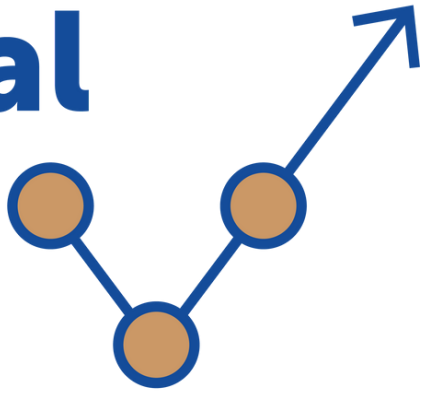
2023

Geospatial Maturity ASSESSMENT



NSGIC
National States Geographic Information Council

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Introduction

About NSGIC

The National States Geographic Information Council (NSGIC) exists to advance effective national coordination of geospatial information by supporting state-led cooperation. 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 the 2018 passage of the landmark Geospatial Data Act (GDA) that codified 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 2015 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 30 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 support 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 2019 - produced only raw data available online by state with little analysis. The 2019 assessment was much more ambitious, as an entirely new process inspired by the COGO NSDI report card effort was developed to produce 9-grade report cards for individual state spatial data infrastructures and state geospatial coordination. The report and supplemental dashboard set a new bar for analyzing where we are by state and nationally. The process was repeated and improved upon since, with three cycles now under our belt.

These products have been referenced innumerable times to illuminate stakeholders about the current state of GIS in state governments. The GMA products and analysis have proven to be invaluable resources as we plot the next steps for improving the NSDI.

The planning team is pleased to report that 47 states submitted their GMA survey this year, which is the same number as in 2021. While we hope to get 100% participation for future assessments, the plateau reflects the gaps in state support and coordination that continue to persist in the US. Of note this year, the Hydrography theme is not being graded due to the overhaul of hydrography data as led by the US Geological Survey. The Next Generation 9-1-1 (NG9-1-1) theme is being graded for the first time as that program has been growing and maturing for years across the country and is finally to the point where enough state programs exist to be assessed. The approach of the Cadastre theme team changed substantially as state reps were provided with a blank geodatabase for them to populate with information about county parcel programs. The result is a very informative picture of where we are nationally with authoritative, freely available parcel data.

The framework layers assessed in the GMA are nearly evenly split between those in 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. With three iterations now under our belt, the federal government has even more information to adequately and effectively dedicate resources to work together to realize the NSDI that has been envisioned for decades.

NSGIC members are dedicated to contributing to the conversation and collaboration behind achieving a strong NSDI. The federal government can only be successful if and when all states reach full maturity and can maximize contributions. Through the GMA, NSGIC strives to paint an accurate national picture for the Federal Geographic Data Committee of where we are as states, with an invitation to meet us where we are and work together accordingly.

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, as well as some trend analysis looking back at three cycles of grades. 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 as GDA implementation continues.

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 nurture the national geospatial ecosystem.

Methodology

NSGIC has been conducting Geospatial Maturity Assessments of the states for many years. This marks the third time we used GMA information to grade the states. The work was done in four stages:

1. Meetings with GMA team and theme leads to review 2021 questions and discuss changes to questionnaire and grading system
2. Member outreach and education
3. Survey distribution and grading
4. Report writing and review

Meetings with GMA team and theme leads to review 2021 questions and discuss changes (November 2022 - February 2023)

The GMA team kicked off the 2023 GMA by reaching out to the theme leads of the previous iteration and finding new theme leads, if necessary. The GMA team convened meetings with each theme lead group to review the questions and grading schemes from 2021. Discussions were had on if changes were warranted or not, based on feedback from the 2021 GMA participants. Each group was in charge of finalizing the 2023 questions and grading metrics; in most cases changes were minimal to nonexistent. Significant changes for 2023 include the Cadastre/Parcels, Hydrography, and NG9-1-1 themes. The Hydrography theme is not graded in 2023 where it had been graded previously, the NG9-1-1 theme is graded in 2023 where it had not been graded previously, and the Cadastre/Parcels theme took a new, spatially enabled approach. In alphabetical order of data theme, the theme lead groups were:

- **Addresses:** Ken Nelson (KS) and Frank Winters (Retired)
- **Cadastre/Parcels:** Shelby Johnson (AR) and Kate Kiyanitsa (NY)
- **Coordination:** Jenna Leveille (AZ) and Karen Rogers (WY BLM)
- **Elevation:** Dennis Pedersen (TN) and Mark Yacucci (IL)
- **Elections:** Greg Bunce (UT) and Erin Fashoway (MT)
- **Geodetic Control:** Kent Anness (KY)
- **Governmental Units:** Mary Fulton (PA), Nathan Jones (US Census), and Karen Rogers (WY BLM)
- **Hydrography:** Joshua Greenberg (WA) and Jim Steil (MS)
- **Next Generation 9-1-1:** Michael Fashoway (MT) and NSGIC NG9-1-1 Working Group
- **Orthoimagery:** Tim Johnson (NC) and Tony Spicci (GISCI)
- **Transportation:** Dan Ross (Ecopia) and Patrick Whiteford (AZ)

The teams continued to utilize the two basic grading schemes from 2019 onward: 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, Next Generation 9-1-1, Transportation, and Geodetic Control 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 Addresses, Cadastre/Parcels, Elevation, Orthoimagery (both leaf-off and leaf-on), and Governmental Units.

Data on two additional themes, Hydrography and Elections, were collected for informational purposes only. The Hydrography theme is not graded in 2023 due to the National Hydrography Dataset modernization. The Elections theme is not an NSDI layer and is not graded at this time.

Member Outreach and Education (March 2023 - April 2023)

The GMA team felt our response rate and quality of responses would improve if we engaged in outreach and education before the circulation of the survey. Toward that end, we created individual PDFs with the questions and grading metrics for each theme and provided them to our state representatives a few weeks before the survey went out. We hosted two ‘Office Hours’ where NSGIC staff and some theme leads were available to answer questions or address issues NSGIC state representatives were having once they were diving into the live survey.

Survey Distribution, Collection, and Grading (May 2023 - August 2023)

Surveys were distributed to the states in May, hoping to get responses before summer vacations began to intrude in schedules and focus. Follow-up efforts brought the final response to 46 states and the District of Columbia.

Survey123 was used as the data collection tool. Survey123 was chosen so that the data could be easily integrated into an ArcGIS Dashboard or Experience Builder.

Grading was performed in a spreadsheet with formulas that were written according to the methodology developed by the theme leads.

Preliminary grades were made available to the states in late August. The GMA team asked states to review their own grades to verify their responses were captured correctly and that they agreed with how their score was tabulated. Some comments were received.

Report Writing and Review (September 2023 – January 2024)

The leads were requested to write a summary paragraph on their theme. It would provide an overview of how well the states were doing, but also identify any notable issues. It would provide recommendations for future work by the states to improve their performance on this theme. The GMA team wrote and compiled the rest of the report.

Elections

2023 Elections Theme Summary

The 2023 NSGIC Geospatial Maturity Assessment (GMA) marks the third time the states have answered questions regarding relationships with election directors and divisions in their state, as well as availability, maintenance, and use of election data, tools, and processes.

With the onset of geo-enabled elections 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.

The data from this survey continue to indicate that 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.

With 47 states responding to the GMA, currently, 28% of states have a formal relationship with the state's election director. This number is up from the 2021 GMA in which 21% of states reported a formal relationship. The use of the word formal here indicates whether the relationship is defined in statute, administrative rule, a formal agreement for services, or a standing coordination meeting. The data continues to show us that most states are not connecting and working with the election division and the relationship is not formalized.

It is encouraging to see that over half of the states that responded to the GMA have access to an accurate, current statewide voting precinct boundary layer. Of this 55%, only one state indicated that the boundaries are static. Just over 23% report the precinct boundaries are updated as changes are made, and 23% report the boundaries are updated and archived as changes are made, nearly 20% report the boundaries are updated as changes are made and are used to spatially re-assign voters to the updated precincts, and nearly 31% report the boundaries are updated and archived as changes are made and are used to spatially re-assign voters to the updated precincts. The geo-enabled elections best practices 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. Just over 60% of states use and maintain a state or commercial geocoding web service to locate voter addresses and voters. This is great news for those states who are hoping to move in the direction of GIS integration in elections. Of this nearly half of states, 30% report that the geographic coordinates for addresses tend

to be static once found, 26% share that the geographic coordinates for addresses are routinely analyzed and

updated selectively as needed, and finally, nearly 44% of states indicate that geographic coordinates for addresses are periodically updated to reflect the location found using the most current geocoding reference data (roads and address GIS layers).

Another one of the geo-enabled elections best practices is to have identified data validation processes in place, including performing regular spatial audits of your GIS election data. When states were asked if they have an audit process for precinct assignments within the election database, 52% percent (24 states) reported yes and 48% indicated no. This is a significant improvement from 2021 when 38% percent reported yes and 63% indicated no. Of the 24 states that responded yes, 12 states reported that staff, data, or other geospatial resources were involved.

To assess the climate of GIS integration in elections in state statutes, we asked states if they had any statutes in place that would regulate address, district, precinct, and civic boundary data creation and maintenance. Here are the results:

• 28% of states have statute that regulates address data creation and maintenance

• 49% of states have statute that regulates district data creation and maintenance

• 45% of states have statute that regulates precinct data creation and maintenance

• 47% of states have statute that regulates civic boundary data creation and maintenance

The final question we asked was, are your state's precinct boundaries publicly available? Nearly 64% of states reported yes to this question. This number was on par with the nearly 65% who reported yes to this question in 2021.

In summary, states continue to be in their infancy in election relationships and GIS integration in election data management. Assessing where states are in 2023 continues to provide the GIS and elections community with a solid understanding for determining future improvements in this area among the states.

Hydrography

2023 Hydrography Theme Summary

The Hydrography theme is not being graded this year due to the transition USGS is undergoing to migrate the National Hydrography Dataset (NHD) to the 3D Hydrography Program (3DHP). While this is largely regarded as a logical and net-positive change given the success of the 3D Elevation Program (3DEP), states expressed a variety of concerns regarding the process, timing, and outcome of 3DHP. The information collected for this effort should help inform USGS about how they can be better partners and address those concerns to produce a viable end result that meets the majority of end-users' needs.

The first few questions were designed to get a sense of where states are with the shift to 3DHP. All but one state indicated they were aware of the transition to create elevation-derived hydrography using newly acquired LiDAR data and update the data model behind it. Of the 47 responses, 12 states said they are actively preparing for the transition. When asked if they expect the result of the transition to support their needs, 89% (N=42) said yes. Overall, state reps are supportive of attribute simplification and improvement in the data density and accuracy. They expressed hope that USGS will continue to provide editing programs to support validation and corrections. Many voiced their optimism in having better models as supported from the improved data. On the flip side, many states expressed their concern with the fact that the data model is not yet fully developed, leaving their efforts and ability to contribute in limbo. For states with robust programs, there are concerns about how their data can be integrated in 3DHP once it's up and running, leaving them to question the value of investing time and money in programs with an undetermined outcome. Concerns were also shared about meeting states' business needs and the unknown impact to state business needs and permitting given the increased resolution of the data. Some states expressed frustration with having to revamp their existing applications referencing NHD data. They expressed their desire for USGS to communicate more with the state agencies that depend on NHD data now so that their needs are considered. Similar to challenges faced with 3DEP, western states are concerned about the timeframe they may be looking at before getting data produced for their states given the lack of comparable tax base compared to eastern states. That funding challenge made western states the last to get their QL2 LiDAR flown; given the importance of water resources in the West, many feel they can't wait for what could be many years before they see benefits from 3DHP.

