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Intelligence

GEOSPATIAL INFORMATION AND SERVICES
(GI&S)



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This instruction implements Air Force Policy Directive (AFPD) 14-1, *Air Force Intelligence Planning and Operations*, 1 June 1999. It provides procedures for identifying functional and area requirements for Geospatial Information and Services (GI&S). This includes the provision and use of GI&S data and products. This instruction also implements AFPD 10-3, 2 May 94, *Air Reserve Component Forces* (establishes policy to fully integrate Air National Guard and Air Force Reserve Command (AFRC)); Department of Defense (DoD) Instruction 5000.56, *Programming Unique Mapping, Charting and Geodesy (MC&G) Requirements for Developing Systems*, 11 September 1991; DoD Instruction 5030.59, *National Imagery and Mapping Agency (NIMA) LIMITED DISTRIBUTION Imagery or Geospatial Information and Data*, 13 May 2003; DoD Directive 5105.60, *National Imagery and Mapping Agency (NIMA)*, 11 October 1996; Chairman Joint Chiefs of Staff Instruction (CJCSI) 3901.01, *Requirements for Geospatial Information & Services*, 26 Jul 1999; CJCSI 3900.01, *Position Reference Procedures*, 10 August 1998, and Defense Intelligence Agency Regulation (DIAR) 57-24, *US/Allied Tactical Target Materials Program*, 2 Oct 2002. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 37-123, *Management of Records* and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://webrims.amc.af.mil>

Note: The title has changed to *Geospatial Information and Services*. The term GI&S, formerly known as Mapping, Charting and Geodesy, continues to include imagery based geospatial products (e.g., Controlled Image Base), but not imagery intelligence. GI&S is the representation of accurate, attributed, geo-referenced data and information, arranged to describe, assess, and visually depict physical features and geographically referenced activities on earth in support of Air Force missions. It also includes the related geodesy and geophysical (G&G) disciplines.

SUMMARY OF REVISIONS

This document is substantially revised and must be completely reviewed.

It incorporates changes resulting from reorganization and shift of GI&S functional management to Air Staff and increasing GI&S responsibilities at Air Force Command Control & Intelligence, Surveillance, Reconnaissance Center (AFC2ISRC) and the 480 Intelligence Wing (480 IW). It also reflects changes in National Geospatial-Intelligence Agency (NGA, formerly NIMA) direction as the Geospatial Intelligence (GI) community moves toward an all-digital environment. This instruction does not provide authoritative guidance on the following because they are not in the HQ USAF/XOIRY GI&S purview. Department of Defense (DoD) Flight Information Publications (FLIP), and other materials for which Air Force Flight Standards Agency has functional responsibility; or Evasion Charts for which Joint Personnel Recovery Activity (JPRA) is responsible, and the USAF GeoBase program for which HQ USAF/ILE-I has policy authority. This AFI supersedes AFI 14-205, *Identifying Requirements for Obtaining and Using Geospatial Information and Services*, 1 January 1999.

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Section A—GI&S Responsibilities.

1. NGA. The NGA mission is to provide timely, accurate and relevant GI in support of national security. NGA is the chief provider of GI to meet Air Force mission requirements. The NGA Geospatial Transition Plan (GTP) defines the DoD GI&S portion of the overarching GI activity for the near-term to 2020. The NGA GTP will implement the new intelligence discipline called GI. The new GI discipline will merge imagery and geospatial capabilities, and apply to new concepts of warfare using the latest in information technology. When fully funded and implemented, the NGA GTP will provide the basis for Air Force GI&S planning to improve global readiness and the ability to respond in a timely, accurate and relevant manner. NGA movement toward increased commercialization of geospatial production requires Air Force to ensure updated requirements for certified data formats and products. The Air Force will work with NGA to ensure flight safety and mission requirement needs are satisfied by future NGA data. More information on NGA is located on their home pages at: NGA Internet Homepage: <http://www.nga.mil/>; SIPR-NET: <http://www.nga.smil.mil/>; JWICS: <http://www.nga.ic.gov/>.

2. HQ USAF. The Air Force Deputy Chief of Staff Air and Space Operations (HQ USAF/XO) designates the Air Force Director of Intelligence, Surveillance and Reconnaissance (HQ USAF/ XOI) as the Air Force GI&S Functional Manager. This responsibility is further delegated to HQ USAF/XOIRY.

2.1. HQ USAF/XOIRY. As the Air Force GI&S Functional Manager, HQ USAF/XOIRY is the focal point for the Air Force Geospatial Transformation Plan (GTP) which implements the NGA Geospatial Transition Plan. XOIRY is responsible to train and equip Air Force forces in the geospatial function. This requirement dictates the need to coordinate and approve all data and product formats to ensure standardization throughout the Air Force. XOIRY formulates, interprets, coordinates, and recommends HQ USAF policy on all Air Force GI&S planning, training, equipping, programming, and budgeting matters. XOIRY is the primary Air Force interface with NGA, the Combatant Commands and the other services on all GI&S matters. This interface does not include intelligence imagery, which is a separate HQ USAF/XOIRY functional management responsibility.

2.1.1. HQ USAF/XOIRY maintains overall validation authority for all Air Force GI&S functional and area requirements. XOIRY directs the GI&S functional requirements activities executed by AFC2ISRC/IN, HQ AFMC/IN, Field Operating Agency (FOA), and Direct Reporting Unit (DRU), and other Air Force Major Command (MAJCOM) systems acquisition offices.

2.1.2. HQ USAF/XOIRY is the focal point for all Air Staff, MAJCOM, FOA and DRU customers needing policy assistance in any GI&S or related discipline, new and revised GI&S functional and area coverage, and assistance with any issues requiring NGA GI&S support.

2.1.3. HQ USAF/XOIRY is the focus for routine technical assistance requests. Requests should be directed to HQ USAF/XOIRY through MAJCOM/FOA/DRU representatives. Contact XOIRY: (See **Attachment 1**) or see the Air Force Geospatial Portal: <https://afc2isrc.af.mil/warfighter/geospatial/>

2.2. HQ USAF/XOR. The Operational and Capability Requirements Directorate has overall Air Staff policy authority for functional requirements.

2.3. HQ USAF/XOIIA. The Applications and Production Division represents HQ USAF/XOI at the DoD level for General Defense Intelligence Program/National Foreign Intelligence Program, and Tac-

tical Intelligence and Related Activities production and resources. XOIIA advises XOIRY concerning plans, programs, resources, support initiatives, and technical advancements that affect GI&S.

2.4. HQ USAF/XOIF. The Force Development and Plans Division is responsible for GI&S personnel resource utilization and training issues.

