

# NSDI Framework

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The National Spatial Data Infrastructure (NSDI) is a means to assemble geographic data nationwide to serve a variety of users. The framework is one of the key building blocks and forms the data backbone of the NSDI. The framework concept was developed by representatives of county, regional, State, Federal, and other organizations under the auspices of the Federal Geographic Data Committee (FGDC).

Framework has three parts:

- Data
- Procedures and technology for building and using the data
- Institutional relationships and business practices that support the environment

Geospatial data themes providing the core, most commonly used set of base data are known as framework data. They are geodetic control, orthoimagery, elevation and bathymetry, transportation, hydrography, cadastral, and governmental units.

The framework is designed to facilitate production and use of geographic data, to reduce operating costs, and to improve service and decision making. Geographic data are essential to many operations, yet they are expensive and time-consuming to produce. Many organizations need the same basic geographic data for their applications and spend precious resources duplicating the same data sets. Others go without data because they cannot afford the production costs. Furthermore, when an application or problem covers more than one jurisdiction,

it is often difficult to find and combine existing data. The framework meets these needs by providing a reliable, standardized source for commonly used geographic data themes. The framework concept is being incorporated into many geospatial activities.

For example, from U.S. Geological Survey, *The National Map* incorporates framework concepts for its development as a consistent base for geographic knowledge needed by the Nation, and provides key content to the NSDI. Its goal is to provide public access to high quality, geospatial data and information from multiple partners to help support decision making by resource managers and the public. *The National Map* is the product of a consortium of Federal, State, and local partners who provide geospatial data to enhance America's ability to access, integrate, and apply geospatial data at global, national, and local scales. It includes many of the framework themes and shares with FGDC and many others the goal of building the NSDI.

## Technical, Operational and Institutional Context

The framework has the following technical aspects:

- Feature-based data model
- Permanent, unique feature identification codes
- Reference to modern horizontal and vertical geodetic datums
- Seamlessly integrated data for adjacent or overlapping geographic areas
- Metadata

The framework has the following operational aspects:

- Transactional changes
- Access to past versions
- Locate framework data from Geospatial One-Stop ([www.geodata.gov](http://www.geodata.gov)).

Innovative institutional arrangements ensure a robust and well-maintained framework. Ideally, the framework data for a geographic area will be developed, maintained, and integrated by the organizations that produce and make use of data for that area. In addition, there is a need to ensure that the framework data can be integrated to support applications for different geographic areas. Initial framework efforts show that the following functions are critical to successful framework efforts:

- Executive guidance - provide vision and direction for framework development
- Data development, maintenance, and integration - create, integrate, and update framework data
- Coordination - ensure that the contributions of organizations work together, and encourage productive relationships among participants
- Data management - ensure the continued viability of framework data through standards, data security, and disaster recovery
- Data access - enable users to obtain framework data
- Resource management - estimate income and expenses, obtain resources, and provide logistical support
- Monitor and response - measure users' satisfaction and provide market analysis

The framework will develop over a number of years and will be continually improved and maintained. Because the framework will be owned by its participants, efforts are concentrated on increasing participation. As more participants use and contribute to the framework, their input will further refine its structure. It will continue to grow as the data and participants change. Over time it will become more complete, contain increasing amounts of large-scale data, and become more transaction-driven.

There are geospatial data-sharing and framework activities throughout the country. Contact the FGDC to

learn more about these activities. You may be able to work with some of these groups to develop framework activities in your area.

### **Gulf of Maine Framework Demonstration Project**

Recent framework efforts include the Gulf of Maine project, a joint U.S. and Canadian project to develop a common shared data resource within and across national borders. Project objectives:

- Enable a Gulf of Maine spatial data infrastructure - a view into the NSDI and the Canadian Geospatial Data Infrastructure that focuses on the Gulf of Maine
- Build U.S.-Canadian relationships for geospatial data integration
- Enable effective integration of geospatial datasets across Canadian-U.S. borders
- Demonstrate an application using integrated spatial data
- Document issues and experience associated with integrating various partners' spatial data
- Make recommendations for addressing outstanding issues that cannot be resolved by this project

This project is lead in the U.S by the Gulf of Maine Ocean Observing System (GoMOOS). DM Solutions Group is the lead Canadian partner. The FGDC and Canada's GeoConnections are the project sponsors. For more information on this unique project please visit (<http://www.gomoos.org/fgdc/bin/view>).

### **More on Framework**

The FGDC supports demonstration projects, hosts discussions of issues, and provides guidance for framework development. For more information about the framework activities, please visit the FGDC Web site at [www.fgdc.gov](http://www.fgdc.gov) or contact:

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