NSGIC

National States Geographic Information Council

2019 GEOSPATIAL MATURITY ASSESSMENT

INTRODUCTION

The National States Geographic Information Council (NSGIC) advances state-led geospatial coordination for the nation. Founded in 1991 by state Geographic Information Officers and statewide geographic information systems coordinators, NSGIC serves as a national forum to develop future-oriented geospatial leadership and advance sound policies and practices for geospatial activities.

NSGIC promotes the coordinated, impactful, and cost-efficient application of GIS and other location-based information and analytics to best serve the nation, with emphasis on the power of initiatives and public policy that connect across local, state, tribal, federal, academic, and private sector partners.

In 1953, the US Office of Management and Budget issued Circular A-16, establishing the National Spatial Data Infrastructure (NSDI) with guidance for federal agencies that create, maintain, or use spatial data. Despite significant efforts in the decades since, including passage of the landmark Geospatial Data Act codifying the principles of A-16, a strong NSDI has yet to be achieved. In fact, the Coalition of Geospatial Organizations - of which NSGIC is a founding member - assigned the NSDI a grade of B- for its framework layers in 2018, inching up a notch from the grade of C determined in the 2016 inaugural report card.

As an organization, NSGIC exists to advance effective national coordination of geospatial information by supporting state-level coordination. NSGIC's membership has historically been comprised of state Geographic Information Officers (GIOs) or equivalents. For nearly 20 years, NSGIC has surveyed its member states to gauge the status of geospatial datasets and coordination efforts. In 2009, NSGIC launched the Geospatial Maturity Assessment (GMA) as a national effort to document each state's current practice of geospatial development practice and use, while also illuminating a path forward for completing state spatial data infrastructures on the way to a robust NSDI.

NSGIC's GMA has been conducted every other year and - until now - produced only results available online by state with little analysis. The 2019 assessment was much more ambitious, as an entirely new process was developed to produce nine-grade report cards for individual state spatial data infrastructures and state geospatial coordination inspired by the COGO NSDI report card effort.

The framework layers assessed in the GMA are nearly evenly split between those which the federal government plays the lead role and those led by state government. This report card effort demonstrates that many states have figured out key factors to the successful organization and coordination necessary to create and maintain geospatial data programs. The NSDI, however, will only be as strong as its weakest link. Many states still struggle to gain adequate support and funding to maintain their data and be able to contribute to the NSDI.

This is a fundamental example of where national coordination can be augmented by state-led coordination. NSGIC is uniquely qualified to coordinate with state government personnel who can adequately respond to questions regarding their state's geospatial maturity as it relates to the framework layers. This critical baseline evaluation will support the implementation of 2018's Geospatial Data Act so the federal government can adequately and effectively dedicate resources to start strengthening those weak spots.

In the pages that follow, the process followed by the project team to develop the working groups on each theme will be explained, as well as how the working groups collaborated to determine the elements defining solid data programs and a rating system to objectively arrive at grades. An overarching summary for each theme is provided. Individual state results include grades for each theme and an overall grade point average. A conclusion summarizes and outlines the next steps as this trove of information becomes available and usable with an eye toward Geospatial Data Act implementation.

Collaboration, transparency, and increased efficiency in government are hallmarks of mature state GIS programs. NSGIC advocates for wider adoption of such state coordination, which in turn will further the nation's geospatial maturity.

CONTENTS

METHODOLOGY

While NSGIC has been conducting a Geospatial Maturity Assessment of the states for many years, this is the first year GMA information was used to grade the states. The work was done in four stages:

1. Launch with stakeholders
2. Development of questionnaire and grading system
3. Survey distribution and grading
4. Report writing and review

Launch with Stakeholders (March 2019)

Inspired by the COGO NSDI report card, NSGIC President-Elect Karen Rogers (WY) recruited Will Craig (MN) to assist with an effort to create state report cards using the established GMA process. Together, Rogers and Craig developed a grading scheme for state-level coordination efforts based on a point total system with four points awarded for having a state Geographic Information Officer, with another two points if the position is defined in statute, etc.

The basic idea of the graded GMA was presented at a well-attended workshop at NSGIC's Midyear Meeting. At the close of the session, people familiar with each of the eight COGO data theme areas were recruited as volunteers to develop grading systems. In alphabetical order of data theme, those leaders were:

- Address: Frank Winters (NY) and Ken Nelson (KS)
- Cadastre/Parcel: Neil MacGaffey (MA) and Will Craig (MN)
- Elevation: Dennis Pedersen (TN) and Mark Yacucci (IL)
- Geodetic Control: Brian Shaw (NGS), Sean Fernandez (UT), and Matt Peters (UT)
- Governmental Units: Mary Fulton (PA) and Karen Rogers (WY)
- Hydrography: Mark Holmes (MI) and Jim Steil (MS)
- Orthoimagery: Tim Johnson (NC) and Tony Spicci (MO)
- Transportation: Chris Diller (WI) and Dan Ross (MN)

Development of Questionnaire and Grading System (April-May 2019)

The teams drafted their questionnaires based on previous GMA work. Central to that effort was the level of complete coverage of their specific data theme, but update frequency and other factors were considered as well. Adjustments to the questionnaire were made in recognition that a final grade would be given to each state for each theme. (Note: the final survey contained a few errors, notably neglecting to identify several key questions as "required.")

Grading schemes were developed for each data theme. An initial distinction was made based on whether a theme is led more by the federal government or by state governments. Federal-led themes all started at a grade C and were adjusted up or down based on how much state augmentation occurs. For state-led themes, if a state had an operating program for a data theme, the grade could be no lower than a D. If it lacked a program, an F grade was given. After that, grades of A-D were assigned based on the effectiveness of that program.

The teams settled on two basic grading schemes, total points and percent coverage. In the total points approach, individual factors like data coverage and quality control were assigned points based on the level of excellence. Those points were then summed to a total. Grades were assigned based on that total. Coordination, Transportation, Geodetic Control, and Hydrography were graded using that approach.

The other grading system was based on percent coverage by a particular data theme. An initial grade was assigned to each state based on that percentage. Adjustments up or down were made based on other factors of the state program. The percent coverage approach was used for Address, Cadastre, Elevation, Orthoimagery (both leaf-off and leaf-on), and Governmental Units.

Data on two additional topics were collected for informational purposes only. These are Next Generation 9-1-1 and Elections. As these are not NSDI layers, the team did not feel they should be graded at this time.

Survey Distribution and Grading (June-August 2019)

Surveys were distributed to state representatives in June. With follow-up efforts through the end of the summer, the final response rate was 41 states.

Google Forms was used as the data collection tool. While this tool was excellent for presenting the survey, it presented difficulties for the grading process. Output to Excel consists of verbatim text of the selected answer. For “choose all that apply” questions, the text of all selected responses is inserted into a single cell. As a result, most of the surveys were graded by hand, which was time-consuming and potentially introduced error.

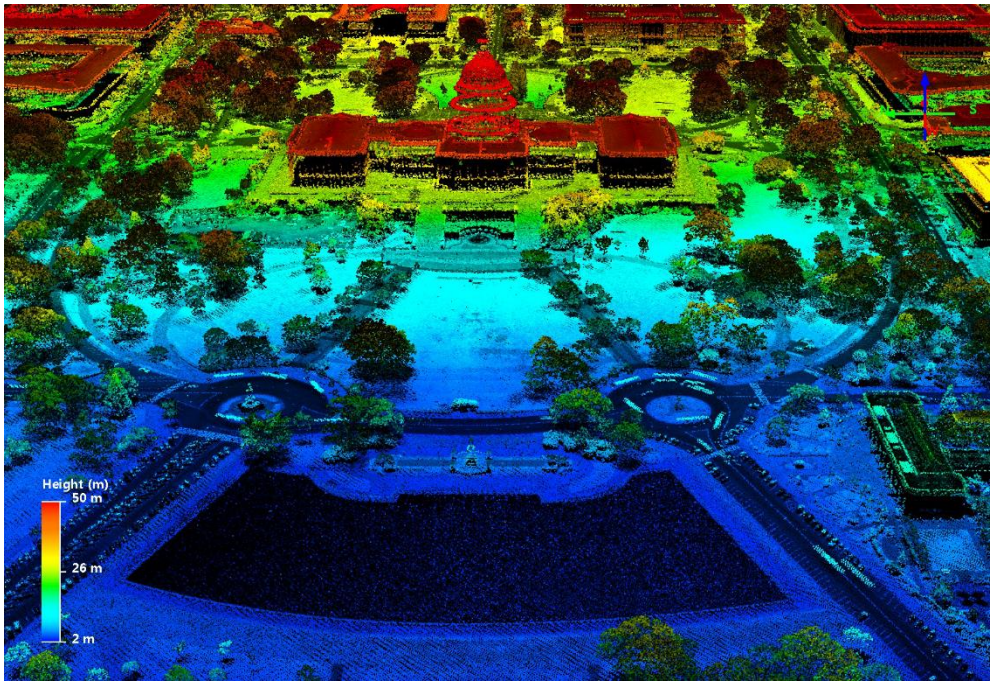
Preliminary results were distributed to state representatives in late August. Representatives were asked to review their original survey responses and identify any adjustments they’d like to make. Further, they were asked to look at their grades and identify calculation errors.

Report Writing and Review (September 2019)

Results were presented and discussed at the NSGIC Annual Conference in late September.

Theme leads were requested to write a summary paragraph on their theme to provide a high-level summary pointing out any highlights or trends and a general breakdown of how states performed on that theme.

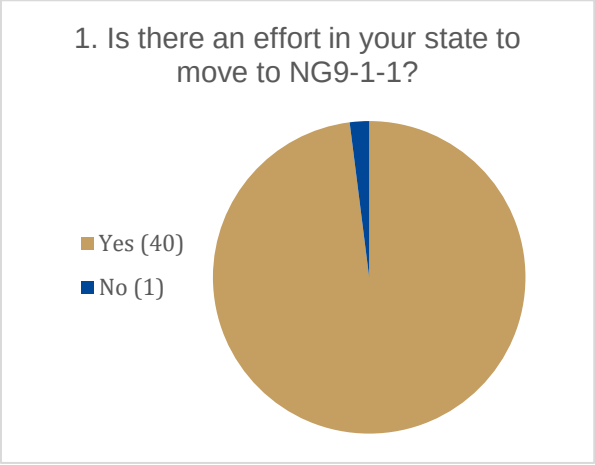
States were invited to submit a response to their grades to help explain or justify their grades or to describe ongoing efforts that should lead to improved future grades.

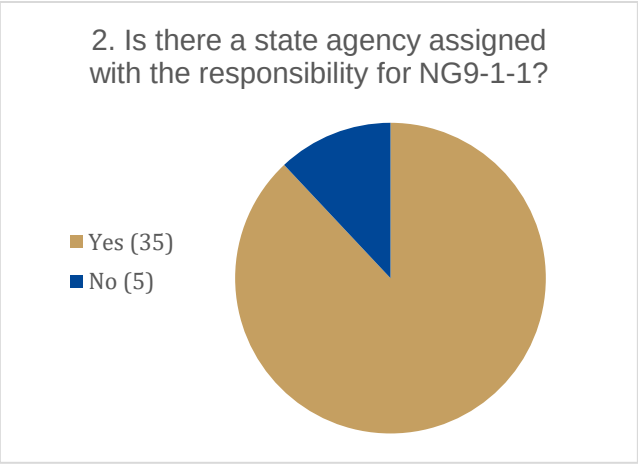


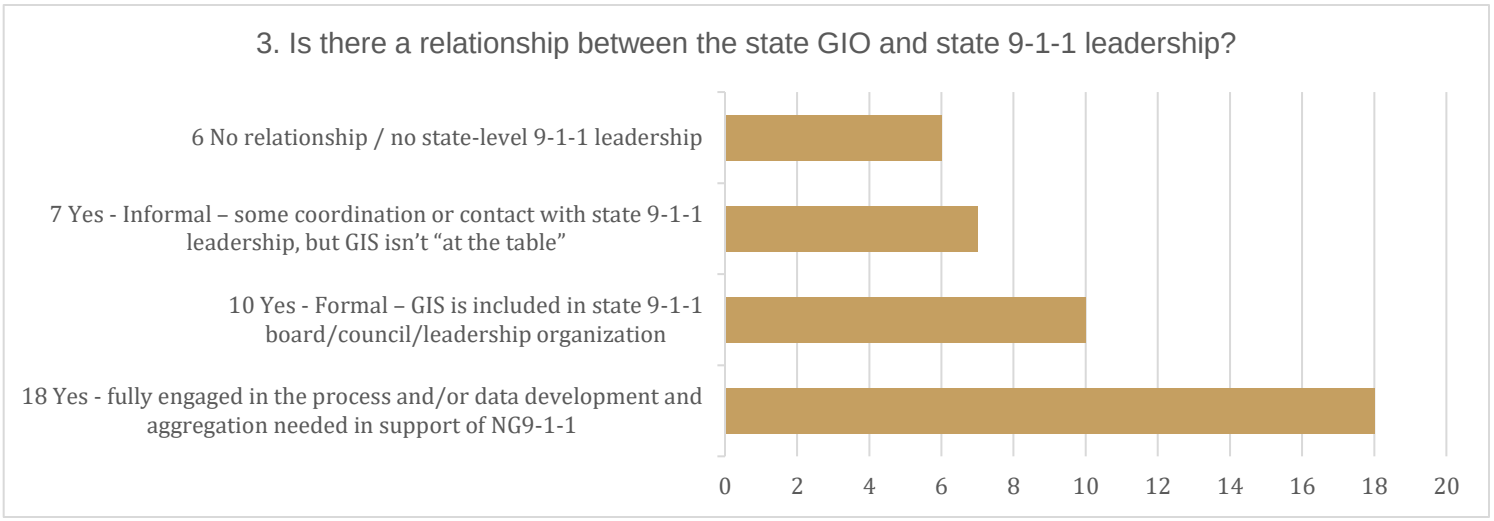
Next Generation 9-1-1

Next Generation 9-1-1 (NG9-1-1) is relatively new to state governments, with no state having fully implemented it and all states at varying stages to get supported programs up and running. NG9-1-1 services public safety and exists in a GIS environment, so geospatial data plays an integral role in its implementation. NSGIC member states are significantly involved with GIS support of NG9-1-1, with 41 respondents from the GMA survey, and 18 indicating the highest level of engagement within their respective states and communities. From a programmatic perspective, 30 respondents indicated a funded program is in place for NG9-1-1, with 17 reporting directed 9-1-1 funding to GIS to support NG9-1-1. Only 13 respondents commented on active engagement on interstate NG9-1-1 GIS issues with neighboring states.

On technical topics, 29 states have GIS standards for NG9-1-1 data layers, 33 states have at least one NG9-1-1 required layer complete statewide, and 19 states indicate the state, or another public entity is the GIS data aggregator in supporting NG9-1-1. Seventeen states have or had activities to validate GIS data with the automated location information (ALI) and master street address guide (MSAG), and 16 states indicate the GIS datasets supporting NG9-1-1 are publicly available.