2.5. HQ USAF/ILE-I. The Installations Division is responsible for the Air Force GeoBase program. GeoBase includes Geospatial support to the Installation mission. HQ USAF/ILE-I is responsible for GeoBase policy, requirements validation, enterprise architecture and standards, and program investment strategy and oversight as it pertains to Air Force garrison installation and expeditionary site mapping. *USAF GeoBase Policy Memo-7 Oct 02* prescribes HQ USAF/ILE-I GeoBase functions.

2.6. AFCSO. The Air Force Combat Support Office is responsible for the Chief of Staff's Innovation Program which includes use of selected imagery and geospatial data. AFCSO shall provide direct support to HQ USAF/XOIRY concerning selected operational uses of geospatial data in the USAF.

2.7. All other Air Staff organizations having GI&S support needs, except GeoBase, must coordinate planning with HQ USAF/XOIRY.

3. AFC2ISRC/IN. The Intelligence Directorate is responsible for building architectures and modernization strategies to integrate C2ISR systems with modernization related functional GI&S requirements. These responsibilities are key to planning the infrastructure to support Air Force GTP implementation. AFC2ISRC serves as the central collection point for all MAJCOM, NAF and Air Force component GI&S modernization functional requirements. AFC2ISRC solicits, collects, analyzes, consolidates and prioritizes, GI&S modernization functional requirements supporting the operational needs of Air Force weapons, weapon systems, Automated Information Systems (AIS) and special programs.

3.1. AFC2ISRC/IN will establish a GI&S Functional Requirements Working Group. The working group will solicit and prioritize functional GI&S requirements. It will also update MAJCOM, FOA and DRU representatives on functional requirements validation, architectures, and modernization status. The working group will be held semi-annually, or as required. HQ AFMC/IN will be an advisory member of the working group to ensure early identification and coordination on potential acquisition requirements. AFC2ISRC/IN will forward functional requirements to HQ USAF/XOIRY for validation, and further coordination with NGA.

3.2. IAW HQ USAF/XOIRY policy guidance, or in direct response to tasking, AFC2ISRC conducts or arranges for the AFC2ISRC Transformation Center or HQ AFMC to conduct GI&S technical/software/systems engineering, and to provide technical support for NGA data and product prototype evaluations.

3.3. AFC2ISRC manages all GI&S web sites for HQ USAF/XOIRY. Functional requirements are primarily managed via NIPRNET, (<https://afc2isrc.af.mil/warfighter/geospatial/>), SIPRNET (URL TBD) and JWICS (URL TBD) web interfaces.

4. HQ ACC/480 IW. HQ ACC/IN establishes HQ ACC GI&S policy. Although the 480 IW, an ACC organization, provides production for other MAJCOMs, DRUs and FOAs, HQ USAF/XOII/XOIR, as well as, HQ ACC/INX, provides oversight and management to ensure adequate control. The 480 IW is the focal point for all Air Force digital geospatial data production, and storage and distribution via the Geospatial Product Library (GPL). The 480 IW provides digital GI&S products to fulfill mission critical Air Force functional and area requirements, [e.g. Air Force Controlled Image Base (AF CIB)], when these

programs are approved by HQ USAF/XOIRY IAW para **11**. Use the following link for additional information: <http://intelink.ig480.langle.af.smil.mil>.

4.1. The 480 IW deconflicts Air Force GI&S production in coordination with NGA GI&S production managers. As maintainer of the master Air Force GPL, the 480 IW distributes the most comprehensive and current available set of NGA and Air Force digital GI&S data to Air Force users.

5. HQ AFFSA. As outlined in AFI 11-201, *Instruction for Flight Information Publications (FLIP)*, the Aeronautical Information Branch (HQ AFFSA/XOIA) investigates, defines, consolidates, assembles, validates and lists, in order of priority, Air Force operational requirements for Flight Information Publications (FLIP), Digital Aeronautical Flight Information File (DAFIF), and related aeronautical information. AFFSA/XOIA is the Air Force point of contact with NGA on FLIP and DAFIF matters to include non-procedural discrepancies. AFFSA/XOIA is also the point of contact to the National Aeronautical Charting Office (NACO) for NACO aeronautical products.

6. HQ AFMC/IN. The Intelligence Directorate (HQ AFMC/IN), in coordination with AFC2ISRC, collects, assesses and revises all Air Staff, MAJCOM, FOA and DRU GI&S functional requirements for weapons, weapon systems and AIS whether in development or undergoing upgrade.

6.1. Assures Air Force system acquisition documents properly reflect the requirements at each developmental milestone as prescribed by AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*. HQ AFMC/IN, will forward modernization related functional GI&S requirements to AFC2ISRC/IN for management within the Air Force operational community. AFC2ISRC/IN then forwards requirements to HQ USAF/XOIRY for validation and any coordination required with NGA.

6.2. The HQ AFMC/IN GI&S role is to act as the interface between the operational community and developmental community under HQ USAF/XOIRY. This role extends the functional requirements review process, managed by AFC2ISRC, into the development community. AFMC/IN carries out HQ USAF/XOIRY and AFC2ISRC GI&S functional requirements policy and procedures and implements, via system development, throughout the Air Force.

6.3. HQ AFMC/IN is a critical link in the weapons, weapon system and AIS development process. It oversees translation of functional requirements into the AFMC systems requirements processes to include final requirements satisfaction through system testing and fielding. AFMC/IN advocates Air Force GI&S policy as advisor to program developers and laboratory activity, and by assessing their needs for new or existing GI&S data and products. AFMC/IN makes GI&S input to relevant requirements documentation for all systems in the development pipeline.

7. Air Force Components of Combatant Commands, MAJCOMs, FOAs, DRUs. Commanders of these organizations will establish a GI&S Office of Primary Responsibility (OPR). The GI&S office workforce will consist of personnel trained (see paragraph **8.4.**) sufficiently to conduct the following assigned responsibilities:

7.1. Issue supplemental instructions to this instruction within six months of its publication.

7.2. Appoint GI&S points of contact to establish and maintain GI&S distribution accounts and submit routine and automatic distribution (AD) requests using Defense Logistics Agency (DLA) guidance (See **Section C**).

7.3. As required, prepare GI&S Annexes (Annex M) to Combatant Command operation Plans (OPLANs) and Concept Plans (CONPLANs) according to AFMAN 10-401, 1 May 1998 *Operation Plan and Concept Plan Development and Implementation*, and supported command directives.

7.3.1. Identify, request and maintain appropriate GI&S stocks/data to support Combatant Command OPLAN, or CONPLAN tasking.

7.3.2. Conduct War Reserve Stocks (WRS) planning. The criticality of WRS planning is decreasing because of increased use of digital data. However, the following applies to Combatant Commands WRS planning. Identify WRS requirements for movement in the Time Phased Force Deployment Listing (TPFDL) and the OPLAN or CONPLAN Logistics Annex. Use AFMAN 10-401 when developing and reviewing Annex M of an OPLAN or CONPLAN. AFMAN 10-401 provides air components preparing plans for an OPLAN with guidance, formats and procedures consistent with the Joint Operation Planning and Execution System. AFMAN 10-401 also guides MAJCOMs when preparing plans to support Air Force unilateral plans. Generic procedures for estimating WRS quantities are detailed in [Attachment 2](#).

