FY 2006 National Geospatial Programs Office Guidance

Introduction

The purpose of this document is to provide guidance to the National Geospatial Technical Operations Center (NGTOC) and the National Spatial Data Infrastructure (NSDI) Liaisons as part of the process to plan a body of work for FY 2006 (see Appendix A for revised schedule). This guidance document is issued by the National Geospatial Programs Office (NGPO) to provide direction for work activities proposed by NGTOC and the NSDI Liaisons in support of the national goals and mission of the NGPO.

Background

In a strategic move to consolidate national geospatial programs for which it has a leadership role, the USGS Director created the National Geospatial Programs Office, organizationally housed in the Geospatial Information Office (GIO), and under the authority and accountability of the Associate Director for Geospatial Information. With the creation of the NGPO, the essential components to implement the NSDI will be managed as a unified portfolio that benefits the entire geospatial community. The NGPO will engage partners in planning to ensure that their needs are met.

The NGPO has made a commitment to act with purpose and intent as signs of leadership for the Nation's geospatial assets. This "bias for action" is borne out in the purpose, vision, and mission of the NGPO.

Purpose, Vision, and Mission

The NGPO will engage partners throughout the geospatial community to ensure that its unified program portfolio meets the needs of those on the national landscape. It will help the Nation realize the NSDI vision that *"current and accurate geospatial data will be available to contribute locally, nationally, and globally to economic growth, environmental quality and stability, and social progress."* That vision will be reinforced by communicating the message of the importance of the NSDI to a broad audience of users and potential users of geographic knowledge. To guide its progress in support of the NSDI and its service to the national geospatial community, the NGPO has developed the following statements of purpose, vision, and mission.

Purpose: Placing geographic knowledge at the fingertips of the Nation.

Vision: To achieve that purpose, the NGPO will look at how government needs to change to be prepared for the future and be responsive to its citizens and stakeholders through a vision that ensures that:

By June 30, 2006, transform the processes of government necessary to implement key components of the NSDI.

Mission: The mission of the NGPO is twofold: one component focuses on leadership and the prominent role of partners and stakeholders and the other focuses on the operational aspects and technical services needed to implement the NSDI.

Providing leadership and guidance for key stakeholders to:

- develop policy;
- provide incentives to potential partners;
- develop key standards and data models;
- coordinate and facilitate the governance structure for the NSDI;
- negotiate collaborative agreements with partners;
- develop a national geospatial enterprise architecture; and
- provide a forum for technology transfer, best practices, and program guidance.

Implementing key components of the NSDI to:

- host spatial datasets, Web sites, knowledge base, and tools for discovery and access;
- provide data integration and quality assurance of spatial data;
- staff enterprise architecture, governance body, and spatial operations;
- conduct and sponsor research for geospatial information science;
- provide contract management for operations;
- conduct training, education, and consultation;
- adopt a posture of being the data producer of last resort; and
- make map products accessible.

A Culture of Transformation

The National Geospatial Programs Office envisions three transformations that will be necessary to fulfill the vision of the National Spatial Data Infrastructure.

Toward a national geographic information system ─ Transformation to an enterprise information system for the Nation's geospatial assets is essential. The NGPO will lead the development of a national geographic information system (GIS), a "system of systems," which will provide access to quality, timely, digital geospatial data and resources. This approach will facilitate the adoption of a common architecture and best practices and leverage the resources of a distributed network of data stewards to implement the NSDI. Data stewards are a federation of State, local, tribal, and Federal government organizations, along with non-governmental and academic communities and the private and non-profit sectors. The primary roles for the USGS will be demonstrating leadership; providing meaningful incentives; and promoting data models, standards, and best practices. The USGS will shift its emphasis from producing maps to providing access to the creation of map products and geographic knowledge, thus empowering partners to achieve their geospatial information needs.

Toward matters and places of national importance ─ While much of our society and infrastructure are supported by available geospatial assets, other issues and places, ranging from rural and coastal communities to natural hazards and homeland security, need more attention. Those who are not direct users of geospatial information, such as emergency responders, public health workers, and government officials, also need what that information can tell them about resources, processes, patterns, or threats. The NGPO will focus on that untapped potential of issues, places, and users.

One potential opportunity is to align a portion of the NGPO data and partner activities with the USGS Science Thrust areas that are included as part of Director Groat's priorities for FY 2006. The issues identified as Science Thrusts include: Water Availability, Landslides/Debris Flow, Fire Science, and Integrated Landscape Monitoring,

Toward management excellence — The President's Management Agenda calls for a performance-oriented approach by government that shows improved accountability. The NGPO will adopt the discipline of project management as a means to realize its strategic vision, effect change in the organization, and implement new business procedures. Best practices of the information technology community will ensure that life-cycle management guides project planning. One of the hallmarks of the President's agenda is to make access to government information transparent to citizens. The NGPO shares that commitment to transparency and accountability. Accountability to the lines of business and performance management goals set forth by the Office of Management and Budget, the Department of the Interior (DOI), and the Government Performance and Results Act are embedded in the NGPO strategic plan for action.

As part of that culture of transformation, the NGPO is using the metaphor of a ***tapestry*** that weaves together a national geographic information "system of systems", data stewards, incentive-based partnerships, a unified geospatial enterprise architecture, revitalized USGS products and services, and investments. The intent of the metaphor is the weaving together of disparate threads to create a strong and sustainable "fabric", a rich and colorful graphical representation of the landscape of the Nation and a true knowledge base of geographic understanding and geospatial resources.

Planning the FY 2006 NGPO Portfolio

The creation of the NGPO in August 2004 provides an opportunity, for the first time, for USGS to plan a unified scope of work to support its geospatial program goals. Since its creation, NGPO leadership has been listening to, and working with, partner organizations in Federal, state and local governments, as well as with the private sector, to develop a strategic direction. The initial outcome of those planning activities is the NGPO Plan for Action.

In addition, the Federal Geographic Data Committee (FGDC) has been developing a complimentary planning document that discusses future directions for the NSDI community at large. These two reports provide the policy and vision context for the FY 2006 guidance; and serve as important resource materials to be used in concert with the guidance document.

A series of discussions have been conducted over the past two months with management representing NGPO and NGTOC to develop a consensus planning process for FY 2006. This guidance document serves as the rudder for the process, providing direction for the national geospatial program. It also is the first step in the process, summarized in the following table, which will result in distribution of FY 2006 funds to the NGTOC. The management meetings resulted in three fundamental changes from prior planning efforts:

- Proposed work would closely align with national program strategies.
- The planning process would be simplified.
- NGTOC staff currently located in different geographic regions would work to leverage skills and resources.

Planning Assumptions

- All tasks are to be completed by the end of FY 2006 unless otherwise noted.
- Partnerships are assumed throughout the requested work. Activities related to geospatial data are assumed to maximize partner and contractor participation.

- New partner participation in NGPO-led activities and services will be registered through the Geospatial One Stop. Continue online seamless data viewing, access, delivery, and application of base geographic data, including data obtained in FY 2006, through *The National Map*.
- Continue geographic emphasis on completing coverage for the tapestry of seamless data in *The National Map*.
- All common services (including but not limited to program/project management and supervision and information technology support) are assumed to be embedded in the cost center(s) assessment.
- In addition to work by the NGTOC and NSDI partnership offices in the regional GIO's, the guidance assumes that some work will be conducted by the Geography Discipline's National Center for Earth Resources Observation and Science (EROS). The NGPO Geospatial Information Integration and Analysis (GIIA) Office anticipates entering into a service-level agreement for services provided by EROS instead of using the "normal" process for planning projects, allocations, and expenditures.