The remaining questions asked about current state hydrography programs. Active programs exist in 55% (N=26) of respondents, while 30% (N=14) are in the planning phase of creating a state program, leaving 15% (N=7) with no program. When asked how much of their state was complete with updated hydrography data, 19% (N=9)

reported 100% coverage, 19% (N=9) reported >50% coverage, 32% reported <50% coverage, and 30% (N=14) reported no coverage. Data maintenance schedules vary widely, with 34% (N=16) saying their data are updated annually, 0.02% (N=1) updating every 2-3 years, 9% (N=4) updating every 4-5 years, and 53% (N=25) saying their data are not regularly maintained. A whopping 96% (N=45) indicated they do coordinate with USGS on data updates. As for data access, 68% (N=32) have their data fully and freely accessible by download or API, 26% (N=12) have their data accessible for free by download, 0.04% (N=2) have their data accessible for free for view only, 0.02% (N=1) makes their data available by in-person or formal request, and 0.02% (N=1) said their data is for internal use only. Lastly, the number of FTE's who work on hydrography data varied widely, with 36% (N=17) reporting 0 state positions, 28% (N=13) reporting <1 positions, 21% (N=10) reporting between 1-1.5 positions, 0.06% (N=3) reporting between 2-2.5 positions, 0.04% (N=2) reporting 4 positions, 0.02% (N=1) reporting 5 positions, and 0.02% (N=1) reporting 11 positions.

Specific characteristics about state programs were also questioned. Twenty states (43%) have dedicated funding. Ten states (21%) have a business plan to support their program. Six states (13%) indicated they have a formal connection or agreement in place with local governments to roll up data to the state level. When asked if their state data contain attributes associated with hydrography, 66% (N=31) answered yes. Eleven states (23%) have none of those characteristics. On the flip side, four (0.08%) states reported having all those attributes, with 43% (N=20) having 2 or more of those characteristics.

2023 Hydrography Breakdown

Transition Awareness (NHD to 3DHP)		Preparing to Transition		Needs Supported by Transition	
Yes	46	Yes	34	Yes	42
No	1	No	12	No	5

State Program Status		Dataset Completion		Maintenance Frequency	
Active	26	100%	9	Annually	16
Planning Phases	14	>50%	9	2-3 Years	1
No Program	7	<50%	15	4-5 Years	4
		Have Not Begun	14	Not Actively Maintained	25

USGS Coordination		Database Accessibility		FTE	
Yes	42	API	25	0 positions	17
No	2	Downloadable	12	<1 positions	13
No Answer	3	Viewable	2	1 – 1.5 positions	10
		Fee	0	2 – 2.5 positions	3
		In Person/Formal Request	1	4 positions	2
		Internal Use Only	1	5 positions	1
		N/A	5	11 positions	1

Characteristics	
Funding	20
Business Plan	10
Local Government	6
Attributes	31
None	11
All characteristics	4
2+ characteristics	20

Grading Scheme

The Coalition of Geospatial Organizations (COGO) has used the traditional A-F system to grade federal agency efforts to develop the National Spatial Data Infrastructure (NSDI). Starting in 2019, NSGIC began grading state efforts to develop the NSDI. NSGIC developed a questionnaire that was sent to every state, plus the District of Columbia. The responses were pulled together to grade each state (including DC) on each of ten different themes – the eight COGO themes, plus a grade for state-level coordination activities and separate grades for leaf-on and leaf-off orthoimagery.

Questionnaires and grading schemes were developed by NSGIC volunteers, each an expert in the theme they addressed. The 2021 grading schemes were kept to the extent possible to allow comparisons over time, but a few changes were made to improve the accuracy in 2023. Grading details, including any changes from 2021, are documented in the writeups for each theme in this report.

Grades were based on answers to survey questions. Data theme grades were mostly based on percent coverage across the state. Other key factors were used to adjust that grade: update frequency, data quality (standardization), and accessibility. Other factors that came into play were things like having a business plan, regular funding, a designated steward, and a formal relationship with local government. The grade for coordination was focused on the existence of a geographic information officer (GIO) and the powers and resources available to coordinate GIS activities statewide.

Two different grading schemes were used:

- Total Points (TP). Points were given for each relevant factor. The total points earned yielded a specified grade.
- Percent Coverage plus steps (PC). An initial grade was given based on the statewide percent coverage of this theme. Grades were adjusted up or down steps from there. For example, an initial grade of B, could be adjusted down one step to B- or two steps to a C+. Two versions of this approach were used:
    - PC-1. Point-based step adjustments. Points were assigned to relevant factors. Total points across factors are used to adjust the initial grade up-or-down a specified number of steps.
    - PC-2. Direct step adjustments. Similar to PC-1, but the relevant factors yield step changes directly.

Data themes tied to federal programs were graded based on state contributions to that federal program. In general, the base state grade was a C, but that could go up depending on state efforts.

The overall grade for each state was determined by averaging its grades across coordination and all nine data themes.

State Summaries

State	Overall Grade	State	Overall Grade
Alabama	B+	Mississippi	B-
Alaska	D	Missouri	B-
Arizona	B+	Montana	B+
Arkansas	A-	Nebraska	B+
California	C+	New Jersey	A-
Colorado	B-	New Mexico	B+
Connecticut	B+	New York	B+
Delaware	B-	North Carolina	A
District of Columbia	A	North Dakota	B
Florida	B-	Ohio	A-
Georgia	C-	Oklahoma	B-
Hawaii	B	Oregon	B-
Idaho	B	Pennsylvania	A-
Illinois	B+	Rhode Island	B+
Indiana	A-	South Carolina	B
Iowa	B	Tennessee	B+
Kansas	A-	Texas	A-
Kentucky	B+	Utah	A-
Louisiana	B	Vermont	A-
Maine	A-	Virginia	B+
Maryland	A-	Washington	B+
Massachusetts	A-	Wisconsin	B
Michigan	B+	Wyoming	B-
Minnesota	B+		

Metrics:

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

Coordination

2023 Coordination Theme Summary

State-level coordination efforts continue to improve across the country. Of the 47 respondents, only one state does not have a GIO or equivalent. The number of GIOs authorized by statute or executive order increased to 66%. All but three GIOs have the ability to coordinate activities across levels of government. One state still lacks a clearinghouse. The number of states struggling without staff has decreased to 19%, while the number of state programs supported by general funds has increased dramatically to 66% (up from 48% in 2021). We think that significant increase may be due to the increased awareness about the value of location-based data and analysis in the aftermath of the Covid pandemic given how many states leveraged geospatial data and technology to augment their understanding of the public health crisis and response to the pandemic. Three states (6%) reported they cannot accept soft money.

Comparing the last three GMA results, the trend is for better support for state geospatial program offices. Each year more states have GIOs, more have updated strategic plans, more are supported through general funds, and more have clearinghouses (among others). There is still a need to help states improve their coordinating councils and justify staff, but overall we see improvements across the board.

*The percentages reported for 2023 are slightly impacted by the fact that one state did not answer all the questions.

2023 Coordination Breakdown

Final Grades		State GIO		How GIO Authorized		GIO Abilities	
A	28	Formal	24	Statute	25	Policy	39
B	14	Recognized	5	Exec Order	6	Budget	36
C	5	Coordinator	17	Other	7	Technology	41
D	0	No	1	MOU	2	Standards	42
				None	7	Coordination	45

GIO Base Funding		GIO Resources	
General Fund	31	Accept Soft Money	44
No General Fund	16	Staff	38

Clearinghouse		Strategic Plan		Coordinating Council		All Stakeholders	
Yes	46	<5 yrs old	24	Official	28	Yes	38
No	1	5 - 10 yrs old	8	Unofficial	13	No	3
		>10 yrs old	13	None	6		
		None	2				

Comparison 2019 through 2023

Final Grades	2023 (47)	2021 (48)	2019 (41)	State GIO	2023 (47)	2021 (48)	2019 (41)
A	28 (60%)	21 (44%)	17 (41%)	Formal	41 (87%)	40 (83%)	33 (80%)
B	14 (30%)	16 (33%)	17 (42%)	Recognized	5 (11%)	6 (13%)	3 (7%)
C	5 (10%)	8 (17%)	1 (2%)	No	1 (2%)	2 (4%)	5 (13%)
D	0	3 (6%)	6 (15%)				

How GIO Authorized	2023 (47)	2021 (48)	2019 (36)
Statute	25 (53%)	19 (40%)	21 (58%)
Executive Order	6 (13%)	7 (15%)	
MOU	2 (4%)		
Other	7 (15%)	8 (17%)	8 (22%)
None	7 (15%)	12 (25%)	7 (20%)

GIO Abilities	2023 (47)	2021 (48)	2019 (41)
Policy	39 (82%)	30 (63%)	35 (85%)
Budget	36 (77%)	38 (79%)	30 (73%)
Technology	41 (87%)	43 (90%)	34 (83%)
Standards	42 (89%)	34 (71%)	26 (63%)
Coordination	45 (96%)	42 (88%)	33 (80%)

GIO Base Funding	2023 (47)	2021 (48)	2019 (41)	GIO Resources	2023 (47)	2021 (48)	2019 (41)
General Fund	31 (66%)	22 (46%)	22 (54%)	Accept Soft Money	44 (94%)	39 (81%)	36 (88%)
No General Fund	16 (34%)	24 (50%)	14 (34%)	Staff	38 (81%)	31 (65%)	29 (71%)

Clearinghouse	2023 (47)	2021 (48)	2019 (41)	Strategic Plan	2023 (47)	2021 (48)	2019 (41)
Yes	46 (98%)	47 (98%)	39 (95%)	<5 yrs old	24 (51%)	20 (42%)	16 (39%)
No	1 (2%)	1 (2%)	2 (5%)	5 - 10 yrs old	8 (17%)	9 (19%)	13 (32%)
				>10 yrs old	13 (28%)	14 (29%)	9 (22%)
				None	2 (4%)	5 (10%)	3 (7%)

Coordinating Council	2023 (47)	2021 (48)	2019 (41)	All Stakeholders	2023 (47)	2021 (48)	2019 (41)
Official	28 (60%)	28 (59%)	22 (52%)	Yes	38 (93%)	36 (84%)	28 (80%)
Unofficial	13 (28%)	16 (33%)	13 (31%)	No	3 (7%)	7 (16%)	7 (20%)
None	6 (12%)	4 (8%)	7 (17%)				

2023 Coordination Grading Scheme

Jenna Leveille (AZ) and Karen Rogers (WY BLM)

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 influence over geospatial technology at state enterprise level
- +0.5 influence 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

B3. Accept soft money

+2 Yes
+0 No

B4. 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)

2023 Addresses Theme Summary

Of the 47 GMA responses, 32 scored above average (greater than a C grade) in the evaluation of their address data. Additionally, the number of programs receiving an A- or better continued to increase, growing from 32% in 2019, to 50% in 2021, to 57% in 2023. This steady improvement in this theme is largely driven by state-level Next Generation 911 programs, with 68% of states indicating that their address point data is used to support 911 activities. Update frequency also continued to improve with 37% indicating that data updates are incorporated monthly (or more frequently), and nearly 60% of programs indicating that data is updated at minimum quarterly. Additionally, 65% of programs indicate that their address point data is published to the National Emergency Number Association (NENA) GIS Data Model (Site/Structure Address Points) or a state-level standard that can be rolled up to the NENA standard.

