

The National Map – Products And Services

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THE U.S. NATIONAL GEOSPATIAL PROGRAM (NGP)

The U.S. Geological Survey NGP provides 19 geospatial products and services. This paper provides some background information on the NGP with emphasis on *The National Map*, Geospatial One-Stop, and the Graphics Project. The information in this paper is current as of May, 2007.

NGP Purposes

The U. S. Geological Survey's National Geospatial Program provides leadership to:

- Place geographic knowledge at the fingertips of the Nation,
- Assure the availability of current and accurate geospatial data on a local, national and global basis in order to contribute to economic growth, environmental quality and stability, and social progress,
- Establish a unified approach to accomplishing the National Spatial Data - Infrastructure (NSDI) through the Federal Geographic Data Committee (FGDC), *The National Map*, Geospatial One-Stop (GOS), and the National Atlas of the United States, and
- Develop partnerships to build the NSDI with Federal, State, tribal, academic, private, and local partners.

The NGP Portfolio

The NGP has a broad portfolio that:

- Provides Department of the Interior (DOI) geospatial leadership and coordination among DOI bureaus,
- Provides geospatial readiness for emergency operations,
- Conducts a formal geospatial coordination among Federal agencies and with State, local, and tribal governments,
- Hosts the FGDC Secretariat providing coordination among Federal agencies and with other nations,
- Hosts the USGS geospatial liaison network,
- Hosts *The National Map*,
- Hosts the National Atlas, to provide consistent, national-scale, organized information about physical, historical, economic, and socio-cultural characteristics of the United States,
- Hosts the GOS for discovery and access to geospatial data in a common infrastructure,
- Hosts the Board on Geographic Names Secretariat for a formal coordination among Federal agencies and with other nations,
- Hosts the National Geospatial Technical Operations Center as the NGP's operational asset focused on "putting geographic knowledge at the fingertips of the nation", and
- Hosts the Center of Excellence for Geospatial Information Science for leadership in basic research about geospatial information.

The National Map

User access to *The National Map* is primarily through its on-line viewer found at <http://nmviewogc.cr.usgs.gov/viewer.htm>. *The National Map* viewer offers an array of functions and tools for viewing and creating maps. *The National Map* provides base content data for the Nation. Base content is made up of eight data themes, elevation, imagery, names, transportation, structures, boundaries, hydrography, and land use land cover. Developed and maintained through partnerships, it is a national foundation data set for science, land and resource management, recreation, policy making, and homeland security. Through *The National Map*'s portal, the user accesses U.S. Geological Survey (USGS) and partner data from multiple map services. FGDC-compliant metadata is available for each of the eight data themes. Data within each of the eight data themes can be viewed and printed as PDF images. It is also the source for revised topographic maps. Many of the layers can be downloaded. *The National Map* is many things to many people, maps, a data viewer, systems, work flows and processes, and applications.

Orthorectified imagery, land cover, elevation, hydrography, geographic names, transportation, structures, and boundaries data are available from *The National Map* (Figure 1). As stipulated in the Office of Management and Budget (OMB) Circular A-16 (http://www.whitehouse.gov/omb/circulars/a016/a016_rev.html), the USGS has responsibility for each of the eight data themes but the transportation, structures, and boundaries themes or layers. The NGP acquires these data for these three themes through partnerships and purchases. The acquired data are used to upgrade national

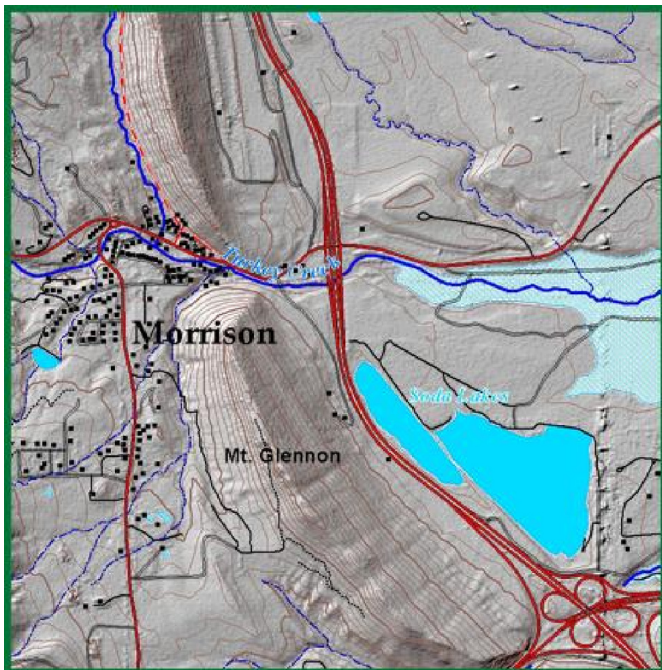


Figure 1. The vision of *The National Map* as a fully integrated set of data accurately representing features on the earth.

databases of base content, to produce topographic maps, and by customers for various applications. The status of these data layers is available from the National Geospatial Program Office (http://www.usgs.gov/ngpo/ngpo_contacts.html).

USGS's roles are changing from producing topographic maps to being the guarantor of national data completeness. The NGP is the organizer responsible for awareness, availability, and utility of geospatial data. The NGP is the catalyst and collaborator for creating and stimulating data partnerships, the partner in standards development, the integrator of data from other participants, and the data producer and owner when no other source exists.

