Army Regulation 115–13

Climatic, Hydrological, and Topographic Services

Installation Geospatial Information and Services

Headquarters
Department of the Army
Washington, DC
13 March 2013

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SUMMARY

AR 115–13
Installation Geospatial Information and Services

This is a new regulation, dated 13 March 2013--

- This regulation provides policies, responsibilities, and guidance for the Installation Geospatial Information and Services Program within the Department of the Army (throughout).

- This regulation provides a standardized approach to installation geospatial information collection, creation, management and distribution and to strengthen the reliability, accountability and security of that data (throughout).

- This regulation applies to the Active Army, the Army National Guard/Army National Guard of the United States, the United States Army Reserve, the United States Army Corps of Engineers, and all United States Army accountable organizations listed or not (throughout).

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Effective 13 April 2013

Climatic, Hydrological, and Topographic Services

Installation Geospatial Information and Services

By Order of the Secretary of the Army:

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:

JOYCE E. MORROW
Administrative Assistant to the Secretary of the Army

History. This is a new Department of the Army regulation.

Summary. This regulation provides policies, responsibilities, and guidance for the Installation Geospatial Information and Services (IGI&S) program within the Department of the Army. Statutory authority for this regulation is derived from Executive Order 12906 and Office of Management and Budget (OMB) Circular No. A–16.
The purpose of this regulation is to provide a standardized approach to installation geospatial information collection, creation, management and distribution and to strengthen the reliability, accountability and security of that data. The Army IGI&S program, as part of the Office of the Deputy Under Secretary of Defense Installations, Energy & Environment (DUSD IE&E) Defense Installation Spatial Data Infrastructure, must establish processes for geospatial information quality control, reporting and distribution.

Applicability. This regulation applies to the Active Army, the Army National Guard/Army National Guard of the United States, the United States Army Reserve, the United States Army Corps of Engineers, and all United States Army accountable organizations listed or not. Specifically, this regulation is concerned with the acquisition, collection, management, storage, development, fielding, sustainment, training, production, visualization and dissemination of geospatially referenced installation information. For overarching Army policies, responsibilities and procedures for an Army Geospatial Enterprise and for Geospatial Information and Services, see AR 115–11.

Proponent and exception authority. The proponent of this regulation is the Army Assistant Chief of Staff for Installation Management. The Assistant Chief of Staff for Installation Management has the authority to approve exceptions to this regulation that are consistent with controlling law and regulation. Proponents may delegate authority, in writing, to a division chief within the proponent agency or its direct reporting unit or field operating agency, in the grade of colonel or the civilian equivalent. Activities may request a waiver to this regulation by providing justification that includes full analysis of the expected benefits and must include formal review by the activity's senior legal officer. All waiver requests will be endorsed by the commander or senior leader of the requesting activity and forwarded through their higher headquarters to the Office of the Assistant Chief of Staff for Installation Management. Refer to AR 25–30 for specific guidance.

Army internal control process. This regulation contains management control provisions in accordance with AR 11–2, but it does not identify key internal control provisions that must be evaluated (see appendix B).

Supplementation. Supplementation of this regulation and establishment of command and local forms are prohibited without prior written approval from the Office of the Assistant Chief of Staff for Installation Management, Operations Division (DAIM–ODO), 600 Army Pentagon, Washington, DC 20310–0600.

Suggested improvements. Users are invited to send comments and suggestions for improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Office of the Assistant Chief of Staff for Installation Management, DAIM–OD, 600 Army Pentagon, Washington, DC 20310–0600.

Distribution. This publication is available in electronic media only and is intended for command levels A, B, C, D, and E for the Active Army, the Army National Guard/Army National Guard of the United States, the United States Army Reserve, and the United States Army Corps of Engineers.

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Contents (Listed by paragraph and page number)

Contents—Continued

Appendixes

Glossary

Chapter 1
Introduction

1–1. Purpose
This regulation provides policies and procedures for creating, maintaining, and managing geospatial information and services in support of the installation and environment domain. This regulation applies to all accountable organizations whether or not they are listed below.

1–2. References
Required and related publications and prescribed and referenced forms are listed in appendix A.

1–3. Explanation of abbreviations and terms
Abbreviations and special terms used in this regulation are explained in the glossary.

1–4. Roles and responsibilities
See chapter 2 for roles and responsibilities.

1–5. Installation Geospatial Information and Services program
a. The Army Installation Geospatial Information & Services (IGI&S) program provides a unified approach for the creation, maintenance and management of installation geospatial data, and is established to consolidate and focus Army efforts in utilizing that information, including its associated systems and resources, to improve accountability and increase the level of credibility of geospatial information and its originating sources. The Army IGI&S program constitutes the Installations, Energy & Environment (IE&E) domain of the Army Geospatial Enterprise (AGE).

b. Situational awareness of the installation is critical in supporting the Army installation management mission. Factors such as day-to-day installation management operations, transformation initiatives, base realignment and closure (BRAC), homeland security, and mission support mandate that the Army has access to the best possible contextual information about an installation's sites and their surroundings. Geospatial information - globally referenced digital representations of installation features, including road networks, building footprints, as-built drawings, utilities, environmental resources and constraints, and surrounding areas - must be readily available in standardized formats and consolidated in an authoritative data source (ADS). This information is utilized by echelons up to Headquarters, Department of the Army (HQDA) offices to support installation management business processes, inform force protection, respond to encroachment issues, meet regulatory requirements, enable optimum use of facilities, and enhance installation, energy and environmental management in order to support mission needs.

c. Usage of both Geographic Information System (GIS) and computer aided design (CAD) technologies are widespread across the Army and are heavily relied upon in planning and installation, energy and environmental management. Geospatial information shows the precise relationship between the installation (for example, the natural, cultural, administrative, and infrastructure characteristics of an installation's sites and their surrounding area) and management activities. Installations use GIS and geospatially-enabled CAD for integrated planning, command and control (for example, National Environmental Policy Act analysis, relocation and move management, space management, noise management, site selection, permitting, and environmental management), operations and management, emergency management and operations (fire, police, medical), emergency preparedness planning, analysis and mapping support, communications and briefing support, dig permitting, military training, land navigation training, the daily maintenance of infrastructure, as well as integration with business (tabular data) systems. HQDA uses GIS and geospatially-enabled CAD for re-stationing, asset lifecycle management, mapping analysis and support, integration efforts with business systems, and impact analysis of policies. With Army Mapper, commanders, civilians or any person with common access card (CAC) access can view installation GIS data, answer questions and solve practical problems.

d. Army Mapper (https://mapper.army.mil) is in the process of obtaining certification with the Army Data Board as the Army's ADS for all Army installation geospatial information within the IE&E domain.

e. Army Mapper provides access to geospatial information, conforms to Office of the Secretary of Defense (OSD) Business Enterprise Architecture (BEA) standards, integrates ADS 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 tabular data to allow the Office of the Assistant Chief of Staff for Installation Management (OACSIM) to meet the requirements of the Department of Defense (DOD) Network-Centric Enterprise Services (NCES) Net-Centric Data Strategy.

1–6. Definitions
a. GIS includes an organized, computer-based set of tools for collecting, processing, storing, managing, analyzing, and presenting geographic data, as well as related hardware, geospatial information, and personnel to maintain and operate the system.

b. A geospatial system is any information system that is used to store, edit, reference, or analyze data in a geospatial

context. An advanced geospatial system includes specialized investments in information technology (IT) such as servers and software used to host and distribute services such as Web Map viewers. External data sources may be linked from other business systems.

c. Geospatial information consists of, but is not limited to, digital vector data with associated tabular attributes, raster data, hard copy maps, aerial photographs, and other information that represents real world features accurately referenced to a precise location on the Earth's surface.

d. A site is a physically defined location that can be supported by a legal boundary survey which closes a polygon. It can be owned, leased, or otherwise possessed or used. A site is the sum of all real property at a specific location.

e. An installation is an aggregation of real property holdings led by a centrally-selected commander or civilian executive assistant. Installations represent management organizations. An installation may be comprised of one or more sites. Two types of virtual installations exist within the Army: Army National Guard virtual installations, identified by state and commanded by The Adjutant General, under which are Readiness Centers or sites; Army Reserve Regional Readiness Commands defined as a virtual installations under which Reserve Centers are identified as sites.

f. Installation geospatial information is geospatial data that represents features that are within or coincident with the boundary of an installation, virtual installation, or other Army site as well as non-Army owned areas in the immediate vicinity adjacent to these boundaries.

g. Geospatial services include interfaces which enable users to access and manipulate geospatial data, viewers, customized tools, and training materials.

h. IGI&S is the concept for collection, information extraction, storage, dissemination, and exploitation of geodetic, imagery, environmental, facility, topographic, hydrographic, littoral, and cultural data accurately referenced to a precise location on the Earth's surface. This data is utilized for installation, energy and environmental management, mission support, critical infrastructure protection, force protection, homeland security, and training operations.

i. The Common Installation Picture (CIP) is the distinct, minimum set of geospatial data layers and imagery required to be maintained for all Army sites.

j. Geospatial data layer Quality Assurance Plans (QAPs) are documents stating required specifications for creating and managing geospatial data features. QAPs define geospatial and metadata content specifications, validation methodology, acceptable data sources, internal handling controls and how GIS data is aligned with Army business systems. A Data Layer Proponent must be identified for each geospatial data layer QAP.

k. A Data Layer Proponent is an HQDA office, agency, or command responsible for initiating, developing, coordinating, and approving geospatial data layer content. A Data Layer Proponent is responsible for issuing and maintaining policy and guidance such as QAPs. A Data Layer Proponent Lead is an individual point of contact (POC). A Data Layer Proponent is responsible for developing policy and guidance for funding, collecting, and maintaining geospatial data content (see section 3–2).

l. Enterprise Architecture (EA) is a description of the components and subsystems of an organization, their relationships, and the principles and guidelines governing their design and evolution over time including relationships with the external environment.

