

DEFENSE MAPPING AGENCY



ONE AGENCY . . .
MANY RICH HERITAGES

Message from the Director

Maj. Gen. Philip W. Nuber

As we prepare for the challenges of the next century, we should take a few moments to reflect on the many rich heritages of sacrifice and service that have contributed to the Defense Mapping Agency's current preeminence in the mapping world. In this short document, we look back with pride and recall the contributions of the many organizations and people who have gone before, even as we look ahead with a firm commitment to living our core values and to succeeding in our reengineered organization.

Our topographic mapping lineage parallels our nation's history, beginning with Gen. George Washington's 1777 appointment of surveyor Robert Erksine as his full-time map maker. The Agency's hydrographic history harks back to an 1842 Congressional appropriation for the U.S. Naval Observatory and Hydrographic Office. The history of aeronautical products in DMA is linked directly to the Army Air Corps, which by 1943 had designated an Army Air Force Aeronautical Chart Plant at the Midwest Terminal Building in St. Louis.

Since those very different beginnings, each organization has undergone many changes in name and location. Their dedication to the nation's defense, however, has been constant. The accomplishments of each predecessor organization and of our own components are legion: they are reflected in this book, in historical sketches and through representative statistics.

Most importantly, we recognize that three rich heritages have converged over more than 200 years to form the Defense Mapping Agency, a unified, professional organization that is **RESPONSIVE TODAY** to the require-

ments of our customers and of our national security strategy.

But today, new challenges face us, challenges we must meet if we are to remain responsive and if we are to be **READY FOR TOMORROW**. We are meeting those challenges on two fronts: sharpening our focus on customer requirements, to more accurately capture and act upon those needs; and reengineering the production and development processes, to reduce cycle times, stay in the forefront of technology and speed critical support to our customers.

The sunseting of our five components and several headquarters directorates and the accompanying dawn of the "New DMA" eclipse in scope and reach previous reorganizations. DMA has conducted self-evaluations over the years, and then reorganized to fine-tune its structure. The current effort is different. We seek a quantum leap in quality through an Agency-wide reengineering around our identified core business processes, given a vision and direction from our Strategic Plan, and given a management philosophy and work environment each permeated by our core values.

Let us understand the sacrifices that led us to this point, and let us commit, individually and as an organization, to preserving that heritage as we move forward, continually improving the agency and meeting head-on the challenges of the future.



Maj. Gen. Philip W. Nuber

Aerospace Center



The history of DMA's Aerospace Center can be traced to 1943, when a small group of Army Air Corps cartographers and other mapping specialists came to St. Louis to establish what was first known as the St. Louis Aeronautical Chart Plant (ACP). Located in leased space in downtown St. Louis, the plant produced the aeronautical maps and overprints used by airmen during World War II and the Korean conflict. By 1952, production of maps and charts exceeded 30 million, and during its first decade, 1943 - 53, a total of more than 300 million.

By 1952 ACP had outgrown its space downtown and the chart production facility was moved to the historic site of the old St. Louis Arsenal. Established in 1827, the arsenal is



Aerospace Center, St. Louis, MO.

now listed in the National Register of Historic Sites. On Aug. 12, 1952, the Air Force's Aeronautical Chart and Information Service became the Aeronautical Chart and Information Center (ACIC). ACIC's headquarters was moved from Washington to St. Louis. The ACIC identity lasted for 20 years, decades highlighted by contin-

ued support for the conflict in Korea and more than a decade of work for NASA and the space program.

In July 1972, with the creation of DMA, the Aeronautical Chart and Information Center became DMA Aerospace Center. In the 23 years that followed some remarkable milestones in mapping, charting and geodetic production for the Department of Defense and the military services have been achieved.

During the 1970's the active support of the space program continued, with production of the products needed for all manned missions, including those of SKYLAB and the joint Apollo-Soyuz mission (July 1973.) On the military side, 1977 saw the beginning of support for the Cruise Missile, while 1978 marked the completion of the ICBM program. As the Cold War continued, requirements of the Tactical Air Command (TAC) took high priority. By the time the Aerospace Center celebrated its 10th anniversary, TAC production had peaked.