Organizing the Planning Guidance

The guidance document is organized into the following five sections:

I. Toward a Tapestry of Base Content

II. Toward a National Geographic Information System

III. Toward Management Excellence

IV. Products for the 21st Century

V. Emergency Operations

Each of these sections provides specific guidance for the 15 FY 2006 functional areas.

I. Toward a Tapestry of Base Content

Orthoimagery

Complete 133 urban-area, high-resolution imagery acquisition; replace existing urban-area imagery that is more than 2 years old and continue 1-meter acquisition through incentive-based partner arrangements; double the effort for orthoimagery coverage in Alaska; and coordinate acquisition activities with the elevation theme.

- For 1-foot urban area orthoimagery:
  - complete first coverage of the remaining 133 urban areas (see Appendix B−1).
  - replace existing urban area imagery that is more than 2-years old (see Appendix B−2) by providing 25% or less of the 1-foot cost estimate.
- For States with high-resolution orthoimagery programs:
  - based on the State cycle, cooperate on high-resolution orthoimagery by providing 25% or less of the government cost estimate for 1-meter coverage of the project.
- For States with 1-meter, leaf-off orthoimagery requirements:
  - based on the State cycle, cooperate on 1-meter, leaf-off orthoimagery by providing 25% or less of the 1-meter cost estimate (see Appendix B−3).

- For States with 1-meter, leaf-on orthoimagery requirements:
    - based on the National Agricultural Imagery Program's (NAIP) 5-year acquisition schedule, cooperate on 1-meter, leaf-on orthoimagery by providing 25% or less of the 1-meter NAIP cost estimate. The DOI Program will fund NAIP coverage for the DOI lands of Nevada, Washington, and Wyoming (see Appendix B−4).
- Based on the proposed Alaska Digital Orthoimagery Initiative, and in coordination with the Alaska Geographic Data Committee (AGDC), cooperate with other AGDC members on the highest-priority orthoimagery requirements for the State.
- Coordinate, to the extent possible, acquisition activities to leverage resources and build higher-resolution orthoimagery and elevation data. Place a priority on those projects where orthoimagery and revised or higher-resolution elevation requirements can be matched.

Strengthen USGS quality assurance (QA) activities to support data acquisition:

- Perform quality assurance on orthoimagery projects, including metadata, acquired for delivery to the USGS. Inspect, to the level necessary, orthoimagery and metadata acquired for another partner and delivered to the USGS for *The National Map*.
- Document QA processes and best practices for accepting cooperator orthoimagery data in order to generate guidelines that establish uniform QA procedures.
- Implement changes to procedures and policies that reflect a format change to GeoTIFF. Refer to the Draft National Map Format for Orthoimagery.
- Review and document NGTOC orthoimagery QA hardware and software needs and coordinate with the S&T design team to determine enterprise configuration and acquisitions.
- In coordination with the Geography Discipline's Land Remote Sensing Program, develop a plan, and policy if required, for calibrating analog and digital aerial cameras.

Support FGDC and Geospatial One-Stop activities:

- Work with the appropriate Standards staff to maintain orthoimagery-related standards and specifications, to document content changes, to respond to comments and inquiries, and to coordinate with the appropriate national and international standards organizations and committees.
- Ensure that USGS orthoimagery and acquisition plans are available through the Geospatial One-Stop portal and that USGS provides active leadership in the portal's Orthoimagery 'Community'.

Continue orthoimagery dissemination and archive activities:

- Examine long-term, orthoimagery archive requirements and develop an implementation plan that satisfies the National Archive and Records Administration plans for digital geospatial data archive. Provide a funding profile required to accomplish the plan over the next decade. Develop a policy that supports USGS archiving local, State, and national orthoimagery for the Nation as a last resort.
- Based on results of the FY 2005 ASPRS imagery study, complete the imagery strategy for *The National Map* by identifying and evaluating alternatives and developing funding profiles for maintaining, providing access to, and archiving current high-resolution (1-meter and finer) imagery in *The National Map*. Alternatives should include the full life-cycle of the data from planning to archive.

Continue management, coordination, and communication activities:

- Provide an orthoimagery theme manager.
- Continue participation in the NDOP and other interagency orthoimagery-related forums.
- Ensure USGS orthoimagery acquisition plans are posted to the Geospatial One-Stop Marketplace.
- Participate in selected Federal and State meetings and industry conventions.
- Review existing orthoimagery Cooperative Research and Development Agreements (CRADA) to determine relevancy and need for continuing support. Provide direction and strategies for creation of new orthoimagery CRADA's.
- Review and update printed and electronic orthoimagery outreach documentation, e.g., fact sheets, FAQ's, and user guides.

Orthoimagery research:

- Investigate and generate a report on the utility of JPEG2000 compression algorithms in USGS and industry dissemination processes, including the use of the JPIP protocol for compliant server communication.

Elevation

Develop a National Elevation Strategy based on sustained partnerships; increase 1/3 arc-second elevation data coverage in the National Elevation Dataset (NED); develop and implement a 1/9 arc-second strategy; develop and implement partnership-driven, transaction-based update procedures; support partnership elevation data requirements (DOI Program, etc.); implement the temporal component in the NED; continue to work with NOAA on the topographic/bathymetric dataset; and align the elevation component more closely with the orthoimagery theme.

- Develop, maintain, and implement a National Elevation Strategy to identify and build partnerships for areas that require first-time coverage or revision/updating with the best available elevation data sources.
- Continue to increase 1/3 arc-second (approximately 10 meters) hydrography-enforced terrain elevation coverage (to include support for areas such as DOI lands and urban areas) for 8% of the conterminous U.S. through partnerships.
- Develop and implement a strategy for 1/9 arc-second elevation coverage.
- Seek out/support partnerships where high-resolution elevation data (e.g. LIDAR) are being acquired for inclusion into the appropriate (preferred 1/9 arc-second) NED layer.
- Investigate, develop, and implement a strategy and processes to enhance the NED with the temporal component.
- Continue to work with NOAA on an integrated topo/bathy dataset for *The National Map*.
- Provide a plan to meet needs for improved elevation data by the orthoimagery theme.

Support Geospatial One-Stop activities and elevation data discovery:

- Support elevation consortia, i.e., the National Digital Elevation Program (NDEP) and Geospatial One-Stop obligations.
- Ensure that all USGS elevation data are available through the Geospatial One-Stop portal.
- Implement procedures for submitting planned elevation project information in support of the NDEP status graphic activities, Geospatial One-Stop Marketplace, and elevation performance metrics. Plans (as an integrated set) will be made available for viewing via the Internet.

Support Elevation investigations and technology assessment, work and process flow development, standards and specification development and implementation, quality assurance, contract oversight, topographic status, and training and outreach to support elevation operations:

- Develop and implement a technology assessment program.
- Develop, document, and implement an operational process/work flow for integrating very-high resolution data (i.e., processed bare-earth LIDAR data) into the NED.
- Complete and document operational methods (data models, process/work flows, quality assurance, etc.) for updating lower-resolution data with data of higher accuracy to include the capability for partner provided transactions.
- Develop, document, and implement an operational process to automate (as much as feasibly possible) the identification of areas needing elevation revision or updates.
- Help develop and administer a partner-driven contract mechanism to support partner elevation acquisitions.
- Investigate, and if feasible, implement a multi-resolution, single layer NED.
- Provide training and education on the elevation component of *The National Map*.