Chapter 2
Roles and Responsibilities

2–1. The Assistant Secretary of the Army for Installations, Energy and Environment

The Assistant Secretary of the Army for Installations, Energy and Environment (ASA (IE&E)) will provide general guidance for creation, maintenance, and management of geospatial information and services to support installation management.

2–2. The Assistant Chief of Staff for Installation Management

The Assistant Chief of Staff for Installation Management (ACSIM) serves as the Army Proponent for the IGI&S program policies and requirements. The ACSIM will—

a. Appoint an IGI&S Program Manager for the IGI&S program.

b. Resource the OACSIM IGI&S program.

c. Enforce the compliance of Federal and DOD standards related to IT, information assurance (IA), information security (IS), and GIS.

d. Act as the Army IE&E representative to the Army Geospatial-Enterprise Governance Board.

2–3. The Installation Geospatial Information and Services Program Manager, Office of the Assistant Chief of Staff for Installation Management

The OACSIM, DAIM–ODO is the HQDA proponent for IGI&S and is responsible for specifying Army Mapper functional and technical requirements. The OACSIM IGI&S Program Manager provides overall policy and guidance

coordination for IGI&S. The OACSIM IGI&S Program Manager is responsible for the technical coordination with the Defense Installation Spatial Data Infrastructure and other Federal Government geospatial initiatives. The OACSIM IGI&S Program Manager will—

a. Manage Army IGI&S program initiatives.

b. Develop Army IGI&S program policy and guidance.

c. Develop and maintain the Army IGI&S strategic guidance.

d. Establish and chair the IGI&S Functional Coordination Committee (FCC).

e. Establish and chair the Army IGI&S Working Group quarterly.

f. Participate in enterprise governance forums to identify opportunities for commonality.

g. Represent the IGI&S program on the Real Property and Installation Lifecycle Management Investment Review Board (IRB).

h. Represent the IGI&S program on the Army Installations, Energy and Environment Domain Governance Board (DGB).

i. Represent the IGI&S program on the Defense Installation Spatial Data Infrastructure Group.

j. Ensure IGI&S program integration with the AGE in coordination with the Army Geospatial Information Officer (GIO).

k. Represent the IGI&S program on the AGE Configuration Control Board (CCB).

l. Communicate IGI&S requirements with other Army elements.

m. Identify processes and procedures for exchanging installation geospatial information with other Services or Army components under a memorandum of agreement (MOA), memorandum of understanding (MOU), or inter-Service, interdepartmental, and system interface agreement (SIA).

n. Enforce the compliance of Federal and DOD standards related to IGI&S IT, IA, IS, and GIS.

o. Serve as the Army office of primary responsibility for IE&E geospatial information security policy.

p. Facilitate communication between Data Layer Proponents and IGI&S technical personnel on geospatial data representation, security, and usage issues.

q. Build consensus with Data Layer Proponents on issues regarding data layer responsibilities and stewardship.

r. Analyze current IGI&S applications and functions, collect and consolidate functional and technical requirements from stakeholders, and determine possible overlaps, data, and cost sharing opportunities.

s. Develop and maintain the list of CIP geospatial data layers in collaboration with the IGI&S Working Group, FCC and through official coordination with Army commands as needed.

t. Establish and review, in conjunction with the IGI&S Working Group, IGI&S data standards and metrics annually with change requirements being identified, prioritized, reviewed, adopted, and then incorporated into the Installation Status Report (ISR) – Services data collection program.

u. Define the IGI&S Data Layer Proponency, which outlines responsibility for individual geospatial data layers, in conjunction with the FCC.

v. Ensure Army Mapper standard operating procedures are being coordinated, reviewed, and published annually.

w. Serve as the Army Portfolio Management Solution (APMS) IGI&S portfolio manager and the POC for existing and proposed investments in geospatial capabilities managed by the Active Component and Reserve Component within the IE&E domain.

x. Verify IGI&S investments are reported by IGI&S Managers to the APMS quarterly.

y. Ensure all IE&E domain GIS investment reviews focus on capabilities and include the full life cycle costs of GIS investments.

z. Develop and maintain Army IGI&S guidance documentation related to data management.

aa. Establish and maintain Army Mapper System Requirements Specification documentation.

ab. Integrate other ADS as required by stakeholders and Data Layer Proponents.

ac. Develop and execute the Army's IGI&S Program Objective Memorandum (POM).

ad. Develop and maintain an imagery acquisition plan to reconcile existing inventory and imagery requirements.

ae. Procure imagery, GIS support, and other activities through a centralized procurement strategy.

af. Develop and maintain Data Collection Memorandum annually.

ag. Act as the focal point for distribution of Army installation data to DOD and non-governmental agencies.

ah. Share IE&E geospatial data when requested for multiple installations in accordance with published guidance and applicable state and Federal laws except where subject to a Freedom of Information Act (FOIA) exemption (see section 3–15 and section 3–16).

ai. Develop a centralized IGI&S programmatic training and certification program (for example, IGI&S Training and Workshop) and ensure training is held annually.

aj. Ensure IGI&S Program internal controls are being coordinated, reviewed, and published annually.

2–4. The Director Information Technology, Office of the Assistant Chief of Staff for Installation Management

The Director, Information Technology, OACSIM will—

a. Support IGI&S IT requirements.

b. Appoint a designated approval authority (DAA) to authorize operation.

c. Recommend geospatial data layer security classification for Army Mapper system architecture to the DAA. The Army Mapper system is intended to be unclassified and houses data which is unclassified and/or for official use only (FOUO).

d. Support compliance with Federal and DOD standards related to IT, IA, IS, and GIS.

2–5. The Director Installation Management Command, G–6

The Director Installation Management Command (IMCOM), G–6 will—

a. Support IGI&S IT requirements.

b. Appoint an Army Mapper Program Lead, IMCOM, G–6.

c. Execute IGI&S policy.

d. Enforce IMCOM, G–6 compliance to Federal and DOD standards related to IT, IA, IS, and GIS.

2–6. The Army Mapper Program Lead, Installation Management Command, G–6

The Army Mapper Program Lead, IMCOM, G–6 is responsible for Army Mapper technical execution and acts as the overall technical facilitator of Army Mapper. The Army Mapper Program Lead, IMCOM, G–6 ensures the viability and evolution of the technical infrastructure for Army Mapper and functionality to support Army geospatial stakeholder organizations throughout the IE&E domain. The Army Mapper Program Lead, IMCOM, G–6 will—

a. Represent IMCOM, G–6 on the Army IGI&S Working Group.

b. Execute IGI&S technical requirements including Army Mapper System Requirements Specifications.

c. Ensure enterprise system provides industry standard capabilities for GIS.

d. Maintain system compliance with Federal and DOD standards related to IT, IA, IS, and GIS.

e. Maintain and manage access to the Army Mapper authoritative geospatial data for users who are credentialed and authorized to access such data.

f. Establish a governance process for the management of Army Mapper.

g. Establish and maintain a charter for the Army Mapper Engineering Review Board.

h. Chair meetings of the Army Mapper Engineering Review Board quarterly.

i. Procure software licensing and technical training through a centralized procurement strategy.

j. Develop a centralized Army Mapper technical training program.

k. Develop and execute annual training in support of the Army Mapper user capabilities.

l. Develop and maintain IGI&S IT requirements necessary to support geospatial enterprise services.

m. Analyze and report capability of infrastructure, bandwidth, and connectivity at constituent sites to meet IGI&S IT requirements to IMCOM, G–6.

n. Ensure IGI&S data is available for use by accredited, authorized users within Army elements at all levels of the organization and its components.

o. Assess existing commercial off-the-shelf (COTS) tools and data for utilization and implementation in the Army Mapper enterprise system.

p. Develop and maintain Army Mapper standard operating procedures annually.

q. Develop and execute the IMCOM, G–6 Army Mapper POM.

2–7. The Chief of Public Works Division, Installation Management Command, G–4

The Chief of Public Works Division, IMCOM, G–4 will—

a. Appoint an IMCOM IGI&S Program Lead, G–4.

b. Direct the IGI&S Program Lead to represent IMCOM, G–4 on the Army IGI&S Working Group.

c. Deliver the IGI&S capability for IMCOM, G–4.

