

# Report Card on the U.S. National Spatial Data Infrastructure (NSDI)

Prepared for the Coalition of Geospatial  
Organizations (COGO)

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ESRI

# Coalition of Geospatial Organizations (COGO)

Thirteen national nonprofit organizations focused on geospatial technologies

**ASCE** AMERICAN SOCIETY<sup>®</sup>  
OF CIVIL ENGINEERS

 **AAG**  
ASSOCIATION of  
AMERICAN GEOGRAPHERS

 **GLIS**  
GEOGRAPHIC AND LAND INFORMATION SOCIETY  
1993

 **IAAO**

 **CaGIS**

 **asprs**

 **GIS Certification Institute**

**MAPPS**   
An Association of Photogrammetry, Mapping, and Geospatial Firms

 **NSPS**

 **NSGIC**  
National States Geographic Information Council



University  
Consortium for  
Geographic  
Information  
Science

 **UNITED STATES GEOSPATIAL  
INTELLIGENCE FOUNDATION**

**URISA**  
Fostering Excellence in GIS  
[www.URISA.org](http://www.URISA.org)

at an early COGO meeting in 2009, a member asked...

“Why don’t we create a Report Card for the NSDI Framework Data to draw attention to its shortcomings. We could pattern it after the ASCE Report Card on America’s Infrastructure which highlights the problems with the nation’s failing infrastructure.”

...and the lightbulb went on for all of the organizations.



# Work on the Report Card began in 2014 with the selection of the Expert Panel



Dr. David E. Cowen  
Vice-Chair



James E. Geringer  
Chair



John J. Moeller  
Vice-Chair



Susan Carson Lambert



Thomas D. Rust



Dr. John D. Bossler



Robert T. Welch

# ASCE Report Card for America's Infrastructure

**2013 REPORT CARD for America's INFRASTRUCTURE**

ASCE AMERICAN SOCIETY OF CIVIL ENGINEERS

LAUNCH THE REPORT CARD > HOME GRADES STATES NEWS TAKE ACTION

EXPLORE ASCE'S 2013 REPORT CARD FOR AMERICA'S INFRASTRUCTURE ONLINE!

- > GRADES
- > STATE
- > VIDEOS
- > INTERACTIVE CHARTS

LAUNCH THE REPORT CARD >

**AMERICA'S GPA: D+**

The American Society of Civil Engineers is committed to protecting the health, safety, and welfare of the public, and as such, is equally committed to improving the nation's public infrastructure. To achieve that goal, the Report Card depicts the condition and performance of the nation's infrastructure in the familiar form of a school report card—assigning letter grades that are based on physical condition and needed investments for improvement.

**ESTIMATED INVESTMENT NEEDED BY 2020: \$3.6 TRILLION**

**NEWS** [VIEW ALL >](#)

**Chime in on Wednesday to Fix the Trust Fund**  
02/09/15

As Congress continues the debate on the best way to #FixTheTrustFund and modernize America's roads, bridges, and transit, USDOT Sec. Foxx and Transportation & Infrastructure Chairman Bill Shuster are heading to Twitter for a

EXPLORE THE REPORT CARD ON YOUR SMARTPHONE OR TABLET DEVICE

other factors considered:

- While there have been several efforts, there still are **no effective metrics to gauge progress** in implementing the NSDI
- This Report Card is the **first of a series of periodic Report Cards by COGO**
- The Report Card **does not include cost estimates** for completing the NSDI or for bringing the Framework to a specified level
- The goal of this evaluation and report is to **bring attention to the need for current and accurate geospatial data for the United States**