Following the NSGIC credo of “Build Once, Share Often”, over 60% of the programs indicated they contribute data to the National Address Database (NAD), up from 44% in 2021. Furthermore, 75% of states reported they have a designated data steward, with nearly 60% indicating that regular state-level funding is provided for this theme.

Count of Final Scores		
Grade	**2023**	**2021**
A	19	13
A-	8	11
B+	3	6
B	0	0
B-	2	1
C+	2	2
C	0	0
C-	1	1
D+	2	2
D	2	1
D-	0	0
F	8	11

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.

Item	Count
Data used for 9-1-1	31
Data used for geocoder	28
Data which is downloadable	25
Data exposed with an API	24
Data contributed to the National Address Database (NAD)	29
Data available publicly	24
Data available to other government units	10
Designated steward/aggregator	35
Regular state-level funding for addresses	27
Business plan for addresses	13

2023 Addresses Grading Scheme

Ken Nelson (KS) and Frank Winters (Retired)

This grading system is based on perfect 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 12 points can be gained, 8 points lost. Adjustments 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

+0.5 Quarterly

+0 2x per year

-1 Annually

-4 Every 2-3 years

-5 Every >3 years

Q4. Quality/Usability

+2 Published to the NENA GIS Data Model (Site/Structure Address Points) or 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. Availability This question asked how widely available the address point database is

+1 every three items checked

-1 if fewer than three items checked

Q6. Support

+1 Used to support 9-1-1 activities

+1 Used as reference data for a geocoder web service

Q7. 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)

2023 Cadastre Theme Summary

Forty-four (44) States participated in the Cadastre theme of the Geospatial Maturity Assessment (GMA) this year. A little of over of half the states (56%) received an A for the work with georeferenced parcels. The vast majority (98%) of the states have GIS-parcels in 80-100% of their counties, an improvement over the 85% reported in the 2021 GMA. Of the 35 states with parcel data aggregation programs, all but three make a good effort to standardize that data. This year, grades were weighted to take into account public access to GIS-parcels. As a result of the new consideration of publicly available parcels in the grading schema in 2023, 7 states with parcel programs received higher grades than in 2021, and 7 states received lower grades. 22 (63%) states make 80-100% of their parcels available to the public, while the remaining 12 states may make their parcel data only partially available. 5 states keep all of their parcel data for internal use only. A majority of the state programs collect parcel attribute data (91%), have a designated steward (85%), and have formal relationships with local government (69%). A slight majority have regular state funding (57%), but less than half have a business plan (47%). The 9 states without programs are dominated by counties which provide access to parcel data mainly via a parcel viewer, and in some cases via a download or API through the counties.

Final Grades	
A	25
A-	0
B+	1
B	5
B-	5
C+	3
C	2
C-	1
D+	0
D	2
D-	0
F	0

State Programs	
Yes	35
No	9

Digital Access	
90-100%	42
80-89%	1
50-79%	0
25-49%	1
<25%	0

For those 35 States with a state program

Public Access	
90-100%	22
80-89%	0
50-79%	4
25-49%	0
<25%	9

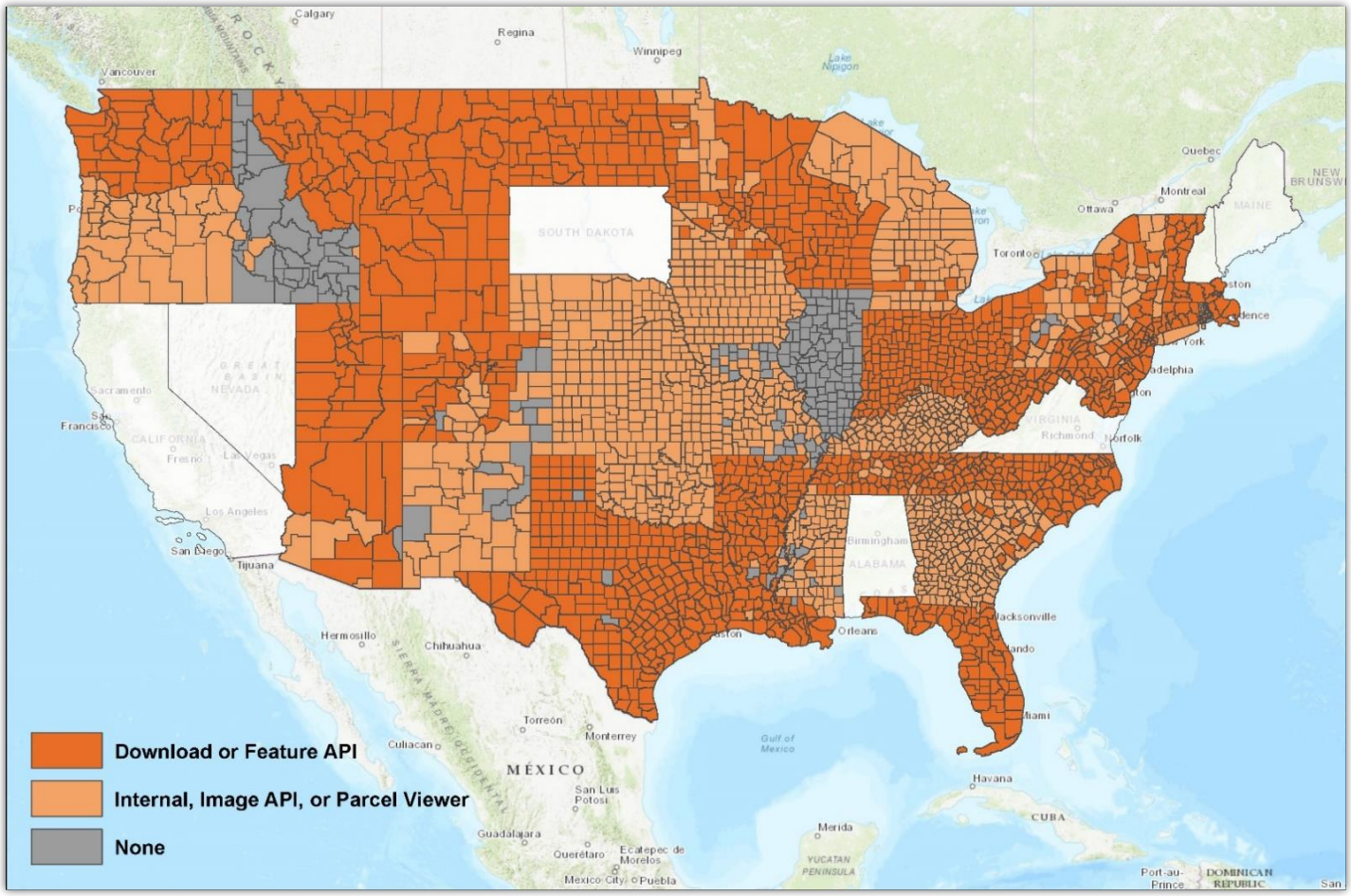
Publication Standard	
Standard, QA/QC	17
Standardized	10
Best effort	5
As Received	3

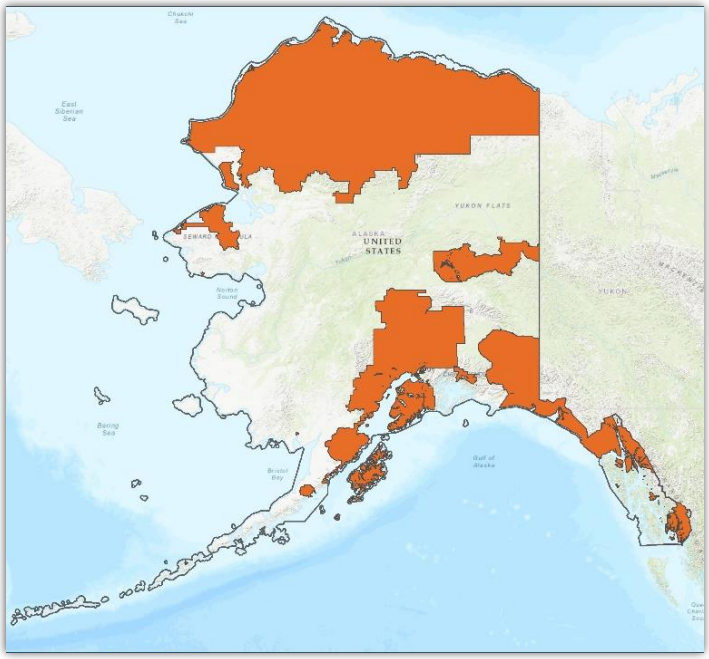
Program Details	
Steward	30
Funding	20
Business Plan	15
Local Govt	24
Attributes	32

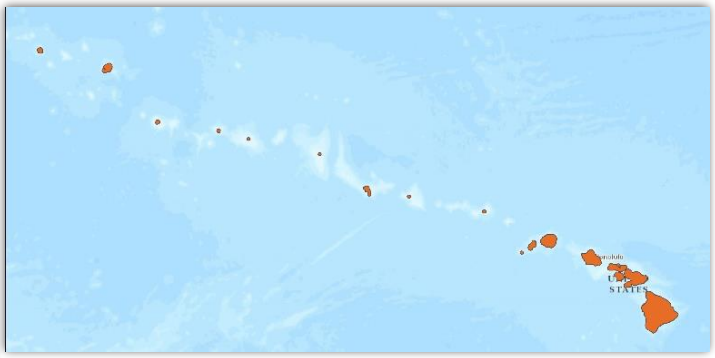
For those 9 States without a state program

Public Access	
90-100%	4
80-89%	2
50-79%	1
25-49%	1
<25%	1

NSGIC GMA 2023 Parcel Access Map







2023 Cadastre/Parcel Grading Scheme

Will Craig (MN) and Neil MacGaffey (MA) – 2021
Shelby Johnson (AR) and Katherine Kiyanitsa (NY) – edited, 2023

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 available at no fee. (see below)

This portion of the questionnaire was in two parts: A-for all states and B-for parcel characteristics and accessibility. 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 (B1 through B4, below). A maximum of 11 pts can be gained, 10 pts lost. The initial grade is adjusted up or down based on the point scoring as shown in the table below. Then, additionally, after a grade is adjusted based on points, drop one full grade if access is over 50% for "internal use only" or is over 50% "no access".

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 calculated from the assessment answers

B1. 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

B2. Accessibility- Publicly Accessible

+4 90-100%

+3 80-89%

+2 65-79%

+2 50-64%

+0.5 < 50%

B2. Accessibility- Internal Use Only or No Access

-8 90-100%

-8 80-89%

-4 65-79%

-4 50-64%

-2 < 50%

B6. 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	B3-5. Percent of Counties Making their Data Available at No Fee: Parcel Viewer, Download, or API				
	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	D-
<25%					F

Elevation (State-Led Theme)

2023 Elevation Theme Summary

The grading scheme for the elevation theme in the 2023 Geospatial Maturity Assessment report remained consistent with the 2021 Geospatial Maturity Assessment report, with no changes.