2–8. The Installation Geospatial Information and Services Program Lead, Installation Management Command, G–4

The IGI&S Program Lead, IMCOM, G–4 will—

a. Represent IMCOM, G–4 on the Army IGI&S Working Group.

b. Reconcile IMCOM GIS and IGI&S programmatic activities with the IGI&S program.

c. Lead IMCOM execution of IGI&S.

d. Develop and execute the IMCOM IGI&S POM.

e. Respond to and implement OACSIM IGI&S policy and guidance.

f. Provide coordination support to IMCOM installations.

g. Determine and execute IMCOM installation services for IGI&S.

h. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

i. Recommend policy and standards to the OACSIM IGI&S Program Manager.

j. Ensure IGI&S program measures are reported on a quarterly basis via the ISR–Services (Service 114) data input module.

2–9. The Deputy G–3, Training Simulations Division, Office of the Deputy Chief of Staff for Operations and Plans

The Deputy G–3, Training Simulations Division, Office of the Deputy Chief of Staff (DCS) for Operations and Plans will—

a. Appoint a DCS G–3/5/7 Training Support Systems Division IGI&S Program Lead.

b. Direct the IGI&S Program Lead to represent DCS G–3/5/7 on the Army IGI&S Working Group.

c. Deliver the IGI&S capability for DCS G–3/5/7 Training Simulations Division for those sites supported within the Army Sustainable Range Program (SRP).

d. Deliver an SRP IGI&S capability for SRP supported installations and sites.

e. Enforce DCS G–3/5/7 compliance to Federal and DOD standards related to IT, IA, IS, and GIS.

2–10. The Installation Geospatial Information and Services Program Lead, Deputy Chief of Staff G–3/5/7 Training Support Systems Division

The IGI&S Program Lead, DCS G–3/5/7 Training Support Systems Division will—

a. Represent DCS G–3/5/7 Training Support Systems Division on the Army IGI&S Working Group.

b. Reconcile SRP GIS and IGI&S programmatic activities with the IGI&S program.

c. Develop and execute the DCS G–3/5/7 Training Support Systems Division IGI&S POM.

d. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

e. Recommend policy and standards to the OACSIM IGI&S Program Manager.

f. Manage SRP GIS Program requirements per Army Regulation (AR) 350–19.

g. Eliminate IGI&S redundancy within the SRP GIS Program.

h. Organize SRP GIS/IGI&S activities and investments within SRP.

i. Ensure IGI&S program measures are reported on a quarterly basis via the ISR–Services (Service 114) data input module.

2–11. The Commander, United States Army Materiel Command

The Commander, United States Army Materiel Command (USAMC) will—

a. Appoint a USAMC IGI&S Program Lead.

b. Direct the IGI&S Program Lead to represent the USAMC on the Army IGI&S Working Group.

c. Resource an IGI&S capability for USAMC.

d. Enforce USAMC compliance to Federal and DOD standards related to IT, IA, IS, and GIS.

2–12. The Installation Geospatial Information and Services Program Lead, United States Army Materiel Command

The IGI&S Program Lead, USAMC will—

a. Represent USAMC on the Army IGI&S Working Group.

b. Reconcile USAMC GIS and IGI&S programmatic activities with the IGI&S program.

c. Lead USAMC execution of IGI&S.

d. Develop and execute the USAMC IGI&S POM.

e. Respond to and implement OACSIM IGI&S policy and guidance.

f. Provide coordination support to USAMC installations.

g. Determine and execute USAMC installation services for IGI&S.

h. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

i. Recommend policy and standards to the OACSIM IGI&S Program Manager.

j. Ensure IGI&S program measures are reported on a quarterly basis via the ISR–Services (Service 114) data input module.

2–13. The Director, United States Army Reserve Division

The Director, United States Army Reserve Division will—

a. Appoint a United States Army Reserve (USAR) IGI&S Program Lead.

b. Direct the regional support command (RSC) and operation and maintenance, Army Reserve (OMAR)-Funded Installation Commanders to represent USAR on the Army IGI&S Working Group.

c. Resource the IGI&S capability for USAR.

d. Enforce USAR compliance to Federal and DOD standards related to IT, IA, IS, and GIS.

2–14. The Installation Geospatial Information and Services Program Lead, United States Army Reserve

The USAR IGI&S Program Lead will—

a. Represent USAR on the Army IGI&S Working Group.

b. Reconcile USAR GIS and IGI&S programmatic activities with the IGI&S program.

c. Lead USAR execution of IGI&S.

d. Develop and execute the USAR IGI&S POM.

e. Respond to and implement OACSIM IGI&S policy and guidance.

f. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

g. Recommend policy and standards to the OACSIM IGI&S Program Manager.

h. Ensure IGI&S program measures are reported on a quarterly basis via the ISR–Services (Service 114) data input module.

2–15. Commanders, United States Army Reserve Regional Support Command and Garrison Commanders, Operations and Maintenance, Army Reserve–Funded Installation

USAR RSC Commander and OMAR–Funded Installation Garrison Commanders will—

a. Appoint an IGI&S Manager at each installation.

b. Ensure installation directorates execute Army IGI&S policy, standards, and guidance.

c. Establish protocols for handling their respective geospatial information and ensuring the appropriate protection of installation geospatial information to best satisfy their assigned mission in accordance with this regulation. At a minimum, the protocols established will comply with the IGI&S data security and classification guidance.

d. Ensure installation's QAP-compliant geospatial data layers are validated in Army Mapper per temporal representation guidance in QAPs or delegate this responsibility to the installation IGI&S Manager.

e. Ensure installation's geospatial data layers are reviewed and deemed comprehensive and spatially accurate against institutional knowledge per temporal representation guidance, or delegate this responsibility to the installation IGI&S Manager.

f. Ensure IGI&S data is reconciled with the Real Property Inventory (RPI).

g. Ensure all applicable CIP geospatial data is available in Army Mapper.

h. Establish and maintain an IGI&S program in support of installation management.

i. Maintain all applicable CIP geospatial data and metadata for their installation.

2–16. The Chief of the National Guard Bureau

The Chief of the National Guard Bureau will ensure the Director, Army National Guard; IGI&S Program Lead, Army National Guard (ARNG); and State and/or Territory Adjutant Generals, ARNG, are in compliance with this regulation.

2–17. The Director, Army National Guard

The Director, ARNG will—

a. Appoint an ARNG IGI&S Program Lead.

b. Deliver an ARNG IGI&S capability for ARNG.

c. Maintain system compliance to Federal and DOD standards related to IT, IA, IS, and GIS as applicable in the mixed State and Federal National Guard environment.

d. Enforce ARNG compliance to Federal and DOD standards related to IT, IA, IS, and GIS as applicable in the mixed state and Federal National Guard environment.

2–18. The Installation Geospatial Information and Services Program Lead, Army National Guard

The IGI&S Program Lead, ARNG will—

a. Represent ARNG on the Army IGI&S Working Group.

b. Reconcile ARNG GIS and IGI&S programmatic activities with the IGI&S program.

c. Develop and execute the ARNG IGI&S POM.

d. Act as single point of focus for communication and coordination of IGI&S with State's and/or Territories' National Guard units.

e. Organize IGI&S activities and investments within the ARNG.

f. Recommend policy and standards to the OACSIM IGI&S Program Manager.

g. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

h. Ensure IGI&S program measures are reported on a quarterly basis via the ISR–Services (Service 114) data input module.

i. Establish and maintain IGI&S policy for the ARNG.

j. Manage ARNG IGI&S program initiatives.

k. Deliver, or otherwise make available to Army Mapper, CIP geospatial data layers and associated metadata for ARNG Installations. This includes geospatial layers of ARNG State owned real estate records.

2–19. The State and/or Territory Adjutant Generals, Army National Guard

The State and/or Territory Adjutant Generals will—

a. Appoint an IGI&S Manager for each state and/or territory.

b. Ensure state's directorates implement Army IGI&S policy, standards, and guidance.

c. Establish protocols for handling their respective geospatial information and ensuring the appropriate protection of installation geospatial information to best satisfy their assigned mission in accordance with this regulation.

d. Ensure state's QAP-compliant geospatial data layers are validated per temporal representation guidance in QAPs or delegate this responsibility to the IGI&S Manager.

e. Ensure IGI&S data is reconciled with the RPI.

f. Ensure, at a minimum, that all applicable CIP geospatial data layers and associated metadata are delivered to the ARNG IGI&S Program Lead.

g. Establish and maintain an IGI&S program that supports installation management.

2–20. The Commander, United States Army Corps of Engineers

The Commander, United States Army Corps of Engineers (USACE) will—

a. Appoint a USACE IGI&S Program Lead at the headquarters office.

b. Direct the IGI&S Program Lead to represent the USACE on the Army IGI&S Working Group.

c. Enforce USACE compliance to Federal and DOD standards related to IT, IA, IS, CAD, Building Information and Modeling, and GIS.