In February 1979 the center announced the Digital Land Mass Simulation system (DLMS). The DLMS is one of a variety of simulation programs which continue today. In the same year, AC began producing the Digital Aeronautical Flight Information File (DAFIF). With the Automated Air Facilities Information File, DAFIF became the backbone for a variety of automated airfield requirements.

In 1986 DMAAC's Geodetic Library celebrated its own milestone, the collection of its five millionth Gravity Point Anomaly. Also in 1986,

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satellite data emerged as an aid to study gravity effects on the ocean surface.

The years 1990 and 1991 saw Operations Desert Shield and Desert Storm. General Charles A. Horner, Air Force commander in the Persian Gulf, visited St. Louis to personally thank AC employees for their record-setting production during a six-month period. More than 54 million paper maps and 640,000 point positioning database (PPDB) elements were produced.

Among its many high quality products, the Aerospace Center has produced some unique items for the Air Force: Blood Chits, a warrior bearer-redemption device with a history dating from World War II, and in 1988 the first of a new generation of Escape and Evasion Charts (EVC's), also for airmen downed in hostile territory.

More recently, the center has broadened its product line to include Topographic Line Maps, City Graphics and Landsat Image Maps to aid in crisis situations, and Arc Digitized Raster Imagery with Controlled Image Base to support Air Force contingency planning. In 1994, AC produced the first Riverine Route Maps to aid counter-drug activities in South America.

During the 1990's, the Center continued its strong support of military actions in response to regional conflicts and relief efforts in Bosnia and the former Yugoslavia, Somalia, Rwanda and Haiti, among other places, and produced special charts to support DoD and NATO exercises.

The St. Louis center has led in initiating programs and practices to benefit employees and ensure a quality work force. It was the first DMA production center to offer flex-time and the compressed work schedule (CWS) option.

These traditions of leadership and excellence will continue as DMA St. Louis enters the new era of DMA.

Directors

Air Force Col. B.L. Schatzley
Air Force Col. W.J. Chappas
Air Force Col. D.D. Hawkins
Air Force Col. J.H. St. Clair
Air Force Col. Robert C. Burns
Air Force Col. J.W. Small
Air Force Col. B.S. Fitzgerald
Air Force Col. Robert J. Lemon
Air Force Col. Stephen F. Burrell
Air Force Col. Marcus J. Boyle
Lon N. Smith
William J. Brown



Inking a base sheet at the Army Air Forces Aeronautical Chart Plant in St. Louis during 1944.

Combat Support Center



Combat Support Center's history is a tapestry of service woven together with strong threads of commitment to the warfighter, hard work, accomplishment and constant change.

To many warriors, CSC is DMA because it is the primary customer interface for ordering and receiving DMA products.

On Sept. 18, 1978, the separate distribution elements within the DMA hydrographic, topographic and aerospace production centers were consolidated into the Office of Distribution Services, CSC's predecessor. The name changed to Combat Support Center in April 1987 to more accurately reflect the mission.



Combat Support Center, Bethesda, MD.

The challenge is no different today than it was yesterday: to provide the warrior the right products, in the right quantities, to the right place, on

time-every time. CSC's nearly 450 people, civilian and military, worldwide, are totally committed to customer service.

Headquartered at the Ruth Building in Bethesda, Md., CSC also directs the operations of DMA's worldwide network of combat support elements in Tampa, Fla., Norfolk, Va., San Diego, Hawaii, Japan, Italy, Germany, England and Panama, a map facility in the Pentagon and two unmanned depots in Bahrain and Korea.

Offices in Jacksonville, Fla., and Cubi Point, Philippines, were disestablished in 1987 and 1992, as DMA cost savings efforts. The depot in Clearfield, Utah, was closed in September 1992 as part of a Defense Management Review Decision, and was consolidated with the Philadelphia Depot.

The DMA CSC Philadelphia Depot, working relentlessly around the clock in time of crisis, has an inventory of more than 150 million maps, charts and digital products ready to support military actions. For example, during operations Desert Shield and Desert Storm, CSC distributed in less than eight months approximately 93 million MC&G products.

