Air Force CIVIL ENGINEER

Vol. 15 • No. 5 • 2007

Engineers Lead the Way...

Transforming for the Future

Special Edition on CE Transformation

From the Top

Transforming the Way We Work

Transformation is nothing new to Air Force civil engineers. Our history of leading the way and adapting to challenges is rich with examples of civil engineers adopting new organizational structures, business practices, and technology to enhance support for the warfighter. From the creation of the Prime Base Engineer Emergency Force (Prime BEEF) in the early 1960s to the stand-up of the Air Force Center for Engineering and the Environment in 2007, we have reshaped our organization to support the mission. Once again, we find ourselves encountering new challenges that give us the opportunity to continue to transform and improve.

Secretary Wynne and General Moseley challenged Air Force leaders to enhance our warfighting capabilities through smart business practices. We are responding to this challenge in many ways. First, *we are reorganizing CE at all levels* to better align our structure with our strategic objectives. Second, *we are adopting an "Asset Management" approach* in our business processes to ensure that we maximize the value and utility of the Air Force's natural and built infrastructure. Third, *we are identifying best practices* from industry leaders and ourselves that we can use to continue our journey. Lastly, but most importantly, *we are leveraging the talents and experience* of civil engineers at all levels of our community by commissioning teams at each major command and field operating agency to help define our future business processes.

Our goal is to achieve efficiencies to offset the 20% reduction in funds available for installation support activities, and reduce the amount of the Air Force physical plant we spend money on by 20% by the year 2020. Collectively, our transformation efforts will enhance support for the warfighter, reduce the cost of installation engineering activities, and free resources for the recapitalization of Air Force weapon systems.

As with any organization, our capabilities rest on our people...they are the key. To reach our transformation goals, we must unlock the potential of every member of the Civil Engineering team.

This special edition of *Air Force Civil Engineer* articulates the road map for Civil Engineering Transformation. I encourage you to internalize the plan and immerse yourself in the transformational activities ahead. Thank you for your commitment and dedication to our Air Force and our nation.

Del Eulberg
Major General, USAF
The Air Force Civil Engineer

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Maj Christoff Gaub served as guest editor for this Special Edition on Transformation. Maj Gaub is the chief of Strategic Communications in the Office of The Civil Engineer.

On the back cover: The Air Force Memorial reaches toward the night sky, the lights of nearby Washington D.C. glowing in the background. Designed by the late James Ingo Freed, with the spires inspired by the U.S. Air Force Thunderbirds bomb-burst maneuver, the memorial pays tribute to the patriotic men and women of the U.S. Air Force and its predecessor organizations. (photo by TSgt Christopher J. Matthews)

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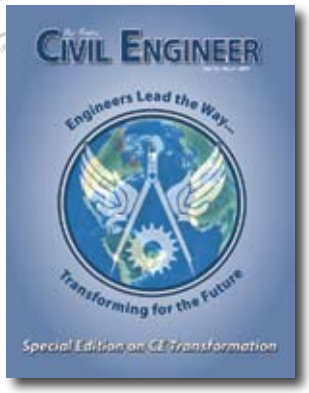


On the cover: Worldwide, Air Force Civil Engineering is undergoing a major transformation.

(front cover design & graphic by Mr. Keith Fred)

Transformation is a process by which the military achieves and maintains an advantage through changes in operation concepts, organization, and/or technologies that significantly improve its warfighting capabilities or ability to meet the demands of a changing security environment.

(DoD Transformation Planning Guidance, April 2003)

Transforming the CE Enterprise

Mr. Michael Culver
Chief, Strategic Initiatives Branch
Office of The Civil Engineer

Air Force Civil Engineering is in a time of transformation.

This isn't a new phenomenon. The Air Force must, along with the other U.S. military services, constantly adapt and transform to maintain superiority against a broad range of potential adversaries in today's world of ever-changing threats.

Air Force civil engineers have been an important part of every transformation, walking beside — and oftentimes leading — their fellow Airmen through change.

Recently, the Department of Defense called for significant transformation in all the services to strengthen U.S. warfighting capabilities and to operate more efficiently. The Secretary of the Air Force, the Honorable Michael W. Wynne, and the Chief of Staff of the Air Force, Gen T. Michael Moseley, challenged all Airmen to aggressively undertake a program of transformation with a focus on three main priorities:

- Fighting and winning the Global War on Terror
- Developing and caring for our Airmen and their families
- Recapitalizing and modernizing our aging weapon systems

Air Force civil engineers directly support these priorities. Currently, more than 2,500 CEs are deployed to the Southwest Asia area of operations, directly fighting the War on Terror or providing joint combat support. Civil engineers are responsible for the construction and maintenance of the buildings where Airmen train, work, live, and fight, as well as the infrastructure that supports the Air Force's current and future weapon systems.

Civil engineers have an extraordinary contribution to make in the Air Force's current Transformation. Civil Engineering, along with the rest of the Air Force, is

Secretary of the Air Force Michael W. Wynne and Air Force Chief of Staff Gen T. Michael Moseley testify before a senate committee on Capitol Hill about the need for more money to upgrade the Air Force's aging fleet of tanker jets. (photo by TSgt Cohen Young)

The Air Force's three main priorities:

Fighting and winning the Global War on Terror

Developing and caring for our Airmen and their families

Recapitalizing and modernizing our aging weapon systems

20/20 by 2020

Key elements of CE Transformation are embodied in the goal 20/20 by 2020. This simple term describes a major goal of Civil Engineering. Since funding available for installation support has been reduced by 20% since FY2006, CE must now achieve offsetting efficiencies to ensure that installations remain capable of enabling Air Force missions. CE must provide effective and consistent mission support capability and service levels to its customers within reduced funding levels through business process reengineering, benchmarking best practices, reorganizing, and technology. CE must reduce the amount of the Air Force physical plant that it spends money on by 20% by the year 2020. CE must focus its limited time and funding on only that infrastructure we need to perform Air Force missions, diverting resources away from excess, obsolete, and underutilized infrastructure capacity. Meeting this goal will play a big part in helping fund the Air Force's goal of recapitalizing and modernizing its weapon systems.

Transformation may become complicated, with overlapping aims and initiatives. 20/20 by 2020 gives CEs a focus for their energies and a view of how their efforts fit into the overall Transformation process.

finding ways to become more efficient and drive down operating costs in order to free up funds for modernization, all while continuing to meet warfighting and operational missions.

CE Transformation

Civil Engineering Transformation is already underway. The Air Force Civil Engineer, Maj Gen Del Eulberg, established a goal of 20/20 by 2020 (see sidebar above) and launched an aggressive transformation program targeting the Air Force's three main priorities.

The CE Transformation program comprises multiple, often interrelated initiatives to bring about enterprise-wide change. Many of the initiatives factor in mandates by the U.S. government, including the Department of Defense and the Air Force, which call for improvements in business practices and information technology to enhance accountability and efficiency.