Support elevation access, dissemination, archive, and productization activities:

- Continue NED update processing (integration and access) on a bi-monthly (if not shorter) basis.
- Complete the transition from a DEM-tiled saleable product to the NED in which all elevation data and products from *The National Map* are derived from the NED.
- Develop and implement a strategy for authenticated direct access to the NED.
- Support derivative elevation products, including hypsography, to support *The National Map* map-on-demand graphics activities and real-time generation of lower-resolution elevation datasets.
- Produce a policy for the archive of elevation data and a companion document explaining the requirements to be satisfied, options for meeting these needs, and justification for the option recommended. Provide a funding profile required to accomplish the policy for the next decade.

Demonstrate Elevation Community Leadership:

- Provide leadership in the National Digital Elevation Program and other interagency forums.
- Provide a management team to support the elevation activities of *The National Map*.
- Lead and support the Geospatial One-Stop elevation community activities to include elevation ANSI standards development and implementation; metadata publication for existing data and planned activities; tools and application development; and education, training, and outreach.
- Participate in and support the elevation community in the evaluation of new elevation acquisition techniques and processes and sensor technology.

Hydrography

Complete nationwide coverage of the high-resolution National Hydrography Dataset (NHD), maintain the geodatabase as the basis for hydrography data, transition to transaction-based data maintenance, support the data steward program, develop an update strategy, document the geodatabase's archive role, support applications, and provide watershed and flow-and-velocity attributes for reaches.

- Complete high-resolution NHD for the Nation including the 334 subbasins not yet identified for integration and the 104 subbasins that have been identified by partners but are not yet integrated. (Note: this outcome can be obtained by a number of means including, but not limited to, using USGS topographic maps as source data.) Maximize the inclusion of current and accurate data. Make the data available for display, download, and application through *The National Map*.
- Remaining data integration needs will require greater USGS funding due to limited partner funding. Much of the remaining work is in Nevada, Montana, Maine, Arizona, North and South Dakota, Oklahoma, Illinois, and Iowa. The U.S. Forest Service (USFS), and much of the National Park Service (NPS), work will be completed in FY05.

Support Geospatial One-Stop activities:

- Support the Geospatial One-Stop Module-1 hydrography ANSI standards development effort and implement the standard as appropriate.
- Maintain the NHD status theme as a means for submitting new hydrography project plans that are accessible to State liaisons and NHD participants, can be utilized as a source for status graphic production, and satisfy Geospatial One-Stop Marketplace and FGDC metadata requirements.
- Lead the Geospatial One-Stop 'Inland Water Resources' data community and possible other future hydrography-related communities that develop.

Continue NHD maintenance, dissemination, and archive activities:

- Manage the geodatabase as the basis for hydrography data and related services available for display, download, and application through *The National Map*. Provide information through Web mapping service for use by *The National Map* viewer and other applications.

- Support the hydrography data steward program. Sign data steward agreements with interested Federal agencies, e.g., USFS, NPS, BLM, and EPA, and States, e.g., Alaska, Montana, North Carolina, Connecticut, Kentucky, New York, Florida, Wyoming, Vermont, New Hampshire, Michigan, Minnesota, Pennsylvania, and Utah (others also are willing and ready).
- Document best practices for updating and maintaining NHD data at the local level.
- Provide training in NHD edit tools and procedures for staying in sync with the national holdings. Incorporate local-resolution data from counties and localities based on data stewards' activities.
- Develop strategies for identifying and replacing outdated data. Develop a maintenance plan that includes an explanation of the requirements to be satisfied, options for meeting these needs, geographic areas of priority, and justifications for the options recommended. Provide a funding profile required to accomplish the plan.

Continue management, coordination, and communication activities:

- Provide a hydrography theme manager.
- Provide experts in ESRI ArcHydro and NHDinGEO models to work with users to develop and document applications and make them available to the user community. Work with WRD to link NWIS and water-quality monitoring information to the NHD.
- Integrate elevation (10-meter (1/3 arc-second) resolution and finer) and hydrography (high-resolution NHD) data by developing watersheds linked to the NHD reaches. Work with WRD and EPA to generate flow volume and velocity estimates for reaches.

Transportation

Build on the FY 2005 work that created a common data model and national, seamless geodatabase of road data.

- Continue to integrate MTAIP-improved Census TIGER data into the national holdings as soon as they become available. For areas not expected to be completed by Census in 2006, evaluate potential partner datasets and integrate into the national holdings if they improve the accuracy (spatial and attribute) of the existing data.
- Integrate U.S. Forest Service roads into the national holdings.
- Based on Project Homeland initiatives, integrate local data and develop procedures for sharing data and updates with all partners.

Continue transportation maintenance, dissemination, and archive activities:

- Continue to develop partnerships as a source of accurate, current transportation data. Implement procedures to upgrade the data and develop and test procedures to share data through a common xml transaction structure.
- Develop templates and guidelines for attaching local attributes as "event" data and work with partners to ensure the data model can accommodate the most common needs to facilitate data sharing.
- Support development and preparation of necessary documents for the "best practices" publications.
- Participate in the development of the Geospatial One-Stop 'Transportation' data community.

Boundaries

Build on the FY 2005 work that created a common data model and national, seamless geodatabase of boundaries based primarily on Census data.

- Continue to integrate MTAIP-improved Census data changes into the boundaries data within established time parameters as they become available instead of obtaining changes from States.

Continue boundaries maintenance, dissemination, and archive activities:

- Continue to provide feedback to Census about the utility, accuracy, and currentness of the data held by Census.
- Support the development and preparation of necessary documents for the "best practices" publications.
- Participate in the development of the Geospatial One-Stop 'Boundary' data community.

Man-Made Structures

Build on the FY 2005 work that created a common data model and national, seamless geodatabase of structures, based primarily on HAZUS data.

- Continue to develop partnerships as a source of accurate, current structures data. Emphasis should be in urban areas and sources for "large" geographic areas.
- Based on Project Homeland initiatives, integrate local data and develop procedures for sharing data and updates with all partners.
- Include hospitals in the structures data as a pilot activity for shared stewardship of structures data and proof of utility of data.
- Demonstrate sample for other agencies using existing data to get feedback from potential users of hospital data.
- Develop a process to incorporate structures data from other stewards into the GNIS.
- Develop a process to incorporate data from partners into the structures data.
- Develop a pilot to engage registered click workers through a Web interface (commons-based peer production) as a way to collect and verify structures and as an extension of the volunteer effort. Set up the project, develop and demonstrate the process using a limited data source, recruit initial volunteers, and evaluate results (similar to NASA crater work).
- Work with DHS, FEMA, NGA (HSIP), other DOD entities, and other interested partners, to develop standardized formats and techniques to link and share attributes with other partners using the unique identifiers. Determine techniques for linking nationally unique identifiers to any existing identifiers.
- Participate in the Geospatial One-Stop 'Structures and Facilities' data community.

