



2019 STATE GOVERNMENT GEOSPATIAL MATURITY ASSESSMENT

The NSGIC Geospatial Maturity Assessment (GMA) provides NSGIC members and other partners with a summary of geospatial initiatives, capabilities, and issues within and across state governments. Inspired by the Coalition of Geospatial Organizations (COGO) Report Card of 2018, NSGIC has modified the GMA survey to produce report cards for each state on central data themes and coordination topics.

This information is intended to assist state governments with setting goals, identifying peer states for collaboration, identifying areas requiring attention, and connecting with opportunities and resources. Completing the GMA also offers state governments a chance to reflect on their geospatial strategy, operations, and progress.

The assessment is performed every two years. The results of this assessment will be released in the second half of 2019.

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Coordination

The first section gets to the heart of your state's geospatial maturity by how it supports a state program. This section will be graded based on the questions in part A. Part B is informational only and is commonly used by other state representatives or others looking for your data.

A. GIS Program Support

In this survey, the geographic information officer (GIO) or equivalent position is referred to as the GIO, regardless of actual title.

1. Does your state have a GIO? (pick one) *

- Yes - official state-level GIO (or equivalent ... note this applies to all uses of the term GIO in this survey)
- Yes - official statewide GIS coordinator (not officially called GIO, but authorized to perform statewide coordination work on a full-time basis)
- Yes - generally recognized statewide GIS coordinator (work on a part-time/30% or more basis to improve statewide coordination, but not officially authorized)
- No (skip to Section C)
- Other:

2. To whom does the GIO directly report? (pick one)

- Governor or governor's assistant
- State CIO or other manager in the CIO's office
- Other state department or agency head
- Other:

3. What abilities does the GIO have? (choose all that apply)

- Influence on state and federal policy issues affecting the GIS community
- Input to budget and financial matters affecting the state GIS office
- Input over technology used at the state enterprise level
- Control over state-wide GIS data standards
- Coordinate activities across levels of government and within state government
- Influence resides more with the Council than the GIO
- Other:

B. Support for Coordination

1. What authorization exists for the GIO/coordination position? (pick one)

Statute

Executive order

Regulation

Multi-agency MOU

None

Other:

the State Information Systems Council (executive leadership team that influences/sets IT policy created GIS Coordinator position in 1997)

2. How is the GIO office funded? (choose all that apply)

General funds

Agency services

License fees

Grants

Other

3. Is the GIO office able to accept "soft" money such as grants, fees for service, etc.? (pick one)

Yes

No

N/A

4. Does the GIO have a full-time professional staff that works on the ongoing programs of the office? (pick one)

Yes

No

C. Implementation

1. Does your state have a clearinghouse? (pick one) *

Yes

No

2. Does your state have a strategic plan for GIS? (pick one) *

Yes, less than 5 years old

Yes, but 5-10 years old

Yes, but more than 10 years old

No

3. Does your state have an active GIS coordinating council that meets at least 4 times a year? (pick one) *

Yes, an official GIS Council defined/recognized by statute, executive order, or administrative rule

Yes, an unofficial but active council (could include state user group)

No (skip to part D)

4. Does the council have representation from all relevant stakeholders?
(pick one)

Yes

No

D. URL and Website Information

Please answer the following questions regarding URLs and websites.

1. Enter the complete URL for your State GIS Data Clearinghouse website.
(Include http:// or https://)

<https://www.tn.gov/finance/sts-gis/gis/data/>

2. Enter the complete URL for your State's GIO office website. (Include
http:// or https://)

<https://tnmap.tn.gov/>

3. Enter the complete URL for your state's GIS Council website. (Include
http:// or https://)

<http://www.tngic.org/>

4. Provide a very brief description and a full URL for any GIS-related statutes in your state. These can include the establishment of the coordination office, sustained funding sources, public record laws, or other relevant laws.

https://www.lawserver.com/law/state/tennessee/tn-code/tennessee_code_10-7-506 (this is to define GIS cost recovery policy in TN)

Next Generation 9-1-1 (NG9-1-1)

Answers harvested in this section are informational only. Gathering these data helps states gauge their relative progress and provides them with valuable references for guidance along the way.