A Strategic Initiatives Branch, which is managing CE Transformation and its many components, was established in the Office of The Air Force Civil Engineer. The Strategic Initiatives Branch, or AF/A7CIS, is responsible for strategic planning, strategic communication, information technology policy, transformation oversight, and organizational change management. Experts in AF/A7CIS work with The Air Force Civil Engineer to focus on key priorities, eliminate redundancies, capture broad solutions, and measure progress with CEs at all levels to provide oversight and support for Transformation efforts.

CE Transformation is a big undertaking; the process will affect approximately 60,000 engineers as well as their military, civilian, and family member customers. It requires the combined efforts of the CE community, individuals as well as organizations, working together to move CE forward.

Transformation involves exploring every aspect of how CE does business, including its approach, methods, and tools, and incorporating changes where needed. It is driven by people, processes, technology, and infrastructure (see Transformation Drivers sidebar on next page).

Many of the first CE Transformation initiatives addressed people or manpower, ensuring that the CE workforce was positioned for optimal warfighting capability in the most efficient configuration possible. The most recent initiatives have looked at transforming the

The F-35 Joint Strike Fighter is part of the modernization of the Air Force's weapon systems. (photo by Gunnery Sgt. Rusty Baker)

business of civil engineering. Transformation also entails organizational change management to build awareness, understanding, acceptance, and adoption of changes.

Manpower Initiatives

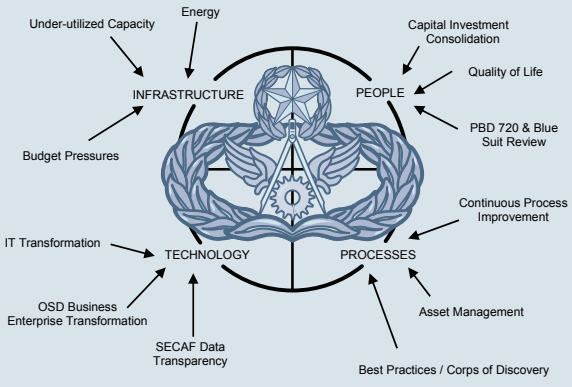
Program Budget Decision 720, the Air Force Transformation Flight Plan, dated Dec. 28, 2005, called for an overall force reduction of approximately 40,000 military personnel; 1,586 of the proposed cuts were in CE (1,408 enlisted and 178 officer). Additionally, 271 civilian manpower positions were cut. Although PBD 720 was a manpower cut, the Air Force Civil Engineer used it as an opportunity and a catalyst for much-needed, broader, and more holistic changes and improvements to CE organizational structures, functional manpower levels, and business processes. To accomplish this, two teams were established in the winter of 2006. One team examined restructuring forces and transforming processes to lessen the impact on expeditionary combat support and peacetime garrison requirements, and the other team conducted a military requirements, or "Blue Suit," review for CE.

Restructuring and Transformation: Along with members of the team, The Air Force Civil Engineer studied various initiatives that would help meet the PBD 720 reductions without compromising support to the warfighter, while also providing an opportunity to address some long-standing Air Force Civil Engineering challenges. Since the majority of reductions were to be taken in FY07, The Air Force Civil Engineer had to quickly identify key initiatives and link them to the Air Force goals. Significant effort went into identifying the initiatives. CE capabilities and operations depend on the combined military and civilian team. To minimize impact on the military and civilian workforce, it was imperative to clearly identify a "way forward."

Transformation Drivers

The scope and nature of the CE Transformation program is heavily influenced by a number of external and internal drivers that impact four key components of the CE enterprise: people, processes, technology, and infrastructure.

People - In 2006, the Secretary of the Air Force approved Program Budget Decision 720, resulting in the reduction of 1,408 enlisted positions, 178 officer positions, and 271 civilian positions from the CE community. Faced with a high demand for personnel to deploy in support of wartime missions and a simultaneous reduction in manning levels, The Air Force Civil Engineer launched several initiatives addressing personnel issues.



Processes – The Air Force Civil Engineer seeks to drive efficiencies by transforming AF business processes. The Air Force Smart Operations for the 21st Century program was created to provide tools for performing continuous process improvement. The Air Force Civil Engineer looked to private industry through the Corps of Discovery to identify best practices to better manage business processes similar to those of CE. The CE Transformation governance structure was created to better manage processes and change.

Technology – CE's current antiquated information technology systems and dispersed databases are incapable of efficiently supporting our transformation initiatives. Directives or initiatives from the Offices of the Secretary of Defense and the Secretary of the Air Force are driving the transformation of Air Force information management systems. SECAF and OSD direction calls for standardizing real property asset data and improving its quality, transparency, and availability. The Air Force Civil Engineer also directed the standardization of geospatial information management systems for the CE enterprise.

Infrastructure - The Air Force's underutilized infrastructure, decreased funding for infrastructure modernization and maintenance, new legislative provisions for leasing and disposal of assets, and the updated energy conservation goals cited in Executive Order 13423 all drive transformation efforts within CE.

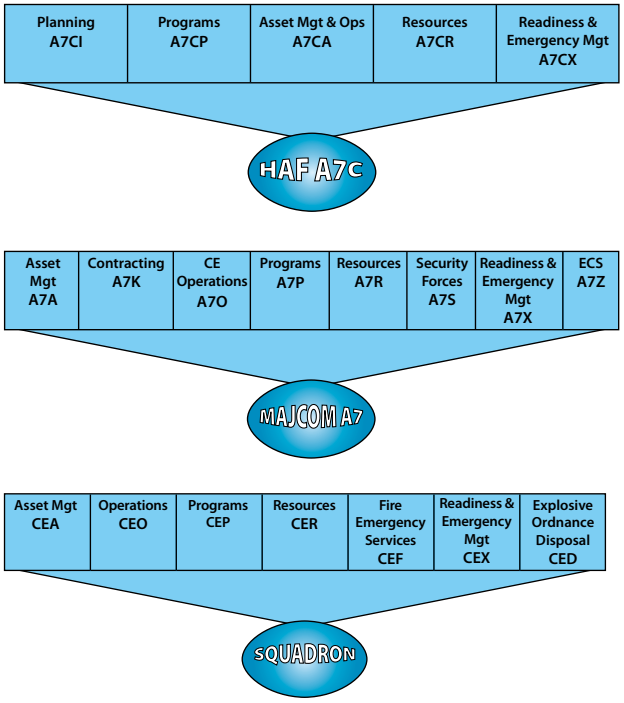


Figure A. The new CE organizational structure.