In daily support of the customer, CSC manages cataloging, physical replication, storage and dissemination of DMA's global geospatial information holdings. Whether a crisis in the Persian Gulf, Somalia or Haiti, CSC

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responds quickly, often assisting the warrior in ordering the mapping products that would best serve the situation. CSC provides guidance on all aspects of DMA products-requisitioning, use of catalogs, on-site training in map distribution and transportation solutions.

The public sale of DMA aeronautical and hydrographic products was transferred in 1992 from CSC to the National Ocean Service and sale of topographic products to the U. S. Geological Survey to provide public access through their extensive sales agent networks.

In October 1994, the Graphic Arts printing functions at the DMA Aerospace Center were brought under CSC management. Printing functions at the Hydrographic/Topographic Center receive printing direction from CSC but remain under HTC management. These were the first steps toward a planned consolidation of printing and distribution.

That consolidation of printing and distribution, modernization of the distribution system, remote replication, introduction of digital-to-press technology, expansion of customer service support and regional customer service teams are just parts of the transition to future processes to ensure quality products and service to the customer.

Across the agency, printing and distribution of hard copy products are evolving into replication and dissemi-

nation of lithographic and digital Global Geographic Information & Services.

With its uncompromising commitment to the warfighter, CSC's tapestry of service has helped make the Defense Mapping Agency a strong combat support agency for the 21st century.

Directors

Air Force Col. Raymond F. Goetz
Air Force Col. Merlin C. Smith Jr.
Navy Capt. Channing M. Zucker
Army Col. Larry E. Lowe
Air Force Col. David W. Saunders
Navy Capt. Craig A. Peterson
Army Col. Robert F. Kirby



Fork lift operator at DMA Philadelphia

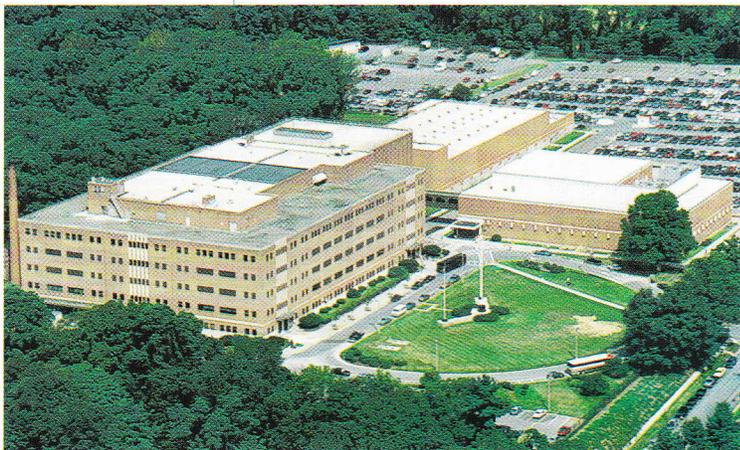
Hydrographic/Topographic Center



DMA's Hydrographic/Topographic Center at Bethesda, Md., mirrors a rich legacy of military cartography and hydrography.

HTC's predecessor organizations date from 1942 when the demand for maps to support the nation's war efforts far outstripped the capabilities of the Army's Engineer Reproduction Plant at Ft. McNair in Washington, D.C. Redesignated the Army Map Service, the plant was relocated to Bethesda and expanded, occupying the new Ruth Building and the existing Warren Building.

By war's end, in 1945, Erskine Hall was completed and AMS military and civilian personnel had produced some 500 million maps, working round the clock in camouflaged



Hydrographic/Topographic Center, Bethesda, MD.

buildings without windows or air-conditioning.

The tensions of the Cold War that followed were raised dangerously in 1952 by a police action in Korea. By the time it was all over, AMS employees had produced about 70 million topographic maps.

During the 1960's, America's space program signaled a breakthrough in mapping and geodesy technology. Center cartographers would help put a manned spacecraft on the moon and an unmanned spacecraft on Mars. Closer to home, the Bethesda site was expanding to house newer and more sophisticated equipment. Abert Hall was built in 1962, followed by Roberdeau Hall and the Emory Building in 1965.