1. Is there an effort in your state to move to NG9-1-1? (pick one) *

- Yes
- No
- Yes, but the effort is led by counties

2. Is there a state agency assigned with the responsibility for NG9-1-1? (pick one) *

- Yes
- No

3. Is there a relationship between the state GIO and state 9-1-1 leadership? (pick one) *

- No relationship / no state-level 9-1-1 leadership
- Informal – some coordination or contact with state 9-1-1 leadership, but GIS isn't "at the table"
- Formal – GIS is included in state 9-1-1 board/council/leadership organization
- Fully engaged in the process and or data development and aggregation needed in support of NG9-1-1

4. Is your NG9-1-1 program funded if you have one? (pick one) *

- Yes
- No (skip to Question 5)

4a. Does 9-1-1 provide funding to state GIS data development? (pick one)

- Yes
- No

5. Are there currently processes to roll up (aggregate) local authoritative data to statewide datasets for use in NG9-1-1? (pick one) *

- Yes
- No (skip to Question 6)

5a. Is the designated aggregator public or private? (pick one)

Public

Private

6. Which of the following required datasets for NG9-1-1 exist at a statewide extent? (choose all that apply) *

PSAP Boundaries

Road Centerlines

Emergency Service Boundaries

Provisioning Boundaries

Site/Structure Address Points

Other

None

7. Does your state have GIS data standards for the following critical NG9-1-1 data layers? (choose all that apply) *

Site/structure address points

Road Centerlines

PSAP Boundaries

Emergency Service Boundaries

Other

None

8. Do you have a regular cycle for ensuring that all themes are as current as possible? (pick one) *

Yes

No

9. Has your state validated the road centerline and structures/addresses GIS data with the MSAG/ALI? (pick one) *

Yes

No

10. Are your NG9-1-1 GIS layers publicly available? (pick one) *

Yes

No

11. Is there any inter-state NG9-1-1 GIS coordination? (pick one) *

Yes

No (skip to the next section, Elections)

11a. Briefly describe your inter-state coordination.

Elections

Answers harvested in this section are informational only. Please answer the following questions regarding your state's use of GIS in elections.

1. Does your office have a relationship with and a direct line of communication to the State's Election Director? (pick one) *

Yes

No

2. Does your state manage or have access to an accurate statewide voting precinct boundary layer? (pick one) *

Yes

No (skip to Question 4)

3. If you answered yes to the previous question, which statement best describes the precinct boundaries? (pick one)

The precinct boundaries are static.

The precinct boundaries are regularly updated.

The precinct boundaries are regularly updated and are used to spatially assign voters to their precincts.

4. Does your state use and maintain a state or commercial geocoding web service? (pick one) *

Yes

No (Please skip to Question 7)

5. If you answered yes to the previous question, which statement best describes how the geocoding web services are used? (pick one)

- Geographic coordinates for addresses tend to be static once found.
- Geographic coordinates for addresses are periodically updated to reflect the location found using the most current geocoding reference data (roads and address GIS layers).
- Geographic coordinates for addresses are routinely analyzed and updated more or less continuously.

6. Is the geocoding service used to locate voter addresses and voters? (pick one)

- Yes
- No

7. Does your state have an audit process for precinct assignments within its election database? (pick one) *

- Yes
- No (Please skip to the next section, Address Points)

8. If so, is your staff, data, and other geospatial resources involved? (pick one)

- Yes
 - No
 - Other:
-
-

Address Points

An address point consists of the building number, street, and XY coordinates for the structure. A primary use of address points is to support 9-1-1 response, but they can also be used as reference data for address geocoding and to support thematic mapping of data associated with those points. Addresses are typically assigned by local government, so significant coordination is required to create a state-level database.

1. Does your state have a program for developing or maintaining an authoritative statewide address database? (pick one) *

- Yes
- No (Please skip to next section, Cadastre/Parcels)

2. What percent of local address-authorities contribute to your state's address point database? (pick one)

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25%

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

- Daily
- Weekly
- Monthly
- Quarterly
- 2 times per year
- Annually
- Every 2-3 years
- Every >3 years

4. What is the quality of the state-level data? (choose all that apply)

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

5. How widely used is your address point database? (choose all that apply)

- Used to support 9-1-1 activities
- Used as reference data for a geocoder web service
- Available for download
- Available via API (e.g., map service, feature service)
- Proactively contributed to the National Address Dataset (NAD)
- Available publicly
- Available for government use

6. Identify the characteristics of your address point database. (choose all that apply)

- Steward: There is a designated aggregator or steward for this data layer.
- Funding: This program has regular state-level funding.
- Business plan: A business plan exists for this theme.
- Local government: There is a formal connection or agreement with local government to roll up and make data available to the state.
- Attributes: The state data contains attributes associated with address points; e.g. address including sub-units, land use (e.g. home, park), and nature of point (e.g. parcel centroid, front door of structure, driveway access point).
- None apply.