The team identified five initial Transformation initiatives designed to absorb the manpower cuts from PBD 720 with minimal mission impact and to address key issues related to Civil Engineering mission capabilities. These first initiatives were coordinated through the major commands in November 2006 and were included in the FY08 President's Budget Request to Congress. The Chief of Staff of the Air Force approved Program Action Directive 07-02 on April 19, 2007, which outlined five CE transformation initiatives:

- Centralize capital investment programs at the Air Force Center for Engineering and the Environment.
- Revise Fire Emergency Services Concept of Operations.
- Reengineer Civil Engineer Groups at AFMC installations.
- Enhance RED HORSE and Explosive Ordnance Disposal warfighting capabilities.
- Restructure Civil Engineer organizations at all levels.

The first initiative consolidates the execution of capital investment programs from the major commands to AFCEE, reducing the manpower requirement for this function by 38%. Streamlining execution responsibilities for military construction, housing, and environmental restoration freed up civilian positions at the MAJCOMs to replace the 178 critical MAJCOM military officer positions lost to PBD720.

The second initiative revises the concept of operations for fire protection operations to reflect risk-mitigation staffing, reducing manning requirements by 14% (901 authorizations impacted at 72 installations). Revising the "on station" requirements by altering the CONOPs and giving fire chiefs more authority in the employment of resources will help improve the morale of young firefighters and retain more of this highly trained force.

The base camp for fighting the wildfires in southern California was set up at Camp Pendleton, Calif. Mr. Tim Murdoch, an engineer from Vandenberg AFB, was assigned there as the camp manager. (photo by SSgt Vanessa Valentine)

The third initiative re-engineers Civil Engineer Groups at three installations to realign the majority of military positions to other bases. Civilian positions saved in the other initiatives were used to replace identified shortages.

The fourth initiative addresses shortfalls identified in two key warfighting capabilities: explosive ordnance disposal and RED HORSE. Since demand for these resources in support of ongoing military operations exceeds their manning levels, 477 military positions were realigned from the MAJCOMs to increase these capabilities.

The fifth initiative addresses manpower reductions and specific strategic objectives. The Office of The Air Force Civil Engineer directed the restructuring of civil engineer organizations at the Air Staff, MAJCOM, and installation levels (see Figure A above). Existing MAJCOM organizational structures required reengineering to adjust for the consolidation of capital investment activities at AFCEE. Existing organizational structures aligned in a "stovepipe" manner along out-dated business processes were realigned to better emphasize planning and implement asset management principles.

The Air Staff completed the reorganization of its structure in April 2007. The MAJCOM staffs began reorganizing in early 2007 and will be finished in FY08. Reorganized installation-level CE units achieved initial

operational capability in October 2007 and will reach full operational capability in October 2008.

Blue-Suit Review: The Blue-Suit Review was chartered not only to determine where to levy personnel reductions within Civil Engineering, but to also make recommendations for addressing stressed CE Air Force Specialty Codes. The BSR determined the number of military personnel necessary to support a 1-*n*-2-1 warfighting construct (homeland defense as the number one priority; respond to an undetermined number of regional conflicts; conduct simultaneous actions in two of three major combat operations; and win decisively in one of those two MCOs).

The BSR used data from the Operational Availability '06 studies that underpin the 2006 Quadrennial Defense Review and from historical deployment numbers as a baseline to determine the number of CE military personnel required. The BSR made realistic and informed assumptions regarding planning strategy, operations, specific scenarios, and personnel, and updated the CE unit type codes to provide a more responsive force.

Equally important, the BSR formed the foundation for future transformation initiatives.

Business Initiatives

Changing how CE does business is critical to meeting its goals: becoming more efficient and reducing costs while continuing to meet warfighting and operational missions. "Doing more with less" is no longer a viable option.

A key component of CE Transformation is business process reengineering. BPR involves taking a comprehensive look at how people at every level of CE do their jobs (see related article on p. 13). Changing how CE does business also involves a fundamental change in philosophy, a shift to an asset management perspective for doing business (see related article on p. 14).

Following the manpower transformation initiatives, The Air Force Civil Engineer engaged in a range of business process transformation initiatives, from using the Corps of Discovery to investigate the management practices of successful private-sector corporations to calling on CE's own subject matter experts to "map" future CE capabilities to important business processes. A core set of important enterprise-wide projects was identified and gathered into an initial group of transformation projects, with new projects continuing to be added. Some of the projects, such as transforming information management, address higher-level directives or mandates as well as CE's goals. Many of them support Air Force-wide initiatives, such as AFSO21.

These initiatives, and those to come, are moving CE Transformation forward.

Corps of Discovery: In 2006, The Air Force Civil Engineer launched an initiative to identify the best practices and automation tools used by the private sector to manage business processes similar to those of the CE enterprise. Five major themes were identified:

- Manage real property from a portfolio perspective to avoid sub-optimization.
- Standardize business processes for the enterprise.
- Leverage best practices across the enterprise.
- Use automation and information technology to reduce costs and better utilize personnel resources.
- Leverage the size of your enterprise (i.e., organization) through centers of expertise and strategic sourcing.

These key themes are driving specific CE business process transformation initiatives and form a key component of CE's transformation plans.

High-Level Capabilities Mapping: In late 2006, the Office of The Air Force Civil Engineer launched a series of workshops to map the high-level capabilities CE requires to carry out its mission in the future. During the first eight

TSgt Gio Abarintos (left) and TSgtChris Sorter, engineering specialists with the 36th CES, Andersen AFB, Guam, review the design of a $24-million runway repair project. (photo by MSgt Val Gempis)

months of 2007, teams of subject matter experts from all levels of the CE enterprise met to identify the future capabilities required to support transformed business processes and to manage six key components of CE business: projects, work, supply, installation-level assets, enterprise-level assets, and finances.

Facilitators exposed the teams to standard business processes, best practices found by the Corps of Discovery, and leading-edge practices to help shape the definition of future business processes. The teams outlined the high-level capabilities that CE requires to carry out these new business processes. The high-level capabilities maps serve two important roles: shaping specific business process transformation initiatives and defining capabilities that must be supported by future CE information technology solutions.

Commissioned Initiatives: In April 2007, the Office of The Air Force Civil Engineer sought to establish a core set of enterprise-wide transformation efforts aimed at improving efficiency, enhancing support to warfighters, eliminating duplication of effort, and standardizing business processes. The efforts also addressed key findings from the Corps of Discovery and high-level capabilities mapping, as well as key transformation drivers.

The Air Force Civil Engineer polled the MAJCOMs to determine what transformation initiatives they were currently pursuing or planned to pursue. The MAJCOMs identified over 200 initiatives in the process, which revealed key problem areas affecting multiple MAJCOMs.

The Office of The Air Force Civil Engineer identified 35 high-impact, enterprise-wide transformation initiatives to support as the core of CE Transformation. (The 35 core initiatives include the first five PBD 720-driven initiatives.)

The Air Force Civil Engineer issued a commission to the initiative leads at the MAJCOMs and field operating agencies, providing them a clear charter, expectations, guidance, training, templates, and reach-back resources. Commissioned teams will return their findings and recommendations to the Office of The Air Force Civil Engineer to be considered by the CE Transformation governance structure (discussed in more detail below) for application throughout the CE enterprise.