2–21. The Installation Geospatial Information and Services Program Lead, United States Army Corps of Engineers

The IGI&S Program Lead, USACE will—

a. Represent USACE on the Army IGI&S Working Group.

b. Communicate with OACSIM and IGI&S stakeholders regarding IE&E geospatial data holdings.

c. Deliver geospatial data layers of auditable Army real estate records for Army sites to Army Mapper per temporal representation guidance in QAPs.

d. Support OACSIM IGI&S program remote sensing and imagery requests for installations through USACE's Army Geospatial Center (AGC) Imagery Office.

e. Develop and execute the USACE IGI&S POM.

f. Execute all IGI&S support to installations in accordance with the OACSIM IGI&S policy and guidance.

g. Maintain system compliance to Federal and DOD standards related to IT, IA, IS, CAD, Building Information and Modeling, and GIS.

h. Assist OACSIM IGI&S Program Manager in developing training programs and standard operating procedures for geospatial data collection and map production.

i. Recommend policy and standards to the OACSIM IGI&S Program Manager.

2–22. The Garrison Commander or equivalent

Within the Active Army, the Garrison Commander or equivalent will provide oversight of the IGI&S activities at their respective installation. The Garrison Commander will—

a. Appoint an IGI&S manager.

b. Ensure installation directorates execute Army IGI&S policy, standards, and guidance.

c. Establish protocols for handling their respective geospatial information and ensure the appropriate protection of installation geospatial information to best satisfy their assigned mission in accordance with this regulation.

d. Ensure IGI&S data is reconciled with the RPI.

e. Ensure all installation geospatial data and associated metadata is made available to Army Mapper (see section 3–8).

2–23. Installation Geospatial Information and Services managers

IGI&S managers are the persons at the installation, site, or organization responsible for ensuring the quality and availability of geospatial data for their location. IGI&S managers will—

a. Comply with Federal and DOD standards related to IT, IA, IS, and GIS.

b. Ensure all geospatial data layers are comprehensive, spatially accurate, and compliant with QAPs.

c. Upload to and/or manage all installation geospatial data and associated metadata in Army Mapper (see section 3–8).

d. Ensure installation geospatial IT investments are updated monthly in APMS in accordance with AR 25–1.

e. Share respective installation geospatial data in accordance with published guidance and applicable State and Federal laws except where subject to a FOIA exemption (see section 3–15 and section 3–16).

f. Achieve and maintain IGI&S programmatic certification at a minimum of every two years (see section 3–17).

g. Train IGI&S staff at their locations on QAP compliance, data management standards, attribution standards and GIS data security, and/or restriction measures.

h. Chair an Installation IGI&S Working Group at their site.

i. Recommend policy and standards to the IGI&S Working Group through their IGI&S Working Group representative.

j. Report imagery acquisition requirements to the IGI&S Working Group through their IGI&S Working Group representative in order to promote cost-sharing across directorates.

k. Report IGI&S program measures on a quarterly basis via the ISR–Services (Service 114) data input module (see section 3–18).

2–24. Geospatial system administrators

Geospatial system administrators manage specialized hardware and software used to enable GIS activities at an installation. Geospatial system administrators are responsible for certifying installation geospatial IT investments (applications and systems) in APMS in accordance with AR 25–1. Geospatial System Administrators will—

a. Ensure installation geospatial IT investments are correctly registered in APMS in accordance with AR 25–1 and that all data fields are accurately completed (see section 3–21).

b. Review and update geospatial investment records in APMS as changes occur or at a minimum of monthly.

2–25. Data Layer Proponent Leads

A data layer proponent is an HQDA office, agency, or command responsible for initiating, developing, coordinating, approving content, and issuing a publication such as a QAP, as well as identifying publications for removal. A Data Layer Proponent Lead is an individual POC and is responsible for developing strategies for funding, collecting, and maintaining geospatial data layers. Data Layer Proponent Leads are responsible for ensuring functional area policies and guidelines reflect requirements, business processes, and policies as established by IGI&S program. These include establishing clear guidelines to fund data acquisition, adhering to standards that ensure interoperability, and requiring data to be available in Army Mapper. Data Layer Proponent Leads will—

a. Develop and maintain respective QAPs on a yearly basis for their designated geospatial data layers.

b. Develop policies and guidelines associated with their designated geospatial data layers in conjunction with OACSIM IGI&S program manager.

c. Identify and develop restriction level guidance for each of their designated geospatial data layers.

d. Determine geospatial data collection priorities.

e. Develop a strategy for funding data collection and maintenance.

f. Plan collection and maintenance of geospatial data in coordination with the OACSIM IGI&S Program Manager.

g. Establish and maintain proponency requirements for geospatial data layers with the IGI&S program.

h. Participate in the annual QAP review process.

i. Participate in the IGI&S FCC.

2–26. Functional subject matter experts

The functional subject matter expert (SME) is the person(s) from the organization or installation office that has the authoritative expertise and knowledge in their specific area of interest. Each geospatial data layer has a functional SME office identified in its respective QAP. Multiple individual functional SMEs may be identified by the Army IGI&S Installation Working Group at each site to contribute their expertise to data development. The functional SME reviews respective data layers within their subject matter and physical area of institutional knowledge, such as an installation or site, for spatial accuracy and to ensure data collected is comprehensive. The functional SME will—

a. Review data to verify that geospatial data layer features are comprehensive and spatially accurate against their institutional knowledge and ground conditions.

b. Advise the IGI&S Manager and Data Layer Proponents on what data, exclusive of the CIP, may be shared and with whom for their respective site (see section 3–15).

2–27. Data Stewards

The Data Steward is the person(s) at the installation or organization responsible for the collection and maintenance of authoritative geospatial data. The Data Steward is responsible for ensuring geospatial data layers meet the requirements outlined in the QAP. The Data Steward's office or organization is described in the QAP. If the designated Data Steward's office is not equipped with geospatial capabilities, the respective IGI&S Installation Working Group will identify an alternative to lead this effort. Upon completion and successful quality assurance (QA) and/or quality control (QC) of each geospatial data layer and associated metadata, the Data Steward will submit the data to the functional SME for review of completeness and accuracy. The Data Steward will—

a. Validate geospatial data layers for compliance with the respective QAP per temporal representation guidance in QAPs.

b. Complete QA and/or QC of each geospatial data layer and associated metadata.

c. Submit the data to the functional SME for review of completeness and accuracy.

d. Submit the data to the IGI&S Manager for review.

e. Conduct reviews of QAPs for geospatial data layers under the Data Steward's responsibility.

Chapter 3
Installation Geospatial Information and Services

Section I
General

3–1. Installation Geospatial Information and Services requirement

IGI&S is a core capability to support the business functions of the IE&E domain. IGI&S is critical to providing effective installation management, improving our stewardship of natural resources, protecting the environment and supporting the training of operating forces. Geospatial information must be readily available to support the Army mission. As such, this information must be collected, standardized, managed as an asset, and made available in an effective and efficient manner to support functional missions.

3–2. Proponency

a. IGI&S geospatial data must be maintained in accordance with acceptance criteria defined by the Data Layer Proponents in approved QAPs.

b. The Army IGI&S Data Layer proponency designates a responsible proponent for each geospatial data layer. If additional geospatial data layers are required, guidance may be requested from the OACSIM IGI&S Program Manager in the form of a QAP for the geospatial data layer and a proponent will be assigned and documented in the respective QAP.

c. Geospatial data layers may have multiple proponents.

d. Disputes between Data Layer Proponents will be resolved by the Army IGI&S FCC.

Section II
Governance

3–3. Governance

Questions about participation in IGI&S governance bodies shall be directed to the OACSIM IGI&S Program Manager.

a. The Army IGI&S FCC consists of Data Layer Proponents and the OACSIM IGI&S Program Manager or deputy. The primary mission of the IGI&S FCC is to identify, prioritize, reconcile, and provide proponent representation across IE&E business areas. Secondary missions of the FCC are as follows:

(1) Provide operational oversight for the identification, prioritization, execution, and administration of IGI&S initiatives.

(2) Execute and enforce geospatial policy and QAPs.

(3) Recommend IGI&S applications, tools, data, and other requirements for each business community to the OACSIM IGI&S Program Manager for inclusion in the Army Mapper System Requirements Specification document.

(4) Data Layer Proponent Leads will undertake a yearly review of business processes to determine requirements for

geospatial data including data layer needs, spatial accuracy, and update frequency. These requirements will be submitted to the IGI&S program.

(5) Conduct annual reviews of QAPs.

(6) Recommend, develop, and promote quality assurance standards and methods for the creation, use, and sharing of IGI&S data.

b. The Army IGI&S Working Group consists of appointed POCs from stakeholder organizations involved in the development of Army IE&E domain geospatial data. The primary function of the Army IGI&S Working Group is to integrate the Army's future development and use of IGI&S data and systems to the maximum benefit to the Army. The role of the POCs is to provide feedback and input about the implementation of IGI&S in their respective organizations. The POCs are also responsible for providing regular information about the implementation of IGI&S in their organization and report on behalf of their organization to the IGI&S program. The Army IGI&S Working Group shall meet quarterly at a minimum. Secondary missions of the Army IGI&S Working Group are as follows:

(1) Serve as the principal Army advisory committee for coordinating IGI&S across all participating Army organizations.