7.4. Establish procedures to ensure sufficient GI&S items are available to sustain routine operations and ensure adequate re-supply. Issue maps, charts, digital GI&S data and related items when required. Maintain accessibility to pertinent NGA instructions, manuals and catalogs identified in [Attachment 1](#).

7.5. Actively coordinate with command operations, plans, training, logistics, requirements, inspection, and intelligence staffs to ensure doctrine, strategy, tactics, logistics, and RDT&E efforts adequately address GI&S functional requirements.

7.6. Certify and submit GI&S functional requirements IAW this instruction and supported command guidance. Ensure GI&S requirements for new systems or techniques are included in the appropriate system acquisition documents (see AFI 10-601, 13 Aug 99, *Mission Needs and Operational Requirements Guidance and Procedures*, and AFI 14-111, 8 Aug 03, *Intelligence in Force Modernization*). When new systems needing GI&S products or services are identified, forward requirements to AFC2ISRC/IN. Ensure GI&S Functional Requirements Working Group representation per paragraph [3.1](#).

7.6.1. Submit area requirements IAW paragraph [8.2](#).

7.6.2. Participate in requirements calls via the Geospatial Portal on the C2ISR WarfighterWeb page IAW paragraph [8.5](#).

7.7. Assist in the origination and fielding of new procedures and techniques to facilitate Air Force GTP generated changes such as the GPL.

7.8. Ensure GI&S programs are funded as applicable.

7.9. Ensure data/product reviews are accomplished and responses to all NGA GI&S product reviews are routed through the chain of command to HQ USAF/XOIRY for Air Force position consolidation and submission to the requester.

7.10. Participate in annual Air Force GI&S conferences and in periodic meetings with other Air Force organizations to address critical GI&S matters of mutual concern.

7.11. Ensure subordinate units are aware of, and comply with Air Force and Joint Chiefs of Staff (JCS) policy regarding use of World Geodetic System and other datums as prescribed in paragraph 14. of this instruction.

7.12. Provide GI&S support to all gained Air Reserve Components (ARC) [Air National Guard (ANG) and Air Force Reserve Command (AFRC)] IAW AFPD 10-3, *AFRC/ANG Responsibilities and Air Force Responsibilities for their Support*, 2 May 1994.

7.13. Coordinate Air Force Geospatial Product Library (AF GPL) installation and maintenance requests with 480 IW, AFC2ISRC/IN and HQ USAF/XOIRY.

Section B—Identifying Requirements for Geospatial Information

8. GI&S Requirements Flow and Definitions: HQ USAF/XOIRY, the principal Air Force point of contact with NGA, manages the Air Force GI&S requirements process in accordance with applicable JCS and Air Force directives and processes. CJCSI 3901.01A and AFMAN 10-401 prescribe GI&S Functional and Area Requirement processes for DoD. AFI 14-111, prescribes the integration of intelligence into the Air Force's modernization processes.

8.1. Functional requirements originate in the operational community and serve as the foundation for GI&S materials design specifications for new weapons, weapon systems or AIS, and are identified IAW the HQ USAF/XOIRY, HQ AFMC and AFC2ISRC relationships outlined in **Section A**. HQ USAF/XOIRY validates and forwards all new functional requirements to NGA for adoption, development and production.

8.2. Area requirements are validated functional requirements, which are translated into production requests over specific geographic areas. GI&S area requirements and production status are identified using NGA guidance. NGA provides DoD tailored versions of the area requirements database to the Combatant Commands and services. The database lists individual production requirements and their associated JCS priorities as assigned by the Combatant Commands and services.

8.2.1. MAJCOMs, FOAs and DRUs identify GI&S production requirements to support Air Force directed CONUS operations, training and RDT&E through the applicable chain of command to HQ USAF/XOIRY. HQ USAF/XOIRY will periodically task the MAJCOMs, FOAs and DRUs to conduct requirements reviews using GI&S area requirements documentation applicable at the time of tasking. Documentation guidance may vary from tasking to tasking because NGA does not currently support the Requirements Analysis System. Reviews resulting in new and revised submissions are returned to HQ USAF/XOIRY for validation, consolidation and forwarding to NGA as part of the total Air Force GI&S production requirement. Out-of-cycle requirements may be sent to HQ USAF/XOIRY at any time, in response to a changing mission need.

8.2.1.1. This process is separate from other intelligence requirements (e.g., imagery) program flows. DLA catalogs, NGA Gateway listings, digital catalogs, and Air Force GPL inventories are the basic references for identifying GI&S products available from NGA and Air Force production sources. The Air Force master GPL inventory list is posted on the Air Force Geospatial Portal. Individual GPL inventory listings are posted on each GPL. Requirements submissions do not generate orders for finished products. Order available products in accordance with catalog instructions; not IAW requirements identification processes outlined here.

8.2.1.2. Submit requirements for CONUS Geodetic and Geophysical (G&G) products and

services to HQ USAF/XOIRY through the MAJCOM, FOA, or DRU GI&S chain of command.

8.2.1.3. Air Force components of Combatant Commands submit requirements, including G&G for operations (OPLAN commitments), Combatant Command area training, mission rehearsal, exercises and intelligence to the responsible Combatant Command. Submit RDT&E and CONUS operations and training requirements to HQ USAF/XOIRY per MAJCOM, FOA and DRU guidelines. Provide HQ USAF/XOIRY an information copy of all GI&S requirements submitted through Combatant Command channels. Request HQ USAF/XOIRY assistance when critical GI&S production requirements, submitted through Combatant Command channels, are not accomplished in a timely manner by NGA.

8.3. Systems requirements are the basis for the development of hardware and software which are derived from functional requirements. System requirements are the responsibility of HQ AFMC and its subordinate centers. HQ USAF/XOIRY and AFC2ISRC act in a collateral responsibility role as GI&S subject matter advisors in the systems requirements process.

8.3.1. HQ AFMC, AFC2ISRC and Program Development Offices should coordinate new or modified systems' GI&S data needs with HQ USAF/XOIRY to ensure interoperability and compatibility of NGA and other GI&S data sources.

8.3.2. All computer software designed to use GI&S data must use NGA or HQ USAF/XOIRY authorized data, information, and NGA or HQ USAF/XOIRY certified formats to the extent possible without intervening transformations. The goal is to eliminate need for transformations that can impact data fidelity or incur unnecessary developmental or operational costs.