Information Management Transformation: The launch of the high-level capabilities mapping initiative marked the start of transformation for CE information management systems. The high-level capabilities maps form the key documentation required to begin procurement of a future CE information management system (see related article on p. 15). Specifications for the new CE system, called Agile Installation Management, or AIM, will support the newly transformed business processes emerging from the commissioned initiatives and the newly transformed CE organizational structure.

Specifications for the new CE system will also be heavily influenced by higher-level directives and initiatives. The Secretary of the Air Force directed that real property information be made more transparent to users. The Office of the Secretary of Defense called for standardiza-

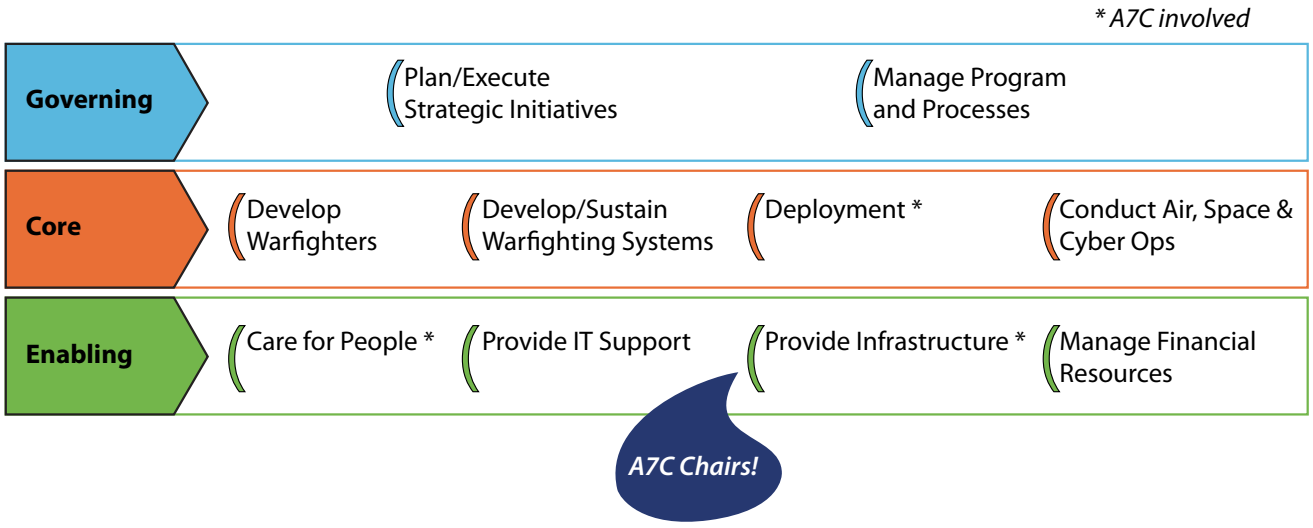


Figure B. Ten AFSO21 core processes.

tion of data, structure, and business processes associated with real property asset information, with the improvement of financial accountability as one objective.

AFSO21 and CE Transformation: Air Force Smart Operations for the 21st Century is the Secretary of the Air Force's and the Air Force Chief of Staff's program to eliminate waste and promote continuous process improvements. AFSO21 provides the tools to guide and report process improvements.

The overall AFSO21 initiative is overseen by the AFSO21 Process Council. The AFSO21 Process Council has defined ten core governing and enabling processes (see Figure B on previous page); working together, these processes maximize value for the Air Force.

Civil engineering activities fall under the "Provide Infrastructure" enabling process, which is co-owned by The Deputy Chief of Staff for Installations and Logistics and the Assistant Secretary of the Air Force for Installations, Environment, and Logistics. Together, they commissioned a team to launch continuous process improvement events for this process.

The team identified several subprocesses — plan, acquire, sustain, operate, manage, and dispose — that make up the main "Provide Infrastructure" process. The Provide Infrastructure Working Group, chaired by The Air Force Civil Engineer, serves as the governing body for identifying, validating, and guiding process improvement events (see Figure C below).

Some CE transformation initiatives will be selected for reporting to the Provide Infrastructure Working Group and the AFSO21 Process Council as high-value initiatives. Many CE transformation initiatives are managed internally to the CE enterprise and are not considered AFSO21 initiatives. Transformation initiatives related to energy will be reported to the Senior Focus Group for Energy.

Organizational Change Management

Change cannot be effective without active management. The Strategic Initiatives Branch, or AF/A7CIS, oversees all CE transformation activities and related organizational change management.

To facilitate OCM, A7CIS created the *CE Organizational Change Management and Communications Handbook*, the *CE Transformation Governance Playbook*, the CE Transformation Community of Practice Web site, and the CE Transformation Dashboard (see reference list on p. 12).

The CE Transformation CoP and the CE Transformation Dashboard database serve as information exchange media for the entire CE community. The Dashboard captures essential information about all CE transformation initiatives and makes it available to any user.

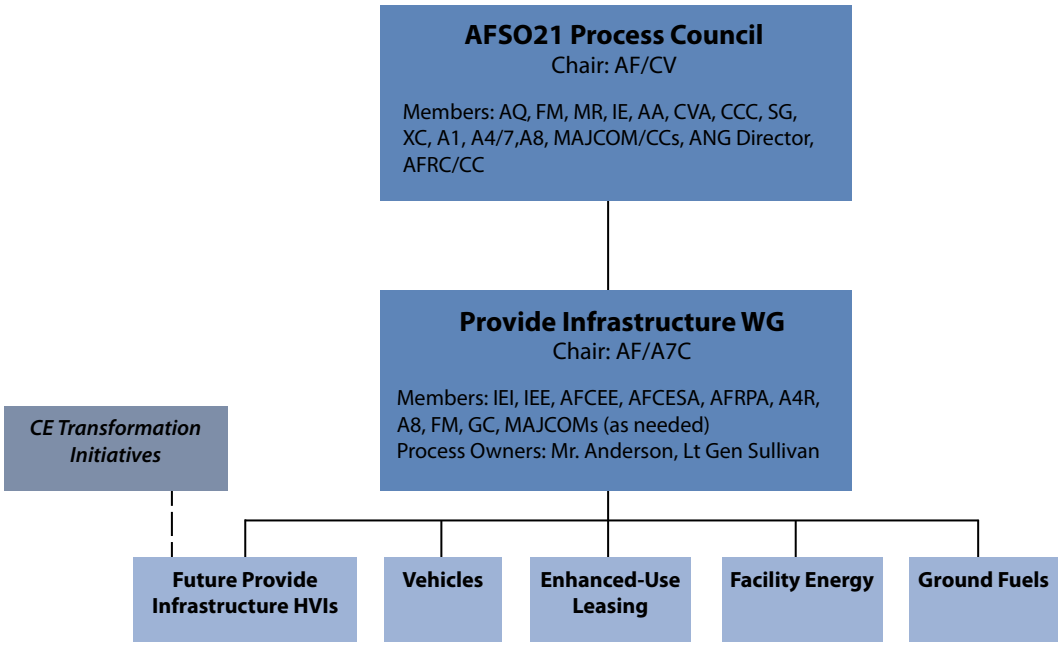


Figure C. The Provide Infrastructure Working Group.