Geographic Names

Pursue one Phase II State project; continue Geographic Names Information System (GNIS) content maintenance and Board on Geographic Names (BGN) support; develop Federal, State, and local maintenance partners; improve GNIS interfaces and services; investigate means of providing full spatial descriptions to "amorphous" features not otherwise delineated; and develop and implement integrated architecture, tools, and processes to support Names, Structures, and Boundaries themes.

- Fund an additional Phase II State
- Continue the maintenance of GNIS information content and support for the BGN, including relationships with other Federal agencies and State names boards.
- Develop and implement maintenance partnerships along with the tools and processes to support them: develop procedures, tools, standards and policies to accept new names and compare and synchronize them with existing names. Pilot the partnership approach with several States.
- Enhance the GNIS Web data maintenance and public query applications.
- Coordinate with other teams to add place search capabilities to Geospatial One-Stop implementation similar to the functionality in *The National Map* viewer.
- Coordinate with other teams to ensure Geospatial One-Stop OGC-compliant gazetteer service integration with GNIS in compliance with BGN policies.
- Investigate ways to provide spatial extent information available for features that do not have spatial representation in other themes (e.g., geomorphic features, locales etc.).
- Evaluate the results of names gathered for urban areas through the Phase II-like approach, including their usefulness for structures and the role of such an approach for maintaining both names and structures information.
- Establish relationship (similar to NHD) between databases for names and other feature-based themes that have geographic names as an attribute.
- Document the approach for integrating geographic names data.
- Continue to support State and local data sets that add value (improve coverage, currentness, accuracy, etc.) to *The National Map.*
- Ensure that partnerships formed with State and local governments and the private sector identify higher-resolution and/or enhanced content data sets for public access and that pathways to these data sets are implemented through *The National Map* and in compliance with BGN policies.

II. Toward a National Geographic Information System

Common Systems for the NGPO

For FY 2006, all systems and technology (S&T) costs will be funded and tracked under this functional area. S&T activities previously accounted for within theme-specific functional areas (Geodatabase development/maintenance, archive, dissemination, etc) will now be accounted for within one or more of the major business systems identified below. Costs associated with ongoing C&A and IT Security activities will be accounted for in this functional area. HQ and NGTOC personnel spanning a number of the major business systems below will work with personnel from The National Atlas to examine the potential for integration between activities.

Web Portal System:

The long-term goal is to move from a set of separate Web applications to a unified Web presence that is built around the Geospatial One-Stop portal. One login to a configurable portal gives a user appropriate access to all of our data and applications.

New activities:

- Provide project oversight and produce a plan for the development and system architecture for the Web Portal System. Preparation of the plan should include designing, modeling in RUP, and coordinating with other project teams as needed. Work should include close integration and cooperation with the Geospatial One-Stop HQ program staff.
- Develop a prototype application for delivery through the portal (GNIS query).
- Work with the Geospatial One-Stop development team to investigate and integrate viewer capabilities to produce one viewer capability for Geospatial One-Stop and *The National Map*.
- Work with the Geospatial One-Stop development team to investigate the feasibility of developing a common catalog implementation for Geospatial One-Stop/*The National Map*. Implement a common catalog as soon as practical.
- Develop methods and systems for graphics and product generation.

Maintain the existing capabilities:

- Maintain current *The National Map* viewer capability as necessary to ensure that *The National Map* functionality remains at the current state during investigation and potential integration of *The National Map* and Geospatial One-Stop viewer implementations. Only high-priority, approved enhancements of the current *The National Map* viewer capability should be undertaken.
- Maintain current *The National Map* catalog implementation as necessary to ensure *The National Map* functionality remains at current capability during investigation and potential integration of *The National Map* and Geospatial One-Stop catalog implementations

Web Activities

A unified NGPO Web site built on Geospatial One-Stop, OGC, and new content management and document management systems are critical to communicating the NSDI message and providing geospatial services and information. Ongoing iterations enhance the identifying data requirements, planning data sharing and production activities, usability and effectiveness of data and services.

- A new on-line calendar will display workshops, conferences, training, FGDC meetings, and related geospatial events. This should be linked to Geospatial One-Stop community sites.
- Extend Geospatial One-Stop Marketplace capabilities to implement NSDI data requirements collection, analysis, and coordinate production and collaboration.
- Recast and maintain a revised CTM/GIIA/ *The National Map* Web presence, incorporating former legacy Geography Discipline components.
    - Recommend this task be completed by in-house personnel familiar with the legacy Web site.
    - Plan for 3.0 FTE (0.25 FTE project lead and 2.75 FTE for graphics/Web designer).
- Support and participate in the coordination, development, and implementation of a unified NSDI Web presence.
    - Plan for 0.5 FTE to participate with HQ staff in the planning and implementation strategies for the unified Web presence.
- Implement all mandated Web guidelines and policies as required by Department and Bureau entities (e.g. Enterprise Web, Web Coordinating Groups, NatWeb Teams, ITSOT, etc.)
    - Plan for 1.25 FTE (0.25 FTE project lead will coordinate with HQ to ensure that guidelines and policies are implemented; 1 FTE to carry out any modifications to Web sites.)

Data Theme Performance and Measurement System:

The long-term goal is to move from measuring success only in terms of percentage of the nation covered by data, to a more general form of assessment of the state of the Nation's and USGS data holdings. Replace the individual data theme measurement and status visualization tools with a comprehensive capability that provides for a "GIS-like" or visual capability in addition to other functionality.

New activities:

- Provide project oversight for the Data Theme Performance and Measurement System
- Search the literature and propose technical definitions for resolution, positional accuracy, currentness, consistency, and integration that are appropriate for the data themes and can be used as the basis for data standards and quality measures.
- Work with Geospatial One-Stop development team to assess Geospatial One-Stop tools and capabilities as potential implementation solutions for performance measurement.

Maintain the existing capabilities:

- Maintain existing tools for measuring, assessing and tracking the performance and progress of The National Map

Acquisition System:

The long-term goal is to move from ingestion, conflation, and integration of individual data sets from partners to the use of more sophisticated methods of partner data maintenance.

New activities:

- Provide project oversight and produce a plan for the development and system architecture for the Acquisition System. Preparation of the plan should include designing, modeling in RUP, and coordinating with other project teams as needed.
- Develop and improve systems and tools for acquiring transportation, boundaries, structures, and hydrography into *The National Map*.
- Develop and improve systems and tools for acquiring and integrating elevation data into the NED, to include acquisition and integration of LIDAR.

Maintain the existing capabilities:

- Maintain hydrography conflation tools.
- Maintain NHD system applications.
- Maintain existing tools for data theme acquisition.

Agreement System:

The long-term goal is to move from recording the agreements negotiated with partners towards automating the process of initiating simple agreements and registration of data. We also would like to look at more Web-based communication of current information pertinent to partner's participation.

New activities:

- Provide project oversight for the Agreement System. Produce a plan for development and system architecture for the Partnership System. Preparation of the plan should include designing, modeling in RUP and coordinating with other project teams as needed.

Maintain the existing capabilities:

- Maintain current directory systems (ACIS, Partner Data Inventory)

Geospatial Data Router System:

The long-term goal is to provide a comprehensive system for moving data among working databases, published services, partner databases, and archives while ensuring continuity of operations.

New activities:

- Provide project oversight and produce a plan for the development and system architecture for the Geospatial Data Router System. Preparation of the plan should include designing, modeling in RUP, and coordinating with other project teams as needed.

