met USACE standards. Over the next six years, USACE accordingly paid Dallas \$15 million in cash, which the city then appropriated to purchase the necessary properties for the DFE. Out of the \$15 million, Dallas had spent \$8 million by 2010.¹⁹

However, during a routine budget review for Fiscal Year 2010, USACE discovered that the \$15 million in cash had been paid by mistake, and that it should have been applied through a credit to the city's future cost-share requirements under the 1996 law. It was embarrassing, but because the money could not legally be turned into an outright grant, Muraski had to ask the city council to repay it by Fiscal Year 2015. He therefore submitted a written five-year repayment agreement to the City Council Trinity Corridor Project Committee and requested action by September 28.

Dallas officials were deeply frustrated by USACE's reimbursement request. To return the funds, the city would have to pay out the unspent \$7 million over Fiscal Years 2011, 2012, and 2013, and then allocate the remaining \$8 million for Fiscal Years 2014 and 2015 from its general funds or the remaining money from the 1998 DFE bonds. The nationwide economic downturn had left the city coffers mostly empty, and so the Trin-

ity River Project Committee refused to meet Muraski's deadline. Instead, it directed the city's attorneys to work with the Fort Worth District's general counsel to somehow find a resolution. Following a series of closed door discussions that fall, and Muraski's appearance before the committee to personally explain USACE's position, the city and the District reached a compromise in January 2012. Under the agreement, Dallas would immediately pay back the \$7 million in unspent funds, and it would also repay some or all of the \$8 million if an independent auditor determined that Dallas was entitled to a credit of less than that amount for its design and construction of the Central Wastewater Treatment Plant and Rochester Park levees. It was an awkward and unsatisfactory situation for all concerned, but the resolution was legally necessary.²⁰

Despite the difficulties, USACE did make progress on parts of the DFE. The Fort Worth

District removed some 185 trees that had grown on the levees over the years, and also awarded a \$2.5 million construction contract for excavating the first wetland pool, called Cell D, in July 2004. After Cell D was finished in October 2005, USACE biologists emplaced fifteen different species of plants there from the Lewisville Aquatic Ecosystem Research Facility (LAERF) at Lewisville Lake. In August 2005, the District awarded a \$26 million construction contract for the excavation of a lower chain of wetlands, called Cells E, F, and G, which comprised 107 acres extending from State Highway-310 to Loop-12, near the former Sleepy Hollow Golf Course. This contract also included a 350-foot realignment of the Trinity River at the Interstate Highway-45 overpass to eliminate hydraulic problems associated with the bridge's piers. The work was all completed by 2008. In the meantime, excavation began on two additional wetland cells near the



(USACE photograph)

Cell D (shown at the right of the freeway) of the Dallas Floodway Extension project was constructed in 2004 and plantings and ecosystem management began in 2005. Among the Lower Chain of Wetlands (Cells D through G), the last was excavated in 2008. Design efforts for an Upper Chain of Wetlands (Cells A through C) continue. The ecosystem restoration component follows an adaptive management approach led by the Corps' Engineer Research Development Center's Lewisville Aquatic Ecosystem Research Facility. This facility is building 271 acres of improved habitat as follows, including 123 acres of emergent wetlands, 45 acres of open water, and 102 acres of grasslands. Plants to populate the wetlands are cultured at the Lewisville facility.



(USACE photograph)

Wetland Cells E and F (lower right and center) of the Dallas Floodway Extension, looking southeast, shown in November 2008.



(USACE photograph)

Wetland Cell G of the Dallas Floodway Extension, looking north, November 2008.



(USACE photograph)

Girl Scout volunteers plant native Texas grassland plants in 2011 near Wetland Cell D, Lower Chain of Wetlands, USACE and Dallas Floodway Extension Project. Similar plantings have taken place since 2009.

Central Wastewater Treatment Plant, and the District likewise approved the construction of the Pavaho Pump Station in August 2010, which would improve drainage outside the West Dallas levees. In September of 2012 the district awarded the contract to construct Cell A of the Upper Chain of wetlands and progressed with planning for the remaining Cells B and C.²¹

Unlike the challenging DFE project in Dallas, the Central City Project in Fort Worth was an exercise in excellent communication, coordination, and planning between USACE and local sponsors and grassroots activists, with far fewer challenges. The Central City Project was part of a larger award-winning project called the Trinity River Vision (TRV). TRV's genesis occurred in 1969 when a group of concerned citizens formed

the Streams and Valleys volunteer group to rehabilitate the Trinity River system after the old 1957 USACE levee project had left the river a dry, littered ditch and inaccessible to the public. In 1970, the organization commissioned the firm Halprin and Associates to study the Trinity River in Fort Worth. The resulting "Halprin Plan" recommended low-level dams to regulate water level, extensive multi-user trail systems, better lighting, the restoration of plants and trees, and vastly improving public areas as alternatives to USACE's heavy concrete construction practices of the time. Because of economic troubles in the 1970s, underscored by voter rejection of two park-and-recreation capital improvement propositions, most of Halprin's ideas were not implemented at that time.²²



(USACE photograph)

Col. Charles H. Klinge, Jr., and U.S. Representative Pete Sessions tour the renovated Pavaho Pump Station in August 2012, shown below.



(USACE photograph)

However, in 1988, EDAW, a noted urban planning firm from Alexandria, Virginia, was commissioned to develop a new plan that focused on expanding public access to the river. This was in response to increasing public demands for a waterfront and renewal of the aging and distressed north central section of Fort Worth. Over the next decade, EDAW worked with Streams and Valleys, the Tarrant Regional Water District (TRWD), the City of Fort Worth, and USACE to develop the Trinity River Vision Master Plan for improving flood control and safety, revitalizing neighborhoods, bringing nature to the city, and enhancing the overall quality of life. Unlike previous plans, the Trinity River Vision Master Plan was also a prevention plan, designed to forestall future flood damage. Ultimately, the project would connect all of Fort Worth's communities to the eighty-eight miles of rivers and streams that ran through the city like the spokes of a wheel, while providing twelve miles of active urban waterfront. Locals dubbed it "Trinity Uptown."²³

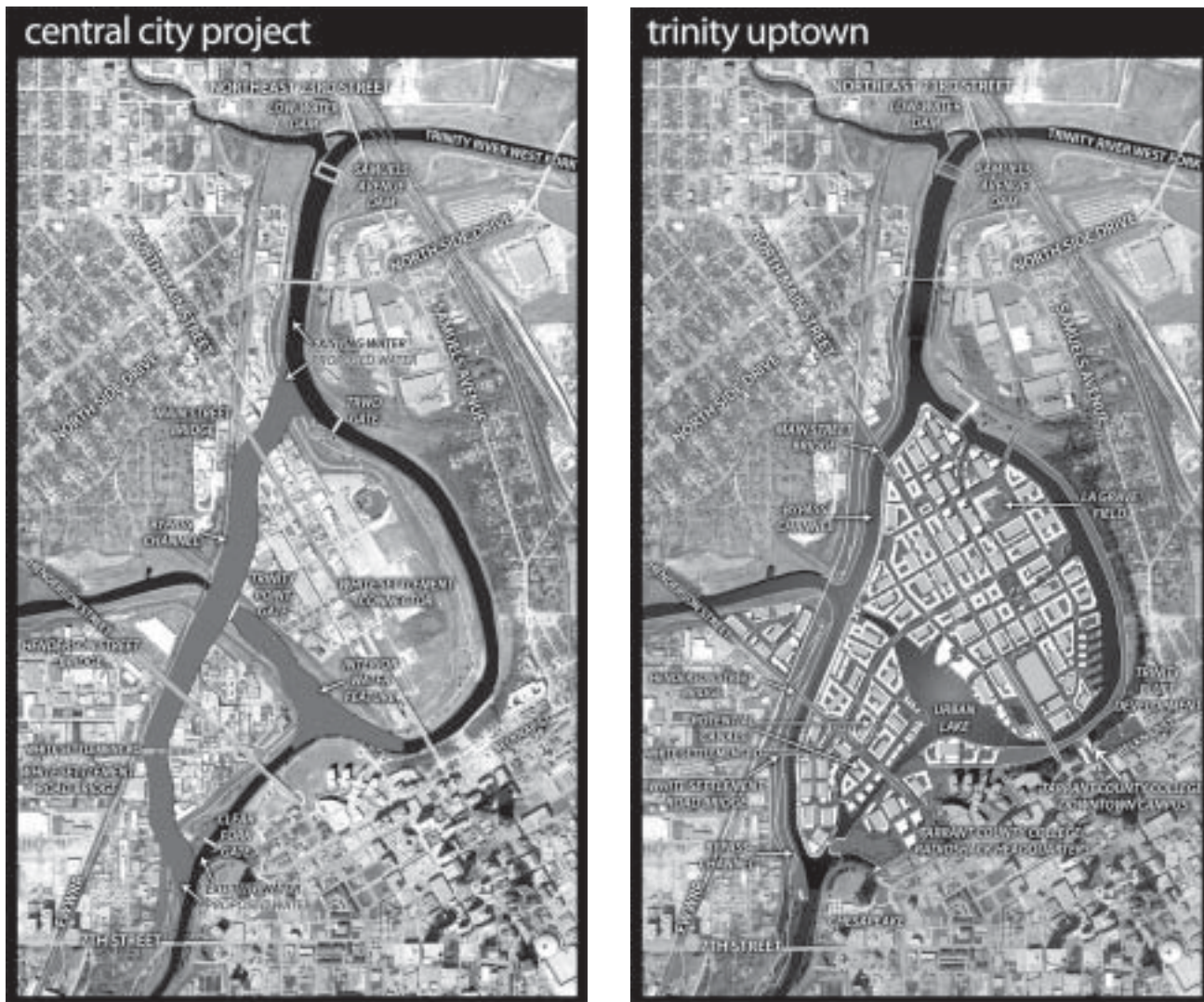
On June 3, 2003, the Fort Worth City Council adopted the Trinity River Vision Master Plan as the official guide for future development along the Trinity River and its major tributaries. The Fort Worth District's component of the master plan, called the Central City Project, was authorized under Public Law 108-447 on December 8, 2004. It involved the design and construction of a 400-foot wide, 1.5-mile flood bypass channel and the elimination of five miles of existing levees that had blocked river access since the late 1950s. The project included not only the construction of two flood gates to divert flood flows around a segment of the existing Trinity River channel adjacent to downtown Fort Worth, but also 5,250 acre-feet of valley storage in the Riverbend area and the Samuels Avenue Dam, which would create a 33-acre lake extending up the West Fork to Rockwood Park and up Marine Creek to the Stockyards. The project cost \$220 million, of which half was federally funded and the other half funded by local sponsors. Once completed, the Central City Project would restore the 800-year level of protection for the city using modern environmental and ecological best practices, with the non-federal sponsors responsible for long-term operation and maintenance.²⁴