With the advancements/progress in data production and maturity of the USGS 3D Elevation Program (3DEP), it was no surprise that 42 of 50 states scored a B or higher (84%). Regarding data quality levels, 41 of 50 states reported QL2 (82%) and 39 of 50 states (78%) reported between 90%-100% completion. Over half (52%) of the states indicated that the data is accessible through an API and an additional 17 states (34%) make the data available via download. Finally, data stewardship remained the same from 2021 at a rate of 70%.

Final Grades		Coverage	
A+	0	90-100%	37
A	10	80-89%	4
A-	18	70-79%	1
B+	10	60-69%	0
B	3	50-59%	2
B-	1	40-49%	0
C+	1	30-39%	0
C	1	20-29%	0
C-	0	<20%	1
D+	0		
D	0		
D-	0		
F	1		

Quality Level (QL)		Update Frequency		Access	
QL1	0	<8 years	14	API	26
QL2	41	8-12 years	14	Download	17
QL3	4	12 or more	1	Viewable	0
QL4	0	ND	16	Formal	2
None	0	Steward	34	Internal Use	0
		Funding	13	None	0
		Bus. Plan	19		
		Local Govt	14		

2023 Elevation Grading Scheme

Dennis Pedersen (TN) and Mark Yacucci (IL)

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

B+	90-100% Complete
B-	70-89% Complete
C	50-69% Complete
D+	20-49% Complete
F	<20% Complete

Adjustments to Grade The following adjustments are awarded (or deducted) based on reported responses in four categories. A maximum of 11 points can be gained, 8 points lost. Adjustments 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

Next Generation 9-1-1 (State-Led Theme)

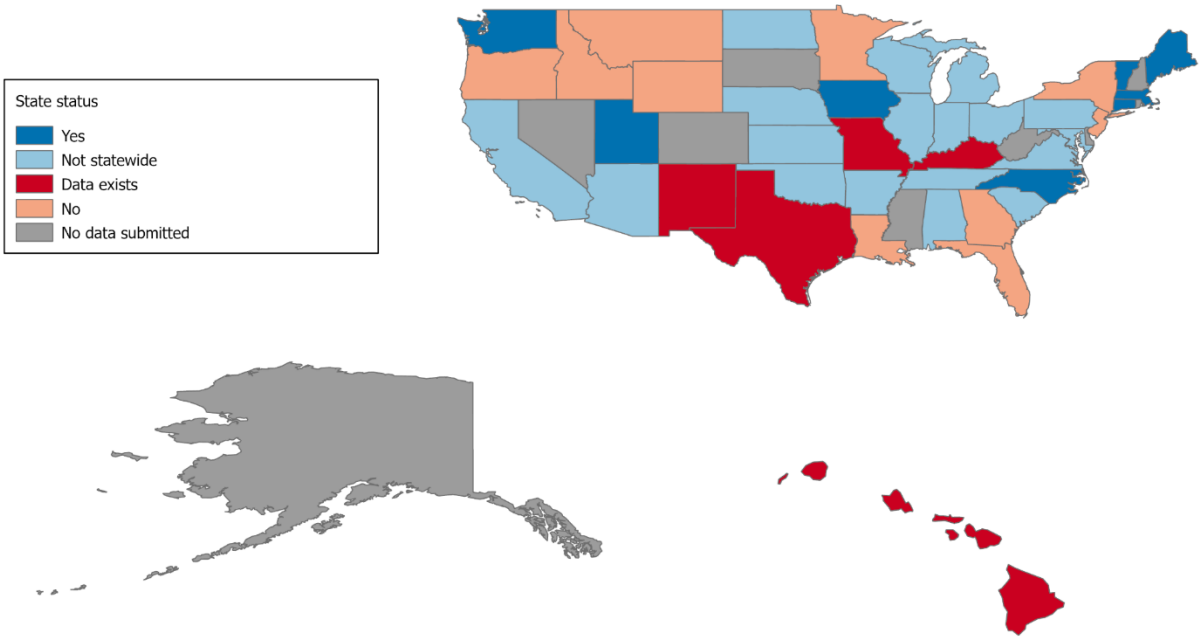
2023 Next Generation 9-1-1 Theme Summary

The 2023 NSGIC Geospatial Maturity Assessment (GMA) is the third GMA to include Next Generation 9-1-1 (NG9-1-1) questions. This is the first year that this theme has been graded. While most of the questions this year are similar to those in 2019 and 2021, some questions and/or answers were modified for clarity.

Progress Overview

While it is impossible to compare based on grades, this year's GMA results continue the trend of states becoming increasingly involved in supporting GIS for NG9-1-1 in their states. Given that the primary goal of coordinating GIS readiness for NG9-1-1 is the ability to implement geospatial call routing, perhaps there is no better metric than the number of states that can spatially route calls over an ESInet using Next Generation Core Services (NGCS). In 2023, nine states report calls may be spatially routed statewide, up from five in 2021. Eight states have this capability but on a more localized level.

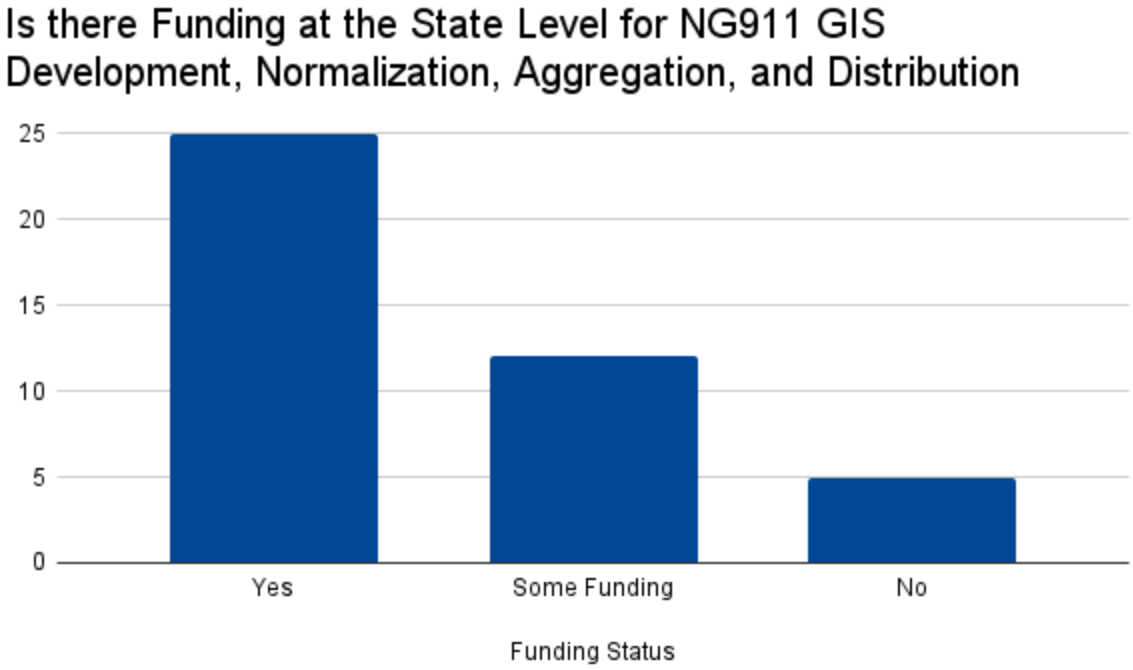
Geospatial Routing by State



November 2023

Other notable highlights include:

- 32 states now integrate GIS into their 9-1-1 planning, up from 26 in 2021.
- 24 states report inter-state NG9-1-1 GIS coordination, an increase from 13 in 2019
- Funding, although still a challenge, is improving. Only four states reported no funding, down from 10 two years ago.
- A majority of states are following the NENA GIS Data Model Standard.



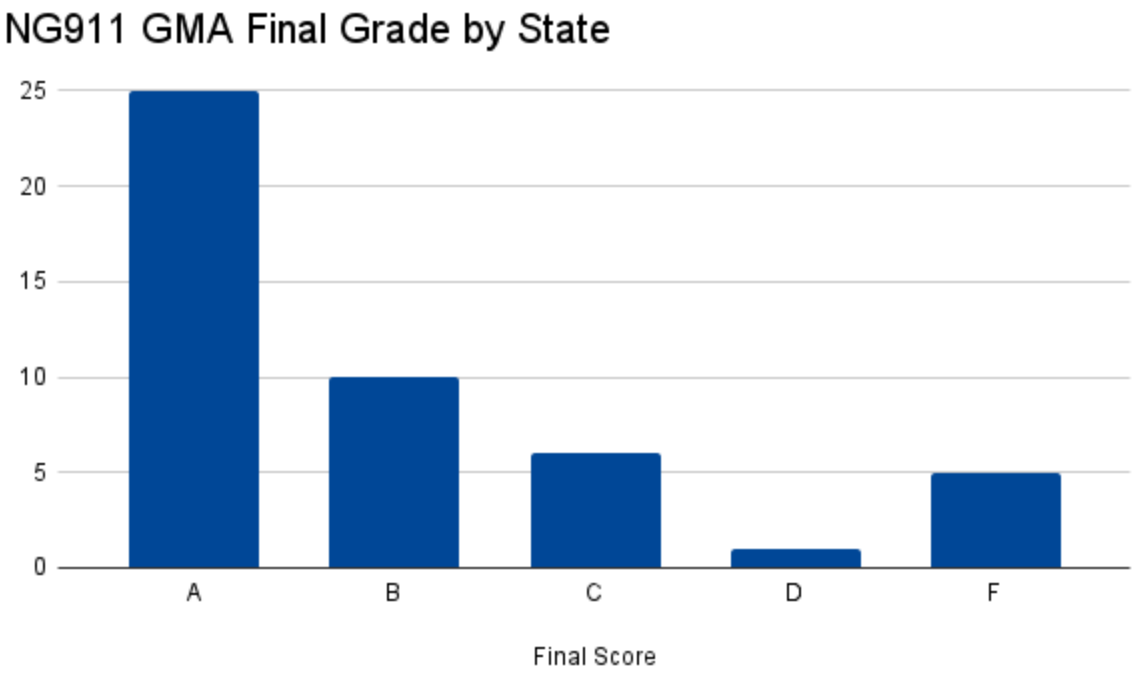
Data-Backed Insights

Analysis revealed key factors that distinguish high-performing states:

- **Data Support Effort**: Over 90% of states with A-B grades report active data support, compared to a significantly lower frequency in states with D-F grades.
- **Funding**: Around 76% of high-performing states are fully funded, starkly contrasting to states with lower grades, where full funding is absent.
- **Authoritative Data**: All high-performing states have authoritative data, while it's largely missing in low-performing states.
- **Inter-state Coordination**: 80% of states with A-B grades report strong inter-state coordination, suggesting it is a factor in their higher readiness levels.

How We Score

Each state was evaluated on various criteria, from transition plans to funding and data readiness. These answers were translated into scores, gauging each state's progress easier. The final grade is a sum of these scores, ranging from A to F. The grades are weighted to give more points to states that play a more significant role in data coordination.



Summary & Call to Action

The 2023 NSGIC Geospatial Maturity Assessment reveals significant progress in state-level NG9-1-1 readiness, with more states adopting geospatial routing and increased coordination through GIS bodies. Despite these strides, challenges like funding and data accuracy remain. It's crucial for stakeholders, including local governments and vendors, to collaborate closely to overcome these hurdles. To keep this momentum going, we call on all parties to focus on public awareness, invest in data quality, and foster interstate coordination for a seamless emergency response network.

