The Office of the Assistant Chief of Staff for Installation Management’s (OACSIM) Installation Geospatial Information & Services (IGI&S) program is leading the effort to streamline geospatial business processes to help the Army stay ready and relevant to meet challenges in a time of persistent conflict, and to provide a quality of life for soldiers and families commensurate with their service.

OACSIM established the IGI&S program as a liaison for geospatial activities in the Army’s Installations and Environments domain. IGI&S represents the Department of Defense’s capability to capture, display and analyze geographically referenced information in support of installation management.

Geospatial information systems (GIS) and geospatial technologies, which are increasingly becoming a part of life by solving daily problems in ways that are quickly understood and easily shared, are a core component of IGI&S. With popular and accessible commercial mapping tools like MapQuest and Google Maps, web portals for geospatial data such as geodata.gov, and tools for mapping real estate such as Red Fin and Zillow, soldiers and civilians are accustomed to using GIS to provide answers to both routine and complex questions wherever they have access to the Internet. The stated mission of the
Army’s IGI&S program is to “strengthen the Army geospatial infrastructure and globalize assets by providing IGI&S support and capabilities” in support of the Army’s overall mission to protect and defend.

In addition to OACSIM, other Army staff help ensure that the Army’s IGI&S mission is executed. While OACSIM provides IGI&S policy, guidance and standards, other agencies and commands—including Installation Management Command (IMCOM), the National Guard Bureau, the Army Reserve, U.S. Army Medical Command and Army Materiel Command—provide execution and support across the enterprise from headquarters to garrison offices.

To create more equity and efficiency in the Army’s geospatial efforts, IGI&S is working to increase the sharing of GIS data between installations with the intention of reducing redundancy and unnecessary work for those who need GIS data to support installation workflow. The IGI&S program is also tasked with reducing the variance in the quality and quantity of geospatial information across the Army’s Installations and Environments domain.

To consolidate and create a common set of geospatial functions throughout the Army, the IGI&S program implemented the Army Mapper system. Located behind Army Knowledge Online (AKO) at https://mapper.army.mil, Army Mapper is the IGI&S program’s enterprise geospatial system. The IMCOM Systems Implementation and Fielding Division is leading Army Mapper’s technical development, and IGI&S is identifying the system’s functional and technical requirements.

Army Mapper provides the infrastructure foundation for secure sharing of geospatial capabilities and data in accordance with Army and Department of Defense enterprise architecture standards. Army Mapper also integrates the commercial Google Earth Enterprise application with Army Headquarters business systems such as the Army installation status report program, the Army stationing and installation plan, the real property planning and analysis system, the headquarters installation information system and the real estate management information system for a visual representation of previously tabular data.

With Army Mapper, commanders, civilians or any person with Common Access Card (CAC) or AKO access can view installation GIS data, answer questions and solve practical problems. For example, Army Mapper can support critical installation management functions such as emergency services, disaster support planning, facilities management, military exercise planning, and family, morale, welfare and recreation event planning in addition to providing directions from one location on the installation to another.

The Army Mapper system features a data repository, web map viewer and, eventually, desktop tools features. Army Mapper’s data repository is a vast repository structured for full life-cycle geospatial data capture, maintenance, analysis and archiving. The system’s web map viewer features a web-based interactive map with a window into the data repository, without the need for specialized software or advanced geospatial training. Currently under development, Army Mapper’s desktop tools will provide an Internet-accessible suite of advanced mapping and drawing software applications available to geospatial

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analysts and power users from any computer or location. Although using Army Mapper does not require advanced GIS skills, it remains a tool primarily for the Army’s GIS community of geospatial specialists, analysts and officers who produce image- and vector-based map products. At the installation level, the Army’s GIS professionals lead geospatial data collection, data conversion, data creation and cartography for map delivery. Many of the Army’s GIS professionals design databases and coordinate physical changes to data using their knowledge of spatial projections and feature representations, such as points, lines and polygons.

According to Vince Nicchitta, IGI&S program manager, “For the Army’s GIS community, the final delivery of Army Mapper will represent a centralized and comprehensive GIS database that reduces the information technology footprint at the installation level and creates a common installation picture [CIP].” The Army’s CIP establishes a minimum set of geospatial data layers needed to support Army installation mapping and visualization. Guided by the Army’s CIP, IGI&S develops and publishes quality assurance plans (QAPs) to identify data acceptance criteria and quality standards and to outline procedures for measuring data against those standards.

Quality assurance plans are the official IGI&S data documents stating functional and mission requirements, direct data and metadata standards, and acceptance criteria. Compliance with QAP guidelines ensures that Army enterprise geospatial data is standardized, shareable and easily consolidated into Army Mapper to support decision-making processes at the headquarters and installations levels.

QAPs are drafted by IGI&S with the support of Department of the Army headquarters-level proponents and circulated among the IGI&S working group and GIS stakeholders at the installation level for a 30-day period of review and comment. Once the comments are reviewed and accepted, the QAP is sent to OACSIM leadership for final acceptance.

In addition to developing standards for GIS data collection, OACSIM’s corresponding goal is to support global access to GIS tools at installations. To that end, IGI&S funds software licenses and maintenance support for approved GIS tools by Environmental Systems Research Institute (ESRI) and Bentley Systems, the world’s leading providers of software solutions in the GIS/geospatial market.

In 2008, IGI&S signed a blanket purchase agreement with ESRI for software maintenance to support GIS activities at the installation level. IGI&S recently updated ESRI funding and is currently negotiating with the U.S. Army Corps of Engineers’ Army Geospatial Center (AGC) to be added to their ESRI software maintenance contract. By joining AGC’s ESRI contract, the IGI&S program expects significant cost savings over the current agreement.

In late 2008, the Army purchased an enterprise license subscription with Bentley Systems — providing access to the entire suite of Bentley computer-aided design software for all installations—in an attempt to level the playing field between those installations with GIS and those without it. The enterprise license subscription increases IGI&S capability for installations through an expanded list of available software products and applications offered by Bentley. Implementation of the Bentley subscription is over a two-year period that began in fiscal year 2009.

Reducing costs, improving the quality of GIS data and sharing data across installations are the fundamental goals of the IGI&S program. Using a combination of approaches, IGI&S is working to provide the best possible geospatial data for the best possible decision making.

“The IGI&S program has been around for less than four years. In that time, we’ve made significant strides, but we still have a lot more to do. I am optimistic that in the long run we will be able to build efficiencies into the system to better support GIS professionals at the garrison so that they can better support the installation’s mission,” said Nicchitta. “As a part of the OACSIM team, our work comes down to supporting soldiers, their families and the Army mission.”