The Trinity River Vision Authority (TRVA) was formed in 2006 to manage and coordinate the overall project alongside the City of Fort Worth, Tarrant County, Streams and Valleys, the Tarrant Regional Water District, the Texas Department of Transportation, and the USACE Fort Worth District. Following the necessary Environmental Impact Statements and Record of Decision, which closed out the National Environmental Policy Act process for the Central City Project, the District started engineering and design work that same year.²⁵

Soon, though, the City of Fort Worth requested that TRVA and USACE merge the city's concurrent Riverside Oxbow area improvement project into the Central City Project, adding over \$10 million in recreational improvements and \$24 million for ecosystem restoration. The Fort Worth District conducted additional environmental analysis, and after concluding that the addition would be beneficial for the Central City Project, issued another Record of Decision in May 2008, approving the project merger. In September, the District signed a Project Partnering Agreement with the Tarrant Regional Water District for the newly modified Central City Project that laid out clear responsibilities for construction and overall project operation.²⁶

While the Central City Project was underway, the Fort Worth District conducted Periodic Inspection #10 on the Fort Worth Floodway in November 2010, using the new post-Katrina enforcement of existing standards. And, like Dallas, Fort Worth flunked. Eight of the city's levees were rated as unacceptable and two were rated minimally acceptable. The problems mostly stemmed from trees growing on the levees and vegetation encroachment, as well as obstructions inside the flow ways. Altogether, there were 165 items that needed corrective attention.²⁷

In contrast to how Dallas handled its levee system problems, Fort Worth worked closely with the District to fix the deficiencies without much hassle. Colonel Muraski found that the Trinity River Vision Authority was a collaborative partner to work with. He recalled that soon after he took command of the District, he visited the Authority staff members in their West 7th Street headquarters. Walking into the office, he noticed



(Trinity River Vision Authority Maps)

Creating a new urban waterfront community north of downtown Fort Worth, while integrating the latest, more environmentally friendly flood control techniques, is the most well-known component of the Trinity River Vision project. USACE called it "Central City," but the general public refers to this section as "Trinity Uptown." Shown above left is Central City prior to redevelopment. Above right, Central City's planned redevelopment includes a town lake, riverfront walkways and entertainment, a community college campus, and boating facilities.

a large white board with a block and diagram chart drawn on it. They told him, "Colonel, this is how we see your organization," and then explained how they had organized themselves the exact same way as the Fort Worth District so that they could work in conjunction with USACE to handle issues much more quickly. Muraski was impressed, saying "Wow! Now, that's a sophisticated partner!" When the levees failed the periodic inspection, the city and TRVA were able to quickly make the required repairs without los-

ing their 100-year FEMA certification. The crisis was averted and the Central City Project remained on schedule with an anticipated completion date of 2023 for the bypass channel and gates, contingent on annual funding.²⁸

The Fort Worth District also enjoyed considerable success with the San Antonio Channel Improvement Project (SACIP). It was an old project, originally authorized by the 1954 Flood Control Act, with construction starting in October 1957. It consisted of about 35 miles



An artist's rendering of the completed Trinity River Vision project, showing Trinity Uptown looking south toward downtown Fort Worth.

(Trinity River Vision Authority Image)

of sterile, concrete channeling on the San Antonio River and five separate creeks (San Pedro, Apache, Aalzan, Martinez, and Six Mile Creek), and included two 24-foot diameter diversion tunnels located 120 feet underneath downtown San Antonio. The first was completed in 1991 and the second in 1997. The Water Resources Development Act (WRDA) of 1976 had also added flood control measures to the project for the preservation and protection of the historic Espada Aqueduct near Six Mile Creek. The San Antonio River Authority (SARA), created in 1937, was responsible for the long-term operation and maintenance of the structures once USACE finished construction. Although the straightened river channel was effective at handling fast-moving floodwater, it bisected the San Antonio Missions National Historical Park and stood out as an eyesore within the city's otherwise scenic landscape and

environment. Perhaps not surprisingly, few people in San Antonio liked it.²⁹

In 1998, Bexar County, the City of San Antonio, and SARA came together to create the twenty-two member San Antonio River Oversight Committee to supervise the planning, design, project management, construction, and funding necessary to complete the project. The committee was also tasked with providing an open public forum for citizen input into the project's development, making it a true grassroots effort, like that of the Trinity River Vision in Fort Worth. Early on, the idea emerged that parts of the concrete channeling should be removed and that the river should be returned to its natural, meandering state but with the same level of protection that the channels provided. The committee also found strong public support for new recreational areas and ecological restoration along the revitalized river in order to reconnect it to San

Antonio's rich history and culture. Consequently, the committee worked with the local congressional delegation to get these areas authorized as additional project goals in the WRDA of 2000.³⁰

With the authorizing legislation in place, SARA then partnered with the Fort Worth District to begin the initial environmental assessments and the planning and design work. The District adopted a team approach with co-sponsors SARA, Bexar County, the City of San Antonio, and the private San Antonio River Foundation. Together, they came up with a multi-phase, \$384.5 million plan to restore thirteen miles of channelized river, from Brackenridge Park all the way to Mission Espada. Once completed, a linear park would stretch through the heart of the city featuring natural pools, hiking and bike trails, foot bridges, shade structures, picnic tables, overlooks, and river-edge landings. Two historic river remnants would also be reconnected to the system, while natural backwater habitats and the native riparian corridor would be restored by planting some 20,000 young trees along the river.³¹

The envisioned park was divided into four sections. The first of these, called the Downtown Reach, was completed in October 2002. It extended from Houston Street to Lexington Avenue and included the restored portions of the original San Antonio River Walk near the Alamo. The northern section was called the Museum Reach. Designed by Ford, Powell & Carson Architects & Planners, Incorporated, this second section extended approximately four miles from Hildebrand Avenue at Brackenridge Park to Lexington Street, linking the San Antonio Zoo, the Witte Museum, Brackenridge Park, and the San Antonio Museum of Art to the Downtown Reach. The Urban Segment of the Museum Reach extended approximately 1.5 miles from Lexington Street to Josephine Street, while the Park Segment continued approximately two miles through Brackenridge Park up to Hildebrand Avenue. Final design of the Museum Reach was completed in September 2006 and the contractor, Zachry Construction Corporation, began construction in May 2007. This part of the project was completed two years later in May 2009.³²

The project's southern section, called the Mission Reach, was even more ambitious. This third

section comprised the southern eight-mile portion of the SACIP from South Alamo Street to Mission Espada, just below Loop 410, and focused on ecosystem restoration using a technique known as fluvial geomorphology. When completed, the Mission Reach would transform the straightened channel into a more natural flowing river while maintaining flood control, reducing erosion, re-introducing native vegetation, and creating an environment more suitable for recreation and wildlife. It would also link four National Park Service-managed missions located south of the city—Concepción, San José, San Juan Capistrano, and Espada—thereby restoring and reconnecting their original historic and ecological context.³³

In May 2008, SARA and USACE awarded Laughlin-Thyssen, Incorporated a \$25.2 million contract to construct Phase 1 of the Mission Reach to restore the first mile of river, starting at Lone Star Boulevard and ending at the confluence of the San Antonio River with the San Pedro Creek. This first phase was scheduled for completion by early 2011. Meanwhile, the Zachry Construction Corporation was awarded a \$22.3 million contract in December 2009 to construct Phase 2, which added an additional mile of aquatic restoration and recreational features to the Phase 1 portion of the Mission Reach, stretching from the confluence of the San Antonio River with the San Pedro Creek to Mission Road. Zachry's price for Phase 2 came in at thirty-five percent below the government's cost estimate, impressing both SARA and USACE. Ground was broken on February 13, 2010, with completion expected by fall 2011.³⁴

Based on its excellent performance, Zachry was also awarded a \$99.3 million contract in September 2010 to construct the third and final phase of the Mission Reach project, running 5.75 miles from Mission Road to Mission Espada. The firm's price this time was twenty-percent below the government's construction cost estimate. Ground was broken on October 12, 2010, with scheduled completion by late 2013. Work also started on the \$13.6 million, mile-long, transitional Eagleland segment, running from Alamo Street to Lone Star Boulevard, which would connect the Downtown Reach and River Walk to the Mission Reach.³⁵



(USACE photograph)

Bikers enjoy the grand opening of the Mission Concepción portal of the Mission Reach Ecosystem Restoration and Recreation Project, Phase 2, on the San Antonio River. The June 25, 2011 celebration was highlighted with a visit from Secretary of the Interior Ken Salazar, who announced his support for the nomination of the four historic missions within the project, the Alamo, and the San Antonio River as a World Heritage site. The Mission Reach project provides walking trails and bike paths, and will use portals to connect the San Antonio River to the four historic missions along the river. When completed, the Mission Reach Ecosystem Restoration and Recreation Project will be eight miles in length, restoring the previously channelized San Antonio River closer to its original state, while maintaining its role as a flood risk management area.

District Commander Muraski was pleased with how the plan developed and was executed. “This project supports a ‘greener’ Corps by restoring a seriously degraded aquatic ecosystem of the San Antonio River to a functional, healthy riverine system,” he said. “We are doing this by applying proven science-based engineering techniques to recreate a natural, healthy system while maintaining the existing level of flood protection.” “None of this could have happened without the dedication and commitment of our partners,” he added, “as this team approach has produced the needed synergy to move the project along.”³⁶

Funding for the \$245.7 million Mission Reach project was necessarily complicated, with a mix of city, private, and federal funds. Bexar County

contributed \$176.6 million, \$113.3 million of which came from the Bexar County Flood Tax and Venue Tax. The county advanced the remaining \$63.3 million to USACE to keep the project on schedule, with expected future reimbursement after congressionally appropriated funds became available. The City of San Antonio contributed \$6.5 million, while USACE contributed \$51.9 million out of a total Federal obligation of \$115.2 million. Private donations collected by the San Antonio River Foundation amounted to \$4.7 million, with funding for utility relocations by the San Antonio Water System totaling \$6 million.³⁷

Phase 2 of the Mission Reach project also received \$9.4 million in timely funding from the American Recovery and Reinvestment Act

(ARRA) of 2009. Also known as the Stimulus Act, ARRA was enacted by the 111th United States Congress in February 2009 and signed into law by President Obama. Its purpose was to save and create jobs threatened by the economic collapse of September 2008 while simultaneously improving the nation's infrastructure. ARRA-funded projects also had to meet five criteria outlined in an accompanying congressional report, specifically that they:

- 1 Be obligated/executed quickly;
- 2 Result in high, immediate employment;
- 3 Have little schedule risk;
- 4 Be executed by contract or direct hire of temporary labor; and
- 5 Complete a project phase, a project, an element, or provide a useful service that did not require additional funding.

