7. USGS National Map

Print

Executive Order 12906 decreed that a designee of the Secretary of the Department of Interior would chair the Federal Geographic Data Committee. The USGS, an agency of the Department of Interior, has lead responsibility for three of the seven NSDI framework themes--orthoimagery, elevation, and hydrography, and secondary responsibility for several others. In 2001, USGS announced its vision of a National Map that "aligns with the goals of, and is one of several USGS activities that contribute to, the National Spatial Data Infrastructure" (USGS, 2001, p. 31). A 2002 report of the National Research Council identified the National Map as the most important initiative of USGS' Geography Discipline at the USGS (NRC, 2002). Recognizing its unifying role across its science disciplines, USGS moved management responsibility for the National Map from Geography to the USGS Geospatial Information Office in 2004. (One reason that the term "geospatial" is used at USGS and elsewhere is to avoid association of GIS with a particular discipline, i.e., Geography.)

In 2001, USGS envisioned the National Map as the Nation's topographic map for the 21st Century (USGS, 2001, p.1). Improvements over the original topographic map series were to include:

Characteristics of the National Map (USGS, 2001, p. 11-13).

Currentness	Content will be updated on the basis of changes in the landscape instead of the cyclical inspection and revisions cycles now in use [for printed topographic map series]. The ultimate goal is that new content be incorporated with seven days of a change in the landscape.
Seamlessness	Features will be represented in their entirety and not interrupted by arbitrary edges, such as 7.5-minute map boundaries.
Consistent classification	Types of features, such as "road" and "lake/pond," will be identified in the same way throughout the Nation.
Variable resolution	Data resolution, or pixel size, may vary among imagery of urban, rural, and wilderness areas. The resolution of elevation data may be finer for flood plain, coastal, and other areas of low relief than for areas of high relief.
Completeness	Data content will include all mappable features (as defined by the applicable content standards for each data theme and source).
Consistency and integration	Content will be delineated geographically (that is, in its true ground position within the applicable accuracy limit) to ensure logical consistency between related features. For example, ... streams and rivers [should] consistently flow downhill...
Variable positional accuracy	The minimum positional accuracy will be that of the current primary topographic map series for an area. Actual positional accuracy will be reported in conformance with the Federal Geographic Data Committee's Geospatial Positioning Accuracy Standard.
Spatial reference systems	Tools will be provided to integrate data that are mapping using different datums and referenced to different

	coordinates systems, and to reproject data to meet user requirements.
Standardized content	...will conform to appropriate Federal Geographic Data Committee, other national, and/or international standards.
Metadata	At a minimum, metadata will meet Federal Geographic Data Committee standards to document ... [data] lineage, positional and attribute accuracy, completeness, and consistency.

To this day, USGS' ambitious vision is still being realized. The basic elements have been in place for a while — national data themes, data access and dissemination technologies such as Data.gov and the National Map viewer. But, ongoing is the cooperation by many federal, state and local government agencies, in order to keep making available new data as it is collected and compiled. A Center of Excellence for Geospatial Information Science (CEGIS) has been established under the USGS Geospatial Information Office to undertake the basic GIScience research needed to devise and implement advanced tools that will make the National Map more valuable to end users.

The data themes included in the National Map are shown in the following table, in comparison to the NSDI framework themes outlined earlier in this chapter. As you see, the National Map themes align with five of the seven framework themes, but do not include geodetic control and cadastral data. Also, the National Map adds land cover and geographic names, which are not included among the NSDI framework themes. **Given USGS' leadership role in FGDC, why do the National Map themes deviate from the NSDI framework?** According to the Committee on Research Priorities for the USGS Center of Excellence for Geospatial Science, "these themes were selected because USGS is authorized to provide them if no other sources are available, and [because] they typically comprise the information portrayed on USGS topographic maps (NRC, 2007, p. 31).

Comparison of data themes included in the National Map and NSDI framework.

Type	National Map Themes	NSDI Framework Themes
Geodetic Control	No	**Yes**
Orthoimagery	**Yes**	**Yes**
Land Cover	**Yes**	No
Elevation	**Yes**	**Yes**
Transportation	**Yes**	**Yes**
Hydrography	**Yes**	**Yes**
Boundaries	**Yes**	**Yes**
Structures	**Yes**	No
Cadastral	No	**Yes**
Geographic Names	**Yes**	No

The following sections of this chapter and the one that follows will describe the derivation, characteristics, and status of the seven NSDI themes in relation to the National Map. Chapter 8, Remotely Sensed Image Data, will include a description of the National Land Cover Data program that provides the land cover theme of the National Map.

‹ 6. Federal Geographic Data Committee | up | 8. Theme: Geodetic Control ›

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