3. Is there a relationship between the state GIO and state 9-1-1 leadership?
6 No relationship / no state-level 9-1-1 leadership
7 Yes - Informal – some coordination or contact with state 9-1-1 leadership, but GIS isn't "at the table"
10 Yes - Formal – GIS is included in state 9-1-1 board/council/leadership organization
18 Yes - fully engaged in the process and/or data development and aggregation needed in support of NG9-1-1
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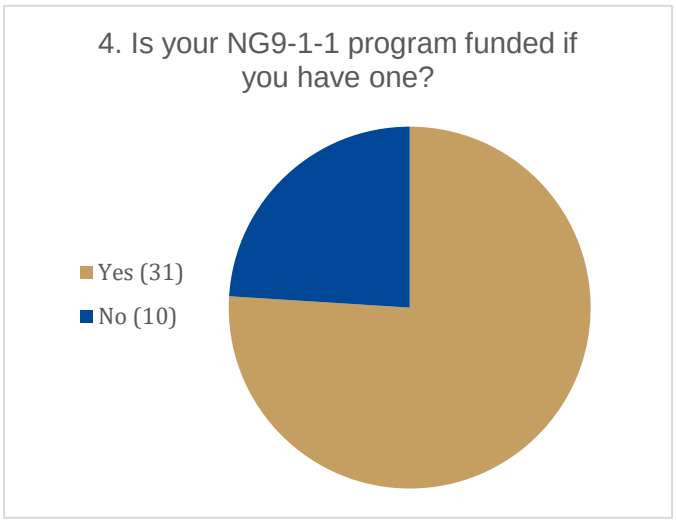
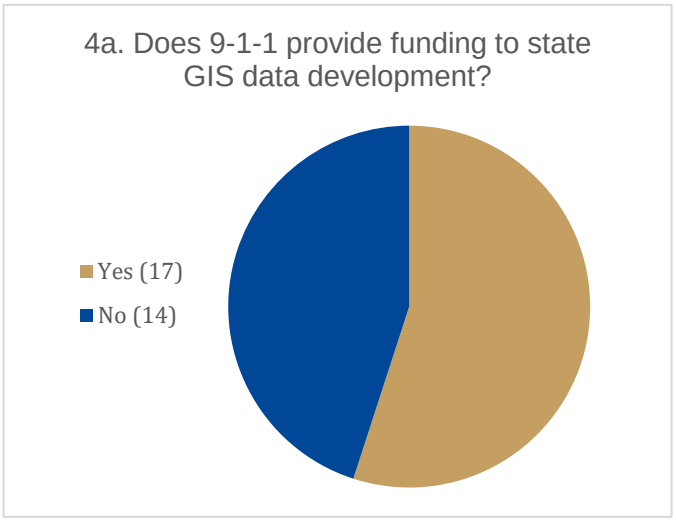
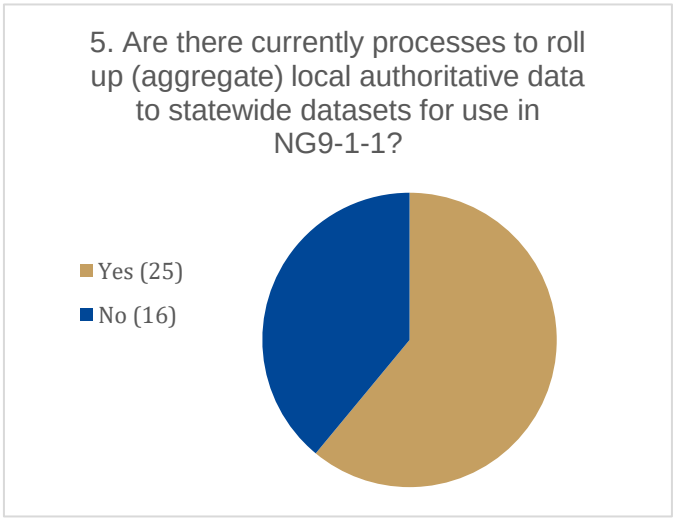
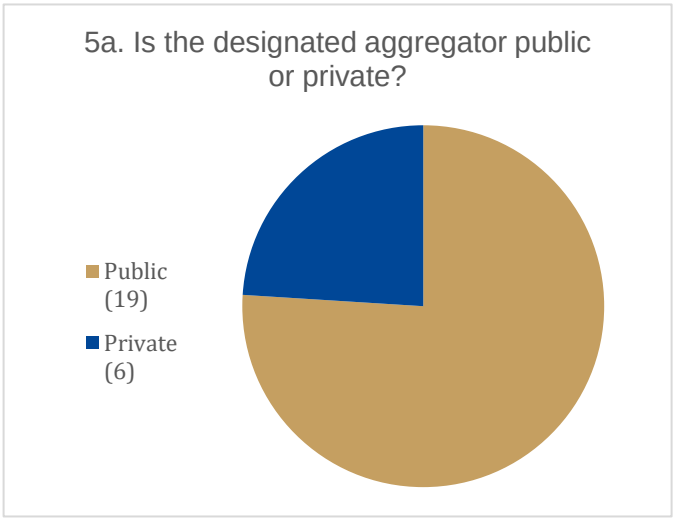
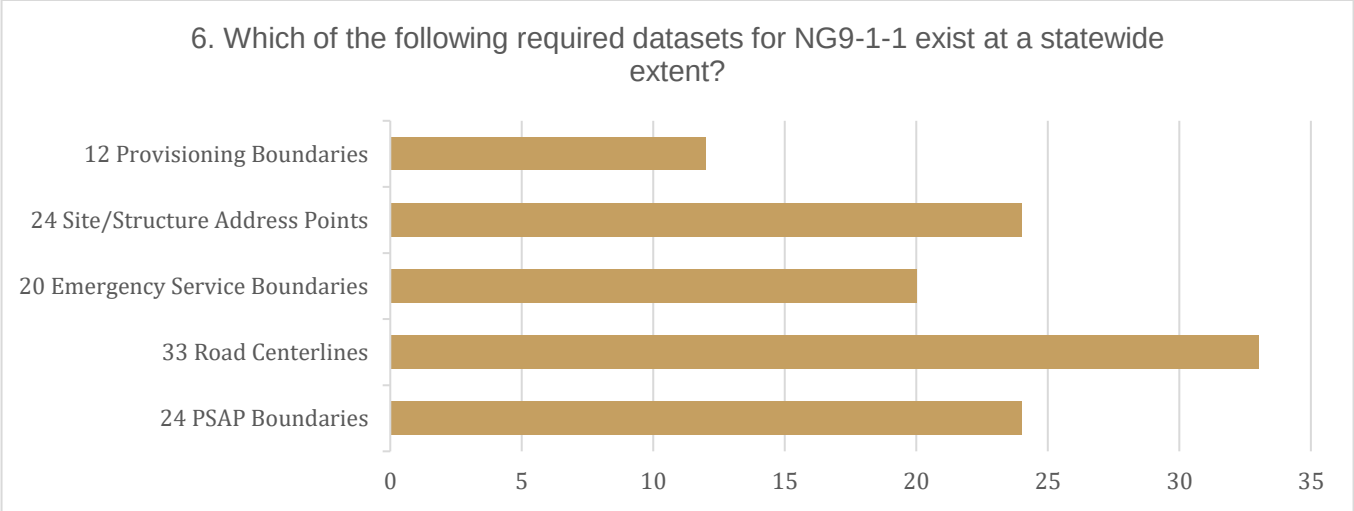

4. Is your NG9-1-1 program funded if you have one?
Yes (31)
No (10)


4a. Does 9-1-1 provide funding to state GIS data development?
Yes (17)
No (14)


5. Are there currently processes to roll up (aggregate) local authoritative data to statewide datasets for use in NG9-1-1?
Yes (25)
No (16)


5a. Is the designated aggregator public or private?
Public (19)
Private (6)


6. Which of the following required datasets for NG9-1-1 exist at a statewide extent?
12 Provisioning Boundaries
24 Site/Structure Address Points
20 Emergency Service Boundaries
33 Road Centerlines
24 PSAP Boundaries
0
5
10
15
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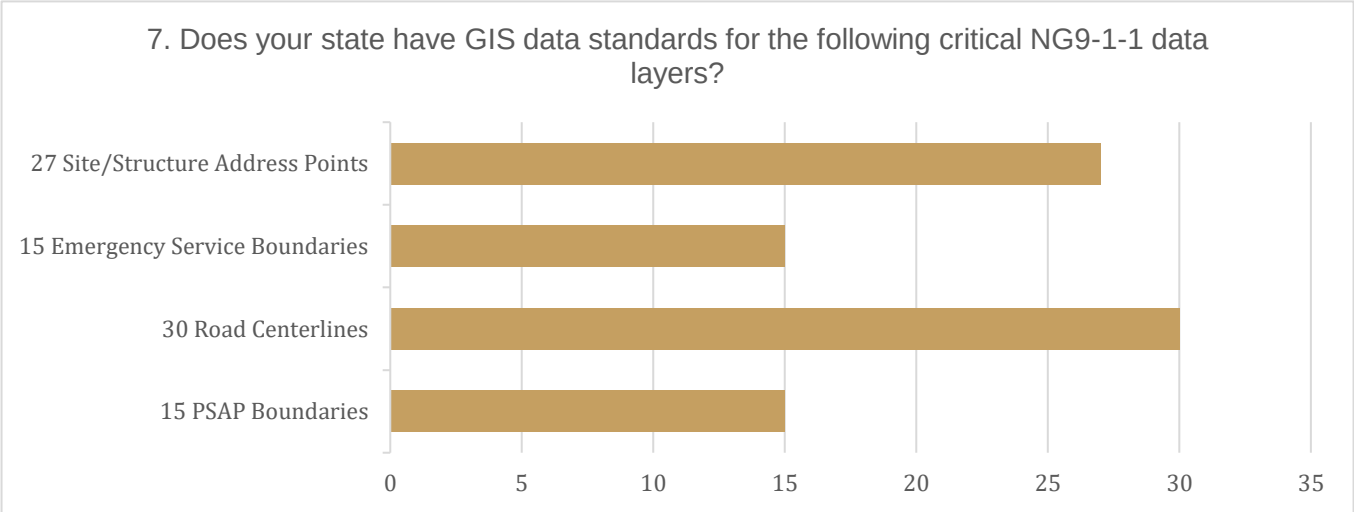
7. Does your state have GIS data standards for the following critical NG9-1-1 data layers?
27 Site/Structure Address Points
15 Emergency Service Boundaries
30 Road Centerlines
15 PSAP Boundaries
0
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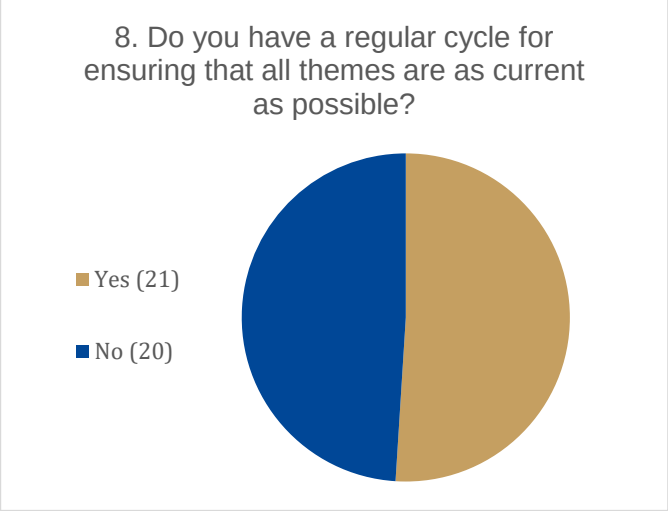
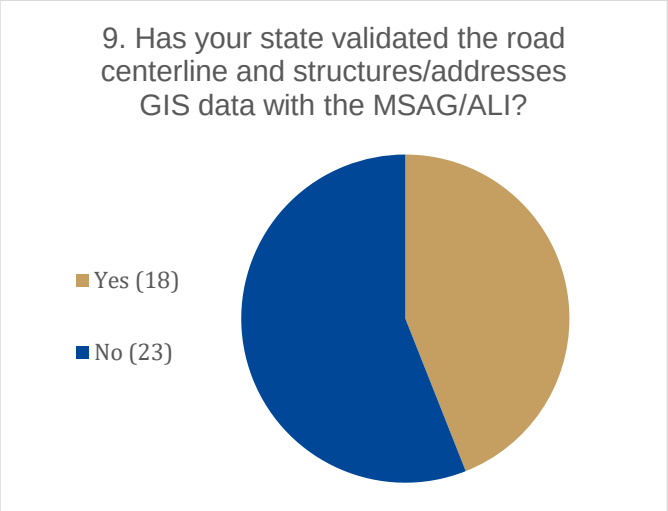
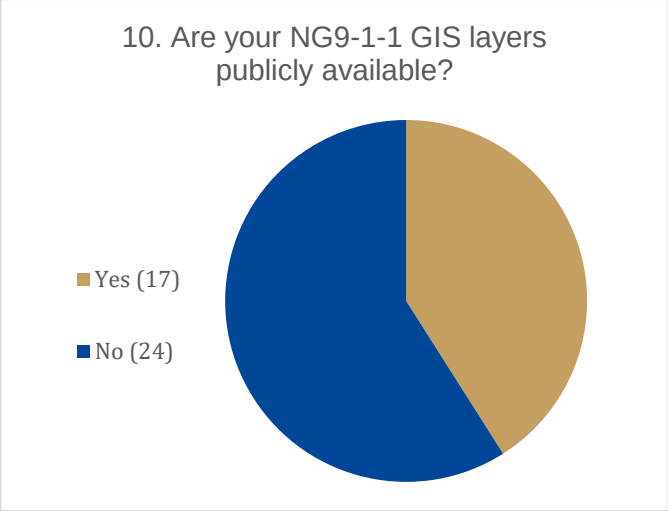
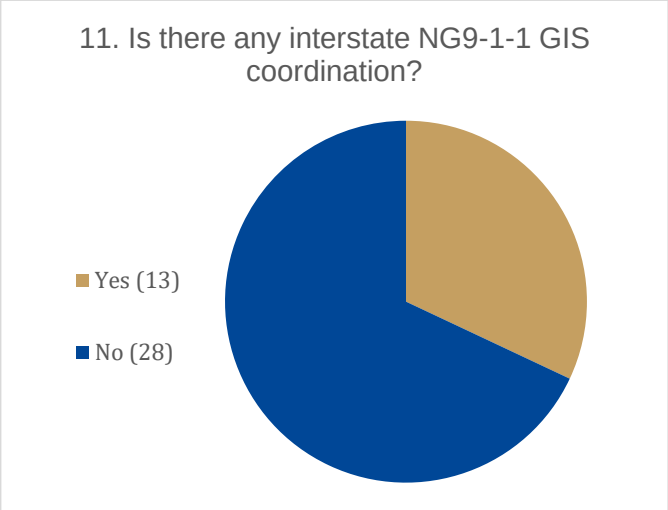
10
15
20
25
30
35


8. Do you have a regular cycle for ensuring that all themes are as current as possible?
Yes (21)
No (20)


9. Has your state validated the road centerline and structures/addresses GIS data with the MSAG/ALI?
Yes (18)
No (23)


10. Are your NG9-1-1 GIS layers publicly available?
Yes (17)
No (24)


11. Is there any interstate NG9-1-1 GIS coordination?
Yes (13)
No (28)

ELECTIONS

The 2019 GMA marks the first time state governments have answered questions regarding relationships with elections directors and divisions in their state, as well as availability, maintenance, and use of election data, tools, and processes. With the onset of the Geo-Enabled Elections project and the determined importance of the relationship between the state geographic information officer (GIO, or equivalent role) and the election director, NSGIC developed these questions to continue to monitor the progression of states to incorporate GIS into their election data management systems.