ARRA funds could also be used to complete work increments on previously started projects, and in some cases, to complete such projects. The work had to be done by September 15, 2011.³⁸

ARRA appropriated \$4.6 billion to USACE for its nationwide Civil Works programs. The money was then allocated into program accounts for

Operations & Maintenance (O&M), Construction, Mississippi River and Tributaries, Formerly Used Defense Sites (FUDS), and Investigations. Out of the overall USACE appropriation, the Fort Worth District received \$107 million in April 2009 and an accompanying list of eligible Civil Works projects. These were distributed very broadly across Texas in an effort to spread employment and other economic benefits across the state. O&M at twenty-one of the District's twenty-five lake and dam projects consumed more than \$96 million of the ARRA allocation, which was mostly obligated as follows—Whitney Lake: \$19 million, Somerville Lake: \$11.3 million, Proctor Lake: \$9 million, Navarro Mills Lake: \$7.5 million, Belton Lake: \$6.9 million, Ferrell's Bridge Dam in Lake O' the Pines: \$6.9 million, Granger Lake: \$5.9 million, and Sam Rayburn Dam and Reservoir: \$5.9 million.³⁹

At the time, the District's Operations Division was in dire need of the cash transfusion from ARRA. Operations Chief Charlie Burger later described the issue quite colorfully. "Operations is a little bit different than others in that the budget is actually designated in appropriations bills to the project at the lake level," he said. "There's

Col. Richard J. Muraski, Jr., commander of the Fort Worth District from July 2009 to June 2012, is interviewed on June 25, 2011 following the grand opening of Phase 2 of the San Antonio River Improvement Mission Reach project.



(USACE photograph)

a civil works code called the SWISS Code. Each lake has a SWISS code, and Congress says this amount goes to the SWISS code. It's not like they're giving me a bucket of money and me dealing it out like a deck of cards. It actually goes to that project."⁴⁰

As a result, the Operations Divisions' annual budgets had remained relatively flat, averaging about \$70 million per year, barely enough to support basic functions. But since few of the additional requested SWISS code repairs made it through congressional budget cutters, routine maintenance had suffered at the lakes. ARRA alleviated some of the problem. Said Burger:

We got a slug load of funding through ARRA, the Stimulus program, and we had some supplemental repair money from the flood of 2007. We basically tripled our program in terms of funds. We carried it out with only about seven or eight additional people. It was quite a rush, and it was the hardest work anybody ever loved, but we were able to do things that we never would have been able to do in terms of addressing our maintenance backlog... Virtually every business line got a little bit of help to move us forward.⁴¹

ARRA also funded nine important Army MILCON projects within the District. The first, and perhaps most notable, was the \$57 million Warriors in Transition Complex at Fort Bliss. Beginning in May 2009, it was built in two phases under Senior Project Manager Jason Foltyn and was completed in February 2011. One of only two in the country funded by ARRA, the other being in Fort Campbell, Kentucky, the Warriors in Transition facility was established to help wounded soldiers recover and re-integrate back into the Army. The complex was comprised of a three-story, 140,000 square foot barracks capable of accommodating 232 injured soldiers, a two-story 30,000 square foot battalion headquarters, two company operations facilities, and a single-story, 15,000 square foot Soldier and Family Assistance Center (SFAC), which housed counseling and social services, legal and financial support offices, a military benefits office, a child activity center, and Family Readiness Group meeting rooms. "The

complex will be arranged in a campus community-style layout where the buildings encircle a large courtyard with a walking trail, labyrinth, seating areas, and covered canopies," said Foltyn at the start of the project. "This allows for a quiet, relaxing atmosphere, which will facilitate the healing and recovery effort."⁴²

Vice President Joe Biden, who was in charge of ARRA oversight for the Obama administration, believed that the Fort Bliss Warriors in Transition project was so important that he listed it as the number one project in his September 2010 report, "100 Recovery Act Projects That Are Changing America." Bolstered by Biden's endorsement, and based on its growing expertise in this type of design and construction, the Fort Worth District also drew the mission of developing similar Warriors in Transition facilities at thirty-four more military installations across the country under the USACE Centers of Standardization program.⁴³

A second key ARRA project that the Fort Worth District spearheaded was the design and construction of a 944,000 square foot hospital to replace the existing 45-year-old Carl R. Darnall Army Medical Center at Fort Hood. The original hospital had opened in April 1965 to support a single division of 17,000 troops, but Fort Hood rapidly outgrew it in the 1970s after expanding into a full-fledged Corps-level installation. The Fort Worth District began a massive \$49 million addition and renovation project in 1979 and completed it on December 13, 1984, doubling the hospital's size. The hospital was officially re-designated the Carl R. Darnall Army Medical Center in May 2006, and was capable of handling roughly 45,000 active-duty personnel and more than 125,000 family members and retirees. But it was still inadequate for the needs of GWOT and the Army's Transformation, and so the Army decided to build a brand-new, state-of-the-art hospital to service the medical needs of its returning wounded warriors.⁴⁴

A week before Biden released his report, the District awarded a \$503.8 million contract to Balfour-Beatty/McCarthy Joint Venture of Dallas, Texas to build the Fort Hood replacement hospital. The contract was the largest DoD project to date financed with ARRA and Overseas Contingency Operations funds, with ARRA providing \$351 million. It would be carried out using a "De-

sign-Build” approach in which a single firm coordinated the design and construction. The new hospital’s specifications called for a six-story tower with 123 beds, three parking garages with 5,200 total spaces, and fitness trails, facilities, and healing gardens, Leadership in Energy and Environmental Design (LEED) Gold Energy Certification, and Automatic Guided Vehicles (AGVs) for deliveries and supplies. Once built, it would be seventy percent larger than the existing structure. To clear space, the District demolished the Prichard Stadium Sports Complex, commonly known as Hood Stadium, which had been built in 1951. The old concrete stadium was crushed and its debris material recycled to build a new stadium at the west end of Fort Hood near Clear Creek. Construction on the replacement hospital started in April 2011, with an expected occupancy date of June 2014.⁴⁵

By 2012, the Fort Worth District remained a beehive of activity, but changes were once again forthcoming, beginning with its leadership. Colonel Muraski’s command ended on June 27 and he moved on to become the Deputy Commander of the Southwestern Division in Dallas. During his tenure, the Fort Worth District had completed forty percent of the Army’s BRAC work within its boundaries, and in Fiscal Year 2011, the district had executed more than \$1.6 billion worth of contracts, the largest amount of any district. The District’s major civil works projects, including the San Antonio River Improvement’s Mission Reach, the DFE and the Trinity River Corridor Project in Dallas, and the Trinity River Vision and Central City Project in Fort Worth, were all underway. Hospital construction was also ongoing at Fort Bliss, Fort Hood, and at SAMMC and Wilford Hall. Muraski’s successor was Colonel Charles H. Klinge, Jr., the former Southwestern Division Deputy Commander, who was now in charge of the Corps’ largest military construction programs.⁴⁶

On the civilian side, Peggy Grubbs became Fort Worth’s first female Deputy District Engineer for Programs and Project Management in October 2011, taking over from Bob Morris, who had been acting Deputy District Engineer since Troy Collins went to Afghanistan to head up the infrastructure construction program there. Morris then became Deputy for Engineering Construction and

Medical Programs Director, in overall charge of the District’s medical facility construction projects. A long-time District employee with over thirty years of experience, Grubbs came from a family of engineers and had earned her bachelor’s degree in civil engineering from New Mexico State University in 1983, a time when there were few women in the profession. She had started her career at the construction field office at White Sands Missile Range, and had risen through the project management ranks over the years by taking on increasingly important leadership roles at both the division and branch levels. She spent two years in South Korea working on MILCON projects for the Army, and was instrumental in leading a joint



(USACE photograph)

Peggy Grubbs, Fort Worth District Deputy District Engineer and Chief of Programs and Project Management Division, and James Miller, District Emerging Leader, work together with students at a Science, Technology, Engineering and Mathematics (STEM) event in San Antonio, Texas.

team in developing the first-ever electronic bid sets and implementing the process within USACE in 1996. This effort was recognized and awarded the National Performance Review “Hammer Award” by former Vice President Al Gore and she was personally nominated and awarded the Society of American Military Engineers (SAME) Wheeler Medal for her leadership.⁴⁷

Looking back at her lengthy experience in the Fort Worth District, Grubbs felt that the District had succeeded over the years because of its ability to change. “The only consistent thing is change,” she later commented. “That’s the only thing we can count on right now, and we have had the right leadership to make that happen.”⁴⁸

And the District had in fact changed, and for the better, as Operations Division Chief Charlie Burger explained:

*I’ve been around thirty-five years, so I remember when we were pretty much about command and control. We didn’t really do the outreach we do now. That’s really been an evolution that’s a positive one in the organization in that we understand that we are a neighbor, we understand that we’re in that community. We understand how our decisions and policies affect those people’s lives and therefore we are much more open and much better communicators.*⁴⁹

Jimmy Baggett, the District’s Assistant Chief of Engineering and Construction, agreed. Considered by his peers to be a historical institution in his own right based on his fifty-six years of distinguished service to both the nation and USACE, Baggett was in many ways best suited to consider the District’s more recent changes with respect to its past. Reflecting on the District’s history since 2000, he observed that:

The last decade has significantly differed from the decades prior. More customer involvement in partnering activities and a much enlarged support for other Federal Agencies has developed. After the world-changing events which erupted on 11 September 2001, Fort Worth District team members have been at the forefront to assist wherever a need arose. By a will-

*ingness to change from the comforts of prior traditional missions into dynamic efforts assisting whenever and wherever needed, multiplicities of involvement by each and every employee has transcended the entire organization.*⁵⁰

Change in 2012 and beyond, though, appeared to be quite ominous to others within the District, since external political forces had started driving the changes more forcefully. The recent election of a more fiscally conservative Republican majority to the House of Representatives in 2010 meant that a sharp decline in federal budgets in general, and earmarks in particular, could be expected in the near future. USACE projects were clearly on the line, especially after the passage of the Budget Control Act of 2011, which ended that summer’s debt ceiling crisis, and the failure of the follow-up Congressional Joint Select Committee on Deficit Reduction (the “super committee”) to reach an agreement on how to pay down the national debt, which threatened to trigger an automatic \$1.2 trillion in cuts (with a heavy impact on the military budget) in January 2013 if Congress did not act in a timely manner. District Civil Project Management Branch Chief Elston Eckhardt later explained that “The Corps of Engineers and our civil works project got caught in the middle of that because each of our projects is...congressionally authorized and appropriated [as earmarks],” which conservative Republicans called “pork” and targeted for elimination. While civil works could get along for a couple of years on flat-lined, non-earmark budgets, the lower funding levels were bound to take a toll, especially on recreational areas and parks. Eckhardt predicted that they would ultimately “affect the amount of work that we’re doing, and the amount of staff that we will need to keep going.” “It’s especially a bit difficult in trying to operate and maintain our current projects,” he added, “as we continue to see those budgets not only flat, but actually declining. That’s a tough one.”⁵¹