(2) Recommend policy and standards for IGI&S to the OACSIM IGI&S Program Manager.

(3) Assist the OACSIM IGI&S Program Manager with the development and maintenance of a set of geospatial data layers that define the CIP, and build consensus with Active Army and Army Reserve components. CIP geospatial data requirements will be coordinated officially with Army commands for concurrence.

(4) Develop best practices for development, analysis, and sharing of IGI&S data.

(5) Analyze current and proposed IGI&S applications, functions, and requirements to determine possible overlaps and cost sharing opportunities.

(6) Provide IGI&S expertise to the OACSIM IGI&S Program Manager for coordination with HQDA and Federal agencies outside the Army.

(7) Support the development and selection of IGI&S products and requirements.

c. The Army Mapper Engineering Review Board includes, but is not limited to, technical representatives from stakeholder offices or other organizations that have a MOA or SIA with the IGI&S program to identify Army Mapper configuration methodology, acceptable tools, and techniques. The mission of the Army Mapper Engineering Review Board is to address issues such as implementation schedules, functions, and configuration of Army Mapper. The Army Mapper Engineering Review Board shall meet at a minimum of quarterly. The Army Mapper Engineering Review Board formation, membership, and operations are established and maintained in the Army Mapper Engineering Review Board charter. Secondary missions of the Army Mapper Engineering Review Board are as follows:

(1) Serve as the principal advisory body for coordinating Army Mapper technical configuration requirements.

(2) Prioritize and approve change requests, defect requests, and trouble reports.

(3) Recommend Army Mapper specifications to the IGI&S program.

(4) Perform Army Mapper user acceptance testing and approval.

(5) Define the roles and composition of the various Army Mapper stakeholders and other activities and practices used for systems interface control. All types of interfaces will be considered, including organization, project phase, software, and hardware.

(6) Administer the Army Mapper Engineering Review Board document repository to allow Army Mapper documents (guidelines, templates, standards, policies, processes, and procedures) to be baselined and controlled.

d. An Army IGI&S Installation Working Group consists of representatives of Installation IGI&S staff who work with geospatial data collection, attribution, development, quality control, and reporting. IGI&S Working Groups guide GIS-related activities at their respective sites. Secondary missions of the Army IGI&S Installation Working Groups are as follows:

(1) Identify Data Steward's office if the office designated by the QAP is not equipped with geospatial capabilities.

(2) Identify individual functional SMEs for their respective sites as designated by the QAPs.

(3) Execute action items assigned by higher governing bodies.

(4) Apprise their respective IGI&S Working Group members of relevant issues and matters regarding Installation IGI&S.

(5) Advise the IGI&S Manager on data, exclusive of the CIP, to be shared and with whom, for their respective site.

3–4. Funding

a. OACSIM utilizes the Army planning, programming, budgeting, and execution (PPBE) process to develop an IGI&S management decision evaluation package (MDEP) annually to meet IGI&S program requirements exclusive of the technical execution of Army Mapper.

b. IMCOM G–6 utilizes the Army PPBE process to develop an Army Mapper MDEP annually to meet technical execution requirements documented in the Army Mapper System Requirements Specification document.

c. Each IGI&S program stakeholder organization that develops tools in Army Mapper is responsible for funding all

facets of their unique requirements including software licenses, hardware requirements, code development, and changes required in the core modules of Army Mapper (for example, security roles, database schemas, testing, and fielding).

d. Each IGI&S Program Lead develops and executes an IGI&S POM for their respective program.

3–5. Policy

Each IGI&S program stakeholder organization will undertake a yearly review of existing policy, guidance, and Army Regulations and report comments and recommendations to the OACSIM IGI&S Program Manager to ensure policy is kept current and relevant.

3–6. Authoritative data source

An ADS is a recognized system and set of protocols that utilizes standardized, enterprise-wide processes to assure the veracity of source data. Such processes must be followed by all authoritative data providers. In the IGI&S community, authoritative data providers are the Data Stewards at all levels who are responsible for collecting and maintaining information in support of Army installation management. Army IGI&S data must be validated for quality and accuracy by Data Stewards and functional SMEs. IGI&S Managers must ensure that their respective installation geospatial data is compliant with standards set forth in QAPs and made available to Army Mapper.

a. Army Mapper (https://mapper.army.mil) is in the process of obtaining certification with the Army Data Board as the Army's ADS for all Army installation geospatial information within the IE&E domain.

b. The Army Mapper database component will serve as the Army's geospatial data library and as a portal for dissemination of Army IGI&S information.

c. The unique, authoritative data for each geospatial data item (feature) is geospatial location (for example, latitude and/or longitude).

d. Where applicable, feature level attribution must be properly obtained from its appropriate ADS (for example, Headquarters Installation Information System (HQIIS), Headquarters Army Environmental System (HQAES)) and not stored in a GIS attribute table.

Section III
Data Requirements

3–7. Common installation picture

a. The CIP is a distinct, minimum set of geospatial data layers and imagery required to be maintained for all Army sites.

b. The CIP is used for strategic planning and will be shared at all levels of the Army to support mission requirements, geospatial-related Executive Orders, as well as DOD and other Army policy and guidance requirements.

c. The IGI&S Program Manager develops and maintains the list of CIP geospatial data layers in collaboration with the IGI&S Working Group, FCC and through official coordination with Army commands as needed.

3–8. Data availability

a. Each installation will make their geospatial data available to Army Mapper in one of the following ways:

(1) Installations use the Army Mapper environment exclusively to manage and maintain their geospatial data.

(2) Installations manage and maintain their geospatial data locally but use Army Mapper to submit and update their geospatial data, quarterly at a minimum.

(3) For ARNG and USACE enterprise systems, Geographic Information System - National Guard (GIS–NG) and CorpsMap respectively, geospatial data will be provided via an automated interface.

b. The Army Mapper enterprise geospatial capability includes the following components:

(1) Data Repository - secure robust data architecture to support managed maintenance and archival of standardized installation GIS data.

(2) Application Software - commercial GIS and CAD application software and tools available through Web-based services or installed locally on desktop workstations.

(3) Web Map Viewer - a Web-based interactive mapping tool providing basic and advanced capabilities for viewing, querying, and analyzing installation GIS data.

3–9. Data applicability

IGI&S Managers will document CIP geospatial data layers for their installation. IGI&S Managers should work with their respective functional SMEs, and those that have institutional knowledge of ground conditions, to verify the applicability of the CIP for their installation. Documents or plans that may help to determine the applicability of the CIP include site maps, site plans, general plans, comprehensive plans, master plans, RPI, and other related documents.

3–10. Data standards

a. The Spatial Data Standard for Facilities, Infrastructure and Environment (SDSFIE) is the DOD standard for

installation geospatial data. It is a broad database standard that covers business mission areas across the IE&E domain. The SDSFIE Army Adaptation serves as the overall geospatial database standard for the Army IE&E domain.

b. The SDSFIE Army Adaptation will allow for the creation of subordinate adaptations to meet the requirements of Army IGI&S stakeholder organizations. Subordinate adaptations must comply with Army and DOD adaptation rules.

c. To ensure interoperability across the IE&E domain, the IGI&S program will submit the SDSFIE Army Adaptation to the Defense Installation Spatial Data Infrastructure.

d. Proposed changes to the SDSFIE Army Adaptation will be submitted through the respective command structure for coordination with the OACSIM IGI&S Program Manager.

e. The applicable version of the SDSFIE will be based on IGI&S program guidance, as required, with subsequent releases of the SDSFIE.

3–11. Data quality

a. A program-wide, uniform set of standards and best practices ensures the quality and consistency of Army geospatial data.

b. All IGI&S geospatial data layers will be created and maintained to a shared, minimum standard defined by the respective proponent and documented in a QAP to ensure the data is consistent, accurate, credible, and useful for installation management and mission support.

c. IGI&S geospatial data may be created and maintained to specific requirements defined at the installation or site level as long as minimum criteria defined in the respective QAP are met.

d. Geospatial data layers will follow the following general and specific QAP criteria.

e. QAP general guidance includes the following:

(1) Roles and responsibilities.

(2) General policy and regulations.

(3) Valid sources and source selection criteria.

(4) HQDA source databases.

(5) Specifications for graphic entities and attributes.

(6) Quality assurance and quality controls.

(7) QAP annual review.

(8) Geospatial data layer approval process.

f. QAP specific guidance includes the following:

(1) Geospatial data layer definition, description and characterization.

(2) Specific policy and regulations.

(3) Geographic representation, positional accuracy, logical consistency, completeness, temporal representation, and spatial reference.

(4) Feature specific valid sources and source selection criteria.

(5) Specific HQDA source database references.

(6) Specifications for graphic entities and attributes, database storage, and attribute tables.

(7) HQDA source database relationships.

(8) Version and publication date of the QAP document.

g. Please contact the OACSIM IGI&S Program Manager for additional information about QAPs.

h. QAPs identify the appropriate ADS to link geospatial features with Army business systems. If records or data elements in separate files need to be linked or combined, then each record must contain one (1) data element that constitutes the primary and/or foreign key enabling the valid linkage between the related records.

i. Quality Assurance/Quality Control checks may include, but are not limited to, the following:

(1) Compliance with QAPs.