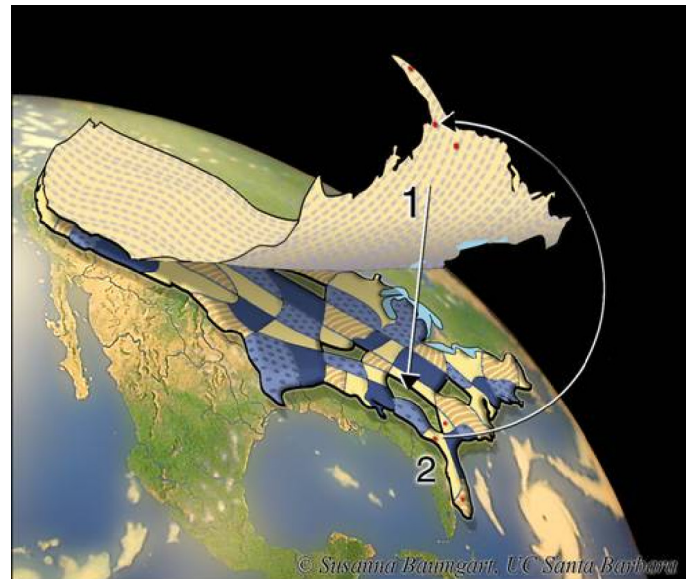


Figure 2. Data content of *The National Map* as a national seamless coverage of data acquired from partners for all eight data themes of *The National Map*

USGS's vision for *The National Map* (Figure 2), is that of a seamless, continuously maintained, nationally consistent set of base geographic data. USGS envisions the availability, through *The National Map*, of legacy topographic maps, standard digital image maps with overlays, standard digital topographic maps, and custom topographic maps. Users will be provided with scalable geospatial services, systems, and workflows.

Geospatial One-Stop (GOS)

GOS contains Federal data sets, state/regional data sets, integrated national data sets, and scientific knowledge contained in reports, models, and applications. GOS provides access and discovery of all these data sets. In 2006, records in these categories grew from 81,000 to 123,000. In October 2006, the USGS NGP was designated the managing partner for GOS by the Department of the Interior. The USGS will continue to enhance the capabilities of GOS.

Graphics Project

The national coverage of the 1:24,000-scale Primary Series Topographic Maps (those which are now available as lithographically printed maps) was completed in May, 1991. It was an immense engineering feat, for which the cost of replication today would be over two billion dollars. This primary series of the topographic maps is the only national synthesis of topographic content that is comprehensive, transjurisdictional, and border-to-border (and coast-to-coast) coverage at a consistent scale and content.

The legacy topographic maps' value is eroding rapidly as they become increasingly outdated and the divergence between base data and topographic maps increase. Another impact on their value is the duplication of effort among and between geographic information sectors.

Today USGS's focus is on building *The National Map* by building the Nation's database of topographic information, and maintaining those data. In addition, USGS is building GOS. Using *The National Map* data, USGS is producing new image maps (Figure 3) over hurricane-prone areas of the Atlantic and Gulf Coasts. The focus for the graphics project over the next two years will be to begin production of new topographic maps from *The National Map* data and to develop a capability by which users can make new topographic maps on-line. Standards for the new topographic and the new image maps' content, format, and file structure are being developed. The new topographic maps will use only suitable data where they are available. Because of the availability of suitable data and new technology the new topographic maps and image maps will be enhanced from the published primary series topographic maps. Where suitable data are not available, an image map made from an orthophotograph will be available.

USGS is considering a program by which the legacy topographic maps (published Primary Series Topographic

Maps) available from USGS's warehouse will be scanned and enhanced to replace the existing Digital Raster Graphic (DRG) files. These files will be available to the public as a supplement, if not a replacement, for the published paper editions of the primary series topographic maps. USGS is also considering scanning the map separates from which the published topographic maps were printed.

FINAL REMARKS

The National Map is a critical asset, providing geospatial data and map products. Interoperability standards being applied to both GOS to leverage *The National Map* will allow *The National Map* to both see and use GOS information. Integrated databases (local, regional, and national) are key to *The National Map*'s success. New enhancements for *The National Map* are either now being implemented or are in development. Map separates used to print the topographic maps will continue to be available.

RESOURCES

The National Map Team, 2003, Implementation Plan for *The National Map*: U.S. Geological Survey, October 18, 2003, ver. 1.0., available at <http://nationalmap.gov/nmreports.html>.

Zulick, C.A., 2008, *The National Map 2.0 Tactical Plan — Toward The (Integrated) National Map*: U.S. Geological Survey Open-file Report 2008-1263, 57 p., available at <http://pubs.er.usgs.gov/usgspubs/ofr/ofr20081263>. [Preprint accessed by permission from the National Geospatial Program Office.]

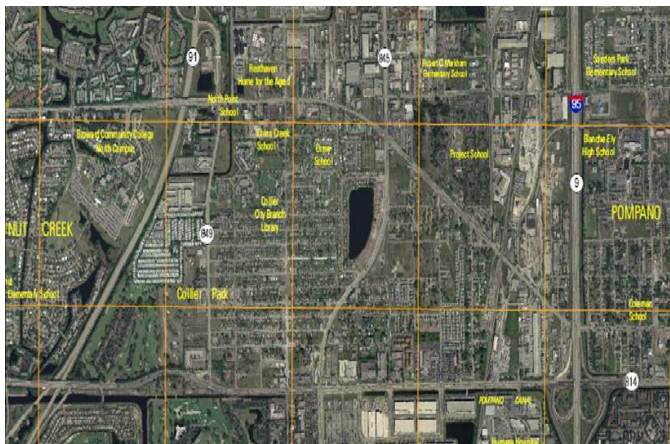


Figure 3. Digital image map (draft made from *The National Map* data).