In most states, authoritative parcel map data is developed at the county level. For this section of the NSGIC perspective, we are interested in the nature of digital parcel mapping in your state, whether in a central state database or only available at the county level.

Part A. Parcel Data.

1. What percentage of your counties have georeferenced digital parcel maps? (pick one) *

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25%

2. Does your state have a program of collecting current digital parcel data from local jurisdictions? (pick one) *

- Yes (Please continue to Part B)
- No (Please skip to Part C)

Part B. Centralized state collection of digital parcel data

1. What percentage of your counties participate? (pick one)

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25%

2. What standard is maintained for the central database? (pick one)

- Published and adheres to a standard verified via QA/QC
- Published to a standard (no verification)
- Published, best effort at standardization
- Published as received

3. How accessible is data from this central database? (choose all that apply)

- Open, free, viewable, downloadable, with API
- Open, free, downloadable
- Open, free, viewable
- Open, full file for fee
- In person or formal request
- Internal use only

4. What are the characteristics of your state parcel program? (check all that apply then go to next section, Transportation)

- Steward: There is a designated state steward.
- Funding: There is regular funding for the state program.
- Business plan: The state has a business plan for parcel maps.
- Formal relationship: There are formal relationships between the state and local government.
- Attributes: The state data includes parcel ID, address, owner name, and other attributes normally associated with parcels and assessment values.
- None apply.

Part C. No centralized state collection of digital parcel data

1. What percentage of your counties make their data available free or at a nominal cost? (pick one)

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25%

2. Characterize the general nature (the majority) of your county parcel data systems? (check all that apply)

- Yes, they publish and adhere to a published standard.
 - A lesser level of standardization
 - Open, free, viewable, downloadable, with/without API
 - A lesser level of access
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Transportation

This graded section is designed to measure your state's progress toward implementation of a statewide road centerline database complete with address ranges. We hope you can describe your efforts to build an authoritative statewide dataset that meets the majority of business requirements. Do not describe a situation where you have multiple non-authoritative datasets in use to meet the individual needs of different agencies.

Definition of road centerline database: the portrayal of physical roads and trails that allow the movement of goods and people between locations. These data must include road centerline geometry and basic road attributes (e.g., road names) and will generally include address ranges, LRS control, and network topology.

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

- 100%
- 76-99%
- 51-75%
- 26-50%
- <25% (or just getting started)
- DO NOT HAVE (Please skip to the next section, Hydrography)

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

- Weekly, nightly, or near real-time
- Monthly
- Quarterly
- Annually
- Every >2 years
- Not defined

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

- Edgematched and published to an approved state or national standard (verified/validated)
- Published to an approved state or national standard but not edgematched
- Published to a nonstate or national standard
- Not published to a standard
- N/A

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

- Open, free, viewable, downloadable, with API
- Open, free, downloadable
- Open, free, viewable
- Formal Request - distributed media or downloadable
- Not available or no request process
- Accessible for a fee or Internal use only

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

- Steward: There is a designated aggregator or steward for this data layer.
 - Funding: This program does have regular state-level funding.
 - Business plan: A business plan does exist for this theme.
 - Local government: A formal connection or agreement exists with local government to roll up and make data available to the state.
 - Attributes: The state data does contain attributes associated with road centerlines (e.g. lanes, speeds, address ranges).
 - Real-time conditions: Near real-time road conditions are available.
 - None apply.
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This graded section is designed to measure your state's progress toward implementation of a statewide hydrography dataset above and beyond the National Hydrography Dataset (NHD) provided by the federal government.

Definition of hydrography dataset: an authoritative representation of hydrographic features and characteristics, including classification, location, and extent of drainage network features such as rivers, streams, canals, lakes, ponds, coastline, dams and stream gages.