The Army Topographic Command was established in 1968, the year of the Tet offensive in Vietnam, merging most of the Army's mapping, charting and geodetic assets.

Four years later, in 1972, the Army Topographic Command was merged into the new Defense Mapping Agency, becoming the Topographic Center. By 1975, the long conflict in Vietnam had required more than 300 million maps and charts.

DMA's Hydrographic Center at Suitland, Md., formerly the nautical charting part of the Naval Oceanographic Office, merged in 1978 with the Topographic Center, marking the convergence of two rich heritages.

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The production of more than 67 million copies of some 2,300 different maps and charts in just eight months during 1990-91 for Persian Gulf warriors testifies to how well these two cultures have melded.

With the dedication in 1989 of Maury Hall, HTC added its eighth building and completed a complex of almost a million square feet. Maury became home for the Digital Production System, a milestone in HTC's journey into the 21st century. The start-up of the \$2.6 billion, multi-year system was observed at the HTC in 1993.

In 1992, HTC celebrated 50 years of production at the Bethesda site with an open house and welcome to current and former employees and their families. More than 1,200 persons attended, some from as far away as California and Texas.

Between 1987 and 1994, with the end of the Cold War and the downsizing of defense infrastructure, HTC affiliates in Rhode Island, Wyoming, Texas, Kentucky and Panama were closed or merged to achieve economies of scale and respond to mandated resource reductions.

The end of the Cold War has also ushered in a period of regional

conflicts, peace-keeping operations and humanitarian assistance missions. As a result, HTC has responded to crises in Panama, Korea, Bosnia, Somalia, Rwanda and Haiti, often employing conventional and digital technologies to produce custom products. In doing so, the center passes on a distinguished legacy of understanding and meeting customers' needs.

Directors

Army Col. John R. Lund
Navy Capt. Wallace C. Palmer
Army Col. Hugh P. Johnson
Army Col. Peter G. O'Neill
Navy Capt. J.E. Chubb
Army Col. Robert F. Kirby
Mr. William N. Hogan
Mr. Paul L. Peeler Jr.



Archive photo of drafting tables at Erskine Hall.

Reston Center



Located in Reston, Va., the Reston Center was established in October 1987, four months before moving into a specially constructed facility to become the Defense Mapping Agency's third production center. The new component enabled DMA to not only increase the volume of its products, but also to keep abreast of the many sophisticated systems being developed by the armed forces. These systems could not operate without DMA products.

In the beginning, RC was to serve as a test bed for the new Digital Production System. The impact on



Reston Center, Reston, VA.

production was reduced by achieving full operation of the new equipment and software at RC before implementation at the other production components.

RC pioneered team production in the DPS environment, an initiative accepted by the DMA director as the model for the rest of DMA.

The work required to install and activate DPS at RC was accomplished by a nucleus staff of 136 people who used a teamwork approach to meet tight schedules. Engineers, logisticians, planners and mapping experts – including government and contractor – together planned, laid out, constructed, equipped and staffed RC to meet its new digital production goals.

Reston Center subsequently hosted the Activation Control Team that directed the transition to the DPS. As the hub of DPS activity for DMA, RC opened its doors to nearly a thousand people daily. After months of testing, demonstrations and exercises, involving contractors and

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personnel from throughout the agency, DMA achieved DPS Initial Operating Capability at RC in March 1991. In achieving IOC, cartographers demonstrated the production of major DMA products, including Digital Terrain Elevation Data, a Topographic Line Map, and two precise point products.

In the middle of these developmental activities, RC personnel also found themselves heavily engaged in crisis production to support Operations Desert Shield and Storm.

Because RC had the facilities and equipment to maintain source material required for the DPS, the center became the DMA focal point for source acquisition and management in the 1990s. To pass source data to support each center's production requirements, computer links were established to the other production components.

In 1992, DMA's Technical Services Center, responsible for mainframe computer operations and data administration, merged with RC.

As the new director of RC, Paul L. Peeler Jr., previously the TSC director, became the first civilian director of a DMA production center. This was the first step in the shift from military to civilian leadership of the three production centers.