8.4. Identifying Training Requirements. NGA's National Geospatial Intelligence College (NGIC) provides both basic and advanced, specialized GI&S training. The 17th Training Wing, Goodfellow AFB, TX, provides broad GI&S training as needed to supplement intelligence skills courses. Organizations at all levels having key GI&S positions will ensure incumbents have or receive the formal NGIC training needed to perform assigned responsibilities. Recommend completion of the NGA Fundamentals CBT which is offered in "Executive Summary" or "Full Course" versions according to experience levels of personnel.

8.4.1. Information on NGIC courses is available on the NGA INTELlink Homepage or the Air Force Geospatial Portal. Submit specific requests for Air Force GI&S course billets to HQ Air Education and Training Command (HQ AETC) through local training offices for validation by the MAJCOM.

8.4.2. NGIC develops Air Force GI&S course curricula in response to HQ USAF Development and Plans Division (HQ USAF/XOIF) requests. HQ USAF/XOIRY provides input to the HQ USAF/XOIF requests. Submit new GI&S training needs or changes to existing courses to HQ USAF/XOIRY and HQ AF/XOIF for forwarding to NGIC.

8.5. Requirements programs will be managed to the maximum extent possible using the Air Force Geospatial Portal.

9. Air Force Geospatial Transformation Plan (GTP) Programs

9.1. Mission Specific Data (MSD). MSD is a major component of the developmental NGA Foundation Data (FD) concept. HQ USAF/XOIRY is responsible for Air Force MSD development. MSD is

densified FD designed to support specific missions. HQ USAF/XOIRY identifies MSD requirements to NGA, ensuring future geocentric aeronautical data is available to fulfill all Air Force mission needs. Access to MSD developments is through Air Force Geospatial Portal requirements pages.

9.2. Geopositioning. AFC2ISRC/IN is responsible to HQ USAF/XOIRY for developing and maintaining operational requirements for all Air Force geopositioning tools. AFC2ISRC also develops and coordinates on modernization plans with geopositioning implications. AFC2ISRC will also coordinate with HQ AFMC to transition new technologies that satisfy warfighter requirements.

9.3. Air Force Geospatial Product Library (GPL). HQ USAF/XOIRY, working in close cooperation with AFC2ISRC/IN is responsible for GPL development. The GPL is a product server designed to store and disseminate GI&S data for use at all Air Force levels. AFC2ISRC is responsible to HQ USAF/XOIRY for developing GPL modernization strategies to meet Air Force data storage and data distribution requirements, and ensuring all GPL functions are compatible with current and future Air Force systems. AFC2ISRC maintains a functional requirement database to track current and proposed baseline configurations. AFC2ISRC also uses the facilities of the Transformation Center to test, prototype and facilitate program fielding. The 480IW maintains the Air Force master GPL.

9.4. Existing and Future: Weapons, Weapon Systems, AIS & Programs. AFC2ISRC is responsible to HQ USAF/XOIRY IAW the Air Force GTP to assess the operational impact to all weapons, weapon systems and automated information systems in the Air Force inventory that utilize GI&S data or information directly or indirectly. This is necessary to understand potential operational impacts caused by transitioning to future NGA data, formats and programs in an all-digital GI&S environment. The resulting database will be a living database and kept current and synchronized with HQ AFMC as new systems enter the preliminary planning phases.

9.4.1. AFMC System Program Offices (SPOs) are responsible for identifying GI&S Requirements through their local Director of Intelligence (DI) structure, to HQ AFMC/IN. HQ AFMC/IN will work with the SPOs, AFC2ISRC and HQ USAF/XOIRY to determine if an existing standard GI&S product or data can satisfy the need, or if there is a requirement for new product or data. Under no circumstances are contractor GI&S proprietary data sets to be used.

9.5. AFC2ISRC will provide functional requirements management of Government-Off-the- Shelf/ Commercial-Off-the-Shelf software packages being considered for standard use by Air Force organizations and systems. These software packages are the primary means to manipulate standard NGA and HQ USAF/XOIRY authorized information AFC2ISRC is the functional lead for the mapping tool kits developed by NGA and Defense Information Systems Agency. HQ ESC is the systems requirements lead for mapping toolkits.

Section C—Obtaining Geospatial Information

10. GI&S Products.

10.1. Data Access. As part of the GTP effort, Air Force is making the Geospatial Product Library (GPL) the main source of NGA standard digital GI&S data. GPLs are deployed to most Air Force MAJCOM's and in some cases, down to squadron level. GPLs are generally fielded in stand-alone configuration, pending networking of GPLs by various communications means and at various classification levels. The 480 IW operates the Air Force master GPL. The Air Force master GPL contains

worldwide coverage. When digital products are not available from the GPL, obtain existing NGA products for standard and crisis/contingency support using sources or procedures listed below.

10.1.1. The NGA Gateway and Softcopy Distribution facility provides additional means for on-line product distribution, and some software tools for manipulation of products and data.

10.1.2. Defense Logistics Agency (DLA), NGA Catalogs of Maps, Charts and Related Products provide guidance for ordering standard NGA products available from DLA.

10.1.3. In areas where standard NGA products are not produced or available through normal channels, identify requirements for substitute, non-standard products through the supported command's GI&S chain of command or HQ USAF/XOIRY, as applicable.

10.1.4. Special attention is required regarding distribution caveats. NGA uses a "LIMITED DISTRIBUTION" marking to indicate that distribution of certain unclassified imagery and geospatial information is limited to DoD and authorized DoD contractors in accordance with the Defense Federal Acquisition Regulations Supplement. Air Force organizations at all levels having responsibilities to produce or disseminate LIMITED DISTRIBUTION NIMA data, must ensure this data remains in official channels prescribed by DODD 5030.59.

10.1.5. Air Force GI&S Ordering Guidance. Use the latest versions of the following publications or web sites for guidance on ordering and stocking GI&S products. See **Attachment 1** for additional related guidance and directives.

10.1.5.1. NGA, DLA Catalogs of Maps, Charts and Related Products, all volumes

10.1.5.2. AFMAN 10-401, Operation Plan and Concept Plan Development Implementation.

10.1.5.3. AFI 11-201, Instruction for Flight Information Publications (FLIP).

10.1.5.4. AFI 11-230, Instrument Procedures.

10.1.5.5. US Air Force Geospatial Portal (<https://afc2isrc.af.mil/warfighter/geospatial/>)

10.1.5.6. Defense Logistics Agency Internet Homepage (<http://www.dla.mil/>)

10.1.5.7. Defense Supply Center Richmond Internet Homepage (<http://www.dscr.dla.mil/>)

10.1.5.8. NGA Gateway, "<http://www.nga.mil>" (Public Internet server), osis.nima.mil (SBU/OSIS Server), "<http://www.nga.smil.mil>" (SIPRNet Server), "<http://www.nga.ic.gov>" (JWICS Server).