Even the DFE and Central City Project might be threatened by slashed future budgets since they had not been endorsed by the Obama administration, and were not considered “policy compliant.” The Mission Reach project was approved by the Office of Management and Budget

(OMB) and had received ARRA funds, but was not a high priority either. One other flood control project that OMB did consider to be policy compliant but Congress refused to fund was at Onion Creek, near Austin. It had been authorized by the WRDA of 2007, and was similar to Arlington's non-structural Johnson Creek Project, in which USACE would buy out and demolish properties in the creek's flood plain and restore it as recreational wetland. Onion Creek had been included in the President's budget for three straight years, but each time Congress had disapproved it, claiming that funds were so limited that no new projects should be started. An unintended consequence of this particular game of political football was that the Onion Creek residents were left in limbo, and had stopped doing improvements to their properties due to uncertainty about whether or not they would still be there in two years. As a result, the area was deteriorating fast.⁵²

To alleviate the civil works budgetary dilemma, USACE sought to change how it operated by seeking other partners and co-sponsors to share costs, based on the successes achieved by grassroots-driven projects such as Central City and the Mission Reach. One of the first manifestations of this policy change was a new national Recreation Strategy Plan released on May 26, 2011. It included new initiatives based on collaboration with other federal and state agencies, as well as counties, cities, non-profit organizations, economic development associations, and volunteers, to more equitably fund and maintain recreational and park areas. The plan's goal was to make recreational infrastructure management more of a local responsibility, and to remove some of the financial burden from USACE's shoulders. Once implemented, USACE hoped that it would "transform and reposition the recreation program while maintaining USACE's role as a major federal, water-based recreation provider."⁵³

In April 2012, USACE likewise launched what it called a "Civil Works Transformation," based on the premise that the Corps had become too risk adverse, too slow, and too expensive. As Eckhardt put it, "We've got to change. We've got to change to what the customers want. We've got to change to meet what we believe our bud-



(USACE photograph)

USACE Fort Worth Division Commander Colonel Christopher Martin presents longtime employee Jimmy Baggett with the Bronze de Fleury Medal in June 2009.

getary constraints are going to be in the future years. We've got to change the way we do business."⁵⁴

Planning modernization was a key component of the Civil Works Transformation, and was centered on four performance priorities: 1) Improve planning program delivery and instilling civil works-wide accountability; 2) Develop a sustainable national and regional planning operational and organization model; 3) Improve planner knowledge and experience (build the bench); and 4) Modernize planning guidance and processes. USACE also began changing its budgeting process from a project-centric approach to a systems-based, "watershed" approach, with prioritized spending based on project values and levels of service, as well as stakeholder collaboration and "alternative financing vehicles."⁵⁵

Finally, to reduce frustration and improve customers' experience, USACE implemented the 3X3X3 rule, whereby feasibility studies would not cost more than \$3 million or take more than three years to complete, and would involve all three USACE levels of integration—district, division, and headquarters. Authorizing reports had to be one hundred pages or less, and any schedule or budget exceeding these guidelines would require USACE HQ approval.⁵⁶

Whether these changes will be effective or not, it is too soon to tell. But there can be little doubt that the Fort Worth District will remain a leading district within USACE based on Texas's geographical and economic importance to the country, the existence of some of America's most vital military installations within its boundaries, and the expertise of its staff. Before his departure as District Commander, Colonel Muraski opined about the importance of the District's history and legacy:

"What's important about history is when you find yourself at a point in time where you say, 'My goodness this is hard. How are we going to do it?' It's important to know that the people who went before you had some challenges that were probably greater than the ones we face today. They found a way through it; they found solutions to get through it and accomplish the mis-

sion. The other aspect is, I think we all contribute to the legacy of an organization...the Fort Worth District is a family and I truly mean that. It's a family atmosphere. It's so important to...look back and say, 'Wow, this is how they did it.'"

"It's now our time to extend the legacy of this great organization," he concluded, and to say "Hey, this is pretty cool. The forefathers before me, this is what they did. It's my turn, I'm going to accomplish something as great or if not greater."⁵⁷

So as the Fort Worth District marched toward an uncertain future marked by imminent change, it once again fell upon the collective shoulders of its dedicated champions to do so with their usual fortitude, expertise, and creativity, in order to both meet the challenges ahead and to continue building upon their forbearers' distinguished legacy of military and civil works engineering.



(USACE photograph)

Project Manager Gene Rice (left) and Col. John Minahan (right), commander, Fort Worth District, brief Brig. Gen. Robert Crear, commander, U.S. Army Corps of Engineers, Southwestern Division on Central City and the Riverside Oxbow projects February 3, 2004.



APPENDIX I

Timeline of the Fort Worth District from 2000 through 2011

- January 2000 — The U.S. Army begins its post-Cold War “transformation” from a heavy division-based organization into one based on lighter, faster, and more lethal Brigade Combat Teams (BCTs).
- July 17, 2000 — Colonel James S. Weller relinquishes command of the Fort Worth District to Colonel Gordon M. Wells.
- September 2000 — The Fort Worth District issues a Record of Decision allowing design and construction on the Dallas Floodway Extension (DFE) to begin.
- June 2001 — Chief of Engineers Lieutenant General Robert B. Flowers orders USACE to review all other alternative options before building new levees along flood-prone waterways, with a focus on environmental solutions.
- September 11, 2001 — The Fort Worth District deploys personnel and an Emergency Command and Control Vehicle to assist in recovery efforts in New York City after Al Qaeda terrorists hijack and crash four civilian airliners into the World Trade Center, the Pentagon, and a field near Shanksville, Pennsylvania. The District also tightens security around its lakes, dams, and other facilities in response to the attacks.
- October 7, 2001 — President George W. Bush announces a Global War on Terror against Al Qaeda and those governments that harbor it.
- April 2002 — Judge Terry Means of the U.S. District Court for the Northern District of Texas issues an injunction against construction of the DFE until USACE completes a supplemental Environmental Impact Statement addressing the impact of future cumulative flood control measures on the area.
- June 2002 — The Fort Worth District sends USACE’s first Forward Engineer Support Team to Bagram Air Base in Afghanistan, to support continuing Coalition operations against the Taliban and Al Qaeda.
- July 2002 — Flood waters at the Canyon Lake Dam overtop the emergency spillway for the first time in the dam’s history and carve a new gorge downstream, exposing the Edwards aquifer, the Hidden Valley Fault, and 110-million-year-old fossils and dinosaur footprints, as well as creating a wholly new ecosystem with natural springs, waterfalls, and pools.
- October 2002 — The “Downtown Reach” of the San Antonio Channel Improvement Project (SACIP) is completed, restoring portions of the city’s original River Walk.
- January 24, 2003 — National Security Presidential Directive 24 creates Combined Joint Task Force-IV (CJTF-IV) to coordinate with CENTCOM Commander General Tommy Franks in planning and carrying out post-regime Phase IV military reconstruction in Iraq. Task Force Restore Iraqi Oil (RIO), led by Southwestern Division Commander Brigadier General Robert Crear, is formed at the same time and tasked with repairing Iraq’s oil infrastructure following the war.
- February 2003 — Fort Worth District operations managers and park rangers assist NASA in recovering shuttle debris from USACE parks and reservoirs following the Columbia disaster.
- February 14, 2003 — Colonel Wells and his FEST fly to Kuwait and prepare to support the Coalition rebuilding effort in Iraq.
- April 9, 2003 — Baghdad falls and the U.S.-led Coalition topples the regime of Saddam Hussein.
- April 12, 2003 — Colonel Wells and Task Force Fajr depart Kuwait for Baghdad, in order to investigate the city’s inexplicable power loss and to restore its electricity.
- April 21, 2003 — Baghdad’s electrical power system begins coming back online after Task Force Fajr initiates a “black start” using the Karkh Water Treatment Plant north of the city.
- May 1, 2003 — President Bush declares a formal end to major combat operations in Iraq.
- May 30, 2003 — Colonel Wells briefly returns to Fort Worth to participate in a Change of Command ceremony with his successor, Colonel John R. Minahan.
- June 3, 2003 — The Fort Worth City Council adopts the Trinity River Vision Master Plan as the official guide for future development along the Trinity River and its major tributaries.
- June 15, 2003 — Task Force Fajr disbands.
- July 2003 — Colonel Wells and most of his original FEST return home to Fort Worth.
- October 2003 — Chief of Engineers Lt. General Flowers unveils his new transformation and regionalization plan called *USACE 2012: Aligning the Army Corps of Engineers for Success in the 21st Century*.
- November 2003 — Deputy District Commander Lieutenant Colonel Robert Morris deploys to Iraq, where he serves as deputy for operations and security under