Data indicate states are in their youth when it comes to nurturing and developing relationships with their state election director, as well as advising or assisting in the creation, maintenance, and use of GIS data and tools for election management.

Of the 41 states responding to the GMA, currently 41% of state GIOs have a relationship and a direct line of communication to the state's election director. Although this is an encouraging statistic, it still leaves the majority of states in a situation where they are not connecting and working with the election division.

The NSGIC Geo-Enabled Elections project has identified as one of its best practices the need for a voting unit GIS layer. Nearly 60% of states who responded to the GMA manage or have access to an accurate statewide voting precinct boundary layer. Of this 60%, 57% indicate the boundaries are regularly updated, 17% report the boundaries are static, and 26% share the boundaries are regularly updated and used to spatially assign voters to their precincts. The Geo-Enabled Elections best practices guidance specifically mention the importance of regular boundary management, as well as point-in-polygon analysis to ensure voters are casting their votes in the right contests.

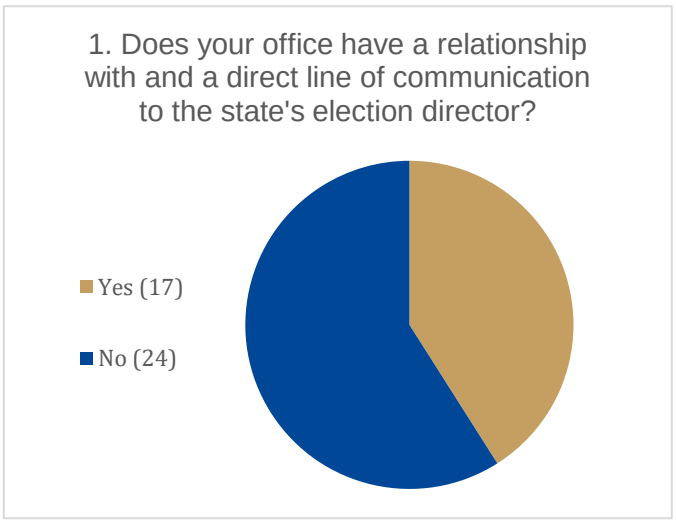
Implementing a geocoding strategy also finds itself among the list of best practices for geo-enabling elections. Nearly 75% of states use and maintain a state or commercial geocoding web service. This is great news for those states who are hoping to move in the direction of GIS integration in elections. Of this 75%, 16% report that the geographic coordinates for addresses tend to be static once found, 45% share the geographic coordinates for addresses are periodically updated to reflect the location found using the most current geocoding reference data, and finally 38% indicate the geographic coordinates for addresses are routinely analyzed and updated more or less continuously.

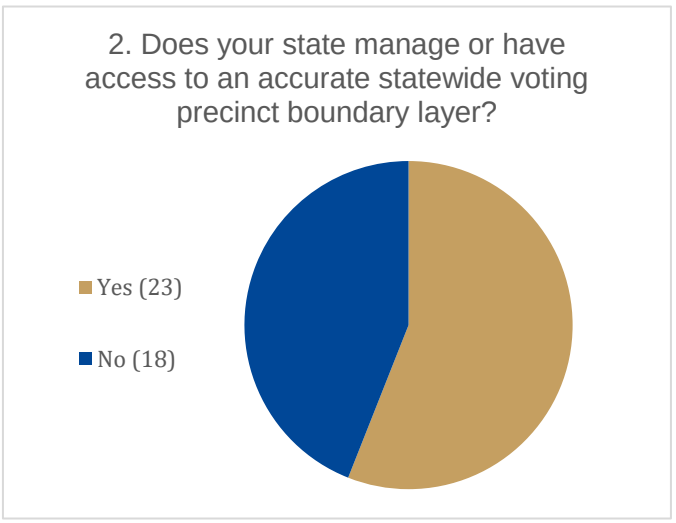
When digging a bit further into state geocoding, a mere 24% of states use the state or commercial geocoder to locate voter addresses and voters. This leaves a gap of nearly 50% of states which have a state or commercial geocoder but are not using it for election purposes like locating voter addresses and voters.

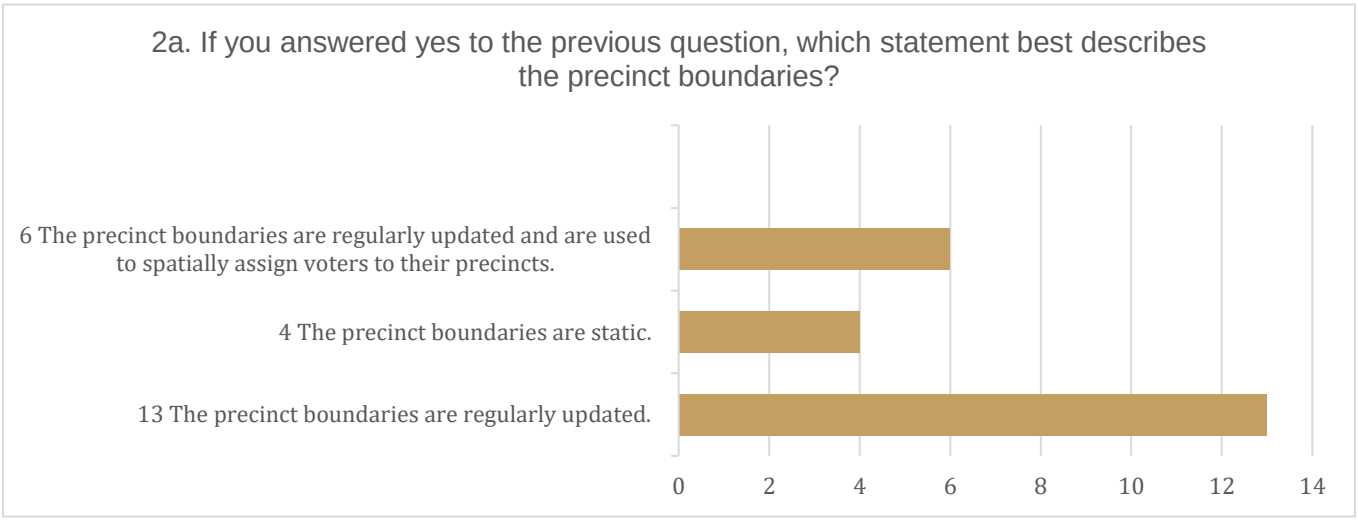
Another one of the Geo-Enabled Elections best practices is to have identified data validation processes in place, including performing regular spatial audits of GIS election data. When states were asked if they have an audit process for precinct assignments within the election database, 34% percent reported yes and 66% indicated no.

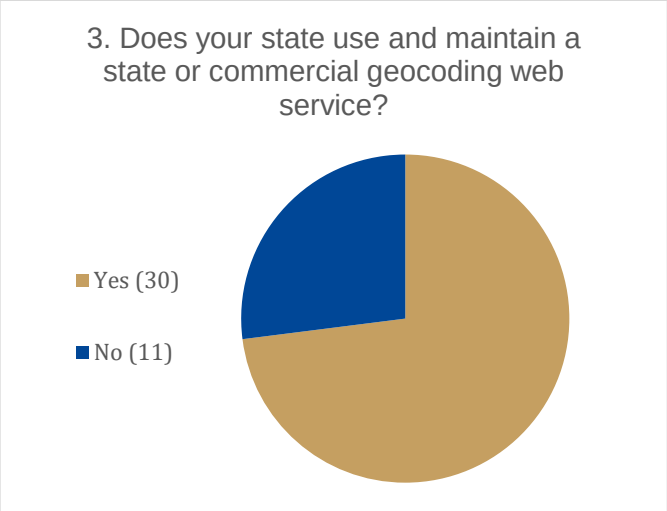
Finally, when the 34% percent of states who reported they do have an audit process were asked if they have staff, data, or other geospatial resources involved in this process, a mere seven states answered yes. Over half of the states skipped this question due to their answer to question number seven.

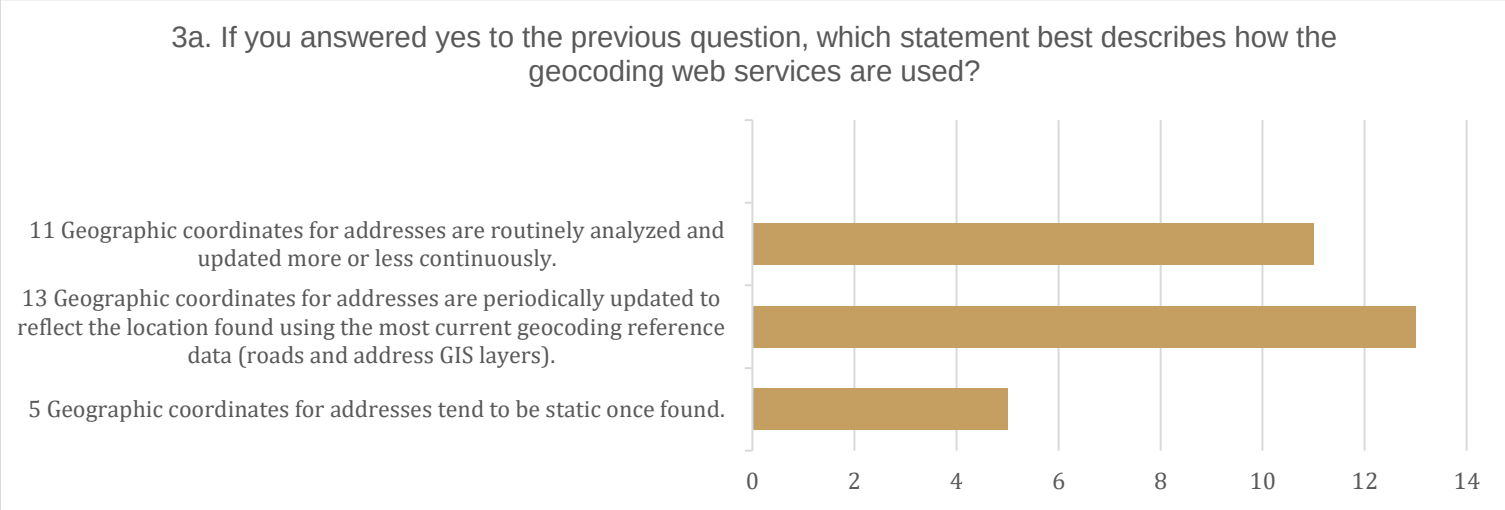
States are truly in their infancy in the area of election relationships and GIS integration in election data management. Assessing where states are in 2019 provides the GIS and elections community with a solid baseline for determining future improvements in this area among the states.








3. Does your state use and maintain a state or commercial geocoding web service?
Yes (30)
No (11)


3a. If you answered yes to the previous question, which statement best describes how the geocoding web services are used?
11 Geographic coordinates for addresses are routinely analyzed and updated more or less continuously.
13 Geographic coordinates for addresses are periodically updated to reflect the location found using the most current geocoding reference data (roads and address GIS layers).
5 Geographic coordinates for addresses tend to be static once found.
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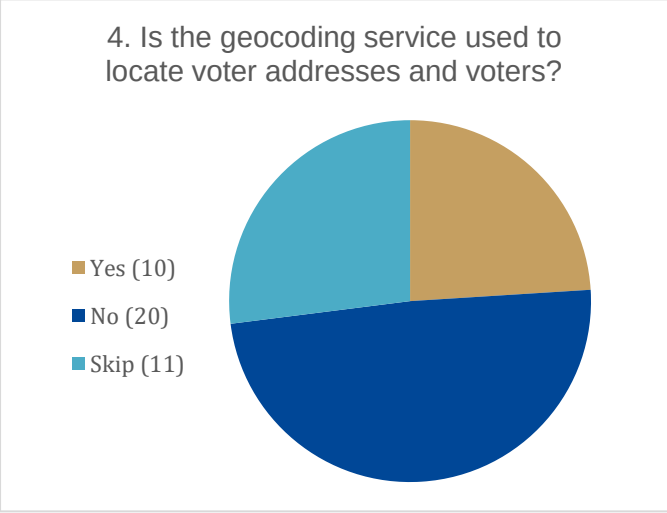
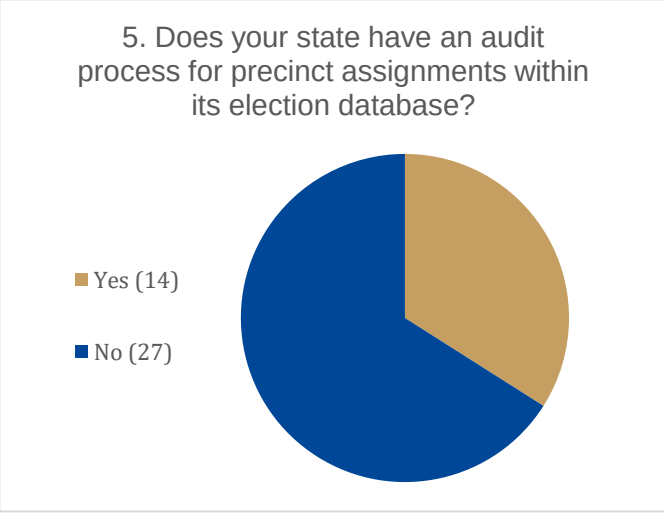
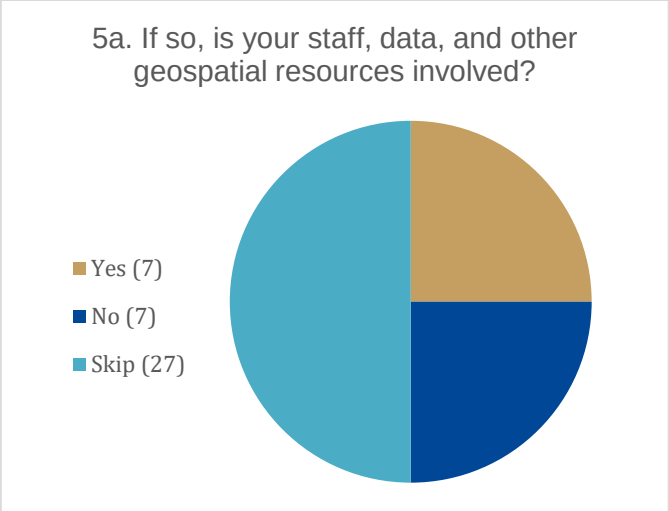

4. Is the geocoding service used to locate voter addresses and voters?
Yes (10)
No (20)
Skip (11)


5. Does your state have an audit process for precinct assignments within its election database?
Yes (14)
No (27)


5a. If so, is your staff, data, and other geospatial resources involved?
Yes (7)
No (7)
Skip (27)


VOTE

GRADING SCHEME

The Coalition of Geospatial Organizations (COGO) has used the traditional A-F system to grade the national spatial data development effort, naming the federal agencies responsible for eight data layers in the NSDI. With this GMA, NSGIC is turning to its own members and measuring their contributions to the NSDI.