2023 Next Generation 9-1-1 Grading Scheme

Greg Bunce (UT), Michael Fashoway (MT), Dan Ross (Ecopia), & Eric Shreve (AZ)

This grading scheme is based on Total Points (TP).

Grades are intended to represent a state's progress towards statewide NG9-1-1 GIS coordination and statewide NG9-1-1 geospatial call routing.

Grade	Total Points
A	23 - 28
B	17 - 22
C	11 - 16
D	5 - 10
F	0 - 4

Point Assignments based on program characteristics addressed in the questionnaire. Any questions not listed below are informational only and will not affect the final grade.

Q2. State Effort

+2 Yes

+1 Yes, but county-led

+0 No (move to next GMA section)

Q3. State GIS Coordinating Body

+2 Yes

+1 Yes, but led by 911 office w/ commercial vendor

+0 No

Q4. Relationship between state GIS office & 911 coordinating body

+2 Formal

+1 Informal

+0 None

Q5. Funding

+2 Yes

+1 Some

+0 No

Q6. Validation Processes

+2 Yes

+0 No

Q7. Data Standards

+1 For each, if NENA or Hybrid (state/local NENA compliant) (5 max)

+0 For each, if non-NENA compliant or None

Q8. Update Cycle

+1 For each, if Yes (5 max)

+0 For each, if No

Q9. Data Discrepancy Process

+1 Yes (go to Q9a)

+0 No (go to Q10)

Q9a. 3 Business Day Timeline

+1 Yes

+0 No

Q10. Data Comparisons & Assessments

+1 For each (3 max)

+0 Other

Q12. Publicly Available Datasets

+1 Road Centerlines

+1 Site/Structure Address Points

+0 Others

Q14. Inter-state NG9-1-1 GIS Coordination

+1 Yes

+0 No

Orthoimagery Leaf-Off (State-Led Theme)

Orthoimagery includes both leaf-on and leaf-off products and both are important to users of geospatial data in the states. 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 or coverage, and (4) accessibility. The NAIP program is the foundation used for scoring of the leaf-on products. 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.

2023 Orthoimagery Leaf-Off Theme Summary

In 2023, 45 states plus the District of Columbia completed the leaf-off and leaf-on portions of the survey compared to 47 states in 2021. Nevada, New Hampshire, New Mexico, South Dakota, and West Virginia did not submit a survey. Of the 45 responses, well over 69% (31 responses) have statewide coverage. This is up from 29 states in 2021. Of the remaining states 16% (7 states) have some coverage and another 15% (8 states) have no coverage. Of the 8 states with no coverage, 4 are Western states that typically focus on leaf-on coverage due to the high percentage of coniferous forest, 2 states (Alaska and Hawaii) have challenging flying conditions that make leaf-off imagery collection difficult and the remaining 2 states did not collect imagery this cycle. Of the 37 states with leaf-off imagery programs, about two-thirds update the imagery frequently (within a 5-year period) with just one-third taking 6 or more years to update the coverage. Almost 80% of the states buy up to higher resolutions (1 foot to 3 inches) and most states make the imagery available to users via download. Most states have identified data stewards, and most have dedicated funding. Fewer have a business plan but more have local participation. Both have slight increases over 2021.

Final grades for leaf-off suggest that about 70% of the states score a B or better (and increase of 10% from 2021) and that result jumps to higher if you drop the Western states and states without programs. This suggests that many states are successfully implementing a leaf-off orthoimagery program. Compared to 2021, there has been continued improvement in participation and the quality of the data in the leaf-off imagery program. Fewer states responded in 2023, Indiana moved from N/A in 2019 to a letter grade of B in 2021 and the following states plus the District of Columbia completed the survey for leaf-on in 2021 that did not complete it in 2019: Alaska, California, Connecticut, Maine, Maryland, Rhode Island, South Carolina, and South Dakota.

Coverage	
90%-100%	31
80%-89%	0
50%-79%	2
25%-49%	2
<25%	3
none	8

Update Cycle	
Annual	4
2-3 years	17
4-5 years	12
6-8 years	1
>8 years	2
none	10

2023 Orthoimagery Leaf-Off Grading Scheme

This grading scheme 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 should not 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	>8 yrs.	<50	<8 years
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)
+0	Findable and downloadable
-1	Available as a service to multiple or all entities (service available in app, data repository, only viewable)
-3	Limited availability (including state and local governments)
-4	Limited availability to only state agencies
-6	Restricted availability only to the funding agency
+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)

2023 Transportation Theme Summary

The Transportation theme for the 2023 NSGIC GMA focuses on determining if states have a multi-use road centerline geospatial dataset with address ranges. The 2023 survey includes additional questions related to capture of US DOT Model Inventory of Roadway Elements (MIRE) and Infrastructure Investment and Jobs Act (IIJA) respectively. In addition, a new category of questions focused on data quality, specifically with the presence of standards, robust metadata, workflows, single/multi-use, address ranges and network routability.

The top grade is reserved for those states that achieve over 44 points. The grading rubric was changed from percentage based to total points based to simplify the grading process. It was agreed that the goal should be to create a bit steeper achievement at the top. Below is the agreed upon grading rubric.

Grade	Total Points
A	44-53
B	34-43
C	23-33
D	13-22
F	≤12

Thirty-one of 47 states scored B or higher in the overall evaluation of their transportation data. That is a 24% decrease from 2021. Four states do not have a transportation dataset nor a program to support the data. This is a two state increase from 2021. This grade decrease is likely due to the update in the evaluation criteria seeking a multi-use dataset with address ranges.

Twenty-four states identified they have 100% statewide coverage, a decrease of four from 2021. Nearly 64% (down from 75% in 2021) of the states who responded update their transportation data quarterly or more frequently. Almost 85% of states (down from 91% in 2021) adhere to a state or national standard, with 60% of states (down from 61% in 2021) have data that is edge-matched along boundaries.

Thirty-four states identified they make their data available either through a web service or as downloadable information. Only one state identified their state has data available for internal use only. Most states (43 of 47) identify their state has a formal data steward, but only (31 of 47) report they are working with their local partners.

Final Grades	
A	13 States
B	18 States
C	12 States
D	0 States
F	4 States

Grade	**% Coverage**
A	27%
B	38%
C	26%
D	0%
F	9%

Data Quality	
Edge Matched with Standard	28
Approved Standard not Edge Matched	11
Other Standard	1
No Standard	3
N/A	4

Access	
Open, free, viewable, downloadable, with API	29
Open, free, downloadable	3
Open, free, viewable	2
Formal Request	5
Not Available or No Request Process	3
Accessible for Fee or Internal Use Only	1
N/A	4

Program Details	
Steward	43
Funding	35
Business Plan	21
Local Government	31
Attributes	38
Real-time Conditions	8
None Apply	0

Update Frequency	
Weekly, nightly, or near real-time	12
Monthly	10
Quarterly	8
Annually	11
Every >2 Years	0
Not Defined	2
N/A	4

2023 Transportation Grading Scheme

Dan Ross (Ecopia) & Patrick Whiteford (AZ)

This grading scheme 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 eight questions, each with a point value.

Grade	Total Points
A	44-53
B	34-43
C	23-33
D	13-22
F	≤12

Point Assignment based on program characteristics addressed in the questionnaire

Q1. How complete is your state's road centerline database? (pick one)*

Points	Completeness
10	100%
8	86-99%
6	51-85%
4	26-50%
2	≤25%
0	None

Q2. How current is this data updated? (pick one)*

Points	Latency
5	Less than 6 months old
3	6 to 12 months old
1	Greater than 1 year old

Q3. How frequently is this data updated? (pick one)*

Points	Update Frequency
5	Weekly, nightly, or near real-time
4	Monthly
3	Quarterly
2	Annually
1	Every >2 Years
0	Not Defined

Q4. What is the quality of the state-level data? (pick one)*

Points	Data Quality
5	Edge Matched with Standard
4	Approved Standard not Edge Matched
2	Other Standard
1	No Standard
0	N/A

Q5. How accessible is your road centerline database? (pick one)*

Points	Access
5	Open, free, viewable, downloadable, with API
4	Open, free, downloadable
3	Open, free, viewable
1	Formal Request
0	Not Available or No Request Process
-1	Accessible for Fee or Internal Use Only

Q6. Identify the characteristics of your road centerline database. (choose all that apply)*

Points	Characteristics
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

Q7. What is the quality of the data? (pick one in each category)*

Points	Standards
3	Published & Valid
2	Published & Not Valid
1	Not Published & Valid
0	Not Published or Valid

Points	Metadata
1	Metadata Available
0	No Metadata

Points	Workflow
1	Workflows Available
0	No Workflows

Points	Uses
1	Multi-Use Data
0	Specific Data

Points	Address Ranges
5	Address Ranges Available
-5	No Address Ranges

Points	Routing Capability
1	Routable
0	Not Routable

Q8. How complete is your state's roadway characteristics database for the new MIRE requirements? (pick one)*

Points	MIRE
5	100% Complete
4	76-99%
3	51-75%
2	26-50%
1	<25%
0	Do Not Have Data

Q9. Where are you with your plans to support the new Transportation Infrastructure Investment and Jobs Act (IIJA)? (pick one)*

Not Graded

With the nationwide decrease in state grades, it is recommended that more outreach be done with state DOTs to understand their data needs with a goal of increasing the Transportation grade by the 2025 GMA.

Geodetic Control (Federal-Led Theme)

2023 Geodetic Control Theme Summary

Overview: This section of the GMA focuses on efforts made by states to augment the National Spatial Reference System (NSRS) maintained by the National Geodetic Survey (NGS). Those efforts could include a variety of activities from adding new control points, to supporting Continuously Operating Reference Station (CORS), to supporting Real-Time Networks (RTN). New questions regarding NSRS Modernization efforts were added for 2021. Final grades and points associated with State Activities and Program Support are shown below.

Final Grades	
Grade	**Quantity**
A+	0
A	2
A-	10
B+	9
B	9
B-	7
C+	2
C	2
C-	2
D+	1
F	2

State Activities		Program Support		NSRS Modernization	
Activity	**Quantity**	**Activity**	**Quantity**	**Activity**	**Quantity**
Nominate Points	28	Steward	30	Administrative Regulations Future Proof	9
Support CORS	39	Funding	28	Regulations Updated	7
Support RTN	38	Business Process	23	Legislation Updated/Passed	6
		Bus Plan	11	Legislation Updated/Passed – Future Proof	7
		Locals	31	Legislation in Progress	17
		State Survey	31		

State Program: In 2023, a total of 42 respondents reported that they have a State Geodetic Control Program and four reported they had no program at all.

Public Land Survey Points: A total of 29 respondents indicated that they are a PLSS state and 17 indicated that their state is not a PLSS state. Typically, PLSS states are situated west of the Mississippi River.

Summary: Once again, progress was shown in *State Activities* categories. More states now nominate new control points to the NSRS, and there is an increased number of states supporting statewide CORS and RTN networks.

Results in the Geodetic Control *Program Support* categories were mixed. Unexpectedly, the number of states with a steward and a business plan decreased slightly. Fortunately, one more state now has dedicated funding resources than in 2021 and a total of 23 states now indicate that an established business process is followed for geodetic control operations. Collaboration continues to improve, as more states noted having established relationships with state, tribal, local governments, and the surveying community.

More states are now working on *NSRS Modernization* efforts and a handful have updated both their administrative regulations and legislation. Others indicate they are now actively working to update their legislation and regulations which can be a tedious and lengthy process. It is good to see that the states understand the importance of focusing resources on NSRS Modernization.