Continuous communication to all CE personnel is vital to successful OCM. The CE Transformation CoP includes three videos ("PBD 720," "Commissioning Package," and "Commander's Call") in which The Air Force Civil Engineer explains CE Transformation and its importance. He also directed the publication of this "Special Edition on Transformation" of *AFCE* magazine. More videos and written products, currently in the planning stages, will be provided over the next several months.

Conclusion

Air Force Civil Engineering is transforming. Just as it has many times in the past, CE is changing in concert with the rest of the Air Force, adapting to current and future warfighting challenges.

Though many-faceted, the Civil Engineer Transformation objectives remain focused on the Air Force's three priorities: fighting and winning the Global War on Terror, developing and taking care of Airmen, and recapitalizing Air Force weapon systems.

The Civil Engineer is building the framework for Transformation, ensuring that the end goals are established and that the right plans, tools, people, and materials are in place.

Transforming Air Force Civil Engineering is not only a necessity, but also an opportunity. It's an opportunity to shape the future by changing how CEs do their jobs today. As stakeholders, CEs at all levels of the Air Force, both individually and organizationally, play an important role in transformation.

As our motto states, "Engineers Lead the Way!"

CE Transformation Resources

Resources and detailed information on Civil Engineering Transformation are available from the CE Transformation Community of Practice Web page at https://wwwd.my.af.mil/afknprod/ASPs/CoP/OpenCoP.asp?Filter=OO-MS-AF-02. The videos and documents mentioned earlier are located under "C. Communications" from the list on the main page.

For more information or assistance on CE Transformation, please email the Strategic Initiatives Branch in the Office of The Civil Engineer, The Pentagon, Washington, D.C. at af.a7cis@pentagon.af.mil.

Airmen with 15th CES load pallets of equipment onto a C-17 Globemaster III aircraft from the 535th Airlift Squadron at Hickam AFB, Hawaii, in preparation for a trip to Wake Island to assess the damage wrought by Super Typhoon Ioke. (photo by TSgt Shane A. Cuomo)

Business Process Reengineering

Maj Christoff Gaub
Chief, Strategic Communication
Strategic Initiatives Branch
Office of The Air Force Civil Engineer

A key transformation objective for The Air Force Civil Engineer is to reduce the costs and improve the efficiency of the core business processes that underpin our mission support capabilities.

One way we will transform is through business process reengineering. BPR is

"... the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical contemporary measures of performance, such as cost, quality, service, and speed." Hammer, M., and J. Champy (1993) *Reengineering the Corporation: A Manifesto for Business Revolution*

In other words, each of us will deliberately examine everything we do to get the job done, from individual local actions (e.g., ordering supplies, submitting paperwork, driving nails, managing construction projects, etc.) to strategic actions at the Air Staff level. This examination will determine if we need to do the job and, if so, how we can do the job better and cheaper. We will not be tied to predetermined expectations.

BPR is much bigger than the continuous process improvement of Total Quality Management, a previous initiative that aimed to find efficiencies and make incremental changes to existing business processes. With BPR, we are looking for radical, wholesale changes to our business processes. We'll eliminate business processes that do not contribute to our core mission and capabilities. If necessary, we'll create new processes to fill any gaps.

CE is using several tools to conduct BPR. We've already learned private sector best practices through the Corps of Discovery. We're also seeking internal sources of best practices. Each of us knows experts in our specific career fields who either already have great ideas or have the expertise and creativity to come up with better ways of doing business. You may be this expert.

We'll use the Air Force Smart Operations for the 21st Century program tools (e.g., Lean and Six Sigma) and AFSO21 techniques (e.g., value stream mapping and rapid improvement events) to streamline processes and identify non-value work.

Teams commissioned by The Air Force Civil Engineer to examine and reinvent or modify our business processes by conducting transformation projects will use these tools and methods. Thirty-five teams are now commissioned, with more to come in the future. The teams will also conduct BPR using methods such as working groups, process optimization teams, and integrated process teams. Led by CEs at the major commands, the Air Force Center for Engineering and the Environment, and the Air Force Civil Engineer Support Agency, these teams comprise experts at all levels of CE. Their ideas will be vetted through the Air Force CE Transformation governance structure. If the ideas are determined to add significantly to our contingency support effectiveness, they'll be approved by The Air Force Civil Engineer and implemented Air Force-wide.

Redefined business processes will also drive the capabilities required from CE's next-generation information technology system, called Agile Installation Management, or AIM. CE is deliberately "putting the cart before the horse" to define effective, efficient business processes that support must-have core capabilities, before building an IT system to enable these redefined processes. An IT system that supports our improved processes is crucial to moving beyond the "do-more-with-less" philosophy, which is unsustainable with the personnel reductions, operations tempo, and budget cuts that challenge CE.

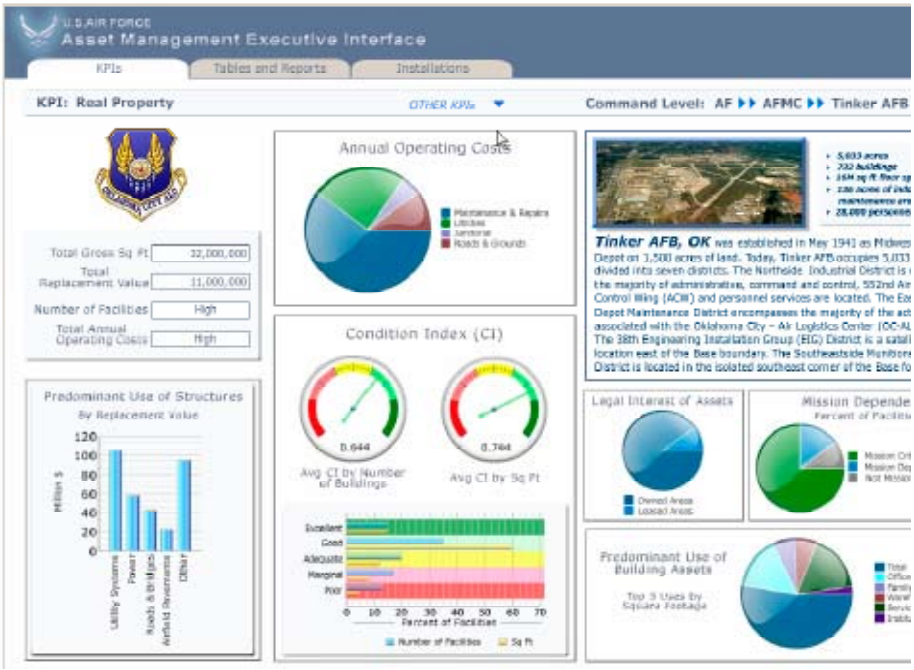
We must use business process reengineering to determine what we "no kidding must do" to more effectively support our warfighters. We can then eliminate unnecessary work, help our people and our organizations reach their maximum effectiveness, and properly organize, train, and equip our force by focusing on what is critical to our core mission.