- Colonel Lem DuBose, who was leading Task Force RIO. In Fort Worth, the District completes and submits to the U.S. District Court for the Northern District of Texas a mandated supplemental environmental impact statement that addresses questions about the cumulative impacts of other similar, potential future projects in the Metroplex area.
- December 2003 — The City of Dallas releases a new long-range “Balanced Vision Plan” for the urban renewal and revitalization of the Trinity River Corridor.
- January 25, 2004 — USACE stands up the Gulf Region Division (Provisional) to unify the various FESTs, Contingency Real Estate Support Teams (CRESTs), and task forces that were rotating in and out of Iraq. The North District is established in Mosul, the Central District in Baghdad, and the South District in Basrah.
- March 2004 — Lieutenant Colonel Robert Morris returns to Fort Worth from his deployment in Iraq.
- May 5, 2004 — Judge Terry Means of the U.S. District Court for Northern Texas lifts his injunction against construction of the DFE.
- August 3, 2004 — The Fort Worth District, USACE, and the City of Fort Worth honor sixty-nine employees who served in the first phases of Operation Enduring Freedom and Operation Iraqi Freedom.
- August 17, 2004 — Ground is broken for one of the first wetland cells of the DFE project.
- August-September, 2004 — The Fort Worth District Emergency Management Office deploys staff and a Deployable Tactical Operations System (DTOS) vehicle to Florida to support FEMA and local disaster recovery operations following successive Hurricanes Charley, Frances, Ivan, and Jeanne.
- December 8, 2004 — The Fort Worth District's component of the Trinity River Vision master plan in Fort Worth, called the Central City Project, is authorized under Public Law 108-447.
- August 29, 2005 — The Fort Worth District provides contract support to FEMA after Hurricane Katrina makes landfall in Louisiana and Mississippi, swamps New Orleans, and devastates nearby coastal areas.
- September 15, 2005 — President Bush and Congress approve the recommendations made in the Base Realignment and Closure Commission (BRAC) report released in May, which focus on reorienting, reshaping, and expanding the country's bases to support joint and modular units as part of the military's ongoing Transformation program.
- September 24, 2005 — The Fort Worth District becomes the Southwestern Division's lead district for emergency and recovery operations after Hurricane Rita makes landfall between Sabine Pass, Texas, and Johnsons Bayou, Louisiana.
- October 1, 2005 — A virtual, multi-disciplinary, twenty-three member Project Delivery Team (PDT) at Sam Rayburn Lake successfully executes a dangerous “black start” to restore power to East Texas following Hurricane Rita.
- October 2005 — Wetland Cell D is completed as part of the DFE project along the Trinity River.
- November 2005 — The Guadalupe-Blanco River Authority and USACE sign an agreement to preserve and develop the Canyon Lake Gorge as an educational and natural resource.
- March 2006 — USACE orders the Fort Worth District to begin the Fort Bliss Expansion Project in El Paso.
- July 2006 — The Defense Department's BRAC Office, USACE, the U.S. Naval Facilities Command (NAVFAC), and the U.S. Air Force Center for Engineering and the Environment (AFCEE) establish the Joint Program Management Office (JPMO) in San Antonio to carry out a \$2 billion military construction project in San Antonio due to BRAC 2005.
- July 27, 2006 — Colonel Minahan relinquishes command of the Fort Worth District to new District Commander Colonel Christopher W. Martin.
- September 26, 2006 — Congress passes the Secure Fence Act, Public Law 109-367, which requires the construction of hundreds of miles of additional fencing along the Mexican border to extend the existing barrier. President Bush signs it into law on October 26.
- October 23, 2006 — A ground breaking ceremony takes place at Fort Bliss, marking the formal beginning of construction to expand the base so that it can house up to six new BCTs redeploying there from Germany and Fort Hood.
- January 2007 — The Fort Worth District and its inter-agency partners begin construction of the border fence mandated by the Secure Fence Act.
- January 10, 2007 — President Bush announces that he has ordered a “surge” of over 20,000 more troops into Iraq to crush the insurgency and bring an end to the war there.
- June-July 2007 — The District's civil works operations staff, safety inspectors, geotechnical specialists, emergency management team, and lake and levee/floodway managers work together to control rampant flooding throughout Central Texas.
- November 8, 2007 — Congress overrides President Bush's veto and passes the National Levee Safety Act of 2007 (as part of the Water Resources Development Act of 2007), which requires stringent new inspection and safety guidelines for levees in a post-Katrina environment. USACE accordingly establishes a new Levee Safety Organization at every level—headquarters, divisions, and districts—to carry out its significantly strengthened Levee Safety Program.
- December 2007 — The U.S. Army announces plans to “Grow the Army” by 75,000 soldiers, requiring

- changes to the Fort Bliss Expansion Project to accommodate additional BCTs.
- May 2008 — Work on the Mission Reach portion of the San Antonio Channel Improvement Project (SACIP) begins.
- January 11, 2008 — Construction of the 150,000 square foot Battlefield Health & Trauma Center begins at Fort Sam Houston in San Antonio.
- September 2008 — Following the destructive Hurricane Ike, District Commander Colonel Christopher Martin orders the delivery of pre-staged water, power, ice, and generators to the Texas coast to support recovery operations there.
- October 2008 — JPMO delivers the \$15 million Lieutenant Colonel Daniel E. Holland Military Working Dog Hospital to Joint Base San Antonio to care for the 2,500 dogs assigned to military units both in the United States and overseas.
- December 8, 2008 — The Fort Worth District starts renovation and construction work at the Brooke Army Medical Center/San Antonio Military Medical Center at Fort Sam Houston.
- February 2009 — Congress passes the American Recovery and Reinvestment Act (ARRA) of 2009, which is signed into law by President Obama.
- March 2009 — The Fort Worth District informs the City of Dallas that its levee system has failed Periodic Inspection #9 under the rigorous new guidelines of USACE's revised Levee Safety Program, placing the city's 100-year FEMA certification in jeopardy.
- April 2009 — The Fort Worth District receives \$107 million in ARRA funding for its Civil Works programs, \$57 million for a new Warriors in Transition Complex at Fort Bliss, and \$351 million for a replacement hospital at Fort Hood.
- May 2009 — The Museum Reach portion of the San Antonio Channel Improvement Project (SACIP) is completed.
- June 2009 — The District approves Dallas' Floodway Maintenance Deficiency Correction Plan, which is aimed at investigating and repairing problem with the city's levees, as identified during Periodic Inspection #9.
- July 24, 2009 — Colonel Richard J. Muraski succeeds Colonel Martin as District commander.
- August 2009 — The Fort Worth District finishes a \$113.75 million modular building project at Fort Polk, Louisiana to support the training of Foreign Security Forces as part of its BRAC MILCON program.
- December 1, 2009 — President Barack H. Obama announces a second surge of 33,000 additional American troops for Afghanistan, as Taliban and Al Qaeda attacks increase against ISAF and NATO forces.
- June 2010 — Emergency Management Office Chief Tony Semento and a District disaster response team deploy during Hurricane Alex, a Category 2 storm that struck South Texas and northern Mexico.
- October 2010 — To fulfill the requirements of BRAC 2005, the Department of Defense merges Fort Sam Houston, Lackland Air Force Base, and Randolph Air Force Base into Joint Base San Antonio. The Fort Worth District and its interagency partners also complete most of the work on the border fence project.
- April-May 2011 — The Fort Worth District's Emergency Management Office supports disaster relief and recovery efforts following deadly tornado outbreaks in the Southeast, most notably in Alabama and in Joplin, Missouri.
- May 1, 2011 — U.S. Navy SEALs kill Al Qaeda mastermind Osama bin Laden at his compound near Abbottabad, Pakistan.
- May 26, 2011 — USACE releases a new national Recreation Strategy Plan that seeks to make recreational infrastructure management more of a local responsibility, and to remove some of the financial burden from USACE.
- June 22, 2011 — President Obama announces that the United States would withdraw 10,000 troops from Afghanistan that year and bring another 23,000 home by September 2012.
- August 2011 — Southwest Division and Fort Worth District personnel deploy to the New York City area to support FEMA during Hurricane Irene. The Fort Worth District also announces that the Fort Worth levee system has failed its Periodic Inspection #10 under the new Levee Safety Program guidelines.
- September 2011 — The BAMC/SAMMC hospital project in San Antonio and the Fort Bliss Expansion Project are completed on schedule. Elsewhere in Texas, the District's Emergency Management Office responds to widespread wildfires that engulf parts of central and northern Texas.
- October 2011 — President Barack Obama announces that the war in Iraq is effectively over. In Fort Worth, Peggy Grubbs becomes the District's first female Deputy District Engineer for Programs and Project Management.
- December 17, 2011 — The last U.S. troops depart Iraq.
- April 2012 — USACE launches a "Civil Works Transformation" to improve its efficiency, service delivery practices, and budgeting and planning processes to both reduce customer frustration and find new funding avenues in anticipation of a difficult fiscal environment in the future.
- June 27, 2012 — Col. Charles H. Klinge, Jr. succeeds Col. Muraski as the new Fort Worth District commander.



APPENDIX II

Fort Worth District Commanders, 2000 to 2012

Colonel James S. Weller
November 5, 1997 to July 17, 2000



Colonel James S. Weller was the Commander and District Engineer of the Fort Worth District, U.S. Army Corps of Engineers from November 5, 1997 to July 17, 2000. He left to become Commander of the U.S. Army Engineer Research and De-

velopment Center, headquartered at Waterways Experiment Station in Vicksburg, Miss.

He is a 1976 graduate of the U.S. Military Academy at West Point and earned a master's of science degree in civil engineering from the Georgia Institute of Technology. Additionally, he earned masters' degrees from the University of Southern California and the U.S. Naval War College. He is a registered professional engineer in the state of Virginia.

Prior to becoming the District Engineer, Colonel Weller had other assignments with the Corps. He was the Assistant Director of Military Programs at the Corps headquarters in Washington, D.C., Commander of the Walla Walla District in Walla Walla, Wash., Deputy District Engineer for the Omaha District in Omaha, Neb., and Deputy Area Engineer for the Rocky Mountain Area Office in Colorado Springs, Colo.

Colonel Weller's other assignments include: Executive Officer for the 52nd Engineer Battalion (Combat) (Heavy) while the unit was deployed to Saudi Arabia during the Gulf War; aide-de-camp, Combined Field Army Commander in South Korea; Engineer Operations Officer for the Combined Field Army; Civil Engineering Instructor at the U.S. Air Force Academy; Staff Engineer for the U.S. Army Field Station, Okinawa; and various positions with the 588th and 34th Engineer Battalions.

Colonel Gordon M. Wells
July 17, 2000 to May 30, 2003



Colonel Wells is a 1979 graduate of the U.S. Military Academy at West Point and earned a master's of science degree in civil engineering from Virginia Tech and a Master's in Military Arts and Sciences at Fort Leavenworth, Kan. He

is a Registered Professional Engineer in both Texas and Virginia. His service schools include the Army War College, Armed Forces Staff College, School of Advanced Military Studies, Command and General Staff College, Combined Arms and Service Staff School, Engineer Officer Basic and Advanced courses, Ranger Course and Airborne Course.

He has held a variety of assignments in the United States, Germany, Japan, and the Middle East. He was a Project Engineer for the Corps' Japan Engineer District (1986-1989), where he served one year at Camp Zama and two years at Yokota Air Force Base. He worked in the Plans & Policy Directorate (J5) for the U.S. European Command in Germany (1994-1996) and commanded the 41st Engineer Battalion (Combat), 10th Mountain Division, at Fort Drum, N.Y., (1996-1998).

Colonel Wells was the Commander of the U.S. Army Corps of Engineers, Fort Worth District from July 17, 2000 to May 30, 2003, following an assignment in Washington, D.C., where he served as the Assistant Director of Military Programs for the Corps of Engineers. Other assignments include Executive Officer, 14th Engineer Battalion (Combat) at Fort Lewis, Wash.; Operations Officer, 13th Engineer Battalion (Combat) at Fort Ord, Calif.; and Deputy G-3 and Chief G-3, Plans & Exercises, 7th Infantry Division (Light) at Fort

Ord, Calif. He spent his first four years after graduating from West Point in Eschborn, West Germany, with the 317th Engineer Battalion (Combat), where he served as Platoon Leader, Company Executive Officer, Battalion Intelligence Officer, and Company Commander.