10.2. Obtaining Precise Points:

10.2.1. Units having RainDrop or other geopositioning software capability and associated Digital Point Positioning Data Base (DPPDB) can locally perform geopositioning. Identify new DPPDB coverage needs IAW **Section B**. DPPDB should be the preferred source for precise point generation. If DPPDB alone cannot be used, users employing imagery registration techniques should use, in the following order, National Technical Means, commercial, tactical or other mission imagery tied to DPPDB.

10.2.2. In areas where no DPPDB coverage exists, or where point requirements exceed local geopositioning capabilities, units can obtain geopositioning support from NGA. Information on NGA's program can be found on the SIPRNET at:

<http://sps.stl.nima.smil.mil/products/nimapoints/index.html>.

Each year HQ USAF/XOIRY tasks the MAJCOMs, FOAs and DRUs to estimate their 6-month to 1-year points requirements and geopositioning priorities. Points are used for targeting, navigation, scientific and technical support, and many other uses. The resultant level-of-effort estimates are forwarded to HQ USAF/XOIRY for transmission to NGA, in a consolidated Air Force requirement. Throughout the year, as geopositioning data is needed for individual points, users will send requests directly via electronic means to “NGA ST LOUIS AFS MO//GITA//.” Commercial: (314) 263-4531 or DSN: 693-4531. Include: accuracy required in feet/meters for CE and LE values, pin-pricked imagery, a description of the point desired, required datum (e.g., World Geodetic System), type of coordinates desired (e.g., geographic or UTM), IAW CJCSI 3900.01, *Position Reference Procedures*; as well as priority and justification. Coordinate the turn-around time for completing routine requests and include information copies to the appropriate higher command, and the Air Force NGA Support Team (NGA/PORF).

10.2.3. Crisis Support. Quick response support for geopositioning will be submitted through the responsible Unified Command to the appropriate NGA Support Team. Pre-arrange the turn-around time in number of hours per point according to mission need and NGA resource availability.

10.3. Obtaining Geodetic Survey Support. Send requirements for geodetic survey support to HQ USAF/ XOIRY through the responsible MAJCOM, FOA or DRU GI&S POCs. Format requests as shown in [Attachment 3](#) . State geodetic survey accuracy requirements as shown in [Attachment 4](#) . Ensure position and elevation are stated as absolute and/or relative.

10.4. GI&S Products for Contractors and DoD Systems Developers.

10.4.1. Contractors and DoD systems developers needing standard GI&S product support will submit requests through their program’s Primary Contract Officer (PCO). The PCO then forwards requests to the appropriate command GI&S office. Compliance with AFI 31-601, *Industrial Security Program Management*, 22 Nov 00, is required when submitting contractor requests for release of classified products. Contractors must return or destroy all government furnished GI&S property upon contract termination. Under no circumstances will a contractor transfer government furnished GI&S property or data to another project within the company, sell the data in a proprietary format to the government or transfer the data to another company without prior coordination with the PCO and written permission from HQ AFMC/IN. System Engineering Technical Assistance contractors, with a non-disclosure statement, are exempt from access restrictions pertaining to other contractors. Systems are to use NGA data in its standard format with no format or data conversions to a proprietary format.

10.4.2. Command GI&S offices will review and validate contractor requests and forward requisitions to the Defense Supply Center Richmond-JN (DSCR-JN).

10.4.3. Program Development Offices must coordinate with HQ USAF/XOIRY on planned designs, new system development or existing system modifications that call for GI&S data to facilitate interoperability and compatibility with NGA databases. All computer software that will use NGA data must be directly compatible with the NGA databases and the NGA format. The goal is to eliminate the need for translations or transformations that may impact NGA data fidelity. Contractors should send requests for geodetic and geophysical products and services through MAJCOM, FOA or DRU GI&S offices to HQ USAF/XOIRY.

11. Non-NGA GI&S Products. MAJCOMs, FOAs and DRUs will make every effort to ensure only NGA or HQ USAF/XOIRY authorized information is used. Therefore, only request non-NGA products or contract production support when HQ USAF/XOIRY or the appropriate Combatant Command GI&S office confirms the required support cannot be obtained from NGA.

11.1. Requesting non-NGA Products. With the exception of United States Geological Survey (USGS) and Central Intelligence Agency (CIA) products, submit requests for existing GI&S products not produced by NGA or specifically addressed in this instruction (e.g., native edition maps) to HQ USAF/XOIRY or the GI&S point of contact of the Combatant Command responsible for the area covered by the products.

11.2. Ordering CIA Maps. Order CIA maps by contacting the National Technical Information Service. Ordering information is available on the CIA NIPRNET Homepage at <http://www.cia.gov/cia/publications/mapspub/index.shtml> and at <http://www.ntis.gov/> on the NIPRNET. Other sites are: SIPRNET: (<http://maps.cia.gov.gov>) and JWICS: (<http://maps.cia.ic.gov>.)

11.3. Ordering USGS Products. NGA does not stock USGS topographic maps but they are available to DoD activities. All requests for USGS products must be sent to the NGA Air Force Customer Support Team (NGA/PORF). Requests for USGS products will be approved only where there is no adequate NGA product coverage. When making orders use the USGS web site <http://erg.usgs.gov/maplists/index.html> to identify stock and sheet numbers. Order the minimum quantities of products needed to support operations.

11.4. Ordering Canadian Products. NGA and DLA do not list GI&S product coverage of Canada. All requests for Canadian products must be sent to the NGA Air Force Customer Support Team (NGA/PORF). When making orders for topographic products, use the Canadian web site <http://maps.nrcan.gc.ca/main.html> to identify coverage required. Because these are topographic maps rather than aeronautical charts, they are not supplemented by Chart Updating Manual or Digital Vertical Obstruction File systems. When making orders for aeronautical charts use the following web site to identify products: <http://navcanada.ca>

12. NGA Instructions, Manuals, Catalogs and FLIP.

12.1. Ordering NGA, DLA Catalogs. NGA, DLA catalogs are ordered by addressing requests to the Defense Supply Center Richmond-JN, (See **Attachment 1** for address).

12.2. GI&S Military Specifications, Standards and Handbooks. Access these documents on SIPRNET at <http://www.nga.smil.mil/publications/specs/index.html>.

12.3. FLIP. Order through the NGA Catalog of Maps, Charts and Related Products or on-line at <http://www.nga.mil>. Submit requirements for new or modified FLIP to Air Force Flight Standards Agency, Aeronautical Information Branch as outlined in AFI 11-201.

Section D—Using Geospatial Information & Services (GI&S)

13. General. GI&S serves as the foundation for operations and provides basic interoperability for systems and forces. GI&S is critical to operations. Basic understanding of key GI&S fundamentals is necessary to prevent adverse or deadly mission impact through introduction of errors. The following paragraphs highlight principal GI&S areas where detailed understanding and application is paramount.