(2) Compliance with SDSFIE.

(3) Compliance with the IGI&S metadata requirements.

(4) Compliance with ADS business systems.

(5) Alignment with IGI&S imagery and other IGI&S geospatial data layers, such that no obvious visible errors are apparent (for example, data shifted from their true location, and so forth).

(6) Geometric consistency.

(7) Geometric accuracy.

(8) Comprehensiveness.

(9) Topological validity.

j. IGI&S geospatial data may be collected outside of the installation's site boundary or the boundary of land held by the installation if required according to mission requirements.

3–12. Data sources and data source selection

a. Sources for each geospatial data layer will meet the following criteria:

(1) Geospatial data sources must be unclassified.

(2) Acceptable data sources are documented in each geospatial data layer's corresponding QAP.

b. Sources for new geospatial data collection or updating existing geospatial data may include the following:

(1) Traditional survey documents.

(2) Geospatially-enabled CAD.

(3) Planimetric data.

(4) Global Positioning System (GPS) survey.

(5) Raster Data, such as geo-referenced, orthorectified imagery.

(6) Other Army ADS for geospatial feature data, for example, a water resources database maintained by the AGC.

c. Functional SMEs at installations are responsible for identifying the most appropriate sources, with support from the local Installation IGI&S Working Group. The organizations holding the most appropriate data source(s) may vary by geospatial data layer, command, and installation.

3–13. Imagery

a. Installation imagery represents ground conditions of the installation and will be refreshed at a minimum of every five years.

b. Installations that have a higher frequency requirement as a result of specific changes to ground conditions may request targeted imagery update support.

c. Imagery acquisition plans and/or targeted imagery update support must be communicated through the IGI&S Program Lead to the OACSIM IGI&S Program Manager.

d. New imagery will be acquired in accordance with IGI&S guidance.

e. The IGI&S program will establish and maintain an imagery acquisition plan to reconcile existing inventory and imagery requirements.

3–14. Metadata

a. All geospatial data will be accompanied by corresponding up-to-date metadata.

b. All metadata will be compliant with the IGI&S metadata requirements.

c. Metadata must be, at a minimum, updated quarterly.

d. The projection, horizontal datum, coordinate system and units must be defined and documented in the metadata for all geospatial data.

e. The vertical datum and units must be defined and documented in the metadata for all geospatial data that stores three-dimensional information, such as geometry with z-axis values or attributes including elevation.

f. Preferred coordinate systems and datums are documented in Army IGI&S QAPs.

3–15. Data sharing

a. Geospatial information will be shared across DOD functional and organizational lines and with other federal, state, and local governments in accordance with applicable Federal and state laws, except where subject to a FOIA exemption.

b. Geospatial information sharing is defined as making authoritative geospatial data available to authorized users (people, processes, and systems) with a need-to-know.

c. In accordance with the National Spatial Data Infrastructure, installations will ensure all geospatial (GIS and geospatially-enabled CAD) data is network accessible and available for use by all installation functions to avoid wasteful duplication and promote effective and economical management of resources, see Executive Order (EO) 12906 : Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure (11 April, 1994).

d. All installation and virtual installation geospatial information is Army data (see Department of the Army Pamphlet (DA Pam) 25–403). Geospatial information is data that is made by or received by any agency of the Army in connection with any geospatial activity that deals with the business of installation management or other related IE&E domain business function. This applies to Army organizations that collect, use, disseminate geospatial information, and/or perform related geospatial activities, or do so through stakeholders, contracts, or grants.

e. Geospatial information used in installation management business processes is Army record material. All IE&E geospatial information outside of Army Mapper is designated as a non-record copy. A quarterly snapshot of the Army Mapper Data Repository serves as the official record copy for Army IE&E domain geospatial information (see DA Pam 25–403).

f. The leveraged use of geospatial information facilitates the streamlining of business operations in line with Army Knowledge Management (AKM) and DOD Business Enterprise Architecture (BEA) directives and corresponds with the DOD Information Sharing Strategy.

g. Release of installation geospatial information will be accompanied by a non-disclosure statement or agreement to ensure the receiving party understands and abides by the limitation and use of the specific geospatial information.

h. Access to installation geospatial information at the installation level, exclusive of the CIP geospatial data layers held in the Army Mapper Data Repository, shall be managed by the respective installation IGI&S Manager. Data Layer Proponent leads will recommend restriction level guidance for each of their designated geospatial data layers. IGI&S managers will use that guidance in combination with input from the Army IGI&S Installation Working Group and installation level functional SMEs to determine installation user access in accordance with OACSIM IGI&S policy.

i. Access to installation geospatial information at the headquarters level, exclusive of the CIP geospatial data layers held in the Army Mapper Data Repository, shall be managed by the OACSIM IGI&S Program Manager. Data Layer Proponent leads will recommend restriction level guidance for each of their designated geospatial data layers. The OACSIM IGI&S Program Manager will use that guidance in combination with input from the IGI&S Working Group and headquarters level functional SMEs to determine user access.

3–16. Data security

a. Army Mapper data will be readily accessible, available, and secure for all authorized users.

b. Authorized users are people, processes, and systems that have privileges based on a demonstrated need-to-know.

c. IGI&S Managers will identify the access constraints for all assets designated as "critical" within the meaning of the DOD and Army Critical Infrastructure Program.

d. The Army is concerned with the need to protect critical systems, facilities, and other assets from security breaches and harm. Geospatial information must be protected using the Principle of Least Privilege to actively guard geospatial information from compromise, unauthorized use or access, and manipulation. The need to protect sensitive geospatial information from inappropriate disclosure must be carefully considered, on a case-by-case basis, together with the benefits that result from the efficient exchange of that information.

e. The IGI&S program utilizes the Army Information Assurance Program (AIAP) guidance to protect information stored, processed, accessed, or transmitted by Army Mapper, and is established to increase the level of trust of this information and of its originating sources.

f. Release determinations regarding IGI&S geospatial information must be made on a case-by-case basis. The Army Mapper system is intended to be unclassified and houses data which is unclassified and/or FOUO. Unclassified information may be exempt from public disclosure in accordance with the FOIA.

g. Installation geospatial information managed in Army Mapper is designated and will be marked FOUO. All IGI&S stakeholders must be trusted agents of the Army who have agreed to use Army computers, systems, and networks responsibly when they signed the Computer User Agreement that gave them access to Army information systems. Refer to 32 CFR Part 518 for further information on the Army FOIA Program, and to 32 CFR Part 505 for further information on the Army Privacy Program.

h. Installation geospatial systems must implement two-factor authentication techniques (see AR 25–2).

Section IV
Training and Reporting

3–17. IGI&S programmatic training

The OACSIM will establish basic IGI&S programmatic training requirements that support the IGI&S program career track. Stakeholder organizations and business areas will submit GIS training requirements to OACSIM for inclusion.

a. At a minimum, IGI&S Managers require Army IGI&S certification every two years.

b. The OACSIM IGI&S Program Manager will establish an IGI&S Training Plan to provide access to consistent, high-quality programmatic training for all IGI&S stakeholders.

c. The OACSIM IGI&S Program Manager will establish an IGI&S Certification Program authorizing IGI&S personnel to create, maintain, and manage IGI&S data in a consistent, high-quality, enterprise-wide fashion.

d. The IGI&S Training Plan will include Web-based and annual classroom training.

e. Participation in the annual Army IGI&S Training and Workshop will meet all requirements of IGI&S certification.

f. All IGI&S Managers and Data Stewards must complete an IGI&S course of instruction equal to the duties assigned to them. All personnel who manage, collect, develop, or maintain GIS data will undergo a training and certification program consisting of the following policies, standards, and procedures:

(1) Security, risks, and protecting Army IGI&S data. Topics covered will include measures to reduce the threat of unauthorized data transfer and compromise, procedures for sharing and/or protecting geospatial data, the need for frequent backups, and the requirement to report suspicious or compromised activity immediately, among other topics.

(2) IGI&S responsibilities and accountability.

(3) SDSFIE implementation guidance.

(4) Geospatial information accessibility, handling and storage considerations.

(5) QAP usage.
(6) Attribution requirements.
(7) Web applications for IGI&S.
(8) IGI&S metadata standards.
(9) Geospatial replication procedures and objectives.
(10) Map creation and output standards.

g. Army funding may be authorized to support government civilian travel and related expenses to IGI&S training and workshops.

h. Army funding may be authorized for contractors to participate in the annual IGI&S Training and Workshop in accordance with the terms of their contracts.

i. IGI&S training methodology may include various combinations of the following:
(1) Self-paced or formal instruction.
(2) IGI&S education bulletins.
(3) IGI&S communications such as posters, brochures, or pamphlets.
(4) Training films, podcasts, video podcasts, streamcasts.
(5) Computer-aided instruction.