In January 2003, Colonel Wells was selected by the Chief of Engineers to form and lead a team of engineers to help plan the reconstruction of critical infrastructure in Iraq under the overall command of Brig. Gen. Steve Hawkins in Kuwait. In early April 2003, General Hawkins and Colonel Wells were ordered to form a smaller joint task force in support of Operation Iraqi Freedom with the mission to reestablish power, potable water, sewer, transportation, and hospital services to prevent a humanitarian crisis among the civilian population of Iraq. Task Force FAJR arrived in Baghdad late on April 12th, as the initial team of USACE engineers tasked to address the significant infrastructure issues Iraq faced. Working hand-in-hand with Iraqi engineers and deployed U.S. troop units, in less than two months, TF FAJR helped bring the vast majority of the Iraqi population back to pre-conflict conditions in terms of basic utilities and services.

Colonel Wells is currently a Senior Vice President with Freese & Nichols Consulting, in Fort Worth.

Colonel John R. Minahan
May 30, 2003 to July 27, 2006



Colonel Minahan graduated from the United States Military Academy in 1981 with a bachelor degree in science and was commissioned into the Corps of Engineers. He later earned his master's degree in business administration from George Mason University and a master's degree in strategic studies from the Army War College. He is a registered professional engineer from the state of Virginia.

Colonel Minahan held a variety of assignments during his career. His last assignment was

as the Combat Support Division Chief, Enlisted Personnel Management Directorate, PERSCOM in Alexandria, VA. From 1999 to 2001, he served as the Southwest Border Division Chief and the Engineer Division Chief in the Operations Directorate for Joint Task Force Six in El Paso, Texas. He commanded the 27th Engineer Battalion (Corps Combat) (Airborne) at Fort Bragg, North Carolina. from 1997 to 1999. From 1996 to 1997, he served as the Executive Officer to the Chief of Engineers and from 1995 to 1996, he was a Special Assistant to the Under Secretary of the Army in the Pentagon. Other assignments include Executive Officer, Operations Officer and Assistant Division Engineer in the 65th Engineer Battalion, 25th Infantry Division at Schofield Barracks, Hawaii; Staff Officer in the Office of the Chief of Staff of the Army, and Joint Staff Intern on The Joint Staff in Washington, D.C.; and Commander of B Company, 27 Engineer Battalion (Combat) (Airborne) at Fort Bragg, North Carolina.

Colonel Minahan's awards and decorations include the Defense Meritorious Service Medal, Meritorious Service Medal (seven awards), Joint Service Commendation Medal, Army Commendation Medal, the Army Staff Identification Badge and Joint Staff Identification Badge, Master Parachutist Wings, and the Ranger Tab.

Colonel Minahan currently works for Alan Plummer Associates, Incorporated in Dallas.

Colonel Christopher W. Martin
July 27, 2006 to July 24, 2009



Colonel Martin graduated from the United States Military Academy at West Point, NY, in 1983. After graduating from the Engineer Officer Basic Course and Ranger School, he went to Germany where he served as a platoon leader with the 563rd Engineer Company (Combat Support Equipment), and then in the 82nd Engineer Battalion (Corps) (Mechanized) as an Assistant S4, Assistant S3, and company executive officer.

In 1987, he attended the Infantry Officer Advance Course, and was assigned to the 326th Engineer Battalion at Fort Campbell, KY, as an assistant S3. He commanded the 887th Engineer Company (Light Equipment) (Air Assault) in the 101st Airborne Division (Air Assault). Following this tour, he received his master's degree in civil engineering from the University of Illinois. In 1991, he was assigned to the Fort Worth District, serving in the Central Texas Area Office at Fort Hood, Texas. In 1994, he began a tour as an operations instructor with the Expeditionary Warfare Training Group, Pacific, at the Naval Amphibious Base in Coronado, Calif.

In 1996, he was assigned to the 1st Infantry Division's Engineer Brigade in Germany. During this two-year tour, he served as the Brigade S4, Chief of Construction for Task Force Eagle in Bosnia, and as the Brigade S3. In 1996, he was assigned to the Southern European Task Force (Airborne) in Vicenza, Italy, as the Brigade Engineer for the SETAF Infantry Brigade, and then as the Deputy G3 for SETAF. In 2000, he was assigned to the United States Army Training and Doctrine Command Headquarters in Fort Monroe, Virginia, as a special assistant to the commanding general. In July 2002, he assumed command of the 91st Engineer Battalion, which was the first engineer battalion in the Army to field the Bradley fighting vehicle and then fight it at NTC and ultimately in Iraq. The Battalion deployed to Operation Iraqi Freedom II in January 2004 and was responsible for a large part of the western Baghdad area until redeployment in February 2005. Following redeployment from Iraq, he attended the United States Army War College, graduating in June 2006.

His military awards include the Bronze Star Medal, Meritorious Service Medal, Army Commendation Medal, Army Achievement Medal, and Humanitarian Service Medal, as well as Air Assault and Airborne Wings, and the Ranger Tab.

Colonel Martin is currently deployed to Afghanistan.

Colonel Richard J. Muraski, Jr.
July 24, 2009 to June 27, 2012



Colonel Richard J. Muraski, Jr. came to Fort Worth after graduating from the National War College with a Master's of Science in National Strategic Studies and serving as Military Assistant to the Secretary of the Army.

As a lieutenant, Colonel Muraski served with the 4th Engineer Battalion, 4th Infantry Division (M), at Fort Carson, Colorado as a line platoon leader, assault and barrier platoon leader and company executive officer. As a captain, he served with the 65th Engineer Battalion, 25th Infantry Division (Light), Schofield Barracks, Hawaii as Brigade Engineer, Battalion S-1 and Company Commander, deploying his company to Haiti in support of Operation Uphold Democracy.

Colonel Muraski then attended graduate school at Purdue University. After earning a master's of science degree in Geodetic Sciences, he taught at the Defense Mapping School, National Imagery and Mapping Agency, Fort Belvoir, Virginia. Following the U. S. Army Command and Staff College, Colonel Muraski served as the Assistant Division Engineer, 4th Infantry Division; S-3 and Executive Officer, 299th Engineer Battalion, at Fort Hood, Texas.

He went on to serve as Executive Officer and Military Assistant to the Deputy Director and Military Executive at the National Geospatial-Intelligence Agency (NGA). He deployed with an NGA support team to Afghanistan and Kuwait in support of OEF and OIF I. Colonel Muraski assumed command of the 588th Engineer Battalion in June 2004. Under the Army's modular reorganization, he transformed the 588th into the Special Troops Battalion, 2nd Brigade. The battalion deployed to Operation Iraqi Freedom in November 2005 and was responsible for the majority of Babil province, conducting combat operations along with training Iraqi security forces. He relinquished command in March 2007.

Colonel Muraski's awards and decorations include the Bronze Star, Defense Meritorious Service Medal, Meritorious Service Medal (three oak leaf clusters), The Joint Service Commendation (oak leaf cluster), the Army Commendation Medal (oak leaf cluster), the Joint Service Achievement Medal, the Army Achievement Medal (four oak leaf clusters), Bronze DeFleury Medal, Global War on Terrorism Expeditionary Medal, and the Armed Forces Expeditionary Medal. He has been awarded the Ranger and Sapper Tabs as well as the Combat Action, Airborne, and Air Assault Badges.

He is currently the Deputy Commander for USACE's Southwestern Division in Dallas.

**Colonel Charles H. Klinge, Jr.
June 27, 2012 to Present**



Colonel Charles H. Klinge, Jr., assumed command of the U.S. Army Corps of Engineers, Fort Worth District, on June 27, 2012.

He was born at Lackland Air Force Base in San Antonio, Texas and was raised in northern Virginia and Crofton, Maryland. He is a 1988 graduate of

the United States Military Academy and a graduate of the U.S. Army Ranger and Jumpmaster Schools. He holds a master's of science degree in civil engineering from Purdue University and is a Professional Engineer licensed in the state of Hawaii.

Colonel Klinge began his military career with the 307th Engineer Battalion, 82nd Airborne Division, serving as platoon leader and company executive officer during Operation Just Cause and Operation Desert Shield/Desert Storm. After completing the Engineer Officer Advanced Course, Colonel Klinge joined the Engineer Brigade staff of the 3rd Infantry Division in Wurzburg, Germany and later served as the Assistant Brigade Engineer in Schweinfurt. He commanded Alpha Company, 10th Engineer Battalion, later reflagged as the 9th Engineer Battalion, 1st Infantry Division, to include Operation Joint Endeavor in Bosnia.

Since August 30, 2010 Colonel Klinge was the Deputy Commander of the Southwestern Division, Dallas. Other USACE experience includes his first assignment with USACE with the Los Angeles District from 1999-2002 where he served as Chief of Real Estate, Project Engineer and Project Manager, and Chief of Military Programs.

From 2002-2005, Colonel Klinge served as the Executive Officer of the 8th Engineer Battalion, 1st Cavalry Division and as Commander of the Baghdad Area Office in the Central District, Gulf Region Division during Operation Iraqi Freedom. He also served as the Deputy Commander for the New York District from 2005-2006. He also commanded the Honolulu District from July 2006 until his assignment as the Deputy Brigade Commander of the 130th Engineer Brigade, Schofield Barracks, Hawaii, from August 2008 until August 2010.

His awards and decorations include the Bronze Star Medal (2 OLC), Meritorious Service Medal (4 OLC), Army Commendation Medal (2 OLC), and the Armed Forces Expeditionary Medal (with Arrowhead Device).



APPENDIX III

Distinguished Civilian Awardees, 2000 to 2011



JOHN W. RIDDLE
Area Engineer,
Central Texas Area Office
Inducted: 2000
Federal Service:
1967-1997

Mr. John Riddle represented the Fort Worth District as Area Engineer of the Central Texas Area Office for 19 years, from 1978 through 1997. Total military construction placement during this period exceeded \$1 billion. Mr. Riddle's supportive leadership and customer care is evidenced in the successful completion of a great many projects, both large and small, at locations throughout central Texas. These projects will house, protect, and serve soldiers, airmen, their families, and the general public for many years to come.



J. B. WEST
Chief, Military Branch,
Engineering Division
Inducted: 2001
Federal Service:
1965-1995

Mr. J. B. West has had a multi-faceted and distinguished career with the Corps of Engineers in the Fort Worth District, Southwestern Division, as well as overseas in Saudi Arabia and in the Europe Division. He made outstanding contributions to the Corps family, most notably with his development and improvement of the A-E contracting procedures. He

co-authored the Corps of Engineers Text for A-E Contracting and taught the course for over 20 years. His many talents have been demonstrated throughout his career, from an early assignment in the Operations Division where he was in charge of inspecting floodways and levees, to working with Air Force and Army medical projects around the world from Denmark to Turkey, to his innovativeness in streamlining the A-E selection process.

J.B. West exemplifies the Corps spirit of dedication, innovation and loyalty.