NSGIC developed a questionnaire that was sent to each of its member states. Forty-one states responded. Their responses were then graded. The questionnaire, individual state responses, and the grades given each are available as separate resources. The responses were pulled together to grade each state on each of 10 different themes – the eight COGO themes, plus a grade for state-level coordination activities and separate grades for leaf-on and leaf-off orthoimagery.

Both questionnaires and grading schemes were developed by NSGIC volunteers, each an expert in the theme they addressed. Though given a general model, the theme leaders approached their grading task in different ways. Most data theme teams started with some measure of state-level completeness and update frequency, then adjusted the grade for data quality and accessibility. Sometimes those adjustments were made by assigning points to the supporting factors, then adding points to adjust the grade by a step or two; e.g. B to B+. Sometimes the supporting factors themselves were assigned step changes, with the sum of pluses and minuses yielding a total number of steps to be taken; e.g. B+ to A. It was determined that federal-led themes should start with a baseline of C, which could go up or down depending on state support and contributions.

Two basic grading schemes were used. Both relied on responses to individual questions within a given theme area, typically assigned points. In the first grading scheme, the grade was determined by adding total points (TP). Breakpoints on those total points yielded grades A, B, C, etc. The Coordination grade uses this scheme.

In the second scheme, an initial grade was based on percent coverage (PC), then adjusted up or down based on answers from other questions, especially the update cycle. There were two variations on this approach. The first is *point-based (PC-1).* It sums points as above, then adjusted the grade up or down a number of steps based on total points, where one step is a partial grade; e.g. B to B+. The Address grade uses this approach.

The second variation of the percent coverage scheme is *step-based (PC-2).* It lets answers to each question define a number of steps to adjust the score. Step adjustments reward or penalize unusual cases. For example, updating leaf-on orthoimagery annually could move a state up two steps, from a B to an A-, but putting some limits on access would lower that A- score three steps back to a B-.

A state with no program in a given area is automatically given a failing grade of F. Themes for which the federal government is the lead started at a C.

STATE SUMMARIES

STATE	OVERALL GRADE	STATE	OVERALL GRADE
Alabama	C+	Nebraska	B
Arizona	B-	Nevada	C-
Arkansas	B+	New Jersey	B
Colorado	C+	New Mexico	B+
Delaware	B-	New York	B+
Florida	B-	North Carolina	B+
Georgia	C	North Dakota	B-
Hawaii	C-	Ohio	B
Idaho	C+	Oklahoma	C+
Illinois	C+	Oregon	B+
Indiana	B	Pennsylvania	B-
Iowa	C	Tennessee	B+
Kansas	B+	Texas	B
Kentucky	B+	Utah	B+
Louisiana	C	Vermont	B
Massachusetts	B+	Virginia	C+
Michigan	B	Washington	B
Minnesota	B+	West Virginia	B+
Mississippi	C+	Wisconsin	B-
Missouri	C+	Wyoming	C-
Montana	B-		

METRICS:

A – Superior	C – Average	F – Failure
B – Above average	D – Below average	N/A – Not Applicable

COORDINATION

State-level geospatial coordination efforts are well advanced, at least within the 41 states that responded to the GMA survey. All but six of those states have a state Geographic Information Officer (GIO) and half of those GIOs are authorized in statute. Almost all states with a GIO are able to influence policy (97%) and coordinate activities across levels of government as well as within state government (94%). GIO or not, all but two states have a data clearinghouse (95%). On the downside, just over half of the state GIS activities are supported by the state's general funds (58%) and almost one-third of the states are struggling to operate without full-time professional staff (29%).

Final Grades	
A+	2
A	10
A-	5
B+	6
B	9
B-	2
C+	1
D	6

State GIO	
Formal	33
Recognized	3
No	5

How GIO Authorized	
Statute	21
Other	8
None	7

GIO Abilities	
Policy	35
Budget	30
Technology	34
Standards	26
Coordination	33

GIO Base Funding	
Gen Fund	22
Other	14

GIO Resources	
Accept Soft $	36
Staff	29

All 41 States

Clearinghouse		Strategic Plan		Coordinating Council		Appropriate Stakeholders Represented	
Yes	39	<5 years old	16	Official	22	Yes	28
No	2	5-10 years	13	Unofficial	13	No	7
		>10 years	9	None	7		
		None	3				

Coordination Grading Scheme

Will Craig (MN) and Karen Rogers (WY)

This grading system is based on total points (TP).

Overall Grade (based on the sum of all points below)

Grade	Points
A	19-23
B	15-18
C	7-14
D	1-6
F	No points

Point Assignments based on program characteristics addressed in the questionnaire

A. Geographic Information Officer (max score 7)

A1. Is there a state GIO? (choose one)

- 4 official GIO or equivalent
- 3 coordinator
- 2 generally recognized
- 0 no

A3. Powers/abilities (sum of all)

- 0.5 influence over state/federal policies
- 0.5 input to budget/financial matters
- 0.5 control over technology at state enterprise level
- 0.5 control over statewide GIS data standards
- 0.5 coordinate activities across levels of govt and within state govt.
- 0.5 significant other

B. Support for Coordination (max score 8)

B1. Authorization (choose one)

- 2 Statute
- 1 Executive order
- 1 Regulation
- 1 Multi-agency MOU
- 1 Significant other
- 0 None

B2. Regular funding (choose one)

2	General funds
1	Agency services
1	License fees
1	Grants
1	Any other regular source
0	No regular source

C3. Accept soft money

2	Yes
0	No

C4. Professional Staff

2	Yes
0	No

C. Implementation (max score 8)

C1. Clearinghouse

3	Yes
0	No

C2. Strategic Plan

2	Yes, less than 5 years old
1	Yes, 5-10 years old
0.5	Yes, more than 10 years old
0	No

C3. Active Coordinating Council

2	Yes, official
1	Yes, unofficial

C4. Involve Relevant Stakeholders

1	Yes
0	No

ADDRESSES (State-Led Theme)

Frank Winters (NY) and Ken Nelson (KS)

Of the 41 states responding to the GMA, 25 scored above average (greater than a C grade) in the evaluation of their address data. This occurred even though 13 states have not begun an address data program.

Each state was assigned a starting score based on the completeness of coverage of address points. Scores were then adjusted up or down based on their answers on update frequency, adherence to standards, and factors related to the long-term sustainability of the program.

Count of Final Scores	
A	8
A-	5
B+	6
B	3
C+	3
C	0
D+	2
D	1
F	13

Count of States with	
Data used for 9-1-1	18
Data used for a geocoder	21
Data which is downloadable	16
Data exposed with an API	16
Data contributed to the National Address Database (NAD)	16
Data available publicly	14
Data available to other government units	23
Designated steward/aggregator	23
Regular state-level funding for addresses	14
Business plan for addresses	5

Address Grading Scheme

This grading system is based on percent coverage and is point-based (PC-1).

INITIAL GRADE Based on completeness (Q2)

B+	90-100% Complete
B	80-89% Complete
C	50-79% Complete
D	<49% Complete (minimum score for any state with a program)
F	No program

ADJUSTMENTS TO GRADE Based on total points, the following step adjustments are awarded (or deducted) based on reported responses in 4 categories. A maximum of 11 points can be gained, 8 points lost. Adjustment to the preliminary grade are as follows.

Steps	Points
+2	8 points or more
+1	3-7 points
0	-2 to +2 points
-1	-3 to -5 points
-2	-6 points or more

Point Assignments based on program characteristics addressed in the questionnaire

Q1. Does the state have a program?

If yes, score will be no lower than a D

Q3. Update Frequency

3 Daily
2 Weekly
1 Monthly
0 2x per year
-1 Annually
-4 2-3 years
-5 Less frequent

Q4. Quality/Usability

2	Published to the NENA GIS Data Model (Site/Structure Address Points) or a state-level standard that can be rolled up to that standard and is verified via QA
1	Published to NENA or state-level standard, but no QA
1	Published to a standard and is verified via QA
0	Published to a standard (no verification)
-1	Published, best effort at standardization
-2	Published as received

Q5. Use This question asked about the breadth of usage with 7 different choices, from supporting 9-1-1 activities to being available to the public

1	every three items checked
-1	if fewer than 3 items checked

Q6. Other Characteristics (points awarded for each characteristic)

1	Steward. Designated aggregator or steward
2	Funding. Regular state-level funding
1	Business plan. Business plan exists
0.5	Local government. Formal connection to local government
0.5	Attributes. Traditional attributes are included

CADASTRE (State-Led Theme)

Neil MacGaffey (MA) and Will Craig (MN)

Nearly half the states received an A for their work with georeferenced parcels. Parcel data is the work of local government. Local governments do a wonderful job of digitizing their parcels, with a vast majority (93%) of the states having GIS-parcels in 80-100% of their counties. Three-quarters (76%) of the states have programs for collecting that parcel data from their local governments. Even within the 10 states that do not have a statewide collection program, a majority of their counties have GIS parcel data, and half of those counties make that data available for free or with minimal cost. For the 31 states with parcel data aggregation programs, all but three make a significant effort to standardize that data. On the downside, only 18 of those states make their data freely available to others. Nine states keep the data for internal use only, while another four require a fee or a formal request.

Final Grades		Coverage		State Program	
A++	1	90-100%	26	Yes	31
A+	12	80-89%	12	No	10
A	5	50-79%	3		
A-	2				
B+	5				
B	4				
B-	2				
C+	5				
C	1				
C-	2				
D-	2				

For those 31 states with a state program

County Participation		Publication Standard		Access		Other Characteristics	
90-100%	23	Standard, QA/QC	12	API	13	Steward	22
80-89%	3	Standardized	5	Download	5	Funding	11
50-79%	2	Best effort	11	Viewable	0	Bus Plan	14
25-49%	1	As received	3	Request	3	Local Govt	18
<25%	2			Fee	1	Attributes	24
				None	9		

For 10 states without a state program

Percent counties with free data	
90-100%	3
80-89%	1
50-79%	2
25-49%	2
<25%	2

Cadastre/Parcel Grading Scheme

For states with a state-level program, the primary grading system is based on percent coverage and is point based (PC-1). For states without such a program, the primary grade is lower and based on the percent of counties making their data freely available.

This portion of the questionnaire was in three parts: A for all states, B for state-level programs, and C for states without a program. Annotations about question numbers are tied to those sections.

STATE-LEVEL PROGRAM

Preliminary Grade (Based on percent of counties having digital parcel mapping – A1)

A	90-100% Complete
B	70-89% Complete
C	40-69% Complete
D	26-39% Complete
F	<25%

Adjustments to Grade The following points are awarded (or deducted) based on reported responses in 4 categories. A maximum of 11 points can be gained, 7 points lost. Adjustment to the preliminary grade are as follows based on the summed score.

Steps	Points
+2	8 points or more
+1	3-7 points
0	-2 to +2 points
-1	-3 to -5 points
-2	-6 to -9 points
-3	-10 points or more

Point Assignments based on program characteristics addressed in the questionnaire

B1. County Participation

1 90-100%
0 80-89%
-1 50-79%
-2 25-49%r
-4 <25%

B2. Quality/Usability

2 if published to a verified standard using QA
1 if published to standard, no verification
0 if best effort to standardize
-2 if published as received

B3. Accessibility

4 if Open, free, viewable, downloadable, with API
2 if Open, free, viewable, downloadable
0 if Open, free, viewable
-4 if Open, full file for fee
-4 if formal request
-8 if internal use only

B4. Other Characteristics (points awarded for each characteristic)

1 Steward. Designated aggregator or steward
2 Funding. Regular state-level funding
1 Business plan. Business plan exists
0.5 Local government. Formal connection to local government
0.5 Attributes. Traditional attributes are included

NO STATE PROGRAM (All scores lower)

A1. Percent of Counties with GIS parcel Maps	C1. Percent of Counties Making their Data Freely Available or at a Nominal Cost				
	90-100%	80-89%	50-79%	25-49%	<25%
90-100%	B	B-	C+	C	D
80-89%		B-	C	C-	D
50-79%			C-	D+	D-
25-49%					D-
<25%					F

ELEVATION (State-Led Theme)

Dennis Pedersen (TN) and Mark Yacucci (IL)

Well over half (68%) of the states who responded to the GMA scored above average (greater than a C grade) in evaluation of their elevation data. Sixty-one percent of responding states have 90-100% coverage, with over half (56%) reporting QL2. All states with lidar reported having at least QL3 or better. Two out of three states (66%) report the data are available for download, with 32% having an API. An additional 12% make the data available through a formal request process. Two-thirds (66%) report a steward for the data.

Final Grades	
A+	3
A	3
A-	15
B+	4
B	1
B-	2
C+	1
C	1
C-	3
D+	1
D	0
D-	0
F	7

Other Characteristics	
Steward	27
Funding	13
Business Plan	8
12 or more	13

Update Frequency	
<8 years	2
8-12 years	4
12 or more	23
ND	4

Quality Level (QL)	
QL1	0
QL2	23
QL3	12
None	6

Access	
API	13
Download	14
Viewable	1
Formal	5
None	8

Coverage	
90-100%	25
80-89%	1
70-79%	1
60-69%	2
50-59%	1
40-49%	0
30-39%	2
20-29%	2
<20%	7

Elevation Grading Scheme

This grading scheme is based on percent coverage (Q1).

B+ 90-100% Complete
B- 70-89% Complete (includes 70-79% and 80-89% responses)
C 50-69% Complete (includes 50-59% and 60-69% responses)
D+ 20-49% Complete (includes 20-29% and 30-39% responses)
F <20% Complete

Adjustments to Grade The following adjustments are awarded (or deducted) based on reported responses in four categories. A maximum of 10 points can be gained, 8 points lost. Adjustment to the preliminary grade are as follows based on the summed score.

Steps	Points
3	9.5 points
2	8-9 points
1	3-7 points
0	-2 to +2 points
-1	-3 to -5 points
-2	-6 points or more

Point Assignment based on program characteristics addressed in the questionnaire

Q2. Update Frequency

1 updated 8 years or sooner statewide
0 updated every 8-12 years
-1 updated more than 12 years
-2 update cycle is not defined

Q3. Standard for state-collected data

1 Published to a standard (verified via QA)
0 Published to a standard (no verification)
-1 Published, best effort at standardization
-2 Published as received

Q4 Quality/Usability

1 Quality Level 2 (QL2) or better as defined by USGS
0 QL3 or better (Alaska QL 4) as defined by USGS
-1 QL4 or better as defined by USGS - Except Alaska

Q5. Some higher quality

1 Yes
0 No

Q6. Accessibility

2 Open, free, viewable, downloadable, with API
1 Open, free, viewable, downloadable
-1 Open, free, viewable
-2 Formal request
-3 Not available or no request process
-3 Accessible for a fee or internal request only

Q7. Other Characteristics (points awarded for each Yes answer)

1 Steward. Designated aggregator or steward
2 Funding. Regular state-level funding
1 Business plan. Business plan exists
0.5 Local government. Formal connection to local government
0.5 Attributes. Traditional attributes are included

ORTHOIMAGERY LEAF-OFF (State-Led Theme)

Tim Johnson (NC) and Tony Spicci (MO)

Orthoimagery includes both leaf-on and leaf-off products. Both are important to users of geospatial data in the states, but for different purposes. The leaf-on product serves interests such as agriculture and forestry, while leaf-off serves tax assessors and the emergency response community, among others. Statewide coverage is important, and the frequency of update is critical, particularly for areas that are growing and/or changing.