3–18. Program measures

The purpose of ISR–Services is to evaluate the cost and quality of service delivery performance for installation support services provided at each Army installation. These components assess cost, quantity, and quality of services provided to organizations and individuals associated with Army bases (see AR 210–14).

a. The IGI&S program establishes measures to assess the status of IGI&S data, assets, systems, and management functions at installations, and to evaluate support to installation management business objectives.

b. Installations are required to collect, compile, and report IGI&S program measures on a quarterly basis via the ISR–Services (Service 114) data input module. Compiled IGI&S measures will be used to identify installation IGI&S capability shortfalls and to support the allocation of IGI&S investment resources.

c. Program measures are developed for each IGI&S investment supportive of installation management business processes. Program measures will gauge the value-added contribution of the IGI&S investment to business processes and provide a clear basis for assessing accomplishment, aiding decisionmaking, and assigning accountability at each management level. Program measures assess geospatial data compliance against Army, and DOD policies and guidance.

d. Program measures for the IGI&S program (Service 114) will—
(1) Identify needs assessments for central funding of raster and/or vector data collection.
(2) Determine if new license agreements are needed to maximize cost savings.
(3) Create and maintain a geospatial portfolio of operational assets.
(4) Validate software maintenance costs and track license efficiencies.
(5) Report system consolidation status and validate future funding requirements.
(6) Monitor geospatial system status to minimize duplication of efforts and ensure continuity of operation via accreditation status.
(7) Provide increased situational awareness for high-level decisionmaking.
(8) Monitor the program's financial investments and validate future requirements.

3–19. IGI&S development

a. All planned geospatial systems and/or new geospatial functionality to existing systems will be coordinated with the OACSIM IGI&S Program Manager.

b. Planned installation level development, such as custom tools and Web-based application map viewers developed outside of the Army Mapper enterprise for local use, must not be duplicative of capability available within Army Mapper.

c. Planned installation level development must be accompanied by a documented plan for integration with Army Mapper, or a waiver obtained from the OACSIM IGI&S Program Manager.

d. New organizational level capabilities, such as ARNG development initiatives and/or requirements, may be coordinated within existing governance processes of the respective organization. If such development is part of a system with an existing SIA or MOA with Army Mapper, that development must adhere to said agreement.

3–20. GIS IT investments

a. The Army's goal is to promote efficiency through streamlining and system consolidation. Geospatial system owners and the OACSIM IGI&S Program Manager will develop plans to reduce costs and eliminate redundancies and report geospatial IT investments monthly in accordance with AR 25–1.

b. All geospatial IT investments are to be managed as part of the Army's IT portfolio:

(1) Geospatial investments must support the Army's strategic goals, mission, and transformation strategies.

(2) Investments in unnecessarily duplicative systems will be terminated if the capability is provided and readily accessible in the Army Mapper enterprise.

c. All planned geospatial IT investments in any year using non-IT programmed funds that exceed the dollar thresholds of $25,000 utilizing Operations and Maintenance, Army (OMA) funds or $100,000 utilizing Research Development Test and Evaluation (RDT&E) funds require an AKM Goal 1 waiver (see AR 25–1 and DA Pam 25–1–1).

d. Geospatial IT investments include the following:

(1) Hardware and software investments including life-cycle hardware and/or software upgrades, replacement and maintenance.

(2) Contracted IT support including system development and operations and maintenance.

e. Installations that have existing geospatial systems with Web Map server capabilities are directed to maintain these systems without enhancement.

3–21. Registration requirements Army Portfolio Management Solution

Army Portfolio Management Solution (APMS) is the Army's single authoritative registry for geospatial IT investments, capabilities, and systems. Geospatial IT investments, for which the Army is a funding source, must be registered in accordance with APMS (see AR 25–1).

Appendix A
References

Section I
Required Publications

32 CFR 505
The Army Privacy Program (Cited in para 3–16.)

32 CFR 518
The Freedom of Information Act Program (Cited in para 3–16.)

Executive Order 12906
Coordinating Geographic Data Acquisition and Access: The National Spatial Data Infrastructure, April 11, 1994 (Cited in para 3–15.)

Section II
Related Publications

5 U.S.C. § 552 (2004), as amended
Freedom of Information Act

6 U.S.C. § 482 (West Supp. 2004)
Homeland Security Act of 2002

10 U.S.C. 2222 (a) (1)
National Defense Authorization Act

AR 5–22
The Army Force Modernization Proponent System

AR 10–87
Army Commands, Army Service Component Commands, and Direct Reporting Units

AR 11–2
Managers' Internal Control Program

AR 25–1
Army Knowledge Management and Information Technology

AR 25–2
Information Assurance

AR 25–30
The Army Publishing Program

AR 115–11
Geospatial Information and Services

AR 200–1
Environmental Protection and Enhancement

AR 210–14
Installation Status Report Program

AR 210–20
Real Property Master Planning for Army Installations

AR 350–19
The Army Sustainable Range Program

AR 380–5
Department of the Army Information Security Program

AR 525–26
Infrastructure Risk Management (Army)

Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3901.01C
Requirements for Geospatial Information & Services, 10 April 2010

DA Pam 25–1–1
Information Technology Support and Services

DA Pam 25–403
Guide to Recordkeeping in the Army

DOD 5500.07–R
Joint Ethics Regulation (JER)

DOD Directive 3020.40
DOD Policy and Responsibilities for Critical Infrastructure

DOD Directive 3200.15
Sustainment of Ranges and Operating Areas (OPAREAs)

DOD Directive 4715.11
Environmental and Explosives Safety Management on Operational Ranges Within the United States

DOD Directive 4715.12
Environmental and Explosives Safety Management on Operational Ranges Outside the United States

DOD Directive 5105.60
National Geospatial-Intelligence Agency (NGA)

DOD Directive 8115.01
Information Technology Portfolio Management

DOD Directive 8320.02
Data Sharing in a Net-Centric Department of Defense

DOD Directive 8320.03
Unique Identification (UID) Standards for a Net-Centric Department of Defense

DOD Information Sharing Strategy
DOD Information Sharing

DOD Instruction 3305.10
DOD Geospatial Intelligence (GEOINT) Training

DOD Instruction 5000.56
Programming Geospatial-Intelligence (GEOINT), Geospatial Information and Services (GI&S), and Geodesy Requirements for Developing Systems

DOD Instruction 5030.59
National Geospatial-Intelligence Agency (NGA) Limited Distribution of Geospatial Intelligence

DOD Instruction 5210.83
Department of Defense Unclassified Controlled Nuclear Information (UCNI)

DOD Policy
Department of Defense Architecture Framework (DODAF) February 2004

FGDC Metadata Content Standard
Content Standard for Digital Geospatial Metadata, Version 2 - FGDC–STD–001–1998 (http://www.fgdc.gov/standards/projects/FGDC-standards-projects/metadata/base-metadata/v2_0698.pdf.).

FGDC Positional Accuracy Standard
Federal Geographic Data Committee Standard Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy, FGDC–STD–007.3–1998 (http://www.fgdc.gov/standards/projects/FGDC-standards-projects/accuracy/part3/chapter3).

JP 1–02
DOD Dictionary of Military and Associated Terms

JP 2–03
Geospatial Intelligence in Joint Operations

OMB Circular No. A–16
Coordination of Geographic Information and Related Spatial Data Activities

Section III
Prescribed Forms
This section contains no entries.

Section IV
Referenced Forms
DA Forms are available on the Army Publishing Directorate Web site (www.apd.army.mil).

DA Form 11–2
Internal Control Evaluation Certification

DA Form 2028
Recommended Changes to Publications and Blank Forms

Appendix B
Internal Control Evaluation

B–1. Function
The function covered by this checklist is the Army IGI&S program.

B–2. Purpose
The purpose of this checklist is to assist in evaluating the key internal controls outlined below. It is not intended to cover all controls.

B–3. Instruction
Answers must be based on the actual testing of key internal controls (for example, document analysis, direct observation, sampling, simulation). Answers that indicate deficiencies must be explained and corrective action indicated in supporting documentation. These key internal controls must be formally evaluated at least once every three years. Certification that this evaluation has been conducted must be accomplished on DA Form 11–2 (Internal Control Evaluation Certification).

B–4. Test questions
Questions for key internal controls are as follows:

a. Have the processes and procedures for receiving installation geospatial information from other systems been identified under a MOA, MOU, or SIA?

b. Have the processes and procedures for delivering installation geospatial information to other systems been identified under a MOA, MOU, or SIA?

c. Is a review of IGI&S standards and metrics conducted annually with change requirements being identified, prioritized, reviewed, adopted, and then incorporated into the Installation Status Report (ISR) – Services data collection program?

d. Is the IGI&S Data Collection Memorandum being published annually?

e. Are the review of QAPs conducted annually with changes being identified, prioritized, reviewed, and incorporated into the quality assurance plan program?

f. Are the Army Mapper standard operating procedures being coordinated, reviewed, and published annually?

g. Is training in support of the overall IGI&S program held annually?

h. Is the Army Mapper Enterprise Review Board held quarterly?

i. Is the Army IGI&S Working Group held quarterly?

j. Is installation geospatial data updated in Army Mapper and reported to the OACSIM IGI&S Program Manager quarterly?

k. Is AR Installation Geographic Information and Services reviewed at least every 18 months and updated at a minimum of every three years, as required by AR 25–30?