Shifting to an Asset Management Culture

Lt Col Wade Lawrence
Chief, Asset Management Integration
Asset Management Division
Office of The Civil Engineer

So what's all the hubbub about Asset Management?

The first thing you'll need to know is that while CE now has flights, branches, and divisions with AM in their titles, AM is not simply just another organizational label. It's actually an improved approach that will alter the way all CEs provide mission support.



In only a few years, CE will have standardized processes and cutting-edge tools (such as this sample dashboard) to help optimize the performance of its assets. (Graphic courtesy of Ms. Geri Hart, Tinker AFB)

An asset in this context can be described as something CE manages to support a mission or customer. In general, an asset is either "built" (e.g., facility, pipe, road, etc.) or "natural" (e.g., watershed, air quality, land, etc.). In its simplest terms, AM is a more structured method to manage our built and natural assets. This includes standardizing our internal processes and taking a more "business-minded" approach—deliberately assessing risks, costs, and benefits to truly optimize the cradle-to-grave performance and value of our assets. With our budgetary challenges and mission imperatives, we want to make sure we're wringing every bit of efficiency out of the assets we manage.

Asset management is also about taking a broader, more holistic view of the entire installation portfolio of assets, how they should be integrated, and what service or support they're intended to provide. For example, while it's important to manage a water treatment plant as efficiently as possible, it's also important to take a hard look at the entire process of how we provide water; a water treatment plant is just a means to an end.

Now, hasn't CE been practicing certain elements of AM for years? You bet. But with lessons learned from corporate industry, standardized processes, and a generational leap in CE IT, we can make significant improvements in our installation stewardship. Here's what we're shooting for with an AM approach:

- an accurate, transparent built- and natural-asset inventory
- common levels of service and standardized CE processes across the Air Force
- a capability to analyze and communicate best business cases based on risk, cost, and benefits
- better visibility and management of space to shrink our footprint
- predictive maintenance capability across infrastructure lifecycles
- use of the Air Force's size to obtain best price and reduce costs
- a way to credibly advocate for and allocate resources
- a way to "roll up" asset info at the MAJCOM and Air Staff levels for portfolio management
- a relevant dashboard displaying key performance indicators
- a robust IT system that enables these goals

Some of these AM goals can be advanced with the ongoing CE Transformation initiatives (e.g., energy reduction, space utilization, etc.), while others will take shape over the next few years. While it will take several years for this cultural change and AM approach to develop and mature, it is just another step forward in the continual improvement of how CE does business. We're delivering the same superb support our warfighters and people have come to expect, but Asset Management will make our delivery even more efficient.

Information Technology Transformation

Lt Col John Thomas
Chief, Strategic Information Technology
Strategic Initiatives Branch
Office of The Civil Engineer

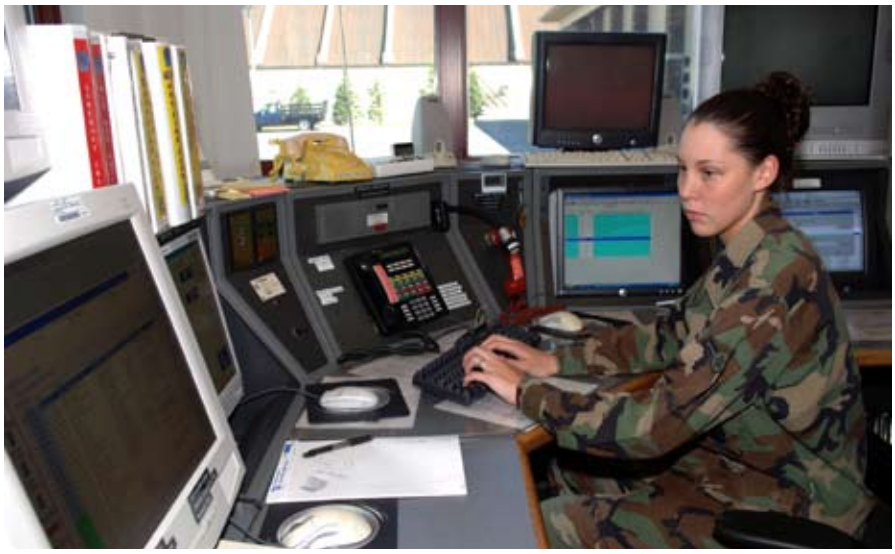
Each of us in Air Force Civil Engineering depends on information technology in one way or another to successfully do our jobs. Did you know that CE currently uses almost 800 individual databases, including those in the Automated Civil Engineer System suite and the Interim Work Information Management Systems, to manage day-to-day activities for real property, project management, housing, work order management, supply, and geospatial information? Supporting these databases, in addition to many individual base and major command CE databases and information systems, is expensive in both dollars and people.

We are undergoing tremendous change in CE—and the Air Force—including restructuring CE organizations at all levels, consolidating capital investment programs at the Air Force Center for Engineering and the Environment, and developing an asset management philosophy across the Air Force. To meet these challenges head on, we are examining each of our business processes to determine more effective ways of getting the job done (see related article on page 13).

The first step is to look at each process from a macro level (i.e., high level-mapping) to determine the capabilities needed for our next-generation IT system. Properly defining our business processes is critical to ensure that we correctly identify the capabilities our IT system must have. The new CE IT system will also meet the requirements of the Secretary of the Air Force's Data Transparency Initiative, making real property data discoverable and available to legitimate users on the Global Combat Support System-Air Force. The new IT system will provide the agility needed to easily manage our data from a complete CE enterprise perspective, hence its name: Agile Installation Management, or AIM.

AIM will be developed in multiple tiers, or spirals. The first spiral will focus on work order management, supply management, project management, planning/programming, facility/infrastructure management, and financial management. Spiral 1 will consolidate real property databases into a single authoritative database within a Web-based, service-oriented architecture, which is essential to meet the SECAF-mandated requirements. It will also eliminate duplicate databases and simultaneously permit real-time information sharing across the enterprise—an impossibility with existing systems.