FRANCIS C. DECK, JR.
Chief, Audit Branch
Inducted: 2002
Federal Service:
1941-1972

Mr. Francis C. Deck, Jr. represented the Fort Worth District as Chief, Audit Branch, from 1960 through 1972. Without a precedent to draw upon, Mr. Deck was instrumental in developing audit guides, review procedures, and audit techniques. Mr. Deck maintained a high standard of contract review as a member of the Contract Board of Awards, and of contract audit, resulting in judicious use of taxpayer funds. Highly noteworthy was his being called out of retirement to assist the Fort Worth District as Special Assistant to the Comptroller for Water Supply Contracts. His leadership efforts resulted in both significant political and taxpayer fund impacts. Mr. Deck exemplifies the Corps spirit of dedication, innovation and loyalty.



CHARLES E. FERGUSON
Operations Manager, Mid-Brazos Project Office
Inducted: 2003
Federal Service:
1962-2001

Mr. Charles E. Ferguson served the Fort Worth District in various positions ranging from Supervisory Materials Engineering Technician to Operations Manager from 1962 through 2001. Mr. Ferguson was instrumental in developing the first construction requirements contract, initiating contract warrant authorities in the field, and creating a cluster concept of management to maximize resource utilization. He took pride in positioning himself and his staff to become the leading edge of those changes. He fostered innovative thoughts at all levels and was a visionary who could see value beyond that which might be realized in merely one or two years. He pioneered necessary changes and encouraged forward thinking for the future of the organization and to ensure sustainability. Mr. Ferguson was truly dedicated to creating an organization that proudly served the public at all levels.

United States and other parts of the world consulting and speaking internally to Corps audiences and externally to other organizations. Mr. Samanie received more than 20 commendations and other noteworthy awards for his efforts that have had long-term application across the Corps.



JOHN JARBOE
Chief, Operations
Division
Inducted: 2004
Federal Service:
1958-1992

Mr. John Jarboe spent 21 of his 35 years of Federal service in the Fort Worth District, serving first as Maintenance Branch Chief; then in a supervisory role directing maintenance operations for 17 dams, two hydroelectric power plants, and over 170 park areas. He also developed closer ties to elected officials and business leaders, which allowed the Corps to better communicate programs and better serve the public. He is recognized for his vision, dedication, technical expertise, professionalism, and genuine compassion for his family and others.



DONALD P. SAMANIE
Chief, Reports and
Control Section,
Construction Division
Inducted: 2004
Federal Service:
1942-1983

Donald P. Samanie moved from the Galveston District to the newly established Fort Worth District in 1950. During his nine years in Fort Worth, he was an early pioneer in the application of the Critical Path Method and other network analysis systems. His impacts were so far reaching that he moved on to the Headquarters, Office of the Chief of Engineers, to carry on the work he started in the Fort Worth District. As the subject matter expert in construction management and network analysis systems he traveled throughout the



ROBERT C. CHAPMAN
Project Manager, Little
River Project Office
Inducted: 2005
Federal Service:
1959-2002

Robert C. Chapman began his long and distinguished career with the U.S. Army Corps of Engineers in March of 1959 as a forestry technician at Magee Bend (Sam Rayburn Reservoir). From 1961 to 1962, he served as a survey technician in the Fort Worth District Office. He then served as a construction inspector during the construction of Waco Lake until 1964 when he began his natural resource career as a park ranger at three different projects through 1969. From 1970 to 1992, he served as

Reservoir Manager at Hords Creek, Whitney, Navarro Mills, Waco, Belton and Stillhouse Hollow. The realignment of Operations Division field offices in 1992 resulted in the creation of the Little River Project Office and Chapman became the first Operations Project Manager for the project. The Little River Project Office served as a regional office with oversight of Belton, Stillhouse Hollow, Georgetown, and Granger Lakes. In 1995, he facilitated the inclusion of Canyon Lake in the Little River Project, an expansion which resulted in a regional responsibility of five reservoirs, with more than 50 employees, and full execution of a \$9 million budget. Chapman retired in January of 2002 with more than 40 years of civilian service, all of which were with the Fort Worth District.



RONALD J. RUFFENNACH
Chief, Public Affairs and
Legislative Affairs
Inducted: 2005
Federal Service:
1973-2003

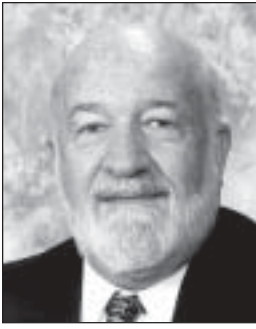
Ronald J. Ruffennach had 30 years of service with the U.S. Army Corps of Engineers, most of which was with the Fort Worth District. He began his career in the Pittsburgh District in 1973 as a visual information specialist, served in the Europe District beginning in 1977 and the Savannah District beginning in 1981, where he achieved the position of Deputy Chief of Public affairs. In 1984, he accepted a public affairs specialist position with the Fort Worth District and was promoted to the chief's position in 1994. During his career, Ruffennach was called upon to accomplish many significant projects for the Corps of Engineers. Recognized as a leader and expert in the Corps' public affairs community, he was a top-notch communications strategist, planner and administrator for conveying critical, sensitive and controversial information to local, regional and national level news media and other publics on Fort Worth District and Corps activities. He developed innovative concepts and techniques to enhance the communications process and be-

came an authority on the Corps in situations which required considerable knowledge of policy issues, Corps postures and national impact consequences. He also regularly interacted with executive level leaders and decision-makers. He was chief of the Public and Legislative Affairs Office when he died in 2003 at age 52.



ALFRED L. BRANCH
Geotechnical Engineer
Inducted: 2006
Federal Service:
1971-2003

Alfred L. Branch, Jr. was a federal service employee for 32 years, 23 of which were in the Fort Worth District. He began his career with the District in 1971 after graduating from Texas A&M University as a geotechnical engineer. He distinguished himself as a technical expert and regional authority for foundation analysis, design, construction, rehabilitation and repair for performance prediction, evaluation and forensics. He authored numerous engineering technical letters, regulations, manuals and pamphlets pertaining to ribbed mat slab foundations, earthquake design for civil works, levee design and construction and career development guidelines for geotechnical engineers. He served in the Southwestern Division from 1994 until 1996 at which time he transferred for a four-year tour with Corps Headquarters in Washington, D.C. Mr. Branch served as an instructor for PROSPECT courses and shared his expertise with agencies outside the Corps as well. He was a special consultant to the Department of Energy, Department of Justice, Bureau of Reclamation, Air Force Aerospace Systems Command, and the Environmental Protection Agency, enhancing the reputation and bringing honor to the Corps of Engineers in the process. His contributions provide valuable technical knowledge to engineers in service to the Corps and other agencies for years to come. In recognition for his many contributions to Army engineering, Mr. Branch was awarded the prestigious de Fleury Medal upon retirement in 2003.



DWIGHT L. QUARLES
 Chief, Operations Division
 Inducted: 2007
 Federal Service:
 1972-2004

Dwight L. Quarles began his long and distinguished career with the U.S. Army Corps of Engineers in December 1972 as a Natural Resources Specialist in Headquarters, Washington, D.C. Before that, he was a forester with the U.S. Army at Fort A. P. Hill, after completing his education at Duke University. In April 1983, Quarles began his service in Fort Worth District as a Supervisory Outdoor Recreation Planner and Chief of Natural Resources and Recreation Branch in Operations Division. He became the Assistant Chief, Operations Division in December 1987, and became Division Chief in May 1995, directing 300 employees with an annual Operations and Maintenance budget of over \$50 million. He supervised six project managers and five functional branch chiefs (Natural Resources & Recreation, Management Support, Maintenance, Regulatory, and Emergency Management). He was responsible for the management, operations, and maintenance of 25 multi-purpose reservoir projects in accordance with their authorized purposes of flood control, hydroelectric power generation, water supply, recreation, natural resources, and environmental management and protection. He administered the program of issuing Federal permits for filling in streams and wetlands under Section 404 of the Clean Water Act. In addition, he led the District in supporting the Emergency Management function, ensuring the District's ability to support any and all natural and man-made disasters. He established an unprecedented standard of excellence for his organization and garnered personal respect and trust from all with whom he came in contact. He is valued by many within the Corps of Engineers and its external customers for his expertise and leadership in the civil works field. He retired in January 2004 with 42 years of Federal service, 32 years with the Corps, and 21 in Fort Worth.



WEBSTER L. BOLAND, JR.
 Chief, Claims Section,
 Contract Administration
 Branch, and Construction
 Division
 Inducted: 2007
 Federal Service:
 1966-2003

Webster L. Boland, Jr. served 34 years with the U.S. Army Corps of Engineers, 25 years with the Fort Worth District. Prior to his service with the Corps, he served as an Army officer in Korea and Fort Belvoir for two years. He obtained his master's degree in civil engineering at Oklahoma State University in August 1969. That year, he began his civilian career in the Tulsa District as a construction claims analyst, and then worked on several civil projects for Tulsa until he went to work for the Fort Worth District at Lavon Dam in October 1972. In 1977, he became Assistant Resident Engineer on the Tennessee Tombigbee Waterway for Nashville District. He returned to the Fort Worth District for good in 1982, as Resident Engineer for Ray Roberts Dam, Denton, Texas. In 1986, he accepted a position as Chief, Claims Section, Contract Administration Branch, and Construction Division. In 1990, Boland was named as the Fort Worth District Engineer of the Year. Under his leadership, the District's backlog of over 150 claims was substantially reduced, and in April 1992, he was selected as Chief of Contract Administration Branch, providing contract administration support to all field offices, Office of Counsel, and Contracting Division, where he served until he retired in November 2003.



JAMES D. VANDERSAND
 Chief, Military Branch
 Programs and
 Project Management
 Division
 Inducted: 2008
 Federal Service:
 1962 - 1999

Following assignments in Little Rock and St. Louis Districts, Mr. Vandersand began work in the Fort Worth District in 1972 where he was assigned to Construction Division in the Reports and Controls Section. In 1973, he became an Engineering Project Manager responsible for military programs at Air Force installations. He co-authored the first Corps of Engineers A-E Contracting Procedures Negotiations Guide and taught the course worldwide. After overseas assignments in Italy and Saudi Arabia, Vandersand returned to the District in 1978 as an Engineering Project Manager in the Army Section, and became Chief of Specifications Section in 1979. In 1982, he was selected as Chief of the Military Branch, and in 1984, as Chief, Program Management Section, Military Branch, Southwestern Division Office, returning to Fort Worth in 1987 as Chief, Design Branch. In 1990, Vandersand became Assistant Chief, Engineering Division, responsible for all aspects of the engineering design program. He retired in 1999 after serving a year as Chief of Military Branch, Programs and Project Management Division, with 33 years with the Corps of Engineers.