Directors

Navy Capt. Channing M. Zucker

Army Col. Peter G. O'Neill

Mr. Paul L. Peeler Jr.



Reston Center Plankholders

Systems Center



Established in January 1987, the Systems Center emerged from earlier efforts to convert DMA's mapping, charting and geodesy (MC&G) production capability to a Congressionally mandated digital system. Expanding on the charter of the Special Program Office for Exploitation Modernization, SC assumed responsibility for performing all research, development and engineering to support production and to provide new data sets for emerging military service systems and weapons. SC also assumed responsibility for existing hardware and software maintenance related to production and for the development, implementation and maintenance of many production-support capabilities.



Systems Center, Reston, VA.

While maintaining an address in Reston, Va., for several years, SC, more than any other DMA component, found itself wherever it was needed to support the agency's revolutionary modernization plans. Besides Reston, SC personnel called Bethesda, Md., and St. Louis home. There was even a contingent at DMA headquarters in Merrifield, Va.

SC's primary focus was the development, delivery, installation and maintenance of the Digital Production System, intended to give DMA the capability to make products using hardcopy and softcopy source materials collected from advanced acquisition systems. DPS was also designed to enhance production efficiency and timelines. Working with other components, SC played the leading role in testing and system operability assessment activities, including installation, checkout and test, demonstrations, exercises and rehearsals.

To enable DMA to respond to future requirements, SC was responsible for early interaction with developers of new weapons and systems and new source collectors. In short, SC led research, development and acquisition activities related to all MC&G technologies. At the same time, SC provided operational configuration

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management of all existing production system hardware, software, operational procedures and facilities.

To carry out SC's broad mission, employees engaged in a variety of activities. For example, they studied sensor and technological developments related to the DMA mission; defined new product specifications; developed and advocated military, federal and international data standards; managed the maintenance of existing production systems, and provided engineering for improvement analyses.

An important part of the SC mission was to provide technical contract support activities for current and future production systems. In this role, SC was responsible for centralized purchasing of systems and subsystems, computer hardware and software, and research and development.

With the Digital Production System up and running and new products in production that take advantage of the latest in technology, SC leaves a legacy of vital contributions to DMA and its customers.

Directors

Mr. Penman R. Gilliam
Dr. Kenneth I. Daughtery
Mr. Lon M. Smith
Dr. Annette J. Krygiel
Mr. Earl W. Phillips



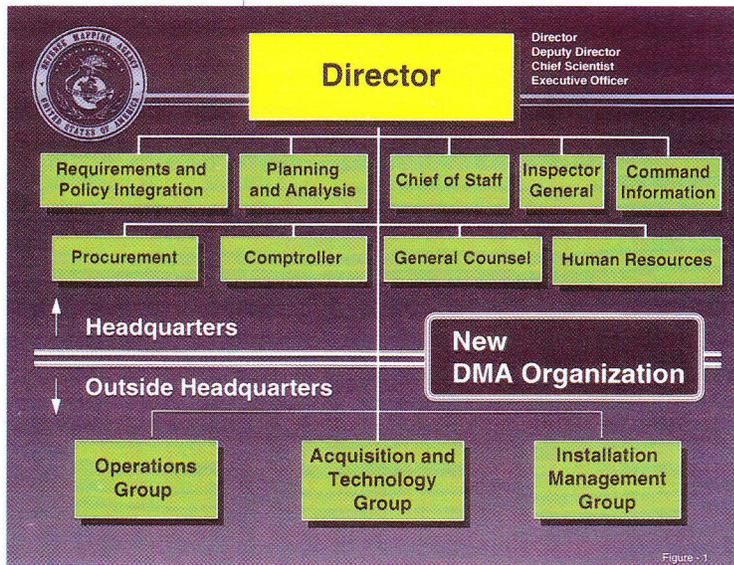
Evaluating a prototype product in the ST. Louis Enhanced Product Prototyping Environment

A DMA for Tomorrow

Mappers know the world doesn't stand still. Nor can an organization like the Defense Mapping Agency.

The production of traditional paper maps and charts and precise geodetic data, or MC&G products and services, must bow to GGMI&S, or Global Geospatial Mapping Information and Services.