Maintain the existing capabilities:

- Maintain service interface for GDA.
- Maintain backup and failover capabilities to ensure 24x7 availability of *The National Map*.
- Continue to maintain and provide distribution and archive services and infrastructure associated with providing data to users to include systems, databases, and infrastructure for all data themes of *The National Map*.

Rights Management System:

The long-term goal is to provide a means by which partners can contribute data to *The National Map* and have their rights to control the discovery, access, and use of data enforced.

New activities:

- Provide project oversight and produce a plan for the development and system architecture for the Rights Management System. Preparation of the plan should include designing, modeling in RUP, and coordinating with other project teams as needed.
- Investigate and develop systems and solutions to record and update the rights and use restrictions on geospatial resources, which provide common control information to other systems that distribute and use the data.

Maintain the existing capabilities:

- Continue to work with consortia (OGC, etc) to investigate and prototype solutions for rights management applications.

IT Security

Continue to perform C&A and IT security-related activities in cooperation with NGPO HQ elements for the systems and capabilities supporting *The National Map*.

Standards

Create a collection of guidebooks, specifications, and standard operating procedures that support implementation of The National Map and NSDI component activities (see theme guidance for support and implementation of USGS theme-specific standards).

- Based on needs of theme and common systems activities, provide appropriate participation and maintenance for standards that support *The National Map*, including:
  - U.S. National Grid and National Standards for Spatial Data Accuracy;
  - OGC Web Mapping, Feature, and Coverage Services, Catalog Services, Gazetteer, and Style Layer Descriptor;
  - International Organization for Standardization (ISO) Metadata, Spatial/Temporal Schema, Coverage/Geometry, Feature/Attribute Dictionary, Names (BGN/GNIS procedures), Imagery, and Digital Rights Management;
  - FGDC Orthoimagery, Elevation, Hydrography, Boundary and Transportation Roads/Rail/Air.
- Based on priorities of FGDC subcommittees and recent surveys of public interest, develop five new standards and models such as soils, street address, wetlands, facilities, earth cover, and geographic names for submission to NCITS-L1 in 2007.
- Publish implementation guidebooks for all Framework data standards, which contain consistent geodatabase or other working models, contracting specifications, and examples or business cases.
- Publish NSDI SOP's and other specialty technical manuals on Geospatial One-Stop harvesting and posting; *The National Map;* QA/QC; data acquisition of LIDAR and other data; standard preparation and production processes for scanning, digitizing, integration into NSDI and *The National Map;* and archiving.

- Edit and publish NSDI guidebooks on the geospatial enterprise architecture, urban areas, data life-cycle management and FGDC data standards process, and roles and responsibilities of FGDC member agencies and stakeholders.
- Support the International Committee for Information Technology Standards L1 SDTS maintenance and revision project, FIPS PUB 55 replacement and expansion (GNIS ID) project, and L1 Hydrologic Units Codes maintenance and revision project.
- As part of the first task in "Common Systems", document the role of standards in *The National Map*.

The National Atlas

The National Atlas is a partnership among Federal agencies and industry to make national geographic information more useful. It succeeds, because it integrates and documents the contributions and collaboration of major suppliers of geospatial and geostatistical information.

- Use formal participation in the FGDC and Geospatial One-Stop to engage more Federal partners and to achieve an even greater level of collaboration with these partners. Work with those organizations to forge a single governance structure for Federal coordination of geospatial data activities.
- Support data integration and harmonization activities among the National Atlas, Atlas of Canada, and INEGI. Support appropriate level of participation in ongoing Global Map data compilation and validation framework activities.
- Produce and deploy a marketing kit for partnership staff to use for promoting National Atlas collaboration and for soliciting new working relationships and/or partnerships.
- Within the NGPO exhibit plan, send the Atlas exhibit(s) to at least one appropriate professional meeting each quarter and prepare new promotional materials as necessary and appropriate.
- Provide consultation and support for other parts of the NGPO engaged in customer assessment activities.
- Refresh Atlas exhibit and marketing materials.

NationalAtlas.gov:

- Do everything necessary to produce National Atlas updates quarterly. Staff must be trained and experienced in the use of the primary software tools used to produce the Atlas, primarily: ArcGIS, ArcView GIS, MapObjects, ArcIMS, HTML, Visual Basic, Javascript, Coldfusion, PHP, XML, Active Server Pages, Oracle, SDE, Postgres, Macromedia multimedia authoring suite, and Dreamweaver.
- Continuously assess emerging technologies and standards for Web-based development. Incorporate best practices to ensure that services are customer-responsive, reliable, and innovative. Continue to improve the site so that it meets both the spirit and intent of Section 508 of the Americans with Disabilities Act.
- Implement relational data base management system (RDBMS) for all content on nationalatlas.gov. Adjust RDBMS model as necessary as refinements and additions are made to the Atlas graphical user interface, Web-site capabilities, and when new products or services are introduced or existing ones are modified.
- Work with Geospatial One-Stop contract staff and others to integrate Atlas products and services with that portal or to ensure access to all National Atlas solutions to Geospatial One-Stop clients.

- Conduct usability tests, and other forms of customer interaction, to gauge the effectiveness of the site and to improve its usefulness and navigability. The partnership marketing kit described above will include information for promoting the Atlas, for identifying candidate map layers and articles or article topics for consideration, and for soliciting working relationships and/or partnerships that extend beyond data maintenance agreements.
- Provide professional review and editing of Atlas content.

Data integration and dissemination:

- Assess all small-scale framework requirements for the National Atlas suite of products and services for use by partners, for Geospatial One-Stop and any other visualization systems, then prepare, deliver, and maintain these as documented OGC-compliant WMS registered with *The National Map* (and the Geography Network, as appropriate).
- Recompile frameworks at 1:1,000,000-scale to support collaborative international activities. Complete compilation of hydrography framework at this scale. Publish these as mapping services and produce data sets in standard Atlas formats and in the delivery format specified by Global Map.
- On a quarterly basis, make National Atlas data available through the Earth Explorer Seamless Data Server and register National Atlas data and services with *The National Map* catalog and Geospatial One-Stop portal. Systematically replace any legacy small-scale data still in use in the NGPO.
- Conduct or support applied cartographic research into generalization tools and techniques appropriate for reducing the content of intermediate-scale NHD data for presentation at 1:1M scale and for the reduction and generalization of other framework data at scales larger than 1:1M.

Documentation:

- Maintain full metadata services, the National Atlas NSDI Clearinghouse node, and the node server. Support metadata preparation efforts of all partners. Continue to prepare appropriate documentation for SDTS transfers, OGIS-compliant WMS, and Geospatial One-Stop and Geography Network WMS.
- Maintain system security documentation necessary for continued certification and accreditation.

OGC WMS and ESRI WMS (ArcIMS):

- Continue to track emerging OGC specifications for mapping and catalog services and develop compliant services as these specifications become, or approach becoming, stable. Promote the availability of OGC-compliant WMS in appropriate fora. Develop mechanisms to track usage of National Atlas WMS. Assess WMS market and develop a full marketing plan for these.
- Maintain a National Atlas WMS server and add or refresh new WMS within our quarterly publication cycle.
- Test, implement, and test the OGC-compliant Web image spreadsheet interface.
- Develop mechanisms to track and report usage of National Atlas IMS. Assess IMS market and develop a full marketing plan for these. Continue to produce new services based on ongoing customer assessment activities and the early development of the marketing plan. As noted above, replace small-scale reference map services currently in use in NGPO with National Atlas IMS and refine these to meet universal needs.