Experts on the Air Staff and at the Air Force Civil Engineer Support Agency are now developing the AIM acquisition strategy for spiral 1 with a goal of fielding a new system beginning in 2010. As AIM is implemented across the Air Force, the legacy systems (ACES-RP, ACES-PM, and IWIMS) will be phased out. However, to meet Department of Defense IT systems mandates, data from these systems will be published in the interim to the Air Force Portal in a single data warehouse that allows queries and reports through a user's Air Force Portal account. In 2008, all installation geospatial information data will also be available through the GCSS-AF, to provide a single location for all data.



A1C Jessica Taylor, 28th CES, works in the Fire Dispatch Alarm Center at Ellsworth AFB, S.D. (photo by A1C Angela Ruiz)

Transforming existing CE IT systems into the Agile Installation Management system is key to enabling CE business processes, implementing an enterprise-wide asset management philosophy and supporting the Air Force priorities: winning the War on Terror, developing and caring for Airmen, and recapitalizing and modernizing our aircraft, satellites, and equipment.

A History of Change:
Civil Engineering's Transforming Past

Ronald B. Hartzer, Ph.D., Air Force Civil Engineering Historian

Transformation is a word often heard lately around the Air Force, particularly within Air Force Civil Engineering, as leaders strive to adjust to internal and external forces while meeting current requirements and preparing for the future. Although inevitable in life, change is not always easy for those living through it and requires patience and flexibility. The current transformation efforts rippling through the career field are not unprecedented and are actually part of a continuum of change experienced by civil engineers for more than six decades. A review of a few of these past transformations is enlightening. One can see how civil engineer leaders of the past have responded to factors such as budget constraints, threat, technology, and new management philosophies to reshape civil engineering and find that when CE leaders manage the process, the outcome is more favorable.

Transformation I

The first major transformation occurred even before there was a separate Air Force. In early 1940, the world was changing. Emerging from the Great Depression, the United States was still under the constraints of 1930s isolationism and beginning to build its military might in the face of the growing overseas threats. Warfare was also changing. Military leaders such as Gen Hap Arnold observed how Germany's armed forces had quickly overwhelmed Poland, Belgium, and The Netherlands and were on the verge of gaining an advantage over the combined French and English forces. The key to the German's success was their innovative blending of speed with weapons such as the tank and airplane. Gen Arnold wanted to make drastic changes to transform the Army Air Corps into a force that could compete with the Germans. To make this happen, he was adding thousands of aircraft to the inventory and knew he needed bases for these airplanes.

Gen Arnold and Lt Col Donald A. Davison, Engineer, General Headquarters Air Force, completely transformed the forces that would provide this network of bases. Overseas basing was limited and primarily defensive, in areas such as The Philippines, Alaska, and the Caribbean. To provide the needed contingency basing, Lt Col Davison advocated for establishing new units — Aviation Engineers — to construct or repair airfields in overseas areas. (Army Quartermaster Corps units performed the Air Corps' construction work in the United States.) Forming these new units with existing Army engineer forces and training them to support Air Corps flying units was the best way to provide the required basing in all theaters. This transformational concept proved wildly successful: More than 100,000 Aviation Engineers built hundreds of airfields when and where needed. Adapting to local conditions and using the latest technology, this new breed of engineers constructed runways with recently developed steel landing mats, Pacific coral, dirt or concrete. Airborne Aviation Engineers were also established to carve out landing areas behind enemy lines. By 1944, the transformation that began in 1940 reached its successful climax with the D-Day landings and the subsequent work on nearly 250 airfields across Europe. Aviation Engineers had become part of the formula for victory in Europe and the Pacific. Gen Arnold and engineering leaders had transformed a peacetime engineering force into the largest engineering organization the Air Force has ever possessed.

Aviation Engineers construct steel frames for a Quonset Hut roof on Saipan during World War II. (U.S. Air Force photo))

History is a guide to navigation in perilous times. History is who we are and why we are the way we are.

David C. McCullough, Historian

Transformation II

Sometimes, leaders outside of civil engineering directed transformation efforts, not always with favorable results. As the new Air Force was created, civil engineers went through a second period of Transformation, heavily influenced by interservice competition, a rapid post-war demobilization, and a sweeping drive for economy. Air Force engineers, then known as Air Installation Officers, were divided into two departments: the Director of Air Installations and The Air Engineer. The Director of Air Installations, Brig Gen Robert Kauch, was responsible for matters pertaining to construction, real estate, repairs and utilities, and other post engineer responsibilities such as fire protection. The Air Engineer, Brig Gen Samuel D. Sturgis, Jr., was responsible for matters pertaining to Aviation Engineer units and troop construction. Although Gen Sturgis argued vehemently for a single engineering force to both maintain bases and to construct them during wartime, the result was an inauspicious arrangement that left Air Force engineers at a disadvantage when building contingency basing. Wartime engineering was provided by engineering units known as SCARWAF (Special Category Army personnel With Air Force), organized, trained, and equipped by the Army. Neither wholly Army nor Air Force, these units were fraught with problems and struggled in the first two years of the Korean War. Not until the Air Force took a more active role in their training did the units begin to operate at the levels of their WWII predecessors. In 1956, when engineering leaders such as Maj Gen Lee Washbourne were denied the requested transfer of the SCARWAF authorizations to the new service, the Air Force was left without a true contingency capability until the third period of Transformation in the 1960s.

During the first two years of the Korean War, SCARWAF engineers struggled to provide the basing required for Air Force operations. (U.S. Air Force photo))

Transformation III

In the early 1960s, Air Force civil engineers initiated a transformation that still affects the career field today. A series of international crises demonstrated that Army engineering support was difficult to obtain and that Air Force engineers were inadequately postured for their key responsibilities: maintaining base support and providing critical response capabilities during wartime or other contingencies. There was also significant congressional pressure to civilianize the engineer force at stateside bases. Maj Gen Robert H. Curtin, Director of Civil Engineering, took command of the situation and formed a study group to ascertain the organizational alignment and skills needed to fulfill engineering's combat support mission, and to formalize the exact requirement for military engineers. The study group conducted an early Blue Suit Review and found that the force was neither properly aligned nor reliable, credible, or sufficiently skilled to perform its wartime mission. They found problems with the career development structure that had several dead-end career fields and did not promote the development of skills needed to support real-world contingencies.

The main piece of 1964's Transformation solution was the Prime Base Engineer Emergency Force concept, which aligned military engineers into one of four basic types of contingency teams. The Transformation also eliminated dead-end careers and developed 21 new career ladders leading to supervisory positions, offering career progression where none had existed before. This radical makeover of Air Force Civil Engineering had an immediate impact on the Air Force mission when the first of 60 Prime BEEF teams deployed to three Southeast Asia bases to build aircraft revetments in support of air operations in the Vietnam War. The Transformation moved to a more advanced level with the establishment of the first two RED HORSE squadrons in 1965, providing a heavy repair capability. The Air Force even built its own contingency base at Tuy Hoa, Vietnam. Once again, CE leaders had responded to internal and external forces, political pressures, and a growing foreign military threat to reshape the force, keep it relevant, and posture it for the future.