1. How complete is your state's hydrography database? (pick one) *

- 100%
- 76-99%
- 51-75%
- 26-50%
- <25% (or just getting started)
- DO NOT HAVE (Please skip to the next section, Orthoimagery)

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

- Annually
- Every 2-3 years
- Every 4-5 years
- Defined, but >5 years
- Not defined
- N/A

3. What standards are used for publishing state-collected data? (pick one)

- Published to a standard (verified)
- Published to a standard (no verification)
- Published, best effort at standardization
- Published as received
- N/A

4. How accessible is your hydrography database? (pick one)

- Open, free, viewable, downloadable, with API
- Open, free, downloadable
- Open, free, viewable
- Open, full file for a fee
- In person or formal request
- Internal use only
- N/A

5. Identify the characteristics of your hydrography database. (choose all that apply)

- Steward: There is a designated aggregator or steward for this data layer.
 - Funding: This program does have regular state-level funding.
 - Business plan: A business plan does exist for this theme.
 - Local government: A formal connection or agreement exists with local government to roll up and make data available to the state.
 - Attributes: The state data does contain attributes associated with hydrography (e.g. lake names, stream and river names, coding for all feature types).
 - None apply.
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Orthoimagery

Orthoimagery includes both leaf-on and leaf-off products, both of which 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.

Leaf-On

Typically based on the National Agriculture Imagery Program (NAIP) of the US Department of Agriculture.

1. How much of your state is covered by leaf-on orthoimagery? (pick one) *

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25% (or just getting started)
- No coverage

2. Please indicate its update frequency. (pick one) *

- Annually
- Every 2-3 years
- Greater than 3 years
- No coverage

3. Please indicate if you opt for any additional options. (choose all that apply)

- Buy-up to 0.5 m product
- Other:

4. Please indicate its accessibility (pick one) *

- Findable and downloadable
- Accessible but with restrictions
- Licensed product not available to outside entities
- Not accessible

5. Identify the characteristics of your leaf-on orthoimagery database.
(choose all that apply)

- Steward. There is a designated aggregator or steward for this data layer.
- Funding. This program has regular state-level funding for buy-ups.
- Business plan. A business plan exists for this theme.
- Local government. There are some formal connections with the local government on buy-ups.
- None apply.

B. Leaf-Off 

The leaf-off product should be scored differently based on its uses and the typical frequency of update for this orthoimagery layer that is more controlled by state and local resources than federal programs.

1. How much of your state is covered by leaf-off orthoimagery? (pick one) *

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25% (or just getting started)
- No coverage (Please skip to next section, Governmental Units)

2. Please indicate its update frequency. (pick one)

- Annual
- Every 2-3 years
- Every 4-5 years
- Every 6-8 years
- Update cycle longer than 8 years
- No update

3. Please indicate if you opt for any additional options. (choose all that apply)

- 6-inch product or better
- 1-foot product
- 2-foot product
- 1-meter product

4. Please indicate its accessibility (pick one)

- Findable and downloadable
- Accessible but with restrictions
- Licensed product not available to outside entities
- Not accessible

5. Does your program collect more than the three R-G-B bands of data?

- Yes (please specify in the "Other" option if necessary)
- No
- Other: NIR.....

6. Identify the characteristics of your orthoimagery database. (choose all that apply)

- Steward: There is a designated aggregator or steward for this data layer.
 - Funding: This program has regular state-level funding.
 - Business plan: A business plan exists for this theme.
 - Local government: There are some formal connections with the local government on buy-ups.
 - Accessibility: The data are freely available to the public as a service.
 - None apply.
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Governmental Units

This graded section will assess your state's requirement for and production of governmental units and your level of cooperation with the Census to provide these data.

Definition of governmental units: boundaries that delineate geographic areas for governance, notably the local government, counties, and tribal reservations. These are the focus on the Census Bureau's annual BAS (Boundary and Annexation Survey) and BVP (Boundary Validation Program) efforts.

1. Does your state have >75% unincorporated areas (as measured by the number of entities, not by land mass)? (pick one) *

Yes

No

2. Does your state have statutory authority to submit data to the Census? (pick one) *

Yes

No

3. Please pick which best describes the completeness of your governmental units data based on the level of participation in the BAS and BVP programs. (pick one)

State participates with 90-100% reporting

State participates with 80-89% reporting

Counties, cities, or other entities participate with >80% reporting

Counties, cities, or other entities participate with 51-79% reporting

<50% of counties, cities, or other entities reporting

<25% of counties, cities, or other entities reporting

4. Please indicate the update frequency. (pick one)

- Quarterly
- Semi-annually
- Annually
- 2-5 years
- 5 years or more

5. The Census Bureau delivers BAS and BVP data in a standard format. What is the state's role in delivering that to Census? (pick one)

- The state handles all submission and verification using Census Bureau standards.
- The state coordinates submission, adjusting to the specified standard and checking for topological consistency.
- The state coordinates county and local government participation but does not correct data problems.
- The state plays a minimal role.
- An odd mix of the above.