Map Maker:

- Continue to assess public comment on the National Atlas Map Maker, conduct usability studies related to its graphical user interface and current capabilities, and use this information to enhance its functionality and ease of use.
- Develop second interface to the Map Maker to support the needs of more experienced users (as determined by customer analyses). Test, and deploy the enhanced interface.
- Explore and test methods for integrating, dynamically symbolizing, and displaying real-time data.
- Conduct an annual performance benchmark against similar IMS products, such as ArcIMS and Minnesota Map Server.
- Continue to make performance and reliability enhancements and add new map layers on a quarterly basis.
- Provide consultation and support for other parts of the NGPO engaged in graphical user-interface development.

Paper maps, printable maps, and special products:

- Though the National Atlas is focused on the development and delivery of useful and responsive electronic products and services, there is a public expectation of and demand for high-quality cartographic products. This is evidenced by an eight-fold increase in demand for printable maps.
- Continue assessments of public and education markets for page-size, printable maps. Determine whether USGS and DOI requirements for page-size products can be met by Atlas printable maps. Complete templates and specifications for national and State printable maps.
- Maintain the current production rate of one or two national maps per year while continuing to explore and assess opportunities for private sector partnerships for Atlas map production. With partners in Mexico and Canada, compile a thematic map of North America. Print these maps.
- Capitol Hill, DOI, and the Director's Office have relied on National Atlas staff to produce custom mapping products on demand within extremely short deadlines. This ad hoc demand for special products is important and must be supported.

III. Toward Management Excellence

Communication, Outreach, Training and Education

Communication and Outreach activities designed to promote the NSDI are essential to the success of the NGPO. Communication and outreach activities and materials are needed to support NGPO as a whole, as well as *The National Map*, Geospatial One-Stop, and Federal Geographic Data Committee. Outreach activities include marketing tools and application of techniques to ensure high visibility and ongoing status updates. In addition, there is a need for education of several audiences including USGS staff, NSDI liaisons, and partner organizations to bring into realization the benefits of working collaboratively to implement the NSDI. A clear understanding of expectations makes for successful relationships.

The NGPO requires a variety of support to accomplish its strategic objectives and goals. When possible and appropriate, the NGPO would like to use internal resources to meet its communication and outreach, Web support, training, and education needs (those that cannot be supported by NGTOC will be directed to other internal and external sources). The purpose of this guidance is to describe the general type of products and services that will be developed in FY 2006 (specific targeting of content, audience, media, etc., will be determined by the NGPO Communication Team through the development of its strategic plan). The NGTOC should identify the skills and capacity available for supporting the following activities:

Create communication and outreach tools to support the NGPO strategic objectives and NSDI liaison effort (in collaboration with NGPO Communications Team):

Executive Support

- Create a 2-3 page NGPO program briefing for potential partners at the executive level.
- Provide media assistance to NGPO senior managers and NGPO Strategic Communications team.
- Provide an article each month concerning the activities of the NGPO for GIS publications.
- Contribute monthly to USGS Science Picks relaying NGPO activities.
- Contribute monthly to USGS Weekly Highlights and People Land and Water publications relaying NGPO activities.

Educational Materials Specific to Outreach

- Provide support in the writing and publishing of NSDI Success Stories and other activities of the NGPO. The requirements may include support for both internal and external publications.
- Design a suite of products including folders, fact sheets, exhibit banner, and media kit relating to the NGPO support of the USGS Hazards Initiative.
- Provide assistance in the compilation, editing and publication of FGDC and/or NSDI Newsletters. Expectation is that newsletters will be distributed on a quarterly basis.
- Compose 10-20 fact sheets related to NGPO activities highlighting components (GOS, TNM, and FGDC).
- Create fact sheet template suitable for customization by liaisons.

- Create 12 (estimate based on current requirements) marketing tools to assist, educate, and empower NSDI liaisons.
- Create 10 (estimate based on current requirements) fliers for NGPO special events.
- Provide 10 GOS2 training segments by participating in the ESRI train the trainer effort.

Exhibit/Workshop Support

- Create 2 generic NGPO exhibit backdrops and 10 event specific backdrops. Backdrops should allow for easy customization in support of specific events. Customize as needed (estimate 1 per month)
- Provide design for 6 promotional products which highlight NGPO activities.
- Develop workshop agendas devoted to NGPO activities. Provide assistance to NSDI State Liaisons in the execution of workshops at local and regional conferences.
- Provide 10 new graphic displays for NGPO workshops.
- Design a suite of products including folders, fact sheet, exhibit banner, and media kit relating to the NGPO support of the USGS Hazards Initiative.

Develop a unified NGPO Web Site *(in collaboration with the NGPO Web Team; see System of Systems section)**:***

A unified NGPO Web site built on Geospatial One-Stop, OGC, and new content management and document management systems is critical to communicating the NSDI message and providing geospatial services and information. Ongoing iterations enhance the identifying data requirements, planning data sharing and production activities, and usability and effectiveness of data and services.

- Provide assistance to the NGPO Web team and appropriate links to regional and program-specific Web pages.

Develop and implement an NGPO plan for external and internal audiences *(in collaboration with the NGPO Training Team)**:***

- Develop and implement a NGPO training plan and curriculum that includes multi-level competencies across a variety of topics including but not limited to:
  - Framework data
  - Catalogs
  - Harvesting
  - GOS Version 2
  - NSDI and GSDI
  - Geospatial Enterprise Architecture Profile
  - Interoperability and Compliance Testing
  - Geospatial Standards and Data Management
- Curriculum should be modeled after the FGDC Metadata Curriculum located at:

  http://www.fgdc.gov/metadata/education/MetadataWorkshopCoreCurriculum_with_%20Learning_ObjectivesDRAFTFeb23.pdf

- Participate in NSDI train-the-trainer workshop to become agency and data partner NSDI resources and trainers.
- Develop and submit GOS2 training segments resulting from participation in the ESRI train-the-trainer effort.
- Forums include traditional classroom, workshop, video, and Internet; however, the focus should be on on-line and net-meeting types of technology and formats.

Develop and implement a Native American Tribal outreach and education plan *(in collaboration with the NSDI Tribal liaison and NGPO Communications Team)**:***

- Encourage the development of new partnerships with Tribal governments to further development of the NSDI.
- Educate NSDI liaisons on the importance of reaching out to Tribal leadership.
- Support internal USGS Tribal coordination.