The orthoimagery layer was scored separately for leaf-on and leaf-off products. Scoring was primarily based on the following individual criteria (1) frequency of update, (2) resolution, (3) completeness, and (4) accessibility.

Results

Of the 41 responses, well over half (25 responses) have statewide coverage. Of the remaining states 20% have some coverage and another 20% (eight states) have no coverage. Of the eight states with no coverage, six are western states that typically focus on leaf-on coverage due to the high percentage of coniferous forest and the remaining two states have no leaf-off imagery program at all. Of the 33 states with leaf-off imagery programs, two-thirds update the imagery frequently (within a five-year period) with just one-third taking six or more years to update the coverage. Another two-thirds of the states buy up to higher resolutions (one foot to two inches) and most states make the imagery available to users via download. Most states have identified data stewards, but few have dedicated funding. The same applies for a business plan (few) and local participation (many).

Final grades for leaf-off suggest that about half of the states score a B or better and that result jumps to two-thirds if you drop the western and states without programs. This suggests that many states are successfully implementing a leaf-off orthoimagery program.

Coverage	
90-100%	25
80-89%	1
50-79%	2
25-49%	2
<25%	3
none	8

Update Cycle	
Annual	1
2-3 years	10
4-5 years	12
6-8 years	1
>8 years	5
none	12

Final Grade	
A or better	25
B or better	1
C or better	2
D or better	2
F	3

Orthoimagery – Leaf-Off Grading Scheme

This grading system is a variation on the percent coverage approach. It combines percent complete with the update cycle into the starting grade. Since leaf-off coverage is less relevant in desert, rocky, and conifer landscapes, sparsely settled western states were given the option to opt out of being graded, with the justification being if the program holds no value to the state, it shouldn't be graded down for not supporting it. From those different starting points, the approach is step-based (PC-2).

INITIAL GRADE based on completeness (Q1) and update cycle (Q2)

Most States

	90-100% Complete		80-89% Complete		50-79% Complete		Less than 50% Complete	
Grade	Complete Q1	Update Cycle	Complete	Update Cycle	Complete	Update Cycle	Complete	Update Cycle
A	90-100	1-3 yrs						
B	90-100	4-8 yrs	80-89	1-5 yrs				
C	90-100	>8 yrs	80-89	5-8 yrs	50-79	1-8 yrs		
D	90-100	No update	80-89	>8 yrs	50-79	>8yrs	<50	<8yrs
F					50-79	No update	<50	No update

ADJUSTMENTS TO GRADE (one step is a partial grade, e.g., B to B+)

Steps	
+1	**High Resolution (Q3)**
+1	**More than R-G-B (Q5)**
	Accessibility (Q4)
-1	Accessible with restrictions
-2	Licensed, not available to outside entities
-3	Not accessible
+0.25	**Other Characteristics (Q6)** Add 0.25 for each Characteristic*

Other Characteristics (*) include Steward, Funding, Business Plan, Local Government, and Accessible as a Service.

TRANSPORTATION (State-Led Theme)

Chris Diller (WI) and Dan Ross (MN)

Three-quarters (75%) of the states which responded to the GMA scored above average (greater than a C grade) in evaluation of their transportation data. Two states do not have a transportation dataset nor a program to support that. Just over half of the states reporting have statewide data, with 39% of states nearing completion of statewide coverage with 75-99% coverage. Nearly 61% of the states which responded update their transportation data quarterly or more frequently. Almost three-quarters of states (73%) adhere to a state or national standard, but only half of states have data that is edgematched along boundaries. Most states (78%) make their data available either through a web service or as downloadable information. Only one state charges a fee for obtaining or accessing the data, and three allow view-only access. Nearly all states that responded identify their state has a formal steward, but only about 50% report they are working with their local partners.

Final Grade		Coverage		Update Frequency	
A	9	100%	21	>2 years	2
A-	3	76-99%	16	Annually	5
A+	5	51-75%	2	Monthly	7
B	4	No program	2	Not defined	7
B-	7			Quarterly	9
B+	3			Weekly	9
C	4			No program	2
D	3				
D+	1				
F	2				

Quality		Type of Access		Other Characteristics	
Edgematched /published to state/national standard	20	Open Free API	21	Steward	38
State/National standard but not edgematched	10	Open Free Download	11	Funding	29
Published to a non-state or national standard	4	Fee/Internal	1	Business Plan	16
Not published to a standard	4	Request	3	Locals	20
N/A	1	View only	3	Real Time	31
No program	2	No program	2	None	10

Transportation Grading Scheme

This grading system is based on total points (TP).

States have a goal of having a statewide road centerline database, complete with address ranges. The final grade for each state is based on their answer to five questions, each with a point value.

Grade	Total Points
A	21-25
B	17-20
C	13-16
D	9-12
F	<9

Point Assignment based on program characteristics addressed in the questionnaire

Q1. How complete is your database?

Points	Completeness
5	100%
4	76-99%
3	51-75%
2	26-50%
1	≤25%
0	None

Q2. How frequent are updates?

Points	Frequency
5	Weekly +
4	Monthly
3	Quarterly
2	Annual
1	2 years
0	Not defined

Q3. What are publishing standards?

Points	Standard effort
5	Std.& edgematched
4	Approved Standard
3	
2	Other standard
1	No standard
0	N/A

Q4. Accessibility

Points	Access
5	F&D with API
4	Free & Downloadable
3	Free & Viewable
1	Formal request
0	Not available
-1	Fee or internal use

Q5. Other characteristics One point for each of the following. Maximum of 5.

1	Steward. Designated aggregator or steward
1	Funding. Regular state-level funding
1	Business plan. Business plan exists
1	Local government. Formal connection to local government
1	Attributes. Traditional attributes are included
1	Real-time condition data is available

GEODETIC CONTROL (Federal-Led Theme)

Brian Shaw (NGS), Sean Fernandez (UT), and Matt Peters (UT)

Geodetic control points across the country are well maintained by the National Geodetic Survey, given a grade of A- from COGO. Given that fact, no state is given a grade less than C. Grades above that level are dependent on state programs and efforts, and half the states invest enough of their own efforts to receive a grade of B+ or higher. Missouri, Oklahoma, and North Carolina all earn A+ for working in all listed areas.

Final Grades		State Activities		Other Characteristics	
A+	3	Nominate Points	12	Steward	27
A	6	Support CORS	25	Funding	16
A-	5	Support TRN	17	Bus Plan	10
B+	6	Plan for 2022	33	Locals	12
B	7				
B-	9				
C+	2				
C	3				

Geodetic Control Grading Scheme

This grading system is based on total points (TP).

Good geodetic control is provided by the National Spatial Reference System (NSRS) of the National Geodetic Survey. That program received an A- grade from COGO. Because of a strong NSRS states start with a grade of C. The GMA survey listed eight different activities a state can undertake to complement the NGS effort. Grades are based on the number of those activities supported.

Grade	Points
A+	8
A	6-7
A-	5
B+	4
B	3
B-	2
C+	1

Point Assignments Points based on a total number of state activities (Q3) and characteristics (Q5) supported.

Q3. State activities

1	Submit new control points to NSRS
1	Support a statewide CORS network (possibly through private partners)
1	Support a statewide TRN network (possibly through private partners)
1	Planning for NGS's 2022 update of NAD83 and related frameworks

Q5. Details of state effort

1	Steward: There is a designated state steward
1	Funding: There is regular funding for the state program
1	Business plan: There is a state business plan for geodetic control
1	Formal relationship: There is a formal relationship between state & local govts.

GOVERNMENTAL UNITS (Federal-Led Theme)

Mary Fulton (PA) and Karen Rogers (WY)

Over half (53%) of the states which responded to the GMA scored above average (greater than a C grade) in evaluation of their governmental units. This occurred despite the fact that nearly as many (51%) report that more than 75% of their state consists of unincorporated areas.

Final Grades	
A+	4
A	5
A-	2
B+	0
B	6
B-	5
C+	3
C	3
C-	2
D+	4
D	4
D-	0
F	1
Inc	2

More than three-fifths of the states (63%) report having statutory authority to submit governmental unit data to the US Census Bureau, yet fewer than half of them (46%) report they submitted the information to Census. Even so, approximately 80% of states report a governmental unit completeness of greater than 50%, with 41% of the states showing a completeness of 80% or more. Additionally, 71% of the responding states report an update cycle of annually or more frequent (quarterly, semi-annually).

Approximately 60% of responding states report an identified steward of the governmental units data, with 44% reporting a formal connection to local government.

Statutory Authority	
Yes	26
No	14
NA	1

Completeness (based on BAS/BVP):	
S 90-100	10
S 80-89	3
C >80	7
C 51-79	13
< 50	4
< 25	2
NA	2

State Role with Census	
All	10
Coordination/update	3
Coordination/no check	7
Minimal	13
Mix	4
NA	2

Update Frequency	
Q	2
S-A	4
A	23
2-5	4
5+	4
NA	4

Other Characteristics	
Steward	25
Funding	6
Business Plan	4
Local Government	18
Attributes	17
Topology	13
None	9

Governmental Units Grading Scheme

This grading system is based on percent coverage and is step-based (PC-2).

States with a small incorporated percentage of their land areas start with a B grade. All initial grades were then step-adjusted up or down. No state with an existing program received a grade lower than a D. This effort focused on the Census Bureau annual efforts to update their BAS (Boundary Annexation Survey) and BVS (Boundary Validation System).

INITIAL GRADE
States with >75% of land area unincorporated (Q1)
B is initial grade

Other States (Q3)

A	State has authority and 90-100% reported
B	State has authority and 80-89% reported OR local with >80%
C	Locals with 51-79%
D	Locals with <50%
F	Locals with <25%

ADJUSTMENTS TO GRADE (number of steps per factor, where 1 step is a partial grade; e.g. B to B+.)

Steps	
	Update Frequency (Q4)
-1	2-5-year cycle
-3	5 years or more
	State Role (Q5)
-1	Anything less than coordination and adjusting data to standard and topology
	Other Characteristics* (Q7)
+3	All 6 characteristics
+1	4-5 characteristics
-1	none

Other characteristics (*) include Steward, Funding, Business Plan, Local Government connection, Attributes, and Topology checking.

HYDROGRAPHY (Federal-Led Theme)

Mark Holmes (MI) and Jim Steil (MS)

Primarily considered a federally lead theme, quantifying state and local contributions to the development of the layer was challenging. A base score of C was given to states if no other state or local efforts were in place, based on the assumption that everyone is, at a minimum, using USGS NHD 1:24,000 base maps for hydrography. This survey allowed for extra points to be given for any non-federal efforts to improve hydrography beyond the NHD base. Just 7% of states received an A, 49% a B, and 44% a C. The current grading schema focused on active progress towards improving statewide coverage with additional points being awarded for effort towards state or local hydrography data improvement and establishing program initiatives like data maintenance, established steward and funding, open data, and business plans. Over 80% of states make the data freely available. Future grading may need to integrate the local importance of hydrography requirements as a consideration given the wide variety of conditions across the country.

Final Grade		Completeness		Update Frequency	
A	1	100%	14	Annual	7
A-	2	76-99%	17	2-3 years	3
B+	3	51-75%	3	4-5 years	3
B	8	25-50%	0	>5 years	0
B-	9	<25%	1	Not defined	19
C+	10	None	6	NA	9
C	8				

Publication Standard		Access		Other Characteristics	
Standard, verified	19	Free, API	24	Steward	32
Standard, not verified	5	Free, download	9	Funding	12
Best effort	6	Free, viewable	0	Bus Plan	6
As received	2	Download $$	0	Local government	4
NA	9	Formal request	0	Attributes	27
		Internal use only	0		
		NA	8		

Hydrography Grading Scheme

This grading system is based on total points (TP).

The National Hydrography Dataset (NHD), supported by USGS, provides good basic data for the nation. That program received a B- grade from COGO. NSGIC focuses on what states are doing to complement that effort within their borders.

The final grade for each state is based on points accrued across five areas. Because of a strong NHD, all states start with a grade of C. Each can move up depending on the number of points they've earned.

Grade	Points
A	18
A-	16-17.5
B+	14-15.5
B	12.13.5
B-	10-11.5
C+	8-9.5
C	Less than 8

Point Assignments based on program characteristics addressed in the questionnaire
The components of the point total are the five questions asked in the GMA survey. Those questions and the awarded points for each answer are listed below.

Q1. How complete is your database?

Points	Completeness
5	100%
4	76-99%
3	51-75%
2	26-50%
1	≤25%

Q3. What standards are used for publishing?

Points	Standard effort
2.0	Standard, verified
1.5	Standard
1.0	Best effort at std
0.5	As received
0	N/A

Q2. How frequent are updates?

Points	Frequency
4	Annual
3	2-3 years
2	4-5 years
1	Defined, but >5yrs
0	Not defined or NA

Q4. Accessibility

Points	Access
2.0	F&D with API
1.5	Free & Downloadable
1.0	Free & Viewable
0.5	Full file for fee
0	Formal request
0	Internal use only
0	N/A

Other characteristics (Q5) One point for each of the following

1	Steward. Designated aggregator or steward
1	Funding. Regular state-level funding
1	Business plan. Business plan exists
1	Local government. Formal connection to local government
1	Attributes. Traditional attributes are included

ORTHOIMAGERY LEAF-ON (Federal-Led Theme)

Tim Johnson (NC) and Tony Spicci (MO)

Orthoimagery includes both leaf-on and leaf-off products. Both are important to users of geospatial data in the states, but for different purposes. The leaf-on product serves interests such as agriculture and forestry, while leaf-off serves tax assessors and the emergency response community, among others. Statewide coverage is important, and the frequency of update is critical, particularly for areas that are growing and/or changing.

The orthoimagery layer was scored separately for leaf-on and leaf-off products. Scoring was primarily based on the following individual criteria (1) frequency of update, (2) resolution, (3) completeness, and (4) accessibility. The National Agricultural Imagery Program (NAIP) is the foundation used for scoring the leaf-on product. Since NAIP is a federal program, it is not something that the states need to fund on a regular basis unless a state wishes to buy-up to a 6-inch product or by adding the fourth band of imagery to the delivered product.

Results

Of the 41 responses, almost all have statewide leaf-on coverage provided through NAIP. Of the remaining states, two had 80-89% coverage and one had no coverage. Six states participate in the buy-up program NAIP offers with five of those states considered ‘western’. Most of the states enjoy a two-to-three-year update which correlates to the NAIP update cycle. Only six states have updates after three years or more, while one state receives annual updates. Almost all states make this public domain data available to their users via download, however one state does license the data. Most states have identified data stewards and the states with dedicated funding are those with the buy-up programs. The number of states with business plans and local buy-up is minimal, but that isn’t surprising given that NAIP is a federal program.

Final grades for leaf-on reveal that only eight states receive an A grade, much lower than leaf-off. However, about 60% score in the B range. The grading suggests that if a state does minimal work, it will get a statewide leaf-on product via NAIP and a B for a grade. States that participate in the program via buy ups receive the A grades. Additionally, a state that restricts access to the data or doesn’t have as regular a buy-up schedule received a lower grade.