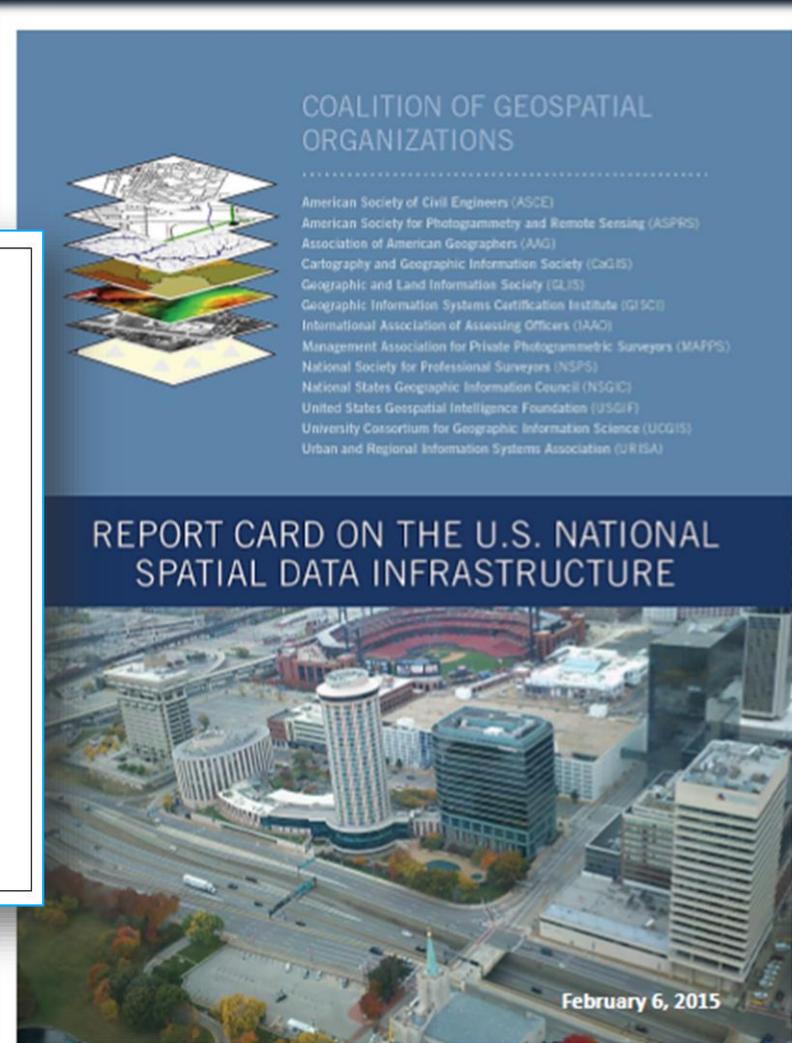
the end of the process was the public release of the Report Card on February 6<sup>th</sup> 2015

**GRADE REPORT OF: National Spatial Data Infrastructure (NSDI) SEMESTER: Fall 2014**

Subject	Dept.	Grade	Subject	Dept.	Grade
CADASTRAL DATA	DOI	D+	CAPACITY	FGDC	C
GEODETTIC CONTROL	DOC	B+	CONDITION	FGDC	D
ELEVATION DATA	DOI	C+	FUNDING	Various	D
HYDROGRAPHY DATA	DOI	C	FUTURE NEED	FGDC	D
ORTHOIMAGERY DATA	DOI & USDA	C+	OPERATION & MAINTENANCE	FGDC	C
GOVERNMENT UNITS DATA	DOC	C	PUBLIC USE	FGDC	C
TRANSPORTATION DATA	DOT	D	RESILIENCE	FGDC	C
OVERALL DATA GRADE		C	COMPREHENSIVE GRADE		C-

**TO:** Federal Geographic Data Committee  
590 National Center  
Reston, Virginia 20192

**FROM:** Coalition of Geospatial Organizations (COGO)  
<http://www.cogo.pro>  
See the full report for an explanation of each grade.