6. If applicable, please list the variety of governmental units data layers that your state maintains or provides to the Census.

Cities, precincts, county commission districts

7. Identify the characteristics of your governmental boundaries activities. (choose all that apply)

- Steward: There is a designated aggregator or steward for this data layer.
 - Funding: This program has regular state-level funding.
 - Business plan: there is a business plan exists for this theme.
 - Local government: There is a formal connection to local government.
 - Attributes: State data contains attributes associated with this theme. (e.g. change type, date of the change, authority, change documentation)
 - Topology: The state has a program to check the topological soundness of the data.
 - None apply.
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Geodetic Control

This section is about efforts your state has 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). For states in the Public Land Survey System (PLSS), it could also include efforts to add coordinates to survey corners.

1. Indicate the level of completion of the geodetic control data layer as a percentage. (pick one) *

- 90-100%
- 80-89%
- 50-79%
- 25-49%
- <25% (or just getting started)

2. Does your state have any program activities focused on geodetic control? (pick one) *

- Yes
- No (Please skip to Question 4)

3. What program activities exist? (choose all that apply)

- Nominate new control points to NSRS
- Support a statewide CORS network (possibly through private partners)
- Support a statewide RTN network (possibly through private partners)
- Planning for NGS's 2022 update of NAD 83 and related frameworks
- Other

4. Is your state included in the Public Land Survey System (PLSS)? (pick one) *

- Yes
- No (Please skip to Question 5)

4a. Does your state have any program to work with counties to tie their survey corners to the NSRS? (pick one)

Yes

No

5. What are the details of your state efforts? (choose all that apply)

Steward: There is a designated state steward.

Funding: There is regular funding for the state program.

Business plan: The state has a business plan for geodetic control data.

Formal relationship: There are formal relationships between the state and local government.

None apply.

Elevation

The questions in this graded section are designed to measure your state's progress toward implementation of a statewide elevation database. We hope you can describe your efforts to build an authoritative statewide dataset that meets the majority of business requirements. Do not describe a situation where you have multiple non-authoritative datasets in use to meet the individual needs of different agencies.

Definition of elevation data: the measured vertical position of the earth surface and other landscape or bathymetric features relative to a reference datum typically related to sea level. These points normally describe bare earth positions, but may also describe the top surface of buildings and other objects, vegetation structure, or submerged objects. Elevation data can be stored as a three-dimensional array or as a continuous surface such as a raster, triangulated irregular network, or contours. Elevation data may also be represented in other derivative forms such as slope, aspect, ridge and drainage lines, and shaded relief.

1. Indicate the level of completion of the elevation data layer as a percentage. (pick one) *

- 90 - 100% statewide
- 80 - 89% statewide
- 70 - 79% statewide
- 60 - 69% statewide
- 50 - 59% statewide
- 40 - 49% statewide
- 30 - 39% statewide
- 20 - 29% statewide
- 10 - 19% statewide
- <10% statewide
- There is no state program for developing or maintaining an authoritative statewide elevation database. (Congratulations, you have completed the 2019 GMA.)

2. What is the frequency of the updates? (pick one)

- 8 years or sooner statewide
- 8-12 years
- 12 years or greater
- Not defined

3. What standards are used for publishing state-collected data? (pick one)

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

4. What is the quality level of the elevation database? (pick one)

- Quality Level 2 (QL2) or better as defined by USGS
- QL3 or better as defined by USGS
- QL4 or better as defined by USGS
- Worse than QL4
- Not defined

5. Do you have any data within your state that is a better Quality Level than is stated in the previous question? (pick one)

- Yes
- No

6. How accessible is your elevation database? (pick one)

- Open, free, viewable, downloadable, with API
- Open, free, downloadable
- Open, free, viewable
- Formal Request - distributed media or downloadable
- Not available or no request process
- Accessible for a fee or Internal use only

7. What are the details of your state efforts? (choose all that apply)

- Steward: There is a designated state steward.
- Funding: There is regular funding for the state program.
- Business plan: The state has a business plan for elevation data.
- Formal relationship: There are formal relationships between the state and local government.
- None apply.