

Part B

A-16 Lead - Elevation (USGS)

1. Program/Activity Name: **Digital Elevation Geospatial Data**
2. What are the specific federal programs this data supports? **All programs that have a geographic and/or spatial context or component are supported either directly or indirectly by elevation data.**
3. Uses of Data: How does your data benefit customers and support agency missions?

Elevation data constitute a key base layer in the geospatial data spectrum. In order for any of the layers of the National Spatial Data Infrastructure Framework to conform to and fit the earth surface, elevation data must be applied. Geospatial data are generally presented (viewed on a screen or printed on paper) as a two-dimensional representation of features on the earth's surface. In order for the two dimensional presentation to be an accurate representation of these real features, their relative position must be adjusted to fit the three-dimensional surface of the earth. Elevation data are used to rectify the two dimensional geospatial data to ensure an accurate and realistic presentation in two dimensions.

Elevation data are also used to model how events are manifested on the earth's surface. Examples include flood inundation, hydrologic and hydraulic modeling, and dispersion modeling (such as cross terrain movement of a waterborne or airborne contaminant).

4. Charter/Plan: Do you have a current charter or plan for collection? If so - please describe (include how recently the charter/plan was implemented and whether it is in need of update).
The USGS, as the A-16 lead Agency for Terrestrial Elevation data has developed a multi-tiered strategy for coordination of elevation activities. The USGS has supported the NSDI Framework model for elevation data, and has enabled access to National coverages of Framework Elevation Data. Collection of the data has been executed primarily through joint planning and partnerships such as the Department of the Interior High priority Program, USGS innovative partnerships program, and joint funding agreements with Federal, State, and Local partners. Plans are to continue, and expand on partnerships based collection of data, and to concentrate efforts on integrating these data and providing free and open access in the public domain.

The USGS also recognizes that many other organizations are involved in collection of elevation data, and has led in the development of the National Digital Elevation Program (NDEP), to provide a vehicle for standardization and coordination of elevation activities throughout the national geospatial data community. The NDEP charter (which is current) includes the cooperative collection of data acquisition plans for all the member agencies (including partners of member agencies), and a commitment to use the cumulative plans to enable partnerships for collection of elevation data and reduce redundant or duplicative collection of elevation data. A high level of commitment exists among the membership to make these elevation assets available in the public domain, to maximize the value of the investments.

5. Metadata Status: Is metadata discoverable and served through the NSDI Clearinghouse? What percentage of this theme's data has metadata and is in a Clearinghouse node?
USGS has made metadata available through the NSDI clearinghouse for elevation data assets we have collected. The NDEP plans to make the information we are collecting available through the clearinghouse, and we are participating in the

redesign of the clearinghouse services to enable appropriate levels of support for the requirements of the Geospatial One Stop Activity.

6. Standards: What is the status of this theme's data, process, transfer, and classification standards?

USGS has had Standards and Specifications in place for 20 years for Digital Elevation Models. In addition to these standards, USGS has implemented a Framework model for elevation data, and provides National seamless coverage available in this model. These standards include Data content, and process specifications. USGS has also developed and implemented transfer Standards for elevation data (SDTS Part 5: Raster Profile and Extensions).

Development of Standards for Framework Elevation data have been severely hampered by the lack of consensus on what constitutes Framework, and how that should be applied to the elevation theme.

The NDEP is developing a broad set of guidelines, which address the many data models employed in the elevation community. These guidelines provide data content, and process information, and reference appropriate endorsed standards already available. The NDEP guidelines are currently in DRAFT form, and are undergoing NDEP member agency review.

7. Progress: List FY 2001/2002 activities/progress to date (quantify where possible).

In FY 2001 and 2002 the USGS implemented Internet access to multiple National Seamless coverages of Framework elevation data, with one arc-second spacing. Multi-resolution seamless data base services have been introduced and are adding coverages at 1/3 and 1/9 arc-second spacing as available. 40% of the CONUS is available for multi resolution integration at 1/3 arc-second and access to high priority areas (flood plains, coastal zones) is being pursued, at 1/9 arc-second spacing. Much of the access to 1/9 arc second data are anticipated to result from partnerships and commitments grown from the NDEP consortium.

8. Policy: Do you have a formal agency policy in place for full and open access or data sharing? Are you able to fulfill this policy and provide public access with your current agency financial resources as allocated or are you in pursuit of collaborative federal partnerships to support data access?

The USGS does have a formal policy in place for placing our data assets in the public domain. The USGS has and continues to struggle with financial limitations to this commitment. We are providing public domain access, but the level of service we provide in doing so is often limited by lack of financial resources.

The USGS is pursuing collaborative partnerships, with prospective Federal, State, and local partners, as well as private industry to increase our level of service in providing assets in the public domain, and to expand these services to provide maximum benefit to the broadest community.

9. Are there areas or issues regarding lead responsibilities for spatial data themes that require attention, or lessons-learned that you would like to share with others? Please describe.

One Size does not fit all. Standardization does not always translate into defining a single model or a single specification. Standards for data, process and transfer need to be flexible enough to allow participants to meet their needs. In the elevation theme there are several models, which are employed for mission specific

reasons, and need to be supported. Any effort to oversimplify or restrict the science of elevation, will be counterproductive.

Determine funding strategies to Leverage dollars spent to effectively host geospatial data for the benefit of many agencies and programs will save dollars across government and avoid redundancy.