# Assessment Methodology

- The Panel **graded both the individual Framework Data Themes and the NSDI Framework** as cohesive effort.
- The NSDI Framework was envisioned to be an **integrated data** resource that would **serve as the “data backbone of the NSDI.”**
- It was to be a **collaborative effort** to create a widely available source of basic geographic data.
- Its purpose was to **provide the most common geographic data** that users will need, and to **serve as a building block for the NSDI.**
- The Framework was intended to **provide data that were trusted, standardized, described according to a common standard, and publicly available at minimal or no cost to the user.**
- The Expert Panel developed criteria that are modeled on the **criteria used by the American Society of Civil Engineers (ASCE) Report Card for America’s Infrastructure.**

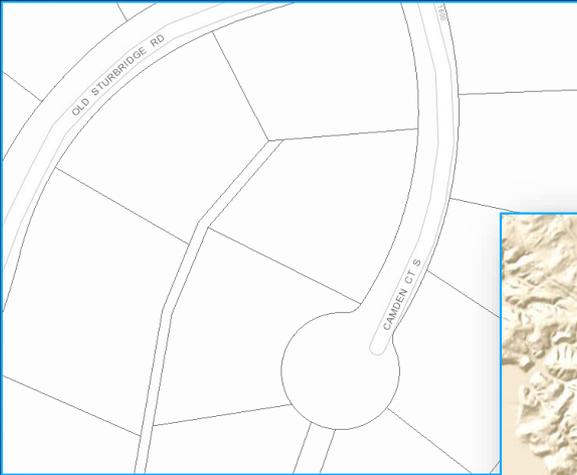
## Each Framework Layer section includes:

- General Discussion
- Impacts
- Introduction
- Theme Definition
- Lead Agency
- Collaboration and Partnering
- Standards
- Estimate of Completeness
- Accessibility
- Authority, Governance and Management

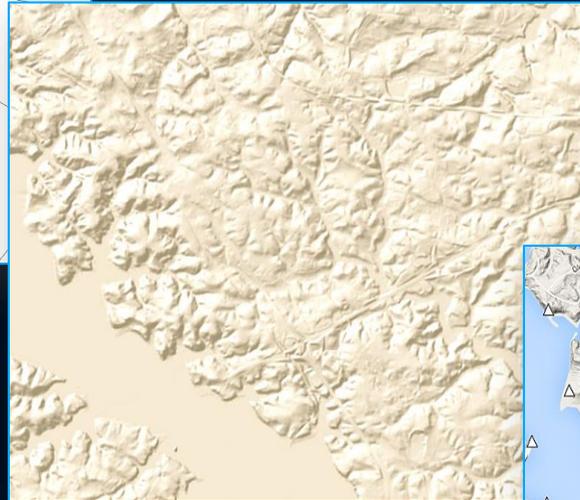
# Grading Criteria

- **A = FIT FOR THE FUTURE** The data theme is generally in excellent condition and meets the needs for the present and the future.
- **B = ADEQUATE FOR NOW** The data theme is in good to excellent condition, but some geographic areas of the nation require attention for significant deficiencies.
- **C = REQUIRES ATTENTION** The data theme is in fair to good condition, but it requires attention for many geographic areas of the nation.
- **D = AT RISK** The data theme is in poor to fair condition and mostly below the goals envisioned for the NSDI.
- **F = UNFIT FOR PURPOSE** The data for this theme is in an unacceptable condition and provides little to no value to users.