14. Datums, Coordinates and Reference Systems, and World Geodetic System (WGS84). An in-depth understanding of datums is critical to modern operations. WGS84 is the standard DoD reference system (datum) for all DoD GI&S products and services. Where feasible, Air Force organizations will use the most current WGS84 for all activities requiring GI&S data. When necessary to convert to or from WGS84 and local or regional datums, Air Force organizations will use NGA validated datum transformation software. CJCSI 3900.01A, *Position Reference Procedures, 10 Aug 98*, requires selection of a standard datum, as prescribed by the Combatant Commander, in areas where operation on WGS84 is not possible.

14.1. Reference Systems and Transformations. Coordinate reference systems are the means of communicating locations. It is critical that all joint/combined participants communicate in the same terms. Defense Mapping Agency Technical Manual 8358.1, *Datums, Ellipsoids, Grids, and Grid Reference Systems*, gives current authoritative guidance for the use and portrayal of grids and grid reference systems information as applicable to maps and charts. See: <http://www.nga.mil/GandG/>.

14.1.1. It is also critical that NGA approved software programs, such as GEOTRANS are used to transform one datum or grid to another. Errors are induced each time a transformation is made, but use of the NGA approved software will limit the error. Transformation software information is on-line in NGA G&G pages at: <http://www.nga.mil/GandG/>.

14.1.2. In reference to vertical datums, Height Above Ellipsoid (HAE) and Mean Sea Level (MSL), understand your requirement prior to submission and ensure mensuration needs according to weapon or Automated Information System requirements.

15. Geopositioning and Accuracies. Geopositioning is critical to the employment of Precision Guided Munitions (PGM). Paragraph **10.2.** describes the means and methods used to obtain precise points. NGA's DPPDB is currently the only product available to users capable of providing accuracies adequate for coordinate seeking weapons. All Air Force users should use NGA validated software (e.g. RainDrop) for targeting, unless HQ USAF/XOI states otherwise.

16. Reproduction Policy and Limitations.

16.1. Coordinates for Targeting. Maps, and related GI&S data and imagery derived products such as Controlled Image Base (CIB) are unsuitable for coordinate extraction for targeting purposes.

16.2. Photocopied or reproduced digitized maps and charts. Producing map copies may introduce distortions and errors to the original product. Although making copies may be the most expeditious method for preparing strip charts and mission packages, Air Force discourages using these copies to derive coordinates or measure distances. Mission Planning Software such as Portable Flight Planning System (PFPS) negates "Strip Chart" printing distortion concerns because PFPS route calculations are performed internal to the software; not on potentially distorted paper copies.

16.3. Commercially produced FLIP and NGA produced maps and charts are copyrighted, as are many of the foreign produced maps and charts available through NGA. Users of these products are liable for any copyright infringements.

17. Updating and Disposing of Material. Use the following documents to update aeronautical charts and FLIP before using them. Users are responsible for annotating the corrections to NGA publications or products prior to use.

17.1. NGA Aeronautical Chart Updating Manual (CHUM), Electronic Chart Updating Manual (ECHUM), Digital Chart Updating Manual (DCHUM) and CHUM supplements. For Air Target Materials information see the NGA Target Management System network at <http://sps.stl.nima.smil.mil/products/nimapoints/index.html>

17.1.1. Report changes to FLIP as directed in AFI 11-201 and in FLIP, General Planning. Process changes qualifying as Notice to Airman (NOTAM) material according to AFI 11-230, *Instrument Procedures*. Consult FLIP OPR, AFFSA/XOI for guidance.

17.1.2. Report errors or omissions on aerospace, hydrographic and topographic products, IAW instructions on the product. For assistance, contact HQ USAF/XOIRY.

17.2. Processing Obsolete, Superseded and Excess GI&S Stocks. Dispose of classified maps, charts and related materials as specified in AFI 31-401, *Managing the Information Security Program*, 1 Nov 01. Dispose of unclassified maps and charts as instructed in the applicable NGA Catalog or from DLA at: http://www.dscr.dla.mil/PC9/G_info/Destruction.htm.

17.3. Units with surplus current GI&S stocks should contact Defense Supply Center Richmond-JN for disposition instructions. (See **Attachment 1** for address).

18. GI&S Software Policy. Users who wish to use GI&S software other than that certified by NGA must get authorization from HQ USAF/XOIRY. NGA, under Policy Notice PN 8400.1, 14 Sep 98, assures that testing for certification will be applied to any software exploiting NGA products or data to ensure software adheres to the standards and accuracy requirements.

19. Participating in NGA and Command GI&S Related Reviews. HQ USAF/XOIRY tasks MAJ-COMs, FOAs and DRUs to participate in periodic NGA product and prototype reviews. In addition, HQ AFMC organizations, developing systems under spiral development techniques, periodically ask Air Force organizations to evaluate standard and prototype GI&S products and systems requiring GI&S. This activity will be in coordination with HQ USAF/XOIRY. The purpose is to find out: if existing products still meet user needs; to identify any necessary changes; to determine if requirements still exist; or to determine if new products meet the needs for which they are designed. HQ AFMC also selects random user groups to test functional aspects of systems under development. HQ AFC2ISRC acts as the HQ USAF/XOIRY technical agent for development activity and consolidates Air Force positions. Air Force component commands tasked by Combatant Commands should also respond through HQ AFC2ISRC so inputs can be reflected in consolidated Air Force positions by HQ USAF/XOIRY.

RONALD E. KEYS, Lt General, USAF
DCS/Air & Space Operations

Attachment 1

GLOSSARY OF REFERENCE AND SUPPORTING INFORMATION

References

DoD Instruction 5000.56, *Programming Unique Mapping, Charting and Geodesy (MC&G) Requirements for Developing Systems*, 11 September 1991.

DoD Instruction 5030.59, *National Imagery and Mapping Agency (NIMA) LIMITED DISTRIBUTION Imagery or Geospatial Information and Data*, 13 May 2003.

DoD Directive 5105.60, *National Imagery and Mapping Agency (NIMA)*, 11 October 1996.

MIL-STD-2408, *DoD Standard Practice, Glossary of Feature and Attribute Definitions*, 30 August 1995.

MIL-STD-600001, *Mapping Charting and Geodesy Accuracy*, 26 February 1990.

Chairman Joint Chiefs of Staff Instruction (CJCSI) 3901.01A, *Requirements for Geospatial Information & Services*, 26 July 1999.

Chairman Joint Chiefs of Staff Instruction (CJCSI) 3900.01A, *Position Reference Procedures*, 10 August 1998.

Joint Pub 2-03, *Joint Tactics, Techniques, and Procedures for Geospatial Information and Services Support to Joint Operations*, 31 March 1999.