NSDI Partnership Liaisons

Complete and support agreements to provide data for The National Map "tapestry", support USGS participation on the "50 States" initiative, and support partner participation in NGPO-led activities. Includes administrative "back office" support:

- Negotiate, complete, and track progress on agreements (including administrative "back office" support) to support working with partners to achieve orthoimagery, elevation, hydrography, geographic names, graphics, and other activities described above. Remember that metadata must accompany geospatial data developed through these efforts.
- As part of the "50 States" initiative, negotiate and complete MOU's with each State for participation in the NSDI, especially those aspects under NGPO leadership (notably Geospatial One-Stop and *The National Map*).
- As part of the "50 States" initiative, work with States to complete States' strategic and investment plans for developing geospatial data development, maintenance, and service provision plans. USGS participation should emphasize activities that contribute to aspects of the NSDI under NGPO leadership (notably Geospatial One-Stop and *The National Map*).
- Work with public and private organizations to bring into *The National Map* (and by extension Geospatial One-Stop) geospatial data (and related Web mapping and other Internet-based services) that meet or exceed the data themes and qualities described in Appendix C "Data Themes and Goals for Data Characteristics" and the current content of *The National Map*.
- Conduct workshops and participate in meeting as needed to encourage partners' participation in NGPO-sponsored activities.
- Develop and support return on investment and investment analysis for partners and their investment review boards.
- Document experiences as part of continuing efforts to provide feedback on "best practices" to the geospatial community.
- As part of documenting "best practices", identify incentives (i.e., determine the demand) that would be of interest to stakeholders to encourage their participation in NGPO-led activities.

Data Themes and Goals for Data Characteristics

The following information provides a better sense of the data themes and related data characteristics in *The National Map*. Characteristics of data currentness and positional accuracy are provided as goals. Data offered must improve (be more current, accurate, etc.) on those already available in *The National Map*.

Generally, the data provided must feature one or more of the following data themes: raster color or black-and-white orthoimagery; raster ground-surface elevation; vector feature data for the themes of hydrography, transportation centerlines (especially roads, but also including railroads, pipelines, power lines, and other features), structures, and boundaries of governmental units and administrative boundaries of publicly-owned lands; geographic names; and land cover. For the vector data categories the minimum information content is descriptive information such as feature type or classification information and a geographic name. For road data, street name and address range information is desired. Other commonly-used unique feature identifiers also are of interest. Specific information content requirements for hydrography and geographic names are available in documentation for the National Hydrography Dataset (http://nhd.usgs.gov) and Geographic Names Information System (http://geonames.usgs.gov) respectively.

Two types of geographic areas are of special interest. For urban areas, the data should have the currentness and positional accuracy qualities typically sought by local governments. For large areas (for example, states or groups of states), the data should have the positional accuracy qualities of USGS primary topographic map series (typically 1:24,000-scale; 1:63,360-scale in Alaska). The following table provides minimum (that is, data should be no worse than these measures) goals for these two classes of data:

Other sought data characteristics are reviewed in "*The National Map*: Topographic Mapping for the 21st Century" (http://nationalmap.usgs.gov/report/national_map_report_final.pdf, starting on page 10).

Other requirements:

- The data provided should be available in the public domain.
- The data provided will be available for unlimited viewing, limited downloads (limited by data volume restrictions), and unrestricted use and redistribution.
- USGS may incorporate data provided in *The National Map* into its national databases; in particular:
    - Activities that include hydrography data must result in the data being incorporated into the National Hydrography Dataset.
    - Activities that include elevation data must result in the data being incorporated into the National Elevation Dataset.
    - Activities that include geographic names must result in data being incorporated into the Geographic Names Information System.
    - Activities that include orthoimagery data may, at the partner's request, result in the data being incorporated into the National Orthoimagery Dataset.

Technical Back-Office Support

Work with NGPO partnership offices to provide technical support to partners' participation in NGPO activities.

- Providing technical expertise and support including QA /QC, data integration, hosting, archiving, and data acquisition planning and production.
- Provide information about data revision and update techniques and processes.
- Assist in registering geospatial data and mapping services in Geospatial One-Stop.
- Provide technical research, evaluations, and recommendations on new methods, security policy implementation, technologies, sensors, and related NSDI activities.
- Assist with interoperability testing and compatibility among partners' sites.
- Support and trouble shooting of NSDI components hosted and deployed by partners for efficiency, alignment with enterprise architecture geospatial profile, consistency with Geospatial One-Stop, *The National Map*, FGDC standards and OGC web services.
- Conduct technical workshops and training in the field, conference, and other partner venues.
- Prepare to participate in and provide training for Geospatial One-Stop activities by participating in ESRI-provided "train the trainer" classes.
- Document technical experiences as part of continuing efforts to provide feedback on "best practices" to the geospatial community.
    - As part of documenting "best practices", identify incentives (that is, determine the supply) that could be provided by the NGTOC to stakeholders to encourage their participation in NGPO-led activities. Such incentives would include, but not be limited to, activities listed above.
    - Using information about supply and demand (see NSDI Partnership Offices section) of incentives, propose a strategy for NGTOC to provide technical resources and assistance in support of NSDI Partnership liaisons.

IV. Mapping Products for the 21st Century

Implement Web-based topographic mapping for those areas with nationally consistent data sets or local data where nationally consistent data do not exist. In this capability, The National Map user will be able to draw a rectangle indicating an area of interest. The Web-based product generation process will segment the area into 7.5' quadrangles and produce the maps that cover the area.

- Work with communications staff to develop a strategy plan for the release of this product (0.25 FTE).
- Work with USFS to bring legacy, single-edition maps on line to be downloaded through *The National Map* (it is anticipated these files will be in a PDF format).

Graphic improvements:

- Continue to refine Web-based, automated graphics capabilities and establish standards-based, service interface specifications (4 FTE's).

Ongoing maintenance activities:

- Maintain map materials in centers (one at each center) (total of .5 FTE's).
- Support lithographic printing for the USFS.

Access to paper products:

- Work with the Earth Science Network (ESN) to ensure products from *The National Map* can be accessed by our partners and map users (0.25 FTE assumes that ESN will do the bulk of the work and GIIA is only attending meetings and providing coordination).
- Address plotter requirements and how this might affect standards (0.25 FTE)
- Based on plans started FY 2005, complete transitions in current printing and distribution methods and document new approach and responsibilities

Graphics leadership and support:

- Provide a graphics theme manager.

V. Emergency Operations

The primary focus of the Emergency Operations (EO) component of the NGPO is to develop and issue annual program guidance for and to perform coordination and oversight of geospatial information activities associated with homeland security, homeland defense, law enforcement, and the intelligence communities (HLS/HLD/LE/IC). A secondary role is to facilitate and coordinate, where appropriate, the application of USGS scientific expertise, expressed as services rendered by Bureau components not under the authority of the ADGI, in support of these critical mission areas.

Department of Homeland Security coordination and technical support:

Continue USGS's strategic engagement through direct support to DHS/GMO by providing USGS personnel for a detail for the following positions:

Strategic Support

- Senior Technical Advisor:
    - Supports and advises executive leadership to ensure that geospatial program priorities and goals represent the forefront of technology, national policies, and emerging priorities; satisfy the needs of internal and external customers and constituent groups; and promote the integrated enterprise approach of the Department and the contribution to a national solution.
    - Serves as the USGS lead for other USGS personnel assigned to DHS.
- Enterprise Architecture Specialist, Transition Planner:
    - Continued support for the "Enterprise Architecture Specialist, Transition Planner" represents a high value contribution to joint goals.
    - Performs in-depth technical evaluation of DHS geospatial information technology investment portfolios and develops transition plans to ensure compatibility of plans with the jointly developed DHS Geospatial Enterprise Architecture (GEA) and the NSDI. Provides an opportunity to maintain linkages to NGPO activities by facilitating the achievements of joint and interoperable solutions.
- Geospatial Liaison and Coordination:
    - Supports the DHS effort to establish collaborative relationships and integrated information sharing solutions with State and local geospatial stakeholders and addresses the overlap of this effort with the USGS partnership model of the NGPO and *The National Map.*
    - This position implies a collaborative effort between DHS' Office of Domestic Preparedness and the USGS Partnership Office in implementing the geospatial component of the ODP Grant Program.