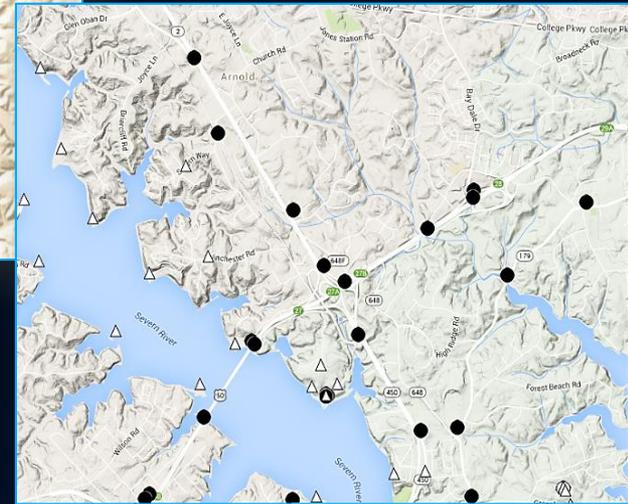
# Framework Layer Evaluations



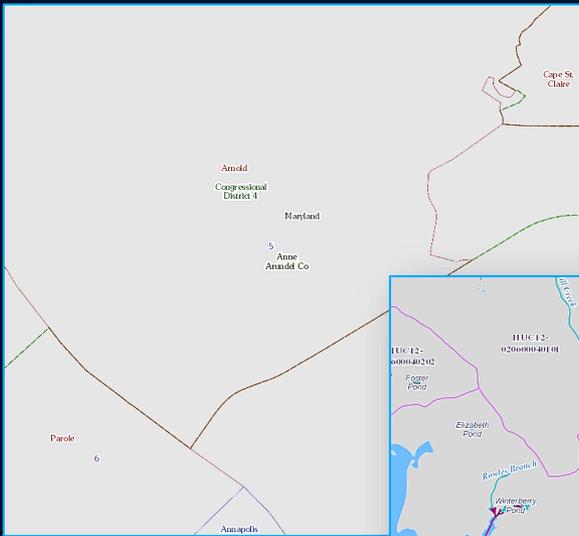
Cadastral Data **D+**  
DOI-BLM (land) & BOEM (offshore)



Elevation Data **C+**  
DOI – USGS (land)  
DOC - NOAA (water)

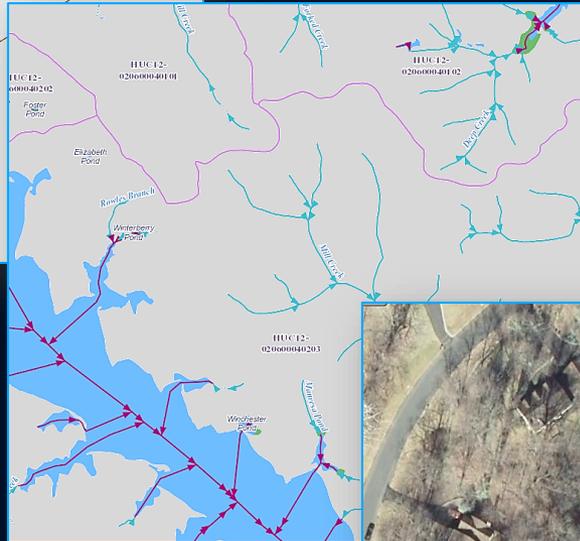


**B+** Geodetic Control  
DOC – NOAA/NGS



Governmental Units Data  
DOC - Census

C



Hydrography Data  
DOI - USGS

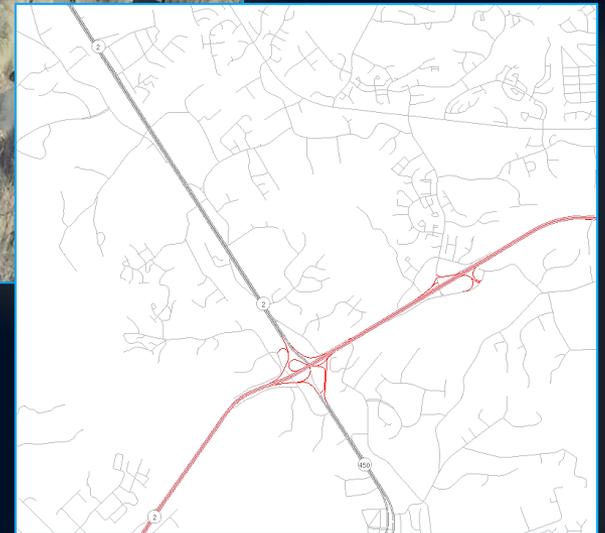
C



C+ Orthoimagery Data  
USDA – FSA (NAIP)  
DOI – USGS (leaf-off)