Coverage	
90-100%	38
80-89%	2
none	1

Update Cycle	
Annual	2
2-3 years	32
<3 years	6
none	1

Final Grade	
A or better	8
B or better	25
C or better	6
D or better	1
F	1

Orthoimagery – Leaf-On Grading Scheme

This grading system is based on percent coverage and is step-based (PC-2).

The NAIP program provides most states with leaf-on imagery every two-to-three years. That gives the typical state a good grade. Efforts below and above that baseline are based on state initiatives.

INITIAL GRADE based on completeness (Question 1)

B	90-100%
C	80-89%
D	50-79%
F	<50%

ADJUSTMENTS TO GRADE (one step is a partial grade, e.g., B to B+)

Steps	
	Update Frequency (Q2)
+2	Annual
-1	>3 years
	Buy Ups (Q3)
+1	any
	Accessibility (Q4)
-3	Accessible with restrictions
-4	Licensed, not available to outside entities
-5	Not accessible
	Other Characteristics (Q5)*
+2	Two or more of the four
-2	None of the four

Other characteristics (*) include

- Steward exists
- Funding at the state level
- Business plan exists
- Local government has formal connections

CONCLUSION

Conducted biennially by the National States Geographic Information Council (NSGIC), the Geospatial Maturity Assessment (GMA) provides a summary of geospatial initiatives, capabilities, and challenges within and across state governments.

The 2019 GMA, augmented with individual state report cards and framework data theme analysis, is an authoritative resource on the status of state geospatial programs. This deeper dive can assist states in setting goals, identifying peer states for collaboration, pinpointing areas requiring attention, and connecting states with opportunities and resources. It also provides an important tool for federal partners to identify areas for key coordination, cooperation, and collaboration, and for the private sector to build software and services that comprise the tools that make it all work.

Keys to Improving Grades

Coordination is central to finding areas of duplication and developing mutually beneficial processes and products to meet most needs. Without strong coordination within a state, efforts are likely diminished, translating to lower grades. The Coordination grade is indicative of the level of support and organized efforts by the state, while the remaining grades reflect that initial standing. Data programs will advance when they have one point of central organization, made effective with stable funding and staff. NSGIC strongly advocates for all states to support Geographic Information Officer positions so better data can be coordinated with federal agencies and local, county, and tribal governments. These relationships are critical in building and maintaining better, authoritative data.

As illustrated by the range of grades assigned across the framework data themes, states have not been consistently provided with strong federal vision, guidance, and support. In order to create and sustain a strong and mature NSDI, the federal government should provide leadership and assistance to states to help build their data programs. The GMA report cards provide an objective assessment of the status of state datasets and programs. This information should be used by lead federal agencies to determine where to begin and chart where we need to go as a nation, one state at a time. NSGIC stands ready to facilitate the necessary conversations and coordination.

2021 Geospatial Maturity Assessment

Even before publication of the current GMA, planning for the next is underway. Preliminary feedback on the report card features and expanded analysis has been positive. The survey, process, and final product will continue to evolve and improve. NSGIC invites further input from the GIS community by contact with NSGIC Geospatial Programs Manager Jamie Chesser at jamie.chesser@nsgic.org.

Project Team

Karen Rogers (WY)
Will Craig (MN)
Jamie Chesser (NSGIC)

NSGIC

National States Geographic Information Council

2019 GEOSPATIAL MATURITY ASSESSMENT STATE REPORT CARDS

The Coalition of Geospatial Organizations (COGO) has used the traditional A-F system to grade the national spatial data infrastructure (NSDI) development effort, naming the federal agencies responsible for eight data layers in the NSDI. With this GMA, NSGIC turned to its own members and measuring their contributions to the NSDI.

NSGIC developed a questionnaire that was sent to each of its member states. Forty-one states responded. Their responses were then graded. The questionnaire, individual state responses, and the grades given each are available as separate resources. The responses were pulled together to grade each state on each of 10 different themes – the eight COGO themes, plus a grade for state-level coordination activities and separate grades for leaf-on and leaf-off orthoimagery.

Both questionnaires and grading schemes were developed by NSGIC volunteers, each an expert in the theme they addressed.

In the pages that follow, participating states' report cards can be found. Please reference the full report for more information on methodology, grading schemes, and national trends.

GEOSPATIAL MATURITY ASSESSMENT 2019

Alabama Report Card

Overall Grade: C+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	F
Cadastre	B
Elevation	F
Orthoimagery Leaf-Off	A+
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	C+
Government Units	A-
Hydrography	C
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Arizona Report Card

Overall Grade: B-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	B+
Cadastre	C+
Elevation	D+
Orthoimagery Leaf-Off	N/A
Transportation	A-

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	B-
Hydrography	C
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Arkansas Report Card

Overall Grade: B+

COORDINATION	GRADE: A+

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A+
Elevation	B+
Orthoimagery Leaf-Off	B
Transportation	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A+
Hydrography	A-
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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ARKANSAS GMA RESPONSE

We appreciate the opportunity to participate in the Geospatial Maturity Assessment. It provides metrics for use in self evaluation as well as objective measures from an external perspective that we can point to as we are evaluated within our state government organizational structure. We believe the results to be an accurate representation of our current state of affairs. We are and have long been very fortunate to enjoy an atmosphere of effective cooperation and coordination among the various GIS stakeholders in the state, including state agencies, local government, higher education, and the private sector.

It has long been the policy of both the Arkansas GIS Office and the GIS Board to capture leaf-off imagery. Leaf-off imagery better supports the needs of transportation, local tax assessors, and local 9-1-1. Unfortunately, our state does not have an imagery "program", i.e. no sustainable revenue stream. Consequently, imagery acquisition has always been dependent on available on-time funding. Over the last 20 years, statewide image acquisition has occurred, on average, every six to seven years.

Over the past three to four years, governmental units has become a particular focus for our state as we prepare for the 2020 Census and redistricting that will follow. Dovetailing with this has been our participation in the Geo-enabled Elections effort. We see these as exceptional opportunities glean quality data to take into the next decade.

Lastly, statewide address data has been one of our goals for the past decade, and we are now close to seeing the culmination of that effort. Currently, 72 of 75 counties have physical address dataset in maintenance, and the remaining three have efforts underway at some level to complete county-wide data for the first time. This dataset is of particular significance due to its integral role in Next Generation 9-1-1.

Shelby Johnson
GIO, State of Arkansas

GEOSPATIAL MATURITY ASSESSMENT 2019

Colorado Report Card

Overall Grade: C+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	B
Cadastre	C+
Elevation	C
Orthoimagery Leaf-Off	N/A
Transportation	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	C
Hydrography	C
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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COLORADO GMA RESPONSE

The State of Colorado appreciates NSGIC's efforts involved with all aspects of the GMA. An objective assessment of the high level GIS efforts within each state is invaluable information. Furthermore, seeing where other states are struggling and excelling allows for productive discussion and collaboration amongst states.

Colorado's grades are, for the most part, on par with where we feel we are in our efforts. It was interesting to see the grade difference (albeit minor) between address and cadastre, as we feel both data sets are about equally far along. All in all, the grades reinforce the point that additional time and resources are needed to improve upon these grades, along with better coordination across the state. In fact, Colorado's grade for coordination seems high, as this is an area that the state can greatly improve upon. However, after revisiting the grading system and questions for the Coordination section, the grade does seem justified. While the questions do address a state's ability and capacity for effective coordination, missing are questions about whether a state is actually actively coordinating. Perhaps additional questions can be included that involve the frequency and nature of coordination efforts among federal, state and local governments.

Anthony Filipiak
Senior GIS Analyst, State of Colorado

GEOSPATIAL MATURITY ASSESSMENT 2019

Delaware Report Card

Overall Grade: B-

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A-
Transportation	A-

FEDERAL-LED THEMES	GRADE
Geodetic Control	C
Government Units	D
Hydrography	B-
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Florida Report Card

Overall Grade: B-

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	F
Cadastre	A+
Elevation	A+
Orthoimagery Leaf-Off	C-
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	Inc
Hydrography	A
Orthoimagery Leaf-On	C

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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FLORIDA
GMA RESPONSE

NSGIC should be complimented for the clear, transparent way this geospatial maturity assessment was carried out and the way the results are being shared and used as a guide for programmatic improvements. The State of Florida accepts their B+ result as a fair representation of our current status based on the selected indicators. We look forward to the challenge of using the assessment results to improve the quality of service to our stakeholders.

When the 2017 Florida Legislature mandated the creation of a geographic information office, it signaled an understanding of the vital role spatial data should play in Statewide decision making. Having this coordinating body will positively impact all sectors of our maturity assessment going forward. The 2018 Florida Legislature permanently organized the new State Geographic Information Office with the Department of Environmental Protection (DEP) and gave the office rule making ability, with oversight of State Agencies and the State's five Water Management Districts (WMD). This GIO benefits from the legacy of a strong, active, and forward thinking GIS workgroup which coordinated geospatial policy since the 1990s.

There are two specific areas of the assessment for Florida that we would like to highlight. The first is the Address category (grade F). The Florida Dept. of Management Services (DMS) is the lead agency for Florida's 9-1-1 system. After a lengthy wait, DMS received a Federal grant in October 2019 that supports a variety of matching funds in support of NG 9-1-1. The GIO and GIS leads from the Dept. of Transportation of the Dept. of Emergency Management recently attended a kick off meeting and are working together to support this DMS initiative for Florida. The project end date is March 31, 2022.

Continued on page 2

FLORIDA
GMA RESPONSE

The GIO office will share the individual benchmarks the maturity assessment has identified for a successful Address program with the project participants. The second area of focus is Hydrology (grade A). Water quality and supply are hugely important to Florida's leadership. The DEP hosts the National Hydrography Dataset editors for the State and is always looking for ways to partner with the WMDs and other State agencies to improve our spatial data for surface, ground, and coastal waters. With the 2020 delivery of 3DEP QL1 peninsular LiDAR, we anticipate significant improvement in our detailed hydrography coverages based on analysis from the derived LiDAR products.

This NSGIC Maturity Assessment and results will be presented to the State stakeholders at our scheduled January 2020 meeting. Thank you for the opportunity to provide feedback.

Kim Jackson
Geospatial Information Officer

GEOSPATIAL MATURITY ASSESSMENT 2019

Georgia Report Card

Overall Grade: C

COORDINATION	GRADE: B-

STATE-LED THEMES	GRADE
Address	F
Cadastre	B
Elevation	B+
Orthoimagery Leaf-Off	A
Transportation	F

FEDERAL-LED THEMES	GRADE
Geodetic Control	C
Government Units	B-
Hydrography	C+
Orthoimagery Leaf-On	C

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Hawaii Report Card

Overall Grade: C-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	F
Cadastre	A+
Elevation	F
Orthoimagery Leaf-Off	N/A
Transportation	F

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	Inc
Hydrography	C
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Idaho Report Card

Overall Grade: C+

COORDINATION	A

STATE-LED THEMES	GRADE
Address	C+
Cadastre	C+
Elevation	F
Orthoimagery Leaf-Off	B
Transportation	B+

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	C+
Hydrography	B
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Illinois Report Card

Overall Grade: C+

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	F
Cadastre	B-
Elevation	A-
Orthoimagery Leaf-Off	B
Transportation	D

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	B-
Hydrography	C
Orthoimagery Leaf-On	A-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Indiana Report Card

Overall Grade: B

COORDINATION	GRADE: A+

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	D

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	B-
Hydrography	B
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

The National States Geographic Information Council Geospatial Maturity Assessment provides NSGIC members and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. The NSGIC GMA now produces report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

INDIANA
GMA RESPONSE

The Indiana GIS community appreciates the opportunity to participate in the GMA. This important endeavor provides valuable insight and information that we can share with fellow GIS professionals and decision-makers across the state.

Indiana GIS data coordination is possible through community and partnerships between the Indiana Geographic Information Council, the Indiana Geologic and Water Survey, local and county GIS professionals, and leadership from the State Geographic Information Office. The State appreciates our 100% data sharing success with all of our county partners, the layers of which are graded in the GMA. Now that Indiana has achieved this, our community looks to increasing precision, accuracy and reliability of data sharing, the next levels of which will be seen in the next round of the GMA. We are also embarking on the next phase of data sharing. It is our goal to utilize new tools and technologies alongside our well-established and appreciated GIS data sharing environment to make our datasets more easily accessible, managed for reliability and updated with reliable metadata.

Our goals for next year will be to improve grades in specific to boundaries, transportation and addressing. Initiatives such as taxing, planning and NextGen 9-1-1 are driving our State's purpose for accurate, authoritative and timely data layers from local and county government. Current efforts are underway to establish statewide address and centerline data standards, along with data sharing guidelines that will help us improve our GMA in these areas. We are facing challenges with the lack of financial support to transition our statewide datasets into standardized datasets, ready at the level of reliability and accuracy needed for these use cases. It is our hope to encourage support in this area from state leadership and agency partnerships benefiting from the "build it once, use it many times" model.

Continued on page 2

INDIANA
GMA RESPONSE

Indiana has been fortunate to have completed statewide orthoimagery at 12-inch resolution on average every five to six years. It is our policy to capture leaf-off orthoimagery statewide and make that data open and freely available for statewide consumption (i.e. license-free product). Leaf-off imagery better supports the needs of transportation, local tax assessors, economic development and local 9-1-1 departments. Unfortunately, our state lacks in the sustainability and reliability of the program because, despite annual request to budget for the program, the GIO lacks the funds to reliably support the program. Consequently, imagery acquisition has always been dependent on available, on-time funding.

Specific to the leaf-on imagery, Indiana's business case does not indicate value for imagery with leaf-on at a frequency or resolution greater than the NAIP data provided by our federal partners.

Additionally, we are fortunate to have a near-completed statewide QL-2 Lidar acquisition update. This would not have been possible without the funding support of our federal partners, primarily the Natural Resources Conservation Service (NRCS) and the United States Geological Survey (USGS). Our GIS community, transportation, economic development, and agriculture are beneficiaries of this data. It will be Indiana's plan to make both the Lidar and orthoimagery programs planned on a cycle, with support from all partners possible through the planning of the program.

Megan Compton
GIO, State of Indiana
Office of Technology

GEOSPATIAL MATURITY ASSESSMENT 2019

Iowa Report Card

Overall Grade: C

COORDINATION	GRADE: C+

STATE-LED THEMES	GRADE
Address	F
Cadastre	B+
Elevation	C-
Orthoimagery Leaf-Off	A
Transportation	D+

FEDERAL-LED THEMES	GRADE
Geodetic Control	C+
Government Units	C-
Hydrography	C
Orthoimagery Leaf-On	A

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

IOWA
GMA RESPONSE

Iowa appreciates the opportunity to participate in the NSGIC Geospatial Maturity Assessment (GMA). We feel the assessment is accurate and reflective of efforts and support for Statewide framework data. The State of Iowa has worked effectively in a federated manner leveraging the resources of State Agencies that have stepped up to act as a steward for an identified framework data layer, Typically because the data set meets a particular business need. Most of our successes have been inter-agency data efforts such as aerial imagery, elevation, parcels and NG911. Funding, state-level coordination and executive support have been critical to the success of these data programs. As with many states, Iowa has been able to build acquisition programs around data that has been easy to sell to leadership. As we move onto data sets that are less charismatic like addresses, hydrography, governmental units and geodetic control, we need to explore business needs and relationships that have not yet been discovered.