The final grades in this theme have improved since 2021. There are now 37 states with a B- or greater grade as opposed to 36 in 2019 and 35 in 2021. Overall, there were improvements in most *State Activities* and *Program Support* categories. It is also evident that states are now beginning to focus on how NSRS Modernization will impact their operations.

As with any GMA theme, almost every state has room for improvement. These survey results can be valuable during the strategic planning process and should be used to garner support for more resources.

2023 Geodetic Control Grading Scheme

Kent Anness (KY)

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. To excel in this theme additional work and coordination is needed. The 2021 GMA Survey lists 16 activities a state can undertake to complement the NGS effort. Grades are based on the number of those supported activities.

Grade	Points
A+	15-16
A	13-14
A-	11-12
B+	9-10
B	7-8
B-	5-6
C+	4
C	3
C-	2
D	1
F	0

Point Assignments Points based on a total number of state activities (Q3), characteristics (Q4) supported, and NSRS modernization efforts (Q5).

Q3. State Activities

+1 Submit new control points to NSRS
+1 Support a statewide CORS network (possibly through private partners)
+1 Support a statewide RTN network (possibly through private partners)
+1 Program for performing GPS on Benchmarks
+1* Works with counties to tie their survey corners to NSRS
**Bonus/Informational only*

Q4. 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: The state has a current geodetic control business plan that is less than three years old
+1 Business process: The state has a geodetic control data business process
+1 Relationship: There is an established working relationship between the state and tribal – local governments
+1 Relationship: There is an established working relationship between the state and the professional surveying community

Q5. NSRS Modernization Efforts

+1 Legislation is in progress
+1 Legislation passed (may need future updates)
+1 Legislation passed (future proof)
+1 Administrative regulations have been updated
+1 Updated administrative regulations are future proof

Governmental Units (Federal-Led Theme)

2023 Governmental Units Theme Summary

Overview

The 2023 Geospatial Maturity Assessment (GMA) for governmental units assesses each State's requirement for and production of governmental units and their level of cooperation with the Census Bureau to provide these data. For the purposes of the GMA, governmental units represent boundaries that delineate geographic areas for governance, notably tribal, state, county, and local governments, which are the focus of the Census Bureau's annual Boundary and Annexation Survey and once-a-decade Boundary Validation Program.

Overall Rating

In 2023, the grading on the Governmental Units theme for the GMA shows a slight increase from 2021 in states overall evaluation of their government units. The percentage of participating states who scored above average (greater than a C grade) increased to a very respectable 91.5%. Further breaking down the categories showed most states remained steady in their responses.

Boundary Data Availability: Greater than 90% of the responding States (43 to be exact) indicated that their governmental unit boundary data was publicly available either at cost (2 States), online via API (27 States) or online via Download (14 States).

Authoritative Source: Greater than 76% or responding States, or 36 of 47, also indicated that their governmental unit boundary data is sourced from an authoritative source.

Steward: Greater than 74% of responding States, or 35 of 47, indicated that they have identified a Steward for their governmental unit boundary data.

Reporting to Census: New for 2023, the states were asked whether they have the authority to report to Census on behalf of local governments. Participating states report that less than half of them (40%) can officially report boundary information to the Census on behalf of their local governments.

Summary of 2023 Governmental Unit Geospatial Maturity Assessment Responses							
Authoritative Source		**Update Frequency**		**Publicly Available**		**How Published**	
Yes	36	With Changes	33	API	26	FGDC	14
No	10	Infrequent	12	Download	14	Other	18
No Answer	1	No Answer	2	Fee	2	None	13
Reliable Boundaries		**Other Characteristics**		Internal	2	Unknown	2
100	16	Steward	34	None	1	**Census Reporting**	
86-99	19	Funding	19	No Answer	2	Yes	19
51-85	5	Business Plan	12			No	27
25-50	3	Local Gov't	25			No Answer	1
<25	3	Attributes	26				
No Answer	1	Topology	20				
		None	7				

Trends since 2019: A significant change can be seen from the first year grades were assessed to subsequent years. This is attributable to changes made in the questionnaire based on feedback from state representatives. In 2019, emphasis was placed on participation in the BAS or BVP programs. We recognize that isn't the best measure of state governmental unit data programs, so following years placed more emphasis on data quality (reliable boundaries) and the state's role in providing the data to Census on behalf of local government. We also changed the weight of reporting frequency to more closely align with the reality of states' workflows and business needs.

Governmental Units Final Grade Summary			
Final Grade	**2019**	**2021**	**2023**
A+	4	0	0
A	5	34	36
A-	2	4	3
B+	0	0	1
B	6	2	1
B-	5	2	1
C+	3	0	1
C	3	1	2
C-	2	2	0
D+	4	1	0
D	4	1	1
D-	0	1	0
F	1	0	1
Incomplete	2	0	0

2023 Governmental Units Grading Scheme

Nathan Jones (US Census Bureau), Mary Fulton (PA), Karen Rogers (WY BLM)

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 (Q2)

A	100% reported
B	76-99% reported
C	51-75% reported
D	26-50% reported
F	<25% reported

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

Steps	
	Boundary Reporting (Q3)
+1	Yes
+0	No
	Authoritative Source (Q4)
+2	Yes, in statute
+1	Yes, administrative
+0	No
	Update Frequency (Q5)
+2	Updated as changes occur
+0	Infrequent because of annual reporting expectation for the Census
	Data Standard (Q6)
+2	FGCD/Census standard
+1	Different standard
-1	No standard
	Accessibility (Q7)
+2	Downloadable with API

+1	Downloadable
-1	Available for a fee or special request
-2	Internal use only
	Other Characteristics* (Q8)
+3	All 6 characteristics
+1	4-5 characteristics
-1	none

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

Orthoimagery Leaf-On (Federal-Led Theme)

Orthoimagery includes both leaf-on and leaf-off products and both are important to users of geospatial data in the states. 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 or coverage, and (4) accessibility. The NAIP program is the foundation used for scoring of the leaf-on products. 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.

2023 Orthoimagery Leaf-On Theme Summary

Of the 46 responses, almost all have statewide leaf-on coverage provided through NAIP. Of the remaining states 2 had less than 80% coverage. Only five states (down from 10 in 2019) participate in the buy up program NAIP offers. Most of the states enjoy a 2 to 3-year update which correlates to the NAIP update cycle. Only 2 states have updates after 3 years or more while 5 states receive annual updates. Almost all states make this public domain data available to their users via download, however three states license the data, while three states restrict access and two states do not make it accessible. These numbers are up from 2019. 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 extremely low; but that is not surprising given that NAIP is a federal program. Final grades for leaf-on reveal that only 8 states receive an ‘A’ grade, much lower than leaf-off. However, just over 50% score in the ‘B’ range. The grading suggests that if a state does minimal work, they 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 does not have a regular buy up schedule received a lower grade.

Coverage	
90%-100%	44
80%-89%	2
<80%	0

Update Cycle	
Annual	5
2-3 years	37
>3 years	2
none	2

The 2023 grades are shown below:

Grade	Ortho Leaf-Off	Ortho Leaf-On
A+	0	0
A	22	4
A-	2	4
B+	4	5
B	1	16
B-	3	4
C+	0	9
C	0	1
C-	0	0
D+	2	2
D	2	0
D-	0	0
F	2	1
N/A	8	0
Total	46	46

The range of 2021 GMA grades for orthoimagery are shown below.

Coverage	
90%-100%	46
80%-89%	1
<80%	1

Update Cycle	
Annual	3
2-3 years	37
>3 years	7
none	1

Grade	Ortho Leaf-Off	Ortho Leaf-On
A+	0	0
A	14	3
A-	6	5
B+	5	1
B	1	21
B-	2	2
C+	0	7
C	2	7
C-	1	0
D+	2	0
D	4	1
D-	2	0
F	3	1
N/A	6	0
Total	48	48

2023 Orthoimagery Leaf-On Grading Scheme

This grading system is based on percent coverage and is step-based (PC-2). Please contact Tim Johnson or Tony Spicci if you have any questions about the grading scheme.

The NAIP program provides most states with leaf-on imagery every two-to-three years. Typically, that gives the 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
- A 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 issues within and across state governments.

With three grading cycles now completed, we are getting an ever-increasing sense and understanding of where states are with their geospatial programs and how that's changing through time. With few exceptions, overall grades have improved over the years. Since 2019, 74% of states' grades have gone up (N=35), 17% have stayed the same (N=8), and 9% have gone down (N=4). 17% of responding states (N=8) have seen their grade go up a whole letter grade since the first round of grades in 2019.

A few key observations can be made from the information gathered for each theme. It is not surprising to see Address grades up overall; what's noteworthy is the 16% increase in participation in the NAD. The brilliant approach used for the Cadastre theme gives us a sneak peak at what a national parcel database will look like. Given the wide array of use cases for parcel data, it should be a top priority for the FGDC to work with those states who are behind with their parcel data so we can fill in the map and have seamless private parcel data for the country. While it is notable for NG9-1-1 to be graded, it's worth repeating how the number of states with spatial call routing has almost doubled from 2021. Transportation grades are generally down, but this is due to stricter grading criteria that acknowledges the need for the data to be structured so that it serves multiple business needs. Governmental Units show slight improvements, with the next push being for more states to have authority to report data to the Census on behalf of local government. Geodetic Control shows a mixed bag when it comes to supported state programs, but in the true spirit of NSGIC more states are reporting increasing their collaborative relationships with stakeholders to improve their control network. Leaf-off orthoimagery shows steady improvement, while leaf-on programs show a reduction in buy-up efforts. Given the state of flux in the Hydrography theme given the USGS 3DHP program, we are confident that not grading that theme this year is justified. We anticipate this is the only year it will not be graded and that by 2025 states can actively contribute to the re-envisioned data and its improvement.

While the GMA team instituted improvements to the survey instrument to streamline our workflow, we recognize that it and our process are still not perfect. We will continue to gather internal and external feedback to learn how to support improvement. We are committed to keeping the questions and grading metrics as consistent as possible to allow for easier comparisons over time. That said, the geospatial ecosystem and

technologies are ever-changing, so we should be open to warranted changes in what is considered ‘mature’.

Key to Improving Grades

The Federal Geographic Data Committee (FGDC) continues to work on GDA implementation with its stakeholders. A central recommendation from NSGIC is that more needs to be done by the federal government to encourage states to institute Geographic Information Officer (GIO) positions and fund associated GIS program offices to support state spatial data infrastructure (SSDI) development and maintenance. Data programs will advance when they have one point of central coordination, made effective with stable funding and staff. NSGIC strongly advocates for all states to support GIO positions so better data can be coordinated with federal agencies and local, county, and tribal governments. Now more than ever, these relationships are critical in building and maintaining better, authoritative data that are increasingly important to solving the challenging issues of today.

Importance of NSDI and SSDI

GIS professionals often state that geospatial data has more value the more it’s being used, and our grading criteria reflect that. The geospatial data that is the foundation of SSDIs is more important than ever to inform analysis and decision making to allocate resources to solve today’s complex issues. While states are part of the National Spatial Data Infrastructure (NSDI), the ultimate NSDI can only be the network of functional SSDIs. Partnership and collaboration are integral to making the SSDIs work together at a national level to inform federal decision-making. The geospatial ecosystem is much more than the sum of its parts, with federal agencies and state governments comprising the most significant components of it. Like a natural ecosystem, we are well served by committing to nurture the many facets of the ecosystem and to make connections to help it thrive.