D

Transportation Data  
USDOT - BTS



The following elements of the **INFRASTRUCTURE** that support the data were also evaluated:

- Capacity **C**
- Condition **D**
- Funding **D**
- Future Need **D**
- Operation and Maintenance **C**
- Public Use **C**
- Resilience **C**



# the result...

**GRADE REPORT OF:** National Spatial Data Infrastructure (NSDI)

**SEMESTER:** Fall 2014

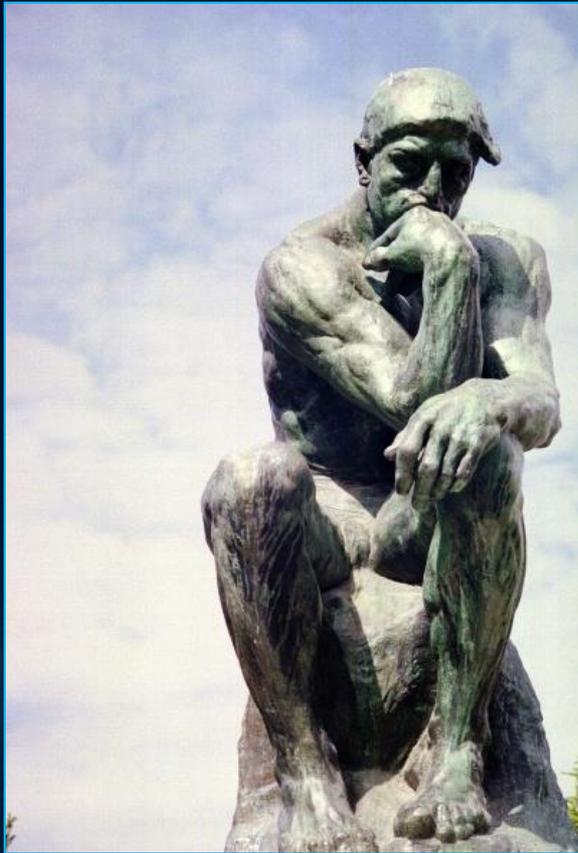
Subject	Dept.	Grade
CADASTRAL DATA	DOI	D+
GEODETIC CONTROL	DOC	B+
ELEVATION DATA	DOI	C+
HYDROGRAPHY DATA	DOI	C
ORTHOIMAGERY DATA	DOI & USDA	C+
GOVERNMENT UNITS DATA	DOC	C
TRANSPORTATION DATA	DOT	D
OVERALL DATA GRADE		C

Subject	Dept.	Grade
CAPACITY	FGDC	C
CONDITION	FGDC	D
FUNDING	Various	D
FUTURE NEED	FGDC	D
OPERATION & MAINTENANCE	FGDC	C
PUBLIC USE	FGDC	C
RESILIENCE	FGDC	C
COMPREHENSIVE GRADE		C-

**TO:** Federal Geographic Data Committee  
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<http://www.cogo.pro>  
See the full report for an explanation of each grade.

after thinking about the issues...



the Expert Panel had the following conclusions and recommendations...

# Conclusions

- The **Framework requires attention**
- There have been **many positive actions** in the implementation of the NSDI Framework. For example:
  - **Individual thematic datasets have been developed.**
  - **Multiple datasets** for each of the themes can be accessed through the National Geospatial Platform
  - **Metadata and data standards have been adopted** and are generally used by data collectors.
  - Government agencies routinely make their **data assets publicly available** through data portals and spatial data clearinghouses.
  - The NSDI Framework provides **substantial value to users** by making large amounts thematic data available to the public.