Patrick Wilke-Brown
GIS Coordinator,
Office of the CIO

GEOSPATIAL MATURITY ASSESSMENT 2019

Kansas Report Card

Overall Grade: B+

COORDINATION	GRADE: A-

STATE-LED THEMES	GRADE
Address	A
Cadastre	B+
Elevation	A-
Orthoimagery Leaf-Off	A+
Transportation	B+

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	B
Hydrography	C
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Kentucky Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	D
Cadastre	B
Elevation	A+
Orthoimagery Leaf-Off	B
Transportation	A+

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	A+
Hydrography	B
Orthoimagery Leaf-On	A-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

The National States Geographic Information Council Geospatial Maturity Assessment provides NSGIC members and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. The NSGIC GMA now produces report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

KENTUCKY
GMA RESPONSE

Kentucky is pleased with the GMA scoring for 2019. The grades do reflect the status of our governance and coordination, as well as each of the "themed" layers here in the Commonwealth. It is our feeling that the scoring methodology is straightforward and the results are meaningful. We know that there is progress to be made in some areas and the GMA reaffirms that fact.

It is valuable to see where we measure up against other states and sharing the national results with our leadership helps to underscore our level of success here in Kentucky. Additionally, seeing which states excel in a certain category, lets us know who to contact for guidance and direction.

We appreciate the effort involved in compiling the assessment tool and sharing the results with the NSGIC community. Many thanks!

Kent Anness
GIS Operations Manager

GEOSPATIAL MATURITY ASSESSMENT 2019

Louisiana Report Card

Overall Grade: C

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	D+
Cadastre	C-
Elevation	A-
Orthoimagery Leaf-Off	D
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	C+
Hydrography	C+
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

The National States Geographic Information Council Geospatial Maturity Assessment provides NSGIC members and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. The NSGIC GMA now produces report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Massachusetts Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A+
Transportation	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A
Hydrography	B
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

The National States Geographic Information Council Geospatial Maturity Assessment provides NSGIC members and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. The NSGIC GMA now produces report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

MASSACHUSETTS GMA RESPONSE

With one exception, the Geospatial Maturity Assessment (GMA) grades for Massachusetts correctly reflect the states investments in framework data layers (especially cadastral, roads, address points, and imagery) and the 30-year existence of MassGIS, the state's GIS Office. The exception is the "B" grade for coordination which does not reflect the inadequacy of our state-level coordination efforts. MassGIS' has a relatively high-profile location in the state's two-year-old Cabinet-level IT agency. Also, the scope of MassGIS' statutory language calls for statewide coordination and for standards setting. However, there is no statewide GIS coordinating body. Thus all the coordination is informal and rests largely with the efforts of MassGIS' Director. This bottom up approach is not mature and increasingly does not support effective approaches to key issues such as funding, governance, and the appropriate scale of technology deployment. Recent developments suggest that MassGIS' success in developing and maintaining the mapping and data used by the Next Gen 9-1-1 system and the higher visibility from being in a Cabinet-level agency may start surfacing the need for more systematic state-level GIS coordination.

As mentioned above, substantial data investments have been made and the state is realizing the benefits of this investment, although much more could be achieved. In particular, additional work on and investment in improving the accuracy and detail of hydrography is needed. The State's Department of Environmental Protection is now the steward for National Hydrography Dataset (NHD); however their efforts are very limited due to lack of funding, and they have no mandate to develop the NHD outside of watersheds involved in public drinking water supply.

While the "B" grade assigned to transportation is a correct assessment, on-going work on this data set should see this grade go up in the next GMA.

Neil MacGaffey
Director, MassGIS

GEOSPATIAL MATURITY ASSESSMENT 2019

Michigan Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	C+
Cadastre	C+
Elevation	A-
Orthoimagery Leaf-Off	A-
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	A
Hydrography	C+
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

MICHIGAN GMA RESPONSE

The Geospatial Maturity Assessment (GMA) reflects Michigan's focus on key framework layers over the past two decades, with notable exceptions of cadastre, address and hydrography. Michigan has an established data program for maintaining transportation data and government unit boundaries and resources are assigned to the regular stewardship of those data layers. The Michigan Statewide Authoritative Imagery and LiDAR program has provided statewide coordination around statewide aerial imagery (leaf-off) and LiDAR elevation data acquisition since 2010. Michigan will have statewide QL2 LiDAR data statewide this year.

Michigan's coordination score of B does not reflect a lot of the coordination activities that are present across the State. Coordination for many of Michigan's GIS programs such as the Michigan Geographic Framework and the Michigan Statewide Aerial Imagery and LIDAR program are managed through the Center for Shared Solution (CSS) in the State's Department of Technology, Management and Budget. CSS coordinates GIS activities across the State in partnership with the two GIS associations, the Michigan Communities Association of Mapping Professional (MiCAMP) and the Improving Michigan's Access to Geographic Information Networks (IMAGIN) organization.

Leaf-on imagery has never been a priority for Michigan as leaf-off imagery is the primary requirement. Michigan uses the United State Department of Agriculture's National Aerial Imagery Program (NAIP) imagery for any leaf-on needs.

Cadastre and Addresses: These layers are managed at the local government level and exist in GIS format across most counties but there are still some gaps. For many years, these layers have not been made available publicly, however a handful of counties have recently published these datasets as open data. State and local government have recently been working together to exchange imagery and GIS data to begin to build out these layers as statewide datasets for government entities to access. The current goal is to continue to work in partnership between state and local government to integrate this data statewide and fill the gaps, where possible as funding is limited. These coordination efforts have just begun in the past year and we expect these efforts to lead to an improving grade by the next GMA.

Continued on page 2

MICHIGAN
GMA RESPONSE

Hydrography: The State of Michigan has provided updates to the National Hydrography Dataset (NHD) over the years to get it to the current NHD baseline of 1:24,000. There is a need to improve the accuracy and completeness of the current hydrography data layer but lack of funding and staff resources has limited any data maintenance for this data layer. During the past year a hydrography focus group was formed to determine possible paths forward to improving this data by leveraging Michigan's statewide QL2 LiDAR data. Small pilot projects have been planned to validate the best methodology to improve this data layer but a statewide hydrography data update won't be possible until additional funding is identified.

Mark Holmes
Geospatial Services Manager

GEOSPATIAL MATURITY ASSESSMENT 2019

Minnesota Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A-
Elevation	A-
Orthoimagery Leaf-Off	B
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	A
Hydrography	B+
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Mississippi Report Card

Overall Grade: C+

COORDINATION	GRADE: B-

STATE-LED THEMES	GRADE
Address	F
Cadastre	D-
Elevation	A-
Orthoimagery Leaf-Off	B
Transportation	A+

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	D+
Hydrography	B+
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Missouri Report Card

Overall Grade: C+

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	F
Cadastre	D-
Elevation	B-
Orthoimagery Leaf-Off	A-
Transportation	A+

FEDERAL-LED THEMES	GRADE
Geodetic Control	A+
Government Units	D
Hydrography	B-
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

MISSOURI
GMA RESPONSE

Missouri's score reflects our "home rule" approach to many initiatives. Programs that are managed centralized within other states, not just GIS, are not in Missouri. The distributed approach is reflected in how Missouri scored for initiatives like addresses, cadastre and governmental units, efforts that remain managed at a local level. The state has multiple strong local GIS departments, generally in the more urban areas of the state, as well as a long history of GIS within various state agencies. Our departments of Transportation, Conservation, Natural Resources and Emergency Management all have a large GIS user base, along with significant applications within Health, Economic Development, Revenue and Highway Patrol.

Our centralized Office of Geospatial Information, part of our consolidated Information Technology Division, is positioned to expand coordination across all state agencies, looking for ways to implement GIS in many aspects of State business. This differs from other states, which appear to have a greater emphasis on coordination with local governments.

Our Missouri Geographic Information System Advisory Council, which has representatives from local, state, federal and commercial interests continues to emphasize outreach and education as one of its primary goals. This includes regular regional workshops, as well as the bi-annual Missouri GIS conference.

Tracy Schloss
GIO, State of Missouri

GEOSPATIAL MATURITY ASSESSMENT 2019

Montana Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A+
Elevation	C-
Orthoimagery Leaf-Off	N/A
Transportation	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	B
Hydrography	C+
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Nebraska Report Card

Overall Grade: B

COORDINATION	GRADE: A-

STATE-LED THEMES	GRADE
Address	A-
Cadastre	B+
Elevation	B+
Orthoimagery Leaf-Off	N/A
Transportation	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	B-
Hydrography	B-
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

NEBRASKA
GMA RESPONSE

Overall the grades reflect GIS activities in Nebraska. Nebraska is a progressive, forward-thinking state in terms of utilizing GIS. IT consolidation helped play a major role in the development of a Statewide Enterprise GIS platform.

Nebraska would like to address the Orthoimagery Leaf-off grade. While the state imagery standard and business plan calls for a 12" leaf off collection, we do not have a statewide collection. Several counties that have a large urban population have a collection process to collect leaf-off imagery every other year, and the data is available through the participating County GIS office or ESRI's Living Atlas. In addition to this collection, during the 2018 Natural Resource Conservation Service (NRCS) LiDAR refresh in Southeastern Nebraska, leaf-off imagery was collected in addition to the LIDAR data. It is not known if this will be a continued collection from NRCS or not. This information was not used in the 2019 Geospatial Maturity Assessment.

In general, Nebraska feels the grades are representative of our activities, with the exception of the statewide imagery program. Nebraska has a business plan and standards for a custom imagery collection or subscription based imagery data. Nebraska as a state lacks the funding to accomplish these tasks. Nebraska is very appreciative of the federal agencies' collection of NAIP and LIDAR statewide and the counties for their imagery and data collection.

John Watermolen
State GIS Coordinator

GEOSPATIAL MATURITY ASSESSMENT 2019

Nevada Report Card

Overall Grade: C-

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	F
Cadastre	B-
Elevation	F
Orthoimagery Leaf-Off	N/A
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	B
Hydrography	C
Orthoimagery Leaf-On	D

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NEVADA
GMA RESPONSE

The grade assigned to the state of Nevada reflects the current coordination and support level that GIS has received statewide. Nevada has no statewide coordinating GIS body, and any coordination efforts are largely informal and conducted with minimal resources. In addition, coordination between many state, local, and regional agencies is not well established. Several counties in Nevada either do not have dedicated GIS staff or contract out for GIS services, thus making coordination difficult across the state for themes such as addresses. Since the majority of Nevada is federally owned land and the bulk of our population resides in either the Reno metro area or the greater Las Vegas area, Nevada has historically relied on datasets available from federal programs (NAIP and NHD) since the need for greater detailed datasets has not been vocalized.

Nevada's Department of Transportation (NDOT) has done an excellent job in compiling a road centerline database, maintaining it, and making it publically accessible. We will be working towards identifying potential partners and developing a statewide program for elevation data in the near future.

Rachel Micander
Cartographer / GIS Specialist, Nevada Bureau of Mines & Geology, University of Nevada - Reno

GEOSPATIAL MATURITY ASSESSMENT 2019

New Jersey Report Card

Overall Grade: B

COORDINATION	GRADE: A-

STATE-LED THEMES	GRADE
Address	D+
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	B+

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	C-
Hydrography	B+
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NEW JERSEY GMA RESPONSE

Addresses: This data layer has become our primary focus this year, and we are devoting significant resources to improving it. The completeness is already improved enough that were we to take the survey now, the grade would be a C+. This is still not acceptable to us, but is indicative of the progress we are making. Our grade reflects the fact that the program is still getting started.

Governmental Units: For this layer, the grade does not accurately reflect the condition of our data. Our governmental units data sets (state, municipal, and county boundaries) are in excellent shape and are updated on a continuing basis. Solely on the condition of the data, a grade of A or even A+ would be reasonable. But that is not the question being asked in the GMA. The GMA grade for governmental units focuses on a state's participation in the formal programs that US Census Bureau uses to maintain their aggregation of the data, such as the Boundary and Annexation Survey (BAS). Participation in New Jersey in these programs is not very high by the standards used in the GMA. Many towns do not respond, and the state is not authorized to respond for them. But the reason for that low participation is that municipal boundaries very rarely change in New Jersey, and since we have no unincorporated land, annexations are a non-issue. The towns that don't respond usually have nothing new to submit.

These comments aside, the GMA provides an accurate assessment of our efforts in the areas that it covers, and we are focusing our efforts accordingly.

Andy Rowan
GIO, Office of Information Technology

GEOSPATIAL MATURITY ASSESSMENT 2019

New Mexico Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	B
Orthoimagery Leaf-Off	N/A
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A+
Hydrography	C+
Orthoimagery Leaf-On	B+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NEW MEXICO GMA RESPONSE

First, the State of New Mexico (NM) commends the National States Geographic Information Council (NSGIC) for lending resources to support the Geospatial Maturity Assessments (GMA). We believe this is a wonderful measure of how we're performing and where we can improve. In addition, using the GMA to leverage requests for State Support for programs not performing well provides us with a useful tool. Thank you.

Thank you for the opportunity to respond to our "Report Card" results. We wish to provide more clarity to parts of the NM NSGIC GMA marks. I believe more clarity may improve our results. We are in agreement with much of the marks, yet have some issues in two categories as follows:

Elevation: Believe this mark is way too low. Through our NM Geospatial Advisory Committee Elevation Data Planning and Acquisition Subcommittee we have been able to secure nearly $20M in funding through close coordination among federal, state, local, tribal, and private actors that will complete a statewide elevation layer by the end of next year (2020). I believe that is a stellar star for the State of New Mexico.

Coordination: Lastly, we find this a bit disturbing considering the "coveted by others" coordinative body we've developed through the years that has been exceptionally successful in a variety of tasks (Census/LUCA, Transportation, Elevation, Addresses, NM911). I am targeting the NM Geospatial Advisory Committee (NM GAC) that meets monthly and attended by Federal, State, Local, Tribal, and Industry representatives. This group has been instrumental in data requirements of our state. In addition, NM GAC has close hooks to our professional organization, the New Mexico Geographic Information Council (NMGIC) that provides strong coordination in training and a non-profit mechanism that we can leverage. We believe "Coordination" does not reflect the solid collaborative environment we developed in New Mexico.

Again, New Mexico appreciates the opportunity to participate in the GMA and are grateful for NSGIC's support.

Gar Clarke
State GIO

GEOSPATIAL MATURITY ASSESSMENT 2019

New York Report Card

Overall Grade: B+

COORDINATION	GRADE: A-

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A+
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	C
Hydrography	B
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NEW YORK GMA RESPONSE

New York's grades in the Geospatial Maturity Assessment (GMA) generally reflect the investment in and the maturity of the State's framework data programs, many of which have been in existence for nearly two decades. Notable exceptions exist in the areas of government unit boundaries, hydrology and leaf-on orthoimagery.

The GMA questions on government unit boundaries focused on the Census Bureau annual Boundary and Annexation Survey (BAS). In New York there is a reasonably mature boundary maintenance program which makes boundary updates available to Census outside of their standard annual BAS update. This reduces the importance of the BAS in keeping boundaries synchronized.

Stewardship for New York's portion of the National Hydrography Dataset was recently transferred to the NYS GIS Program Office (GPO) after maintenance activities were stopped by the previous steward because of fiscal constraints. Improvements in the hyrography theme are underway now that data maintenance is the responsibility of the GPO along with the other framework data themes.