Only in this way can DMA meet the challenges of the new digital



Operating with half its former work force, the new DMA headquarters will include several reengineered directorates and two new organizations: Planning and Analysis (PA) and Requirements and Policy Integration (RP). Outside the headquarters structure are three new organizations: Operations Group (OG), Acquisition and Technology Group (AT) and Installation Management Group (IM).

technology and the changing world order and continue to lead the world's mapping community.

The new DMA is focused on four basic but wide-ranging themes:

- . Getting closer to the customer
- . Improving readiness
- . Becoming more responsive
- . Organizing around processes

A flexible organization built around core production processes, the reinvented DMA creates an environment to move from hard copy products to digital databases, to migrate rapidly away from being a distributor of shelved inventory to a provider of geospatial information and services.

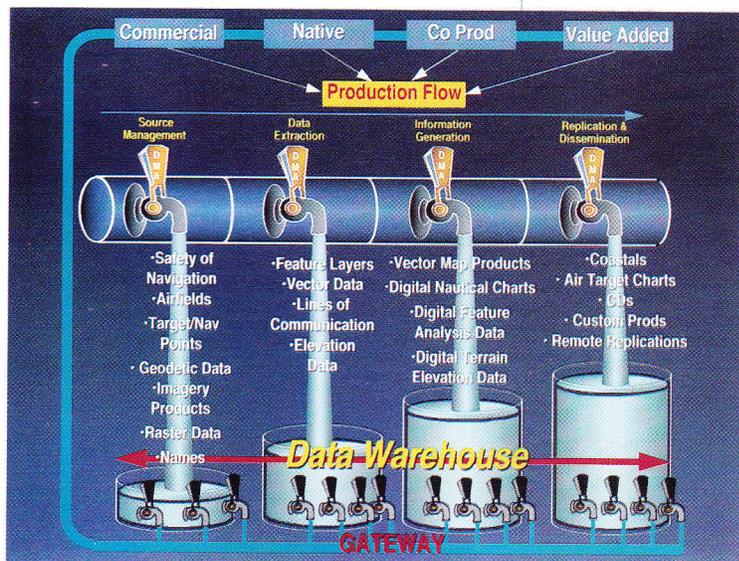
As a result of reinvention, DMA will continue as the premier provider of quality global geospatial mapping information and services to support and advance our nation's national security objectives. We are at the forefront in developing and applying digital mapping technology, giving our warfighters the decisive advantage.

As embodied in our vision statement, in preparing for tomorrow we are committed to continuous improvement. By striving constantly to become more productive, we will provide the nation with the best return on the resources entrusted to us. In addition, we will be active partners in the total defense effort and identify and respond to emerging strategic issues to shape a more desirable future.

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The work force has always been the agency's most important asset, and those same employees are a critical element in DMA's reinvention. Throughout the strategic planning and reengineering processes, employees' contributions were central to all decisions. DMA's core values encourage continuing that open communication, and also encourage a work environment that nurtures personal and professional growth, initiative and independent thinking. The agency is committed to developing employees who can work effectively and efficiently in a customer-driven, team-oriented environment.

The concepts of reinvention showcase a Defense Mapping Agency that connects with its customers as it sets new standards for readiness and responsiveness in delivering superior geospatial products, services and information.



DMA's production system will not operate in the classic assembly line manner, but with intrusions at clearly defined junctures to retrieve information at the state of readiness appropriate to the customer's needs. Samples shown are only representative.

Inside headquarters

Planning and Analysis owns responsibility for the DMA strategic planning process, for managing and advocating metrics, overseeing performance improvement and managing the Executive Information System.

Requirements and Policy Integration advocates for customers, coordinates the prioritizing of all internal and external requirements for production, technology and infrastructure and has extensive responsibility for policy development.

Outside headquarters

Operations Group manages the production process and assists customers in all actions—from identifying requirements to delivering products and services.

Acquisition and Technology Group oversees development and engineering for the agency and provides technical services.

Installation Management Group provides site management and base support for site security, administration, supplies, health, safety and visual information services.

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