## Conclusions (continued)

- The **original vision and** the greatest potential **value** of the NSDI Framework **have not yet been fulfilled**.
  - Definitive sets of **nationally consistent, fully integrated, and reliable data** do not exist for the entire nation.
  - Current representations **exist as seven separate themes rather than a fully integrated system**.
- The Federal Geographic Data Committee (FGDC) decision to reduce its emphasis on the concept of Framework data and move towards portfolio management for a much larger number of data layers raises **questions about whether the portfolio management approach can meet the fundamental purposes of a common digital base map available to all users**.

## Conclusions (continued)

- This assessment suggests that the Federal agencies charged with the stewardship of the seven Framework data layers face **serious obstacles in terms of authority and funding.**
- The **shift in data production from the federal government** to the private sector and state and local government **calls for new forms of partnership.**

# Conclusions for Cadastral Data

- There is a **critical need for an assessment of user needs and requirements** for a modern data system.
- The **Federal government does not have the authority to develop and maintain a national cadastral data layer.**
- Years of effort have resulted in progress towards a nationally coherent cadastre that will serve multiple purposes, but the prospects for a National Cadastre or NSDI cadastral data layer are dim.
- The results have shown that a **collaborative model has not worked in such a complex situation.**
- **New authority will be needed to bring a National Parcel Dataset to a reality.**

## Recommendations of the Expert Panel

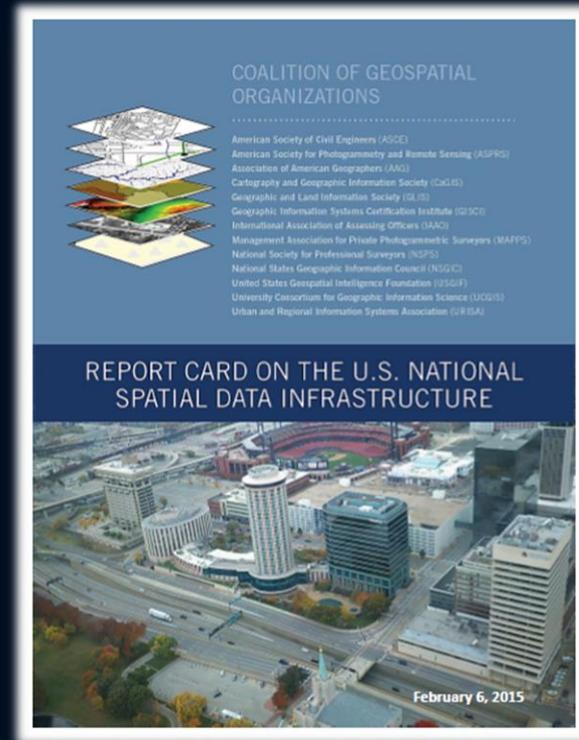
- The concept of the **Framework needs to be reaffirmed.**
- A **new model** for Framework data **needs to be adopted**, and this new model **must acknowledge the importance of local partners.**
- This **model should be transaction based** and emphasize the use of current information technologies, **federated, and web-based** capabilities; and support web-based services and applications.

## Recommendations (continued)

- The Federal Geographic Data Committee (FGDC) needs to emphasize that the Framework is part of its Strategic Plan, and that it will work in collaboration with non-federal and non-governmental partners to build an effective NSDI Framework.
- In today's environment the most accurate and current geospatial data are often collected by local government. A successful NSDI demands that these high resolution data become part of the Infrastructure.
- Budgetary and leadership investments must be made to implement a new model.

# Closing Comments

- The Expert Panel created the Report Card and independently assigned the grades
- COGO Member Organizations unanimously approved the content of the Report Card and its public release
- You can obtain a copy at:  
<http://www.cogo.pro>



# Closing Comments

## **A BILL**

To improve the coordination and use of geospatial data

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### **SECTION 1. SHORT TITLE.**

This Act may be cited as the “**Geospatial Data Act of 2015**”.

- This legislation promises to solve some of the issues that have hampered progress on the NSDI.
- Ed Cox, Legislative Assistant for Senator Hatch is the Point of Contact for this legislation.

Thanks for listening...



...any Questions?