NIMA *Geospatial Transition Plan*, August 2001.

USAF *Geospatial Transformation Plan*, 23 April 2002.

<https://afc2isrc.af.mil/warfighter/geospatial/gisbgccoverview.htm>

NIMA Reference Materials for Military Support.

http://www.ngaa.mil/mil/cda/article/0,2311,3104_116913_117196,00.html

NIMA Catalog of Maps, Charts and Related Products, Parts 1-7.

<http://www.nima.smil.mil/publications/catalog.html>

National Imagery and Mapping College *Catalog and Course Descriptions*.

<http://college.nima.smil.mil/index.html>

NIMA Instruction 8660.10, *Procedures for Request, Release, Handling and Distribution of NIMA MC&G Digital Products*. http://policy.nima.smil.mil/DR_Main/policyGuidance.cfm#DCIDS

NIMA *Geodesy for the Layman*, December 1983 (DMA Technical Report 80-003).

<http://164.214.2.59/GandG/pubs.html>

<ftp://164.214.2.65/pub/gig/geo4layman/Geo4lay.pdf>

<http://sps.stl.nima.smil.mil/products.gandg/index.html>

DMA *Datums, Ellipsoids, Grids and Grid Reference Systems*, 20 September 1990, (DMA Technical Manual 8358.1) (DMA Stock No.DMATM83581TEXT (Edition 1).

<http://sps.stl.nima.smil.mil/products.gandg/index.html> or <http://www.nga.mil/GandG/>

NIMA Procedural Instruction 390-101, *Identifying and Satisfying Requirements for Global Geospatial Information & Services (GGI&S) Support*.

NIMA Policy Notice 8400.1, *Policy Notice for Software Certification Services*, 14 September 1998.
DIA regulation 57-24, *US/Allied Target Materials*.
DMA Instruction 8052.6, *Crisis Support Procedures*.
AFPD 10-3, *AFRC/ANG Responsibilities and Air Force Responsibilities for their Support*, 2 May 1994.
AFPD 14-1, *Air Force Intelligence Planning and Operations*, 1 June 1999.
AFPD 37-1, *Air Force Information Management*, 19 November 1993
AFI 11-201, *Flight Information Publications*, 1 September 1997.
AFI 11-230, *Instrument Procedures*, 1 August 2001.
AFI 14-105, *Unit Intelligence Mission and Responsibilities*, 3 June 2002.
AFI 14-111, *Intelligence in Force Modernization*, 8 August 2003.
AFI 14-201, *Intelligence Production and Applications*, 1 December 2002.
AFI 10-601, *Mission Needs and Operational Requirements Guidance and Procedures*, 13 August 1999.
AFI 31-401, *Information Security Program Management*, 1 November 2001.
AFI 31-601, *Industrial Security Program Management*, 22 November 2000.
AFMAN 10-401, *Operation Plan and Concept Plan Development and Implementation*, 1 May 1998.
AFMAN 37-123, *Management of Records*, 31 August 1994
USAF GeoBase Policy Memo-7 Oct 02.

Note: Plans call for publishing an Air Force GI&S Handbook during CY04. The Handbook will present specific GI&S processes and procedures.

Abbreviations and Acronyms

AID—Automatic Initial Distribution
AIS—Automated Information System
APMT—Advanced Point Mensuration Tool
CADRG—Compressed ARC Digitized Raster Graphics
CBT—Computer Based Training
CE—Circular Error
CHUM—Chart Updating Manual
DI—Director of Intelligence
DPPDB—Digital Point Positioning Data Base
FLIP—Flight Information Publication
G&G—Geodetic & Geophysical
GDIP—General Defense Intelligence Program

GI&S—Geospatial Information & Services

GI—Geospatial Intelligence

GPL—Geospatial Product Library

GTP—(Air Force) Geospatial Transformation Plan

GTP—(NIMA) Geospatial Transition Plan

HAE—Height Above Ellipsoid

ISR—Intelligence, Surveillance & Reconnaissance

LE—Linear Error

MSL—Mean Sea Level

PCO—Primary Contract Officer

PFPS—Portable Flight Planning System

PGM—Precision Guided Munitions

RDT&E—Research, Development, Test & Evaluation

SPO—Systems Program Office

TIARA—Tactical Intelligence and Related Activities

TPFDL—Time Phased Force Deployment Listing

UTM—Universal Transverse Mercator

WGS—World Geodetic System

WRS—War Reserve Stock

Terms

Geopositioning—Also known as precise positioning, point mensuration, geolocation.

Geospatial Information & Services—Covers all aspects of Air Force geospatial (formerly known as Mapping, Charting and Geodesy) activity per the page 1 note. It excludes Civil Engineer installation mapping requirements, imagery intelligence, Flight Standards, Joint Personnel Recovery Activity, and Air Target Materials based programs.

Geospatial Intelligence—The exploitation and analysis of imagery and geospatial information to describe, assess, and visually depict physical features and geographically referenced activities on the Earth.

Geospatial Portal—The official web site for USAF GI&S, as managed by AFC2ISRC.

Addresses

HQ USAF/XOIRY
Geospatial Information & Services Branch
5113 Leesburg Pike, Suite 600
Falls Church, VA 22041-3230

HQ USAF/XOIRY
Surveillance & Reconnaissance Infrastructure
1480 Air Force Pentagon
Washington, D.C. 20332-1480

Defense Supply Center, Richmond-JN
8000 Jefferson Davis Highway
Richmond VA 23297-6545

Standardization Document Order Desk
Bldg 4D
700 Robbins Ave
Philadelphia PA 19111-5094

NGA/PORF
(Air Force Support Team)
12310 Sunrise Valley Drive
Mailstop P-33
Reston VA 20191-3449

Attachment 2

WAR RESERVE STOCK (WRS) CALCULATION

The need for WRS planning is decreasing due to increased use of digital GI&S data. However, the following applies until the Unified Commands terminate hardcopy WRS taskings.

A2.1. The WRS formula below is a generic method for calculating GI&S WRS quantities. Use it only as a tool rather than an Air Force directive. The formula is generalized. It may be modified to fit the needs of a particular command, e.g., Unified Command OPLAN guidance, unit, weapon system or mission. Non-flying units should determine WRS needs based on experience and individual unit requirements.

A2.1.1. Formula Elements:

N = Number of aircraft in the unit.

D = Duration of operations (number of days being computed).

S = Sortie generation rate (noted in the US Air Force War and Mobilization Plan). Figures may vary by aircraft type, expected duration of missions and theater of operations.

R = Reuse factor. This factor varies among units and is designed to reduce the total WRS by the estimated amount of map use. For example, if a unit reuses its maps about 20% of the time, its reuse factor is 0.2. Likewise, a 40% reuse rate results in a reuse factor of 0.4.