Prime BEEF and RED HORSE engineers proved their worth by building Air Force facilities during the Vietnam War. (U.S. Air Force photo)

Transformation IV

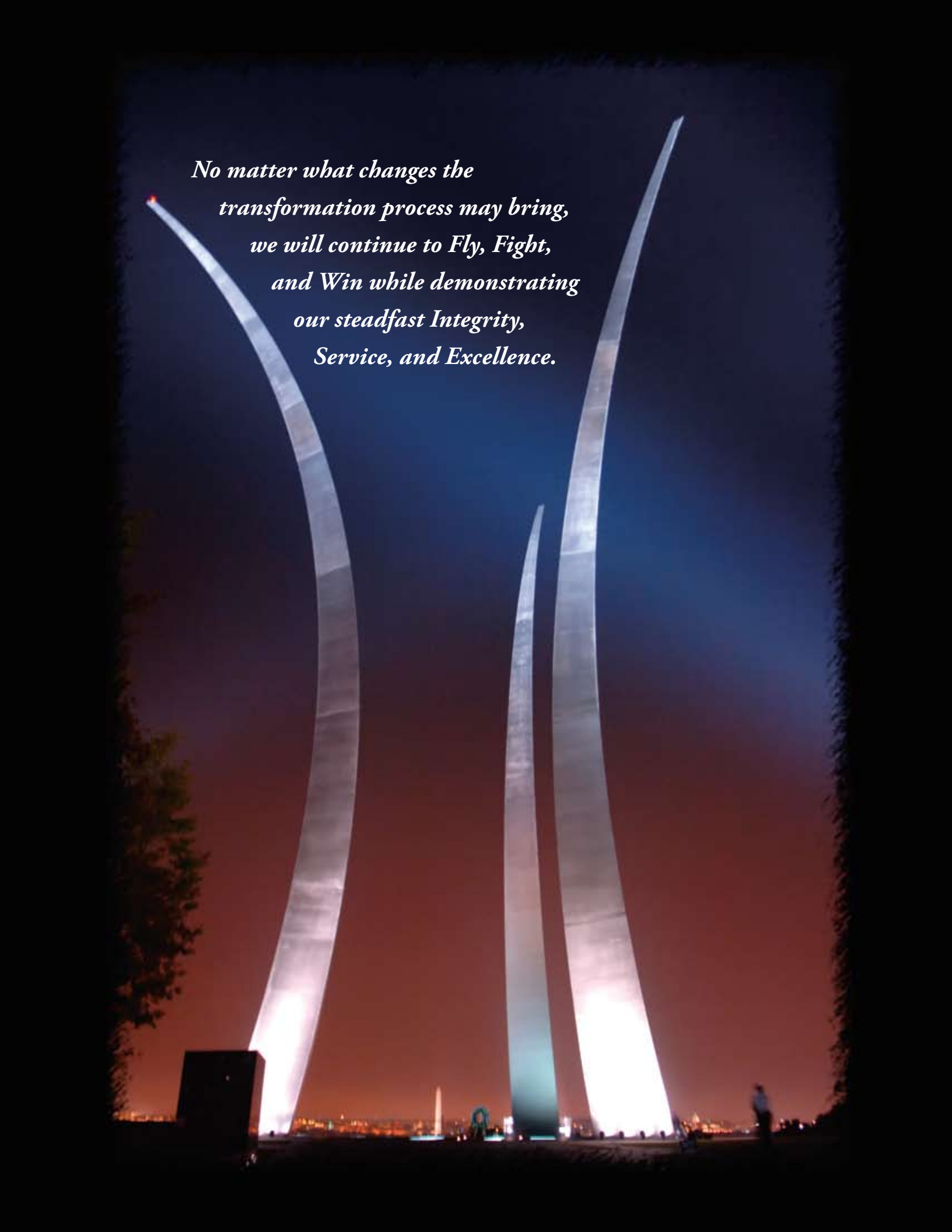
A fourth Transformation occurred during a period of rapid change, a crumbling Soviet Union, and accompanying budgetary pressures to reduce the size of the military through a "Peace Dividend." The demise of the Soviet Union and a fading Warsaw Pact military threat seemed to indicate the need for a smaller American military in the late 1980s and early 1990s. Gen Merrill A. McPeak restructured the entire Air Force by reducing major commands from 13 to 8, establishing new commands such as Air Combat Command, Air Mobility Command, and Air Force Materiel Command, and "flattening" organizational charts. The Air Force Civil Engineer position was established on the Air Staff as an Assistant Chief of Staff. The primary catalyst for this round of CE transformation was the issuance of Defense Management Review Decision 967, which called for reducing the size of the military engineering force by regionalization of base operation and maintenance services. CE leaders Maj Gen Joseph A. Ahearn and Maj Gen James E. McCarthy offered a different approach that would reduce manning, yet allow the Air Force to retain responsibility for its own base maintenance through the zonal maintenance concept, multiskilling of several career fields, and reorganizing base-level CE units into Objective Squadrons. At the same time, CE welcomed the Disaster Preparedness and Explosive Ordnance Disposal career fields as part of the new squadron organization.

Air Force engineers construct a tent city in Bosnia during Operation Joint Endeavor. (U.S. Air Force photo)

Complicating matters even further, the Gulf War occurred in the middle of these changes. U.S. and coalition forces deployed to Southwest Asia to free Kuwait from Iraqi occupation—clearly a time of turmoil for many. Following the conflict, many young officers and NCOs who had deployed to the desert returned to face force-shaping measures and base closures. In 1994, Air Force CE looked quite different from what it had looked like just a few years earlier. The many transformation efforts resulted in a smaller, multiskilled civil engineer military force augmented by an increased reliance on contractor support at base level, which freed blue-suit engineers for their contingency mission. The Air Expeditionary Force was the final piece of this transition from a large force founded on the strategy of forward-based presence to one built on the vision of agile global engagement. Air Force leaders shaped the AEF as rapid, responsive, and reliable airpower tailorable to the specific needs of a situation. Engineers quickly adopted the AEF construct, proving its value through a series of deployments in the late 1990s to the Balkans and Southwest Asia and to current operations in Afghanistan, Iraq, and Africa.

Transformation V

Transformation V, or today's transformation, is fully explained in this publication. The reader, however, should now understand that it is in line with a history of transformation efforts to ensure Civil Engineering's continued responsiveness, professionalism, and combat support excellence with a smaller and restructured force that will rely on new business processes. Transformation is not just a long-term process, it is a continual process. Although change is constant, as Maj Gen Del Eulberg pointed out in an earlier article, "some things never change: the outstanding warfighting capability our civil engineers bring to the fight and the extraordinary job our folks do maintaining our base infrastructure at home."


No matter what changes the
transformation process may bring,
we will continue to Fly, Fight,
and Win while demonstrating
our steadfast Integrity,
Service, and Excellence.