Tactical Support

Provide USGS personnel for a detail to the following DHS operations centers (**bold** type indicates current and recommend staffing for FY 2006, and *italic* indicates proposed placements from the DHS strategy document, which will not be supported until follow-on management discussions):

- **DHS Homeland Security Operations Center**
- *Immigration and Customs Enforcement*
- *Customs and Border Protection*
- *U.S. Secret Service*
- *U.S. Coast Guard*
- *Transportation Security Administration*

The typical role of analysts is to locate and integrate geospatial data and information for the purpose of providing a visual model of infrastructure or geographic areas that are considered vulnerable to terrorist attacks or natural disaster and an analysis of events real or assumed using state-of-the-art GIS tools to propose protective or mitigating action.

NORAD/Northern Command coordination and technical support:

Continue to provide USGS contributions of leadership, technical support and liaison capabilities through three positions to support the Interagency Coordination Directorate (N/NC, Air Force Space Command, and U.S. Army Strategic Command). The primary focus of the USGS–N/NC partnership has been focused on natural and manmade hazards, emergency operations, development of geospatial applications in support of homeland defense and MACA, and application of integrated geospatial information and scientific expertise.

Geospatial Reach-Back Support

In addition to the contribution of personnel supporting on-site details and coordination support to the communities indicated above, a significant resource is required to support operational reach-back for Emergency Operations geospatial activities. These activities can include support to staff at N/NC, DHS, and Site D, as well as National Security Special Events or other situational exercises requiring geospatial capabilities.

Types of products and services exercised in Emergency Operations geospatial reach-back include:

- enterprise architecture support,
- geospatial information technology expertise,
- geospatial data Integration and processing,
- geospatial systems technology expertise,
- geospatial data and Information discovery and delivery,
- geospatial application development,
- custom product generation,
- liaison and coordination services, and
- Site D technical support.

FY 2006 NGPO HQ and NGTOC Planning Schedule
(Revised 6/1/05)

Deadline	***Action***	***Responsible Group***
June 1 *(Wednesday)*	Provide guidance document describing functional areas and estimated funding levels.	**Headquarters**
June 15 *(Wednesday)*	Provide baseline budget spreadsheets and estimates of capacity by functional area.	**NGTOC I − IV**
	Provide information on partner requirements.	**NSDI Liaisons**
***July* 1** *(Friday)*	Provide targeted program of work by cost center.	**Headquarters**
July 15 *(Friday)*	Respond to proposed program of work.	**NGTOC I − IV**
July 29 *(Friday)*	Agree upon final program of work.	**All**
August	Input program of work into BASIS+ using a common project structure and naming conventions.	**NGTOC I − IV**

B-1: Urban areas with no imagery agreement –11 Urban Areas

Current as of 6/7/05

Barre-Montpelier, VT
Bridgeport-Stamford, CT
Flint, MI
Frankfort, KY
Grand Rapids, MI
Hartford, CT
Juneau, AK
Lansing, MI
New Haven, CT
Youngstown, OH

B-2: Imagery is more than 2 years old – 47 Urban Areas

Allentown-Bethlehem, PA
Amarillo, TX
Anchorage, AK
Augusta, GA
Augusta, ME
Baton Rouge, LA
Birmingham, AL
Boise, ID
Carson City, NV
Chattanooga, TN
Cleveland-Akron, OH
Colorado Springs, CO
Dayton, OH
Des Moines, IA
Dover, DE
El Paso, TX
Fresno, CA
Greensboro-Winston Salem, NC
Harrisburg, PA
Huntsville, AL
Jackson, MS
Knoxville, TN
Lancaster, PA
Lexington, KY
McAllen, TX
Mobile, AL
Modesto, CA
Montgomery, AL
Nashville, TN
Newark, NJ
Norfolk-Chesapeake, VA
Providence, RI
Reno, NV
Richmond, VA
Sacramento, CA
Salt Lake City-Ogden, UT
San Antonio, TX
Shreveport, LA
Springfield, MA
Stockton, CA
Tampa-St. Petersburg, FL
Toledo, OH
Topeka, KS
Trenton, NJ
Tucson, AZ
Washington-Arlington, DC-VA
Worcester, MA

B-3: 1-meter imagery is more than 5 years old – 4 States

Alabama
Georgia
North Carolina
Tennessee

B-4: States in FY06 NAIP 5-year plan for 1-meter acquisition – 12 States

Alabama
Arkansas
Connecticut
Delaware
Iowa
Kansas
Nevada
New Jersey
New York
North Carolina
Washington
Wyoming

Minimum ("no worse than") Goals for Resolution, Accuracy, and Currentness				
	Urban Areas		Large Areas	
Data Theme	**Minimum Resolution or Accuracy[1]**	**Minimum Currentness[2]**	**Minimum Resolution or Accuracy[3]**	**Minimum Currentness[4]**
Orthoimagery	1 foot resolution; 3 meters horizontal accuracy	Two years	1 meter resolution; 11.70 meters horizontal accuracy	Five years
Elevation	1/9 arc second (~3 meters) resolution; 0.73 meter vertical accuracy	Two years	1/3 arc second (~10 meters) (2 arc second in AK) resolution; vertical accuracy commensurate with contour interval of USGS primary topographic map for area.	Five years
Hydrography	4.68 meters horizontal accuracy	Two years	13.90 meters horizontal accuracy; 36.69 meters horizontal accuracy for AK.	Five years
Transportation	4.68 meters horizontal accuracy	Two years	13.90 meters horizontal accuracy; 36.69 meters horizontal accuracy for AK.	Five years
Boundaries	4.68 meters horizontal accuracy	Two years	13.90 meters horizontal accuracy; 36.69 meters horizontal accuracy for AK.	Five years
Structures	4.68 meters horizontal accuracy	Two years	13.90 meters horizontal accuracy; 36.69 meters horizontal accuracy for AK.	Five years
Land Cover	Should align with base maps that have the accuracies listed above.	Two years	Should align with base maps that have the accuracies listed above.	Five years
Geographic Names	Same as the associated feature		Same as the associated feature	

Data should be in the North American Datum of 1983; elevation data in the North American Vertical Datum of 1988.

[1,3] Accuracy statement based on Geospatial Positioning Accuracy Standard, Part 3, National Standard for Spatial Data Accuracy (FGDC-STD-007.3-1998). http://www.fgdc.gov/standards/status/sub1_3.html. For horizontal accuracies (95% confidence level), 3 meters is commensurate with 1:3,075-scale maps under the National Map Accuracy Standard, 4.68 meters with 1:4,800-scale maps, 13.90 meters with 1:24,000-scale maps, and 36.69 meters with 1:63,360-scale maps. For vertical accuracy (95% confidence level), 0.73 meter is commensurate with a four-foot contour interval under the National Map Accuracy Standard.

[2, 4] Estimated currentness of the data at the date of service initiation; that is, the data served reflects the ground condition sometime during the two (or five) years prior to the start of service through *The National Map*. (Note that, for themes in which the ground changes rarely, older data might meet this condition.)