The 2023 GMA has once again set a high bar for taking an independent look at states’ geospatial maturity. NSGIC members are dedicated to contributing to the conversation and collaboration behind achieving a strong NSDI. The federal government can only be successful if and when the states reach full maturity and can contribute all they can. We strive to paint an accurate national picture for the FGDC of where we are as states so they can meet us where we are and work together accordingly. Only when we work together collaboratively will we be able to produce the nationwide population of data that is the NSDI.

The GMA planning team is constantly evaluating its process as a means of identifying ways for improvement. The NSGIC Executive Committee is committed to creating a GMA Committee to help spread the workload and get more involvement in the process. This will help to reduce bottlenecks and improve capacity for the report. NSGIC invites further input from the GIS community by contacting NSGIC Director of Technology Emily Ruetz at emily.ruetz@nsgic.org.

Project Team

Karen Rogers (WY BLM)

Jonathan Duran (AR)

Emily Ruetz (NSGIC)

Working Groups

Theme	2023 Leads
Addresses	Frank Winters
	Ken Nelson
Cadastre/Parcels	Kate Kiyanitsa
	Shelby Johnson
Elevation	Dennis Pedersen
	Mark Yacucci
Geodetic Control	Kent Anness
Governmental Units	Mary Fulton
	Karen Rogers
	Nathan Jones
Hydrography	Joshua Greenberg
	Jim Steil
Orthoimagery	Tim Johnson
	Tony Spicci
Transportation	Patrick Whiteford
	Dan Ross
Coordination	Karen Rogers
	Jenna Leveille
NG9-1-1	Michael Fashoway
	NG9-1-1 Working Group
Geo-Enabled Elections	Erin Fashoway
	Greg Bunce

Report Card Introduction

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 the GMA, NSGIC turns to its own members and measures their contributions to the NSDI.

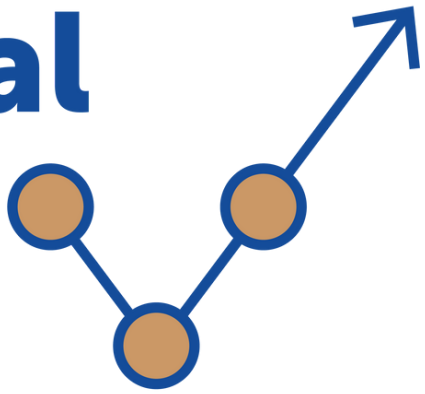
NSGIC developed a questionnaire that was sent to each of its member states. Forty-seven states responded. Their responses were then graded. The questionnaire, individual state responses, and the grades given each are available as separate resources. The responses were pulled together to grade each state on each of ten 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.

2023

Geospatial Maturity ASSESSMENT



State Report Cards

NSGIC
National States Geographic Information Council

GEOSPATIAL MATURITY ASSESSMENT 2023

Alabama Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	C+
Cadastre	N/A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	C
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

GEOSPATIAL MATURITY ASSESSMENT 2023

Alaska Report Card

Overall Grade: D

COORDINATION	GRADE: C

STATE-LED THEMES	GRADE
Address	F
Cadastre	D
Elevation	F
Orthoimagery Leaf-Off	N/A
Transportation	C
NG9-1-1	N/A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	F
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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ALASKA
GMA RESPONSE

Alaska's orthomosaic is a satellite based product with no leaf-on or -off requirements. Desired refresh is twenty-percent of the mosaic each year, however this is dependent
on funding and collection feasibility given other national priorities during a given year. Because it is a satellite based product there are license restrictions on the data.

The USGS has begun hydrography updates under the 3D Hydrography Program (3DHP) for Alaska. Questions with answered for progress made under the 3DHP mapping initiative in Alaska.

Under the USGS 3DEP program, Alaska has 100% coverage of statewide IFSAR. For the 2023 GMA, State of Alaska has answered the Elevation section under the pretense of statewide LiDAR.

Leslie Jones

GIO

GEOSPATIAL MATURITY ASSESSMENT 2023

Arizona Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A-
Cadastre	B-
Elevation	B+
Orthoimagery Leaf-Off	D+
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	C+
Government Units	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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ARIZONA
GMA RESPONSE

Arizona appreciates the opportunity to participate in the NSGIC Geospatial Maturity Assessment (GMA). The value of this bi-annual assessment is great. It provides a broad perspective of geospatial maturity across the nation. The GMA shows where Arizona is in comparison with other states which states may provide opportunities for Arizona to seek improvement. The annual report card approach also allows Arizona's stakeholders to quickly understand the status of our state's complex geospatial development and collaboration over time.

The GMA also provides insight into at least one theme in which Arizona appears to be unique. The National Agriculture Imagery Program (NAIP) provides Arizona with statewide imagery on average, every two years. In many states, this imagery is considered Leaf-on, and as stated in the GMA documentation, is primarily used for forestry and agriculture purposes. Leaf-off orthoimagery in those same states is typically utilized for tax assessment and emergency response. In Arizona, due to its climate and landscape, NAIP imagery generally meets the state level needs of most stakeholders. Regionally, there are cooperative programs which provide orthoimagery for the years the NAIP is not flown, or in local areas where higher resolution imagery is required. From a statewide perspective, historically, there has been little interest to invest in additional orthoimagery programs. Therefore, scarce resources are allocated to other higher geospatial priorities. We believe the low-grade Arizona receives for the Orthoimagery Leaf-off theme is due to Arizona's unique set of circumstances.

Over the past year, the Arizona Geographic Information Council's Imagery Program Workgroup has begun exploring this topic. Through stakeholder engagement, this group has found that interest in a statewide program has changed and acquiring statewide high-resolution imagery in addition to NAIP and/or augmenting NAIP has become a higher priority. That said, there remains little distinction for stakeholders between Leaf-off and Leaf-on orthoimagery.

ARIZONA
GMA RESPONSE

In 2021, Arizona received an A in the Transportation Theme. In 2023, the criteria and grading scheme were changed slightly to include 100% of road centerline data mapped within a state to receive an A grade. For Arizona, it is unlikely that we will ever be able to achieve complete coverage of all existing roads within the state largely due to tribal jurisdictions within our state boundaries. Currently, 99% of all existing road centerlines have been mapped. Nonetheless, the Arizona Department of Transportation (ADOT) continues to collaborate with tribal, local and federal partners with a goal to complete the roadway centerline data for our state. Engaging with these entities and federal partners, such as the Bureau of Indian Affairs (BIA), is a top priority. It is our opinion that this unique challenge should not count against the state's overall GMA grade.

While we may disagree with our statewide orthoimagery and transportation theme grades, we believe the grades Arizona received for the other themes reflect an accurate representation of both the successes and challenges Arizona faces in our overall geospatial maturity.

Jenna Leveille
Deputy State
Cartographer

GEOSPATIAL MATURITY ASSESSMENT 2023

Arkansas Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	B+
Orthoimagery Leaf-Off	A-
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

California Report Card

Overall Grade: C+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	F
Cadastre	N/A
Elevation	B
Orthoimagery Leaf-Off	N/A
Transportation	N/A
NG9-1-1	D

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Colorado Report Card

Overall Grade: B-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	F
Transportation	B
NG9-1-1	F

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

COLORADO
GMA RESPONSE

The State of Colorado is thrilled to be reclaiming its position on the map, and this year's GMA results are a testament to our progress. The B- grade signifies significant strides in a forward direction. It also underscores our need to increase dedication to key areas, like statewide orthoimagery (both leaf-off and leaf-on) and NG 9-1-1.

Overall, the grades mirror our internal evaluations and, in some cases, even exceed our expectations. For instance, we recognize opportunities in coordination, address, and cadaster themes, which we are actively working to enhance.

Jackie Phipps-Montes

GIS Manager

GEOSPATIAL MATURITY ASSESSMENT 2023

Connecticut Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	C+
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

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

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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Delaware Report Card

Overall Grade: B-

COORDINATION	GRADE: C

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A
Elevation	B+
Orthoimagery Leaf-Off	B+
Transportation	C
NG9-1-1	F

FEDERAL-LED THEMES	GRADE
Geodetic Control	F
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

District of Columbia Report Card

Overall Grade: A

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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WASHINGTON D.C. GMA RESPONSE

The DC Office of the Chief Technology Officer would like to thank NSGIC for the recognition of our geospatial data infrastructure with an overall grade of A, ranking among several top tier States, validating the hard work and expectations of the DC Office of the Chief Technology Officer, our dedicate GIS team, and agency partners.
We look forward to continuing to build on the foundational data and geospatial initiative outlined in the Geospatial Maturity Assessment report card (GMA) in the years to come.

Matt Crossett

GIS Project Manager

GEOSPATIAL MATURITY ASSESSMENT 2023

Florida Report Card

Overall Grade: B-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	F
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	B-
Transportation	N/A
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Georgia Report Card

Overall Grade: C-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	D+
Cadastre	C
Elevation	C
Orthoimagery Leaf-Off	F
Transportation	C
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	C
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Hawaii Report Card

Overall Grade: B

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	F
Cadastre	A
Elevation	B
Orthoimagery Leaf-Off	N/A
Transportation	N/A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	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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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Idaho Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A-
Cadastre	C+
Elevation	A-
Orthoimagery Leaf-Off	N/A
Transportation	C
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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 2023

Illinois Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A-
Cadastre	D
Elevation	A
Orthoimagery Leaf-Off	A-
Transportation	C
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Indiana Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Iowa Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	D+
Cadastre	B
Elevation	A-
Orthoimagery Leaf-Off	N/A
Transportation	C
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Kansas Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	B-
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Kentucky Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B-
Cadastre	C+
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

KENTUCKY GMA RESPONSE

Generally, the Commonwealth is pleased with our overall GMA grade for 2023. Since 2021, Kentucky has made significant strides in some of the state-led theme categories, however those efforts are not evident in the overall grade. This is likely due to changes in scoring and the decision to not include a federal-led theme in the results.

Kentucky's grade on the Coordination theme reflects the status of our governance and coordination efforts. Grades on the Commonwealth's state-led themes also align very well with the current state of those programs. Our imagery, elevation, and NG9-1-1 programs are doing wonderfully, but more focus on Transportation, Addresses, and especially the Cadastre theme will be important over the next two years.

Our average, and lower above average scores for specific themes highlight the fact that there is progress to be made. These results help us to re-evaluate the allocation of resources. We've known for many years that there was work to be done as it relates to cadastre (parcel data), hydrography, and addresses. The 2023 scores reflect that progress was made, but there is still more to be accomplished.

The NSGIC community understands there is great value in seeing how our states measure up against others. Sharing these national-level results with our executive branch leadership, and the Geographic Information Advisory Council, helps to underscore our level of success, but also reaffirms the fact that we must dedicate more resources to specific themes. Having these grades in-hand are crucial when approaching state-level stakeholders regarding next steps and during our annual strategic planning process.

As the GIO, knowing which states excel in a certain category, lets me know who to contact for guidance and direction. It is my aim to learn from other's and their successful programs. There is great value in being able to reach out to a counterpart for guidance. In fact, that is one of the most valuable aspects of being a NSGIC member.

As always, Kentucky appreciates the effort involved in compiling the assessment tool, conducting the assessment, and sharing the results with the NSGIC community. Many thanks!