B–5. Comments

Submit comments to the Office of the Assistant Chief of Staff for Installation Management, DAIM–ODO, 600 Army Pentagon, Washington DC, 20310–0600.

Glossary

Section I
Abbreviations

ACSIM
Assistant Chief of Staff for Installation Management

ADS
authoritative data source

AGC
Army Geospatial Center

AGE
Army Geospatial Enterprise

AIAP
Army Information Assurance Program

AKM
Army Knowledge Management

APMS
Army Portfolio Management Solution

ARNG
Army National Guard

AR
Army Regulation

ASA (IE&E)
Assistant Secretary of the Army (Installations, Energy and Environment)

BEA
Business Enterprise Architecture

BRAC
base realignment and closure

CAC
common access card

CAD
computer aided design

CCB
configuration control board

CIP
common installation picture

COTS
commercial off-the-shelf

DA Pam
Department of the Army Pamphlet

DAA
designated approval authority

DAIM–ODO
Office of the Assistant Chief of Staff for Installation Management, Operations Division

DCS
Deputy Chief of Staff

DOD
Department of Defense

DODAF
Department of Defense Architecture Framework

DUSD (IE&E)
Deputy Under Secretary of Defense (Installations, Energy and Environment)

EA
enterprise architecture

EO
executive order

FCC
functional coordination committee

FGDC
Federal geographic data committee

FOIA
Freedom of Information Act

FOUO
for official use only

GIO
Geospatial Information Officer

GIS
Geographic Information System

GPS
Global Positioning System

HQDA
Headquarters, Department of the Army

HQIIS
Headquarters Installation Information System

HQAES
Headquarters Army Environmental System

IA
information assurance

IE&E
Installations, Energy and Environment

IGI&S
installation geospatial information and services

IMCOM
Installation Management Command

IRB
investment review board

IS
information security

ISR
installation status report

IT
information technology

JP
Joint Publication

MDEP
management decision evaluation package

MOA
memorandum of agreement

MOU
memorandum of understanding

NCES
Network-Centric Enterprise Services

OACSIM
Office of the Assistant Chief of Staff for Installation Management

OMA
operation and maintenance, Army

OMAR
operation and maintenance, Army Reserve

OMB
Office of Management and Budget

OSD
Office of the Secretary of Defense

POM
program objective memorandum

POC
point of contact

PPBE
planning, programming, budgeting, and execution

QA
quality assurance

QAP
quality assurance plan

QC
quality control

RDT&E
research, development, test and evaluation

RPI
real property inventory

RSC
regional support command

SDSFIE
spatial data standards for facilities, infrastructure and environment

SIA
system interface agreement

SME
subject matter expert

SRP
Sustainable Range Program

USACE
United States Army Corps of Engineers

USAEC
United States Army Environmental Command

USAMC
United States Army Materiel Command

USAR
United States Army Reserve

Section II
Terms

Adaptation
A formalized (approved) alteration of the SDSFIE logical data model resulting in another logical data model which is tailored to the particular business requirements of an implementing organization. An Adaptation consists of a specific Profile and/or all the Extensions that are required to meet specific user requirements.

Army Mapper
The Army enterprise GIS for the IE&E domain - integrating relational databases, providing common applications to all critical business functions with data being shared across the organization. The Army Mapper suite consists of three main components: Army Mapper Database Component - repository for Army IGI&S geospatial data; Army Mapper Application Software - industry-standard geospatial tools; and Army Mapper Web Map Viewer - provides non-technical users the ability to view and query installation geospatial data stored in the Army Mapper database.

Army Spatial Data Infrastructure
The network, systems, standards, policies, and guidance that provide the foundation for Army Mapper.

Attribute
A data item containing a single piece of information about a geospatial data layer. The properties or characteristics that describe, distinguish, measure, define, and identify entities.

Authoritative Data
Officially recognized data that can be certified and is provided by an authoritative source.

Authoritative Data Source (ADS)
A recognized or official data production source with a designated mission statement or source/product to publish reliable and accurate data for subsequent use by customers. An authoritative data source may be the functional combination of multiple, separate data sources. (DOD Directive 8320.03)

Computer-Aided Design (CAD)
CAD is a type of computer application that enables trained users to make quick and accurate digital drawing in 2 or 3 dimensions. CAD uses levels or layers for feature types and can be geo-referenced to produce GIS products.

Content
The information conveyed by data.

Context
The organizational, functional, and operational circumstances in which data is created and/or received and used.

Coordinate System
A reference system used to measure horizontal and vertical distances on a planimetric map. A coordinate system is usually defined by a map projection, a spheroid of reference, a datum, one or more standard parallels, a central meridian, and possible shifts in the x- and y-directions to locate x,y positions of point, line, and area features.

Data
A representation of facts, concepts, or instructions in a formalized manner suitable for communication, interpretation, or processing by humans or by automatic means.

Data Steward
A recognized, responsible agent of Army resources; the long-term functional responsibility for the care, control, and management of Army data. A Data Steward can be responsible for one or more geospatial data layers.

Database
A logical collection of interrelated information managed and stored as a unit. A geospatial database includes data about the geospatial location and shape of geographic features recorded as points, lines, areas, pixels, grid cells, or tiles, as well as their attributes.

Datum
A datum provides a frame of reference for measuring locations on the surface of the Earth. It defines the origin and orientation of latitude and longitude lines.

Element
Any individual item of the SDSFIE logical data model including feature types, feature geometries, attributes, enumeration or domain values, and associations or relationships.

Extension
The addition of a new element (for example, feature type or attributes) to the SDSFIE logical data model provided that element does not conflict with the definitions of elements already defined by higher authority.

Feature
A group of spatial elements which together represent a real-world entity or administrative entity, such as a boundary. A complex feature is made up of more than one group of spatial elements, for example, a set of line elements with the common theme of roads representing a road network.

Geographic Information System (GIS)
An organized, computer-based set of tools for collecting, processing, storing, managing, analyzing, and presenting geographic data as well as related hardware, geospatial information, and standardized schemas to facilitate interoperability and trained personnel to maintain and operate the system.

Geospatial Data
Information that identifies the geographic location and characteristics of natural or constructed features and boundaries on the Earth, including: statistical data and information derived from, among other things, remote sensing, mapping, and surveying technologies; and mapping, charting, geodetic data and related products. (JP 1–02, Department of Defense Dictionary of Military and Associated Terms)

Geospatial Functionality
Any tool, application or technique that is developed, purchased or implemented specifically for the purpose of querying, processing, analyzing, modeling, visualizing, displaying, capturing, or managing geospatial data.

Geospatial Information and Services
The collection, information extraction, storage, dissemination, and exploitation of geodetic, geomagnetic, imagery (both commercial and national source), gravimetric, aeronautical, topographic, hydrographic, littoral, cultural, and toponymic data accurately referenced to a precise location on the Earth's surface. Geospatial services include tools that enable users to access and manipulate data, and also include instruction, training, laboratory support, and guidance for the use of geospatial data. (JP 1–02, Department of Defense Dictionary of Military and Associated Terms)

Logical Data Model
A structured representation of business data requirements using data abstraction and inheritance techniques and has been validated and approved by business representatives and which contains both entities and relationships of importance within an organized framework, and business textual definitions and examples. It is the basis of physical database design.

Physical Data Model
The representation of a data design that conforms to the concepts in a logical data model and takes into account the structure and constraints of a given database management system or geographic information system; includes all the database artifacts required to create relationships between tables or achieve performance goals, such as indexes, constraint definitions, linking tables, partitioned tables or clusters. Physical data models, such as geodatabase schemas, are generated from approved adaptations stored in the SDSFIE registry.

Projection
A mathematical formula that transforms feature locations between the Earth's curved surface and a map's flat surface.

Raster
A cellular data structure composed of rows and columns for storing images. Groups of cells with the same value represent features.

Real Property
Real property consists of lands, buildings, utilities and structures, including improvements and additions.

Quality Assurance/Quality Control (QA/QC)
Processes used to measure and assure the quality of geospatial data as well as improve that data to meet Army requirements.

Stakeholder
An individual or organization that owns or has a stake in information found in a geospatial data layer, and so must participate in decisions relating to the release, creation, maintenance, and deletion of geospatial data during access review.

Validate
To check data for compliance against a specified structure and set of acceptable values. Documenting that data meets its pre-determined specifications and quality attributes. Validation ensures that data inserted into an application satisfies defined formats and other input criteria before they are processed. In the case of this document, validating involves checking that data complies with data layer proponents acceptance criteria documented in the quality assurance plans.

Vector
A coordinate-based data structure commonly used to represent linear geographic features. Each linear feature is represented as an ordered list of vertices.

Veracity
A state of being accurate and true achieved by conforming to the facts.

Versioning
The creation and management of multiple releases of data, all of which have the same general function but are updated or improved over time.

Section III
Special Abbreviations and Terms
This section contains no entries.