SAMUEL RUSSO
Chief, Project
Management Branch
Inducted: 2009
Federal Service:
1958 - 1989

Samuel Russo began his federal service in 1958 with the Albuquerque District, U.S. Army Corps of Engineers. He earned his bachelors degree in civil engineering from the University of New Mexico in 1962. He joined the Fort Worth District in 1970. During the 1970s Russo was a senior project manager in the Army Section of the Military Branch responsible for getting military projects designed and contracts awarded for construction. During the mid-1970s the workload and size of the Army construction projects greatly increased. Following the increase, Russo performed at an extraordinary level as he worked on numerous projects that included

a state-of-the-art \$3 million Photo Processing Facility, White Sands Missile Range, N.M.; at Fort Bliss, Texas, a \$3 million Safeguard Central Training Facility, to train military personnel at operating missile sites; and modular barracks complexes at Fort Polk, LA. In 1978, Russo was promoted to the Southwestern Division where he helped multiple districts in executing their respective military construction programs. He returned to the Fort Worth District in 1982 as a Military Branch Section Chief and became the Chief of the Military Branch in 1984. He also held the position of Chief, Special Projects Section and Chief, Project Management Branch.



MICHAEL J. MOCEK
Deputy District Engineer,
Chief, Programs and
Project Management
Division
Inducted: 2010
Federal Service:
1971 - 2008

Michael J. Mocek began his long and distinguished federal service in 1971 at the Fort Worth District as a civil engineer in the Planning Division. He held various positions within the division until 1980. Mocek returned to the Fort Worth District in 1985 after serving as the Southern Colorado Project Office, Project Engineer in the Albuquerque District, to serve as the Planning Division chief. He also served as acting Director of the Programs Management Directorate, Southwestern Division in 1995. From 1995 through 1996, he also served as Chief, Engineering Division, Fort Worth District before returning to his previous role as Deputy District Engineer and Chief, Programs and Project Management Division. Mocek served as Deputy District Engineer and Chief, Programs and Project Management Division for over 18 years prior to his 2008 retirement. Among his most noteworthy projects are the Brooke Army Medical Center in San Antonio, one of the largest military hospitals in the world, and completion of Jim Chapman and Ray Roberts multi-purpose reservoirs. He was also instrumental on the oversight for the Dallas

Floodway Extension, the Upper Trinity Study, the Middle Brazos Study, and others. He was a leader in establishing the Architect-Engineer Resource Center which provides "one door" USACE support to the Immigration and Naturalization Service. Through this program, the Fort Worth District supported construction management in every geographical area of the Corps nationwide, providing \$50 million in annual services. Mocek's superb management skills enabled him to successfully lead one of the largest and most diverse programs in the Corps of Engineers, ranging from \$500 million to \$800 million annually. He retired with 37 years of service with the Corps of Engineers.



PAUL M. HATHORN
Assistant Chief, Planning,
Environmental and
Regulatory Division
Inducted: 2011
Federal Service:
1975 - 2004

Following his service with U. S. Marine Corps at various stateside and overseas duty stations from 1969 to 1972, Paul

M. Hathorn joined the Fort Worth District, U.S. Army Corps of Engineers in 1975 as a park ranger at Benbrook Lake. In 1977, he transferred to the district headquarters and served as Environmental Specialist/Resources Planner. In 1988 he became Chief of the Environmental Resources Branch, Planning Division. He was responsible for a staff of 20 employees, executing an environmental program that he successfully led expansion from \$3 million to over \$10 million, annually. In 1997 Hathorn was appointed to serve in dual capacity as Assistant Chief, Planning, Environmental, and Regulatory Division along with his Branch Chief duties, where he worked until retiring in 2004 with 33 years of federal service, 29 of which were with the Fort Worth District. His legacy of excellence and leadership are particularly evident based on the many environmental program initiatives he fostered that have stood the test of time. Perhaps most importantly was Hathorn's commitment to environmental stewardship and his professionalism. He was universally trusted by all both internally and externally. His dedication to create an efficient, customer-focused, learning organization contributed greatly to the success of the Fort Worth District, Southwestern Division, and the U.S. Army Corps of Engineers.



APPENDIX IV

Commonly Used USACE Acronyms

ACI	Advanced Contracting Initiative	ERDC	U.S. Army Engineer Research and Development Center
AEI	Architect Engineer Integrator	ESF	Emergency Support Function
AFCEE	U.S. Air Force Center for Engineering and the Environment	FAA	Federal Aviation Administration
AGV	Automatic Guided Vehicle	FBI	Federal Bureau of Investigation
ARRA	American Recovery and Reinvestment Act	FEMA	Federal Emergency Management Agency
BAMC	Brooke Army Medical Center	FEST	Forward Engineering Support Team
BCT	Brigade Combat Team	FIRM	Flood Insurance Rate Map
BRAC	Base Realignment and Closure	FUDS	Formerly Used Defense Sites
CAD	Computer Aided Design	GBRA	Guadalupe–Blanco River Authority
CBP	Customs and Border Protection	GIS	Geographic Information Systems, also Geospatial Information System
CEFMS	<i>Corps of Engineers Financial Management System</i>	GSA	General Services Administration
CENTCOM	U.S. Central Command	GWOT	Global War on Terror
CFLCC	Combined Forces Land Component Command	HAP	Homeowners Assistance Program
Cfs	Cubic feet per second	HBCT	Heavy Brigade Combat Team
CINC	Commander in Chief	IBWC	International Boundary and Water Commission
CJTF	Combined Joint Task Force	ICE	Immigration and Customs Enforcement
CONOPs	Concept of Operations	IED	Improvised Explosive Device
CoP	Community of Practice	IFF	Introduction to Fighter Fundamentals
CPA	Coalition Provisional Authority	IID	Iraqi Infrastructure Database
CREST	Contingency Real Estate Support Team	IIRIRA	Illegal Immigration Reform and Immigrant Responsibility Act
DEA	Drug Enforcement Agency	IMCOM	U.S. Installation Management Command
DFE	Dallas Floodway Extension	INS	Immigration and Naturalization Service
DHS	Department of Homeland Security	ISAF	International Security Assistance Force
DoD	Department of Defense	JNEC	Jasper-Newton Electric Cooperative
DTOS	Deployable Tactical Operations System	JPMO	Joint Program Management Office
ECCV	Emergency Command and Control Vehicle	KBR	Kellogg Brown & Root
ECSO	Engineering and Construction Support Office	LDE	Land Development Engineering
EKO	Engineering Knowledge Online	LEED	Leadership in Energy and Environmental Design
EMO	Emergency Management Office	MEOICC	Mine and Explosive Ordnance Information Coordination Center
EngLink	Engineer Link Interactive		
EOC	Emergency Operations Center		
EPA	Environmental Protection Agency		

METC	Medical Education and Training Campus	RIT	Regional Integration Team
MIF	Medical Instructional Facility	ROC	Rehearsal of Concept
MILCON	Military Construction	ROTC	Reserve Officer Training Corps
MSC	Major Subordinate Command	SACIP	San Antonio Channel Improvement Project
NASA	National Aeronautics & Space Administration	SAME	Society of American Military Engineers
NATO	North Atlantic Treaty Organization	SAMMC	San Antonio Military Medical Center
NAVFAC	U.S. Naval Facilities Engineering Command	SARA	San Antonio River Authority
NGA	U.S. National Geospatial-Intelligence Agency	SBCT	Stryker Brigade Combat Team
NPS	National Park Service	SFAC	Soldier and Family Assistance Center
NRCS	National Resources Conservation Service	SFO	Support For Others
O&M	Operations and Maintenance	SRM	Sustainment, Restoration, and Modernization
OMB	Office of Management and Budget	SWPA	Southwestern Power Administration
ORHA	Office of Reconstruction and Humanitarian Assistance	TRWD	Tarrant Regional Water District
ORV	Off-road Vehicle	TIPO	Tactical Infrastructure Program Overview
OSHA	Occupational Health and Safety Administration	TRV	Trinity River Vision
PDT	Project Delivery Team	TRVA	Trinity River Vision Authority
PERSCOM	U.S. Army Personnel Command	U.N.	United Nations
PF	Pedestrian Fence	U.S.	United States
PMP	Project Management Plan	USACE	U.S. Army Corps of Engineers
PRT	Planning and Response Team	USAF	U.S. Air Force
RFP	Request for Proposal	USPS	U.S. Postal Service
RFQ	Request for Quote	UXO	Unexploded Ordnance
RIE	Restore Iraqi Electricity	VF	Vehicle Fence
RIF	Reduction in Force	WES	Waterways Experiment Station
RIO	Restore Iraqi Oil	WHMC	Wilford Hall Medical Center
		WRDA	Water Resources Development Act



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A Note About Sources

The Fort Worth District Public Affairs Office has done a remarkable job of preserving textual and photographic materials from the District's recent history, and so most of the textual research for this project was conducted there in April and May of 2012. Among the sources collected were hundreds of official News Releases, which were written and compiled from 1999 through 2011, and served as the basis for many local, state, and national media stories concerning District events, people, operations, and activities. The Public Affairs Office also provided electronic "Project Status Updates to the Texas Delegations of the U.S. Senate and House of Representatives" for 2001 through 2010, which proved to be enormously useful in outlining basic District facts and information from year to year. To capture the local and state perspective, we likewise obtained hundreds of news clippings from city and town media outlets, especially those generated during flooding events. For national and international context of District operations, particularly for the wars in Afghanistan and Iraq, we collected items from major media outlets such as the *New York Times*, the *Washington Post*, and the *Los Angeles Times*, among other news sources.

We also acquired primary sources and official publications and presentations not only from USACE's virtual online library, which is available through the various District and Division websites, but also from U.S. Army websites maintained by the U.S. Military History Institute in Carlisle, Pennsylvania, and the Center for Military History in Washington, DC. For the stories of the Canyon Lake Flood and Task Force Fajr in Iraq, Colonel

Gordon Wells very generously contributed his personal collection of photographs and presentations to this history update to ensure accuracy.

During the project, we scheduled and conducted thirteen oral history interviews with the following USACE Fort Worth District leaders and personnel:

Bill Fickel	April 22, 2012
Colonel Gordon Wells	April 22, 2012
Colonel John Minahan	April 24, 2012
Steven Wright	April 24, 2012
Tony Semento	April 24, 2012
Colonel Richard J. Muraski	April 25, 2012
Jimmy Baggett	April 25, 2012
Elston Eckhardt	April 26, 2012
Paul Krebs	April 26, 2012
Charlie Burger	April 27, 2012
Robert Morris	July 9, 2012
Peggy Grubbs	July 11, 2012
Troy Collins	July 13, 2012

These interviews were transcribed and used during the preparation of this history update to both tell the human story of the Fort Worth District and also to add color and richness to this history.

Colonel Christopher Martin was deployed to Afghanistan while we were doing the interviews and research, but we were able to schedule a virtual meeting with him through satellite video communication to discuss his time as District Commander and the key Civil Works and BRAC/MILCON projects that he supervised from 2006 to 2009.



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