Kent Anness

GIO

GEOSPATIAL MATURITY ASSESSMENT 2023

Louisiana Report Card

Overall Grade: B

COORDINATION	GRADE: C

STATE-LED THEMES	GRADE
Address	D
Cadastre	B-
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Maine Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	N/A
Elevation	A
Orthoimagery Leaf-Off	B
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Maryland Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	B+
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	C-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Massachusetts Report Card

Overall Grade: A-

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Michigan Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A-
Cadastre	B-
Elevation	A-
Orthoimagery Leaf-Off	B+
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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MICHIGAN GMA RESPONSE

The 2023 Geospatial Maturity Assessment (GMA) reflects Michigan's continued focus on key National Spatial Data Infrastructure geospatial themes. The GMA, conducted every two years, provides valuable insight as to where Michigan is with the standards being considered for each of the GMA data themes, and in comparison to other states. Overall, the 2023 GMA provides a fair representation for the geospatial maturity of these GIS data themes, programs and overall coordination. In a review of the 2023 results, the following are a summary of the observations.

The Michigan Statewide Authoritative Imagery and LiDAR (MiSAIL) program for orthoimagery continues to provide the foundation for statewide aerial imagery for GIS stakeholders across the State. Currently, funding allows for leaf-off imagery to be flown for a quarter of the geographic areas of the state each year. If additional funding were available for this program to fly areas of the state more frequently, this category would meet the A grade standard. The scores for address and cadastre have seen progress over the past couple of GMAs with the increased sharing of these datasets between local and state governments. In the future, with increased willingness to make these GIS data layers publicly available open data, these scores would move up additional grade steps. The transportation score was one point below the A level grade. It dipped slightly due to a few changes to the questions and this should uptick back to an A in 2025. The new NG911 category score reflects Michigan's strong coordination between the GIS and 911 stakeholders across the state to continue to improve GIS data for 911 systems.

Mark Holmes
Geospatial Services Manager

GEOSPATIAL MATURITY ASSESSMENT 2023

Minnesota Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B-
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	B-
Transportation	B
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Mississippi Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	F
Cadastre	B
Elevation	B
Orthoimagery Leaf-Off	B-
Transportation	C
NG9-1-1	N/A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	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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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Missouri Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	D
Cadastre	C+
Elevation	B+
Orthoimagery Leaf-Off	B+
Transportation	C
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

MISSOURI
GMA RESPONSE

This year's GMA gave Missouri an opportunity to see all the strides we've made since the last Survey.One of the most exciting areas for us is the implementation of state-wide NG911. Although we weren't able to answer "Yes" this round to many of the questions, I know we'll see big changes by 2025. This in turn will impact our responses to questions about Addresses, since we intend to build and maintain these based on the data collected for NG911.

We expect to become early adopters of the new EDH hydro model. We're already piloting a watershed in south central Missouri.This is going to drive our LiDAR collection. Coordination of both orthoimagery and LiDAR acquisition is a strong suit for our state's GIS Advisory Council.

Although we do not have secured regular funding for leaf-off orthoimagery, we have had adhoc funding to complete the whole state as a 2-year cycle every 5+ years for many years. To support our NG911 efforts, we collected the northern 1/3 of the counties with 6" imagery in 2023, with plans to complete the remainder in 2024.

Strong home rule in our counties continues to keep both government units and cadastre a function of local government. We don't expect a centralized effort for either any time soon. NG911 should help with the governmental units.

Tracy Schloss

Director - GIS

GEOSPATIAL MATURITY ASSESSMENT 2023

Montana Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A
Elevation	C
Orthoimagery Leaf-Off	N/A
Transportation	C
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Nebraska Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	B-
Elevation	B+
Orthoimagery Leaf-Off	D+
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NEBRASKA GMA RESPONSE

The 2023 NSGIC GMA Report Card for the State of Nebraska highlights two things; 1) the strides state agencies continue to make to improve and advance spatial data related to their missions, 2) stagnation of statewide initiatives due to limited funding. Four out of five reoccurring state-led theme grades improved because of state agencies and local partners efforts. The one new state-led theme (NG9-1-1) has a superior rating. Most Nebraska agencies work in a shared portal environment and consolidated application and database structure, and many participate in the Nebraska GIS Council. Through these initiatives state agencies have a greater opportunity to collaborate with other agencies and partners with overlapping goals.

The Coordination grade was downgraded, this is likely due to a changed response not a change in practice or process at Nebraska. Nebraska continues to have a state level GIS Coordinator, and GIS tech team supporting an enterprise deployment for software and virtual portals for state agency use. The GIS Coordinator continues to facilitate the Nebraska GIS Council and report to the Nebraska Information Technology Commission, and Legislature on GIS related topics.

Nebraska lacks funding to support a statewide Orthoimagery Leaf-Off program, and instead purchases statewide NAIP imagery from US Department of Agriculture.

Casey DunnGossin

GIS Coordinator

GEOSPATIAL MATURITY ASSESSMENT 2023

New Jersey Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

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

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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

GEOSPATIAL MATURITY ASSESSMENT 2023

New Mexico Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	C-
Elevation	B+
Orthoimagery Leaf-Off	C
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

GEOSPATIAL MATURITY ASSESSMENT 2023

New York Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	B+
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	C
Government Units	A
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 produce report cards for each state on central data themes and coordination topics. The assessment is performed every two years.

NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

North Carolina Report Card

Overall Grade: A

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A
Government Units	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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NORTH CAROLINA GMA RESPONSE

Geospatial data and coordination efforts in North Carolina are guided by the Geographic Information Coordinating Council (GICC) where priorities are determined leading to specific actions by the broad community of stakeholders represented. Statewide efforts have been sustained for the cadastral, leaf-off orthoimagery, geodetic control, and transportation themes since the 2021 assessment.

Since the last assessment, the Next Generation 911 project has achieved completion and moved into a sustained maintenance mode with ongoing funding. The NextGen process yielded several new statewide datasets and established a firm foundation for the address theme that is critical for many state and local government programs. The statewide focus recently has been on governmental units, particularly municipal boundaries and the process leading to a complete, updated dataset with buy-in from local government data producers.

Looking ahead, a business plan is in development for the elevation theme with the goal of making the case for sustained funding for data updates to track the changing character of the North Carolina landscape, particularly in urban and coastal areas of the state. With all of the statewide datasets, the goal is first to serve the programmatic needs of state government agencies and local governments and then prepare to make the data available to a national spatial data infrastructure as that new vision evolves.

North Carolina is proud of the progress it has made in meeting the needs of its citizens through creation and accessibility of geospatial data and the coordination effort it takes to achieve it.

Tim Johnson
Geographic
Information Officer

GEOSPATIAL MATURITY ASSESSMENT 2023

North Dakota Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	D
Transportation	B
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Ohio Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	C
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Oklahoma Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	C-
Cadastre	B
Elevation	B+
Orthoimagery Leaf-Off	D
Transportation	B
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	D+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Oregon Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	F
Cadastre	B
Elevation	C+
Orthoimagery Leaf-Off	N/A
Transportation	B
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Pennsylvania Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	B+
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	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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PENNSYLVANIA GMA RESPONSE

Pennsylvania welcomes the opportunity to participate in NSGIC's bi-annual Geospatial Maturity Assessment, an exercise in self-assessment that assists us in defining our goals and opportunities in the geospatial environment. Pennsylvania views this as an opportunity to engage the appropriate entities to improve not only our grades on specific themes, but also to improve the geospatial services that are made available to our customers and citizens. We are very proud of the multistakeholder work across these data themes that has increased our overall grade from a B+ to an A-.

The grading of the previous assessment clearly identified areas for improvement, and we are happy to see that we did indeed improve in several areas. We are especially proud to have improved our state-led address theme by facilitating the counties efforts to create address datasets for NG911 and having an accessible state workflow for distribution up to the National Address Database (NAD).

We appreciate the grading effort and find it beneficial for us to be able to compare our progress as it ranks against other states. While we do not agree with the reduction of the Transportation grade from an A to a B, we find that the other grades are accurate representations of successes and challenges. Additionally, the assessment assists us in identifying areas for improvement that we can utilize as we plan our future geospatial activities and helps us to keep on track to maintain the excellent work that has already been accomplished.

Scottie Wall

State GIS Coordinator

GEOSPATIAL MATURITY ASSESSMENT 2023

Rhode Island Report Card

Overall Grade: B+

COORDINATION	GRADE: C

STATE-LED THEMES	GRADE
Address	B+
Cadastre	B
Elevation	B+
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	N/A

FEDERAL-LED THEMES	GRADE
Geodetic Control	C+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

South Carolina Report Card

Overall Grade: B

COORDINATION	GRADE: C

STATE-LED THEMES	GRADE
Address	A-
Cadastre	C
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	A

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

METRICS:

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

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GEOSPATIAL MATURITY ASSESSMENT 2023

Tennessee Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	C
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Texas Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A-
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	B
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Utah Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A-
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	A-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Vermont Report Card

Overall Grade: A-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Virginia Report Card

Overall Grade: B+

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	A
Cadastre	N/A
Elevation	N/A
Orthoimagery Leaf-Off	A
Transportation	A
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	F
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Washington Report Card

Overall Grade: B+

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	A
Cadastre	A
Elevation	B+
Orthoimagery Leaf-Off	N/A
Transportation	B
NG9-1-1	A

FEDERAL-LED THEMES	GRADE
Geodetic Control	B-
Government Units	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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GEOSPATIAL MATURITY ASSESSMENT 2023

Wisconsin Report Card

Overall Grade: B

COORDINATION	GRADE: B

STATE-LED THEMES	GRADE
Address	F
Cadastre	A
Elevation	A
Orthoimagery Leaf-Off	A
Transportation	N/A
NG9-1-1	B

FEDERAL-LED THEMES	GRADE
Geodetic Control	B+
Government Units	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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NSGIC

GEOSPATIAL MATURITY ASSESSMENT 2023

Wyoming Report Card

Overall Grade: B-

COORDINATION	GRADE: A

STATE-LED THEMES	GRADE
Address	F
Cadastre	A
Elevation	B-
Orthoimagery Leaf-Off	B+
Transportation	B
NG9-1-1	C

FEDERAL-LED THEMES	GRADE
Geodetic Control	B
Government Units	D
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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WYOMING
GMA RESPONSE

Wyoming thanks NSGIC for the opportunity to assess both accomplishments and gaps in our GIS efforts. We accept and agree with the 2023 Geospatial Maturity Assessment (GMA) overall score of B-.

Wyoming's individual scores are commensurate with current accomplishments while reflecting Wyoming's desire to develop a well-rounded GIS collaboration. We are excited to continue laying the groundwork for growth in GIS as we hope to expand on our authoritative statewide address database efforts and coordination endeavors.

Agency engagement, centralizing GIS services, and developing a state IT data governance model are at the forefront of Wyoming's GIS plan. Wyoming is making advances in our NG9-1-1 program with the adoption of our GIS Data Model. We have the vision to create an ArcGIS Enterprise Portal and leverage Enterprise GIS Managed Cloud Services. We endeavor to make the portal available to all State agencies and provide a common location for data sharing. Wyoming's partnership with ESRI continues to strengthen, exploring options for future GIS growth within the state. The Wyoming Legislature approved $2M for LiDAR derivatives for the entirety of the State of Wyoming's land base (approximately 98,000 square miles) and a Wyoming LiDAR portal will be managed by WyGISC to support state and regional mapping needs in Wyoming.

Heidi Martin
Senior Enterprise GIS Analyst

NSGIC