Leaf-on orthoimagery was prioritized lower than leaf-off by the New York State Geospatial Advisory Council representing GIS stakeholders from every sector.

Frank Winters
State GIO

GEOSPATIAL MATURITY ASSESSMENT 2019

North Carolina Report Card

Overall Grade: B+

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	B
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A+

FEDERAL-LED THEMES	GRADE
Geodetic Control	A+
Government Units	B
Hydrography	B
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NORTH CAROLINA GMA RESPONSE

North Carolina accepts the results represented in the Geospatial Maturity Assessment. It is very helpful for our state to gauge where we are internally and compared to the other states. The grades in large measure reflect the investments in time and financial resources over the past 10-15 years.

Leaf-off orthoimagery and cadastre are two examples where extensive coordination and business plans have yielded ongoing, funded statewide programs. Cooperation between state and local government partners has been essential to this success. Other long-term investments made in elevation, transportation and geodetic control have also yielded exemplary results.

The lower grades in the scale include addresses, hydrology, and governmental units. For the addresses layer, statewide snapshots were created with non-recurring state funds in 2009 and in 2014, respectively, yielding over five million addresses each time. Legislative support for an ongoing program occurred just as NextGen 911 efforts were beginning to ramp up. We chose to avoid duplication of efforts by deferring an update to the addresses layer, relying on the NextGen 911 process as the mechanism for an ongoing update.

Concerning the hydrology layer, North Carolina has been slow to evolve from a 1:24,000-scale statewide product to a local (higher) resolution product. However, in the past year the key agencies have considered requirements that will meet permitting and other needs. Those agencies, supported by the NC Geographic Information Coordinating Council, will lead the statewide community toward a more detailed product that meets requirements for completeness and consistency and satisfies a range of business needs.

Continued on page 2

NORTH CAROLINA GMA RESPONSE

Governmental units is a final area where we acknowledge that improvement is needed. Municipal boundaries are receiving attention currently that will deliver a better statewide data layer than currently exists.

In conclusion, North Carolina places great value in the GMA and looks forward to learning from other states in those areas where we need to improve. Thanks to the work of NSGIC we have a fresh look at where we stand individually and collectively as member states.

Tim Johnson
Director, Center for Geographic Information and Analysis

GEOSPATIAL MATURITY ASSESSMENT 2019

North Dakota Report Card

Overall Grade: B-

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	C+
Cadastre	C-
Elevation	B+
Orthoimagery Leaf-Off	B
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	D
Hydrography	C+
Orthoimagery Leaf-On	B+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Ohio Report Card

Overall Grade: B

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B+
Cadastre	C+
Elevation	A
Orthoimagery Leaf-Off	A+
Transportation	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	C
Hydrography	C
Orthoimagery Leaf-On	C+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Oklahoma Report Card

Overall Grade: C+

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	F
Cadastre	C
Elevation	F
Orthoimagery Leaf-Off	N/A
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A+
Government Units	D
Hydrography	B-
Orthoimagery Leaf-On	A-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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OKLAHOMA GMA RESPONSE

I believe that our grades reflect the fact that the State of Oklahoma provides very little state resources to support the coordination and development, maintenance and delivery of the state's geospatial data. Certain themes which are the primary responsibility of individual agencies utilize mainly federal funds to support their geospatial efforts. The discussion below is provided to give a little more background in our statewide efforts with the hope of improvement in future grading. Without the state providing meaningful resources, however, we are very limited in making significant progress in many of these themes.

Coordination: Oklahoma receives no state funding to support our efforts but we do receive a small amount of funds from the agency we are housed in. These are funds, which support about 15% of two individual's salaries, are derived from federal programs that the agency manages. These funds allow us to operate and maintain our geospatial clearinghouse which is supported by an annual state/federal Homeland Security Grant. If you were to remove from all state's the points related to state funding support and paid full time staff, our score would place us in the top 5 of all states in this category.

Addresses-NG911: For our purposes, address points and NG911 are tied together since address points will be derived from our NG911 efforts. We are just embarking on implementing a NG911 program. We are working directly with the state 911 authority to develop and maintain (once completed) authoritative data layers at the statewide level that include PSAP, state, county and municipal boundaries along with a statewide address point and centerline database. We have received two 3-year grants to implement this effort which includes training of local PSAP staff on implementing the State NG911 Addressing Standard as well as maintaining their local data. We will also be creating and maintaining a web portal for PSAPs to submit their data for QA/QC analysis and inclusion in the statewide database.

Continued on page 2

OKLAHOMA GMA RESPONSE

Cadastre/Parcels: Although we do not have a program that interacts with the counties to aggregate their parcel data, we do have a state vendor that does aggregate our entire county parcel data into a statewide database. This vendor is providing this database with monthly updates to us free of charge and allows us to publish it through our state clearinghouse. Although the database is not downloadable, it can be freely viewed, individual basic parcel attributes can be accessed, viewed and printed, and the statewide coverage can be used as a base map in GIS software through our OGC WMS web service.

Orthoimagery: We do have leaf-on statewide imagery from USDA but no state funded program for leaf-off. We are very appreciative that USDA is providing this data.

Elevation: We do currently have 90-plus% statewide coverage of QL3 or better data that we have received from NRCS, USGS and FEMA. It is available through our clearinghouse API, downloadable, and WMS web service as raw LiDAR, DEM and contours. No state funds have been provided to support this effort. Without this support from the federal agencies we would be dependent on 10 meter DEMs as our statewide dataset. We are very grateful to the federal agencies for providing this data.

Mike Sharp
State Geographic Information Coordinator

GEOSPATIAL MATURITY ASSESSMENT 2019

Oregon Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A
Elevation	A+
Orthoimagery Leaf-Off	N/A
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	D+
Hydrography	A-
Orthoimagery Leaf-On	A-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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OREGON
GMA RESPONSE

We accept the Geospatial Maturity Assessment (GMA) as an adequate record of our current situation. We feel we are doing an adequate job in most areas, and exemplary job in some, and a few where we will strive to do better. In most cases, this will mean we need additional time or resources.

In particular, we want to respond to the grade in one area, that being Governmental Units. While we are making progress for this theme, we are not the official entity identified by the Census Bureau for their purposes. In addition, we do not have an identified steward for all governmental units, nor specifically identified funding for that theme. We have also identified over 100 governmental units that we track and are attempting to develop and maintain. Some of those are not included in the governmental units category for this assessment, but are a higher priority for us, so we have made progress on those data sets. That work doesn't count in the GMA.

Cy Smith
DAS/CIO Geospatial Enterprise Office

GEOSPATIAL MATURITY ASSESSMENT 2019

Pennsylvania Report Card

Overall Grade: B-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	F
Cadastre	B
Elevation	A-
Orthoimagery Leaf-Off	A+
Transportation	A+

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	B
Hydrography	B-
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

PENNSYLVANIA GMA RESPONSE

Pennsylvania welcomes the opportunity to participate in NSGIC's biennial geospatial maturity assessment, an exercise in self-assessment that helps us to define our goals and opportunities in the geospatial environment.

The overall grading report is an accurate reflection of the current status of geospatial activities within the Commonwealth. Since the implementation of the State Geospatial Coordinating Board via 2014 legislation, the assessment of GIS in Pennsylvania has shown a marked improvement, especially in the areas of coordination and state-led themes. The one area of concern is addresses, as we have had very minimal progress on what has been considered a low-priority item. However, with the implementation of NG911 continuing to move forward, as well as the National Address Database initiative, Pennsylvania views this as an opportunity to engage the appropriate entities to improve not only our grade on this item, but also an improvement on the data that can be made available to our customers.

We appreciate the grading effort and find it beneficial for us to be able to compare our progress as it ranks against other states. Additionally, it assists us in identifying areas for improvement that we can utilize as we plan our future geospatial activities.

Mary Fulton
Chief, Geospatial Services

GEOSPATIAL MATURITY ASSESSMENT 2019

Tennessee Report Card

Overall Grade: B+

COORDINATION	GRADE: B+

STATE-LED THEMES	GRADE
Address	A
Cadastre	A+
Elevation	A
Orthoimagery Leaf-Off	A-
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A-
Hydrography	B-
Orthoimagery Leaf-On	A-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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TENNESSEE GMA RESPONSE

The State of Tennessee appreciates the opportunity to participate in the NSGIC led 2019 Geospatial Maturity Assessment. Overall, the grades we received accurately reflect the progress and current status of our GIS coordination efforts and statewide framework GIS data set development.

The high marks we received reflect the hard work and dedication that several people at many levels of government have poured into these efforts for many years. Starting with the Tennessee Base Mapping Program from 2000-2007, many of the framework datasets were initially developed and are now being maintained at both the local and State level.

Future work needs to focus on enhancing the Transportation and Hydrology (Hydrography) datasets, as well as enhancing public access of these datasets through various mechanisms sponsored by the State GIS Coordination Office in Finance and Administration, Strategic Technology Solutions.

Future efforts of the Geospatial Maturity Assessment should include some measure of how these GIS framework datasets are being leveraged or applied by State agencies, local government and the public to improve the well-being of our citizens, improving efficiencies in government, protecting our environment, and expanding our economic development. Simply creating and maintaining GIS data to support the NSDI is not enough; we should now be challenged to maximize its potential use in all of these areas and beyond.

Dennis Pedersen
Director, GIS Services

GEOSPATIAL MATURITY ASSESSMENT 2019

Texas Report Card

Overall Grade: B

COORDINATION	GRADE: A-

STATE-LED THEMES	GRADE
Address	B
Cadastre	B+
Elevation	B-
Orthoimagery Leaf-Off	A
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	D+
Hydrography	B-
Orthoimagery Leaf-On	A

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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TEXAS
GMA RESPONSE

Texas' GMA grades are reflective of the dedication put forth by our contributing state agency partners. Coordination for GIS in Texas spans more than 40 years and more than 100 million dollars in cooperative geospatial data investments. Texas realizes the benefits of the GMA exercise and we are grateful to see how our state compares to the efforts of other states in the nation.

There is one glaring low grade among our above average scores – Governmental Units. The Governmental Units section was based on U.S. Census geography and data provisioning. Texas is proud to have a statewide county boundary dataset as well as a municipal boundary dataset collected and updated by the Texas Department of Transportation on an annual basis. Our stance is that for a state as large as Texas, we are fortunate to have these two statewide datasets and an agency dedicated to updating municipal boundaries, annually. We firmly believe that if the GMA questions on Governmental Units was based more on existence of data rather than participation in the U.S. Census boundary programs, Texas would score a B at the very minimum.

Richard Wade
GIO, State of Texas

GEOSPATIAL MATURITY ASSESSMENT 2019

Utah Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A+
Elevation	C-
Orthoimagery Leaf-Off	B
Transportation	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A
Hydrography	B
Orthoimagery Leaf-On	B

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Vermont Report Card

Overall Grade: B

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A-
Elevation	A-
Orthoimagery Leaf-Off	A-
Transportation	A-

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	D+
Hydrography	B-
Orthoimagery Leaf-On	C

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Virginia Report Card

Overall Grade: C+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A
Elevation	F
Orthoimagery Leaf-Off	A
Transportation	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	F
Hydrography	C
Orthoimagery Leaf-On	C+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

Washington Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A-
Elevation	A+
Orthoimagery Leaf-Off	C+
Transportation	N/A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	B
Hydrography	B
Orthoimagery Leaf-On	B-

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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GEOSPATIAL MATURITY ASSESSMENT 2019

West Virginia Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A-
Cadastre	B+
Elevation	A-
Orthoimagery Leaf-Off	B
Transportation	B-

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	A
Hydrography	C+
Orthoimagery Leaf-On	A

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

WEST VIRGINIA GMA RESPONSE

Analysis of the Geospatial Maturity Assessment (GMA) data used to calculate a "B+" grade for West Virginia shows that the result is primarily due to insufficient funding for creation, maintenance and updates of some framework layers, a dated strategic plan and lack of strategic plans for individual layers.

The WV Office of GIS Coordination is pleased to report that efforts to address these deficiencies are underway.

The State GIS Policy Council, which includes high-ranking state officials, has been made active again. On April 29, 2019, the Council approved the development of a new strategic plan and a series of programs and projects that will enhance the state's GIS program. It is through this body that additional funding for the development of new statewide layers, the maintenance and updating of existing framework layers, and the development of strategic plans for specific layers can and will be advocated.

Led by the State GIS Coordinator in partnership with the GIS Steering Committee (Steering Committee) and the WV Association of Geospatial Professionals (AGP), an update to the 2010 State GIS Strategic Plan is underway. Development of strategic plans for individual layers is being explored by the GIS Technical Issues Committee.

The groups mentioned above are active in their collective efforts to educate state, regional and local elected and appointed officials on the importance of GIS for government, economic development, emergency management, cadastre, and other activities. This initiative has been part of an advocacy agenda for the Office of GIS coordination and the AGP. Activities such as "GIS Day at the Legislature" and other events held during the State's legislative session and presentations at government officials' trade conferences have proven useful in this task.

Continued on page 2

WEST VIRGINIA GMA RESPONSE

Support for several new GIS programs has resulted from the advocacy cited above. Among them:

- GeoEnabled Elections (GEE) Pilot program led by the State GIS Coordinator and in partnership with the WV Secretary of State has been authorized and funded. This initiative grew from NSGIC's GEE project.
- High school certification program in geospatial technologies is being developed by the Department of Education in partnership with the Office of GIS Coordination.
- Broadband Mapping program developed by the WV Development Office and the WV Broadband Enhancement Council, in partnership with the WV Office of GIS Coordination.
- Enterprise software agreement that provides regional and local governments access to GIS software secured by the Region 1 and Region 4 Planning and Development Councils in partnership with a major GIS Software vendor.

West Virginia believes current and planned efforts will increase our grade in future GMAs.

Tony Simental
West Virginia GIS Coordinator's Office

GEOSPATIAL MATURITY ASSESSMENT 2019

Wisconsin Report Card

Overall Grade: B-

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	F
Cadastre	A+
Elevation	A-
Orthoimagery Leaf-Off	A-
Transportation	D

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	A+
Hydrography	B-
Orthoimagery Leaf-On	C+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2019

Wyoming Report Card

Overall Grade: C-

COORDINATION	GRADE: D

STATE-LED THEMES	GRADE
Address	F
Cadastre	A
Elevation	F
Orthoimagery Leaf-Off	N/A
Transportation	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	C
Government Units	C+
Hydrography	C+
Orthoimagery Leaf-On	B+

METRICS:

A - Superior
B - Above average
C - Average
D - Below average
F - Failure
N/A - Not Applicable

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WYOMING
GMA RESPONSE

Wyoming's grades reflect the level of support GIS has received in the state over the last 20 years. Not much coordination occurs across state agencies, between the State and federal agencies, or between the State and county or local governments on the framework data layers that comprise the National Spatial Data Infrastructure (NSDI). The Advisory Board has experienced a gap in meetings due to a change in administrations. It is anticipated to convene again in 2020. Our cadastre grade is attributable to a program built on a verbal agreement between County Assessors and the Department of Revenue. Improvements in hydrology have been made in the last few years thanks to the Water Development Office. Our Leaf-On Orthoimagery grade is due to 0.5 m buy-up made possible in 2015 by the Bureau of Land Management Wyoming State Office.

Karen Rogers
Habitat Protection Analyst