P = Packaging factor. This factor simply increases the WRS for a particular item to the next highest increment of 25 to allow for the use of standard shrink-wrapped map packages.

A2.1.2. Formula:

$WRS = N \times D \times S \times (1.0 - R) + P$ (x = multiplication symbol)

A2.2. This formula provides estimated WRS quantities for each sheet (line item). The total WRS will be the sum of the quantities calculated for each sheet required in a particular area of operations.

A2.3. Other variables to consider:

A2.3.1. Total line items required in each series will depend on the individual systems' combat radius and the geographical limits of the area of operations as determined by the supported command. Reusability factors vary by aircraft type, mission and command preference. If possible, units should consider employing methods that will increase product life expectancy (e.g., lamination when reuse rates are determined high).

A2.3.2. A particular aircraft may require multiple copies of the same map sheet for the same mission. For example, a COMPASS CALL C-130 may require individual copies for aircrew members as well as others for electronic combat personnel.

A2.3.3. At a minimum, all units should deploy with digital and hardcopy materials for planning and initial operations as specified by supported command OPLANS/CONPLANS. For hardcopy, planning stocks should provide coverage of the entire area of responsibility and should include as a minimum: one package (25 copies) of each Jet Navigation Chart (JNC) and Operational Navigation Chart (ONC) and one package (50 copies) of each Tactical Pilotage Chart (TPC). Equivalent digital media and related expendables for reproduction can replace hardcopy if immediate reproduction capability is available. Estimates of volume of material needed can be derived from data in the Annex M of the OPLAN.

Attachment 3

GEODETIC SUPPORT WORKSHEET

Use the recommended format below for submitting geodetic survey requirements. Examples of required information are included. Add more information as necessary. Please use one worksheet for each request.

A3.1. User Identification Code: Command-generated alphanumeric code indicating the command making the request, the fiscal year the request is submitted and the numerical value of the request for the year.

User Identification Code: ACC 98-01 (second request would be ACC 98-02, etc.)

A3.2. Location of Survey: Identify the range, base, city, state and country.

Base: Nellis AFB City/State: Las Vegas NV
Range: Nellis Range 65 Country: USA

A3.3. Suspenses: Identify the date(s) the user would like to have the survey team on site and the date on which the user needs the final survey data. Please allow 60 days after completion of the field survey for reduction, quality control, etc.

Date Survey Required: DDMMYY
Date Final Survey Data Required: DDMMYY

A3.4. Support Required: Indicate, as specifically as possible, what needs to be done (e.g., Inertial Navigation System [INS] update points, Precision Measurement Equipment Laboratory [PMEL] survey, range targets, radar sites, etc.). Also indicate how many points or sites are involved.

Example: Support required: Position approximately 12 INS update points at Nellis AFB and 5 targets on Nellis Range 65.

A3.5. Justification: Indicate the system, program or operation that needs support and impact if support is not provided.

Example: Justification: Survey required to test accuracy of the F/A-22 avionics system.
Lack of support could result in delayed testing and/or degraded test results.

A3.6. Point of Contact/Requesting Office: Indicate a person for the survey team to contact for instructions, questions or assistance.

Example: POC/Requesting Office: 57 FW/DOO
Rank/Name: Captain Joe Smith:
Msg Address: 57FW NELLIS AFB NV//DOO//
DSN: 329-0726 Commercial: (406) 789-3245
FAX: 329-1221 Secure: STU-III 767-3245

A3.7. Priority: Indicate the Air Force precedence rating as determined by the US Air Force Program Installations, Units and Priorities document and the user's relative priority compared to other command requirements.

Air Force Precedence Rating: 03-08
User's Relative Priority: 3

A3.8. Mailing Address(es) for Published Data: Indicate what office(s) should receive the published data.

Example: 57 FW/DOOQ HQ ACC/DIOT
 Attn: Capt Smith 129 ANDREWS ST, STE 304
 Nellis AFB NV 89191-5000 Langley AFB VA 23665-2767

A3.9. Required Data and Accuracies: Indicate the type of data needed (e.g., coordinates, astronomic data, azimuths, gravity data, etc.); the datums (if other than WGS and National Geodetic Vertical Datum [NGVD]); and the form of the information (e.g., Military Grid Reference System [MGRS], Universal Transverse Mercator [UTM], or geodetic coordinates).

Type of Data: INS update point and target positions
Datums: The most current WGS and NGVD only
Form of Data: Require all positions in both MGRS and geodetic forms
Accuracies: Use standard Air Force accuracies for all points (see [Attachment 4](#) of this instruction)

A3.10. Additional Remarks: Include anything that may clarify the requirement, any restrictions on the data or the surveyors and any deadlines that may affect the survey.

Additional Remarks: Survey must be accomplished by DDMOYR to support initial testing of the ATC avionics system. Range will be inactive 08-19 Jan for cleanup. Range access will be limited at any other time.

Attachment 4**GUIDE FOR ESTABLISHING GEODETIC AND GEOPHYSICAL (G&G)
ACCURACY STANDARDS FOR GENERIC SURVEYS****A4.1. Aircraft Inertial Navigation System (INS) Update Initialization Points**

Horizontal Position: +/- 8 meters

Vertical Position: +/- 3 meters

A4.2. INS Test Pedestals

Horizontal Position: +/- 3 meters

Vertical Position: +/- 1 meter

Azimuth: +/- 30 arc seconds

A4.3. Precision Measurement Equipment Laboratories

Horizontal Position: +/- 3 meters

Vertical Position: +/- 1 meter

Azimuth: +/- 10 arc seconds

Gravity: +/- 5 milligals

A4.4. Range Targets

Horizontal Position: +/- 3 meters

Vertical Position: +/- 1 meter

A4.5. Range Instruments (Cinetheodolites, Threat Emitters, Cameras, Aerial Surveillance Radars, etc.)

Horizontal Position: +/- 3 meters

Vertical Position: +/- 1 meter

Relative Positions: +/- 0.3 meter
(Camera to Site Aim Points, etc.)

Slant Ranges: +/- 0.3 meter

Azimuth: +/- 15 arc seconds

A4.6. Compass Rose

Horizontal Position: +/- 3 meters

Vertical Position: +/- 1 meter

Magnetic Azimuth: +/- 6 arc minutes
(Declination)

Compass Rose area must not have a magnetic declination variation greater than +/- 12 arc minutes.

NOTE: *Positional accuracies are given with respect to the most current World Geodetic System. Azimuths are referenced to astronomic or geodetic north. Gravity surveys are related to the current International Gravity Standardization Net (IGSN-71). All positional data accuracies (except for [A4.5](#), Relative Positions and Slant Ranges) are absolute and expressed in terms of 90 percent assurance (Circular Error and Linear Error) in keeping with standard NGA practices for providing Geospatial Information and Services.*