



OST

Report IT2022040
September 28, 2022

DOT Has Made Progress Meeting the Requirements of the Geospatial Data Act of 2018



DOT Has Made Progress Meeting the Requirements of the Geospatial Data Act of 2018

Required by the Geospatial Data Act of 2018

Office of the Secretary of Transportation | IT2022040 | September 28, 2022

What We Looked At

Geospatial data—which Federal agencies use to achieve their missions—contain information tied to locations, including geographic location identifiers. Transportation related geospatial data include instrument-flight-rule navigation charts and pipeline inspection boundary maps. In October 2018, Congress passed the Geospatial Data Act (GDA) on the management of the National Spatial Data Infrastructure (NSDI). NSDI has 18 geospatial data themes that cover data used by Federal agencies, including a transportation theme. Section 756 of the GDA requires Federal Geographic Data Committee to identify one or more covered agencies to serve as the lead covered agency for a specific data theme. The act's section 759 sets requirements for covered agencies. As the lead covered agency for the transportation theme, the Department of Transportation (DOT) must address requirements under GDA section 756(b) for the transportation theme, and as a covered agency the requirements under sections 759(a) and 759(b). The act also requires inspectors general of covered agencies to report to Congress once every 2 years on their agencies' geospatial data-related activities. Our audit objective was to assess DOT's progress since our 2020 GDA audit. Specifically, we assessed the Department's progress implementing its responsibilities (1) as a lead covered agency under section 756(b) and (2) as a covered agency under sections 759(a) and 759(b) of the act.

What We Found

DOT has made progress complying with lead covered agency requirements. In 2020, DOT met two of the five lead covered agency requirements—information on user needs and theme administration. In 2022, DOT fully meets four requirements and partially meets one—a plan to implement standards for theme data. DOT has also made progress on the 12 applicable covered agency requirements. In 2020, DOT had met 4 of the 12 applicable requirements and in 2022, fully meets 9. The Department has not yet fully complied with the requirements for implementation of a geospatial information system strategic plan, records preparation, and the use of geospatial information. DOT complied with the requirements on annual reporting and maintenance of a geospatial data asset inventory.

Our Recommendations

We made one recommendation to help DOT comply with the requirements for lead covered agencies in the act's section 756(b). DOT concurred with our recommendation.

All OIG audit reports are available on our website at www.oig.dot.gov.

For inquiries about this report, please contact our Office of Government and Public Affairs at (202) 366-8751.

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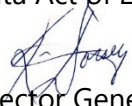
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Memorandum

Date: September 28, 2022

Subject: INFORMATION: DOT Has Made Progress Meeting the Requirements of the Geospatial Data Act of 2018 | Report No. IT2022040

From: Kevin Dorsey 
Assistant Inspector General for Information Technology Audits

To: DOT Chief Information Officer
Director, Bureau of Transportation Statistics

Federal agencies and State governments use a variety of geospatial information to support their missions. Geospatial data contain information that is tied to locations on Earth, including geographic location identifiers and characteristics of natural and constructed features and boundaries. Examples of transportation related geospatial data include instrument-flight-rule navigation charts and maps of pipeline inspection boundaries. These data can be critical to monitoring and responding to safety issues.

Department of Transportation's (DOT) Chief Data Officer in the Office of the Chief Information Officer (OCIO), in cooperation with the Bureau of Transportation Statistics (BTS), is responsible for the Department's geospatial data related activities. OCIO currently offers DOT's Operating Administrations (OA)¹ a shared service for geospatial applications and data but OAs can also host data and applications in their own systems.

In October 2018, Congress passed the Geospatial Data Act² (GDA) to codify the committees, processes, and tools used to develop and manage the National Spatial Data Infrastructure (NSDI) which provides the technology, policies, and

¹ DOT consists of nine OAs—the Federal Aviation Administration (FAA), Federal Highway Administration (FHWA), Federal Motor Carrier Safety Administration (FMCSA), Federal Railroad Administration (FRA), Federal Transit Administration (FTA), Maritime Administration (MARAD), National Highway Traffic Safety Administration (NHTSA), Pipeline and Hazardous Materials Safety Administration (PHMSA), and the Great Lakes Saint Lawrence Seaway Development Corporation (GLS)—plus the Office of Inspector General (OIG) and the Office of the Secretary of Transportation (OST). DOT has determined that the GDA does not apply to GLS or OIG because neither collects geospatial data.

² Pub. L. No. 115-254 (2018) (codified at 43 U.S.C. §§ 2801-2811).

employees necessary to promote geospatial data sharing. The act's section 756 requires the Federal Geographic Data Committee (FGDC)³ to identify one or more covered agencies⁴ to serve as lead covered agencies⁵ for data themes.⁶ Section 759 details the responsibilities and reporting requirements for covered agencies.⁷ For example, covered agencies must report annually to FGDC on their efforts to prepare and implement their strategies for advancing geographic information. NSDI includes 18 themes, including a transportation theme. FGDC designated DOT as the lead covered agency for the transportation theme—responsible for addressing GDA's requirements under section 756(b) for the transportation theme—and as a covered agency under sections 759(a) and 759(b).

The act also requires inspectors general⁸ of covered agencies, including the DOT, to report to Congress at least once every 2 years on their agencies' collection, production, acquisition, maintenance, distribution, use, and preservation of geospatial data. Accordingly, our audit objective was to assess DOT's progress since our 2020 GDA audit.⁹ Specifically, we assessed the Department's progress implementing its responsibilities (1) as a lead covered agency under section 756(b) and (2) as a covered agency under sections 759(a) and 759(b) of the act. This year's report is due by October 4, 2022.

We conducted this audit in accordance with generally accepted Government auditing standards. This audit is the second in a series of audits mandated by Congress to oversee compliance with the act. We also coordinated with other covered agencies' Offices of Inspector General through the Council of the Inspectors General on Integrity and Efficiency (CIGIE) on our approach to this audit. We performed the audit at the Headquarters of DOT and the Federal Aviation Administration (FAA) in Washington, DC. Exhibit A details our scope and

³ 43 U.S.C. § 2805. FGDC is a 32-member interagency group composed of Cabinet members and representatives from OMB, the Department of Defense, and other agencies. Committee members are responsible for NSDI's implementation and maintenance.

⁴ GDA applies to covered Federal agencies, including DOT, as defined in Title 5 of the U.S Code (U.S.C), § 101, that collect, produce, acquire, maintain, distribute, use or preserve geospatial data on paper or in electronic form to fulfill their missions as executive departments. GDA is also applicable to National Aeronautics and Space Administration and General Services Administration but excludes the Department of Defense and intelligence agencies. 43 U.S.C. § 2801(3).

⁵ A lead covered agency is responsible for ensuring the coordinated management of data and supporting resources related to services and products associated with a National Geospatial Data Asset theme.

⁶ A data theme is made up of geospatial datasets relating to a topic or subject designated under GDA Section 756. For example, the transportation theme contains data related to all modes of travel that allow the conveyance of persons and/or goods.

⁷ 43 U.S.C. § 2808.

⁸ 43 U.S.C. § 2808(c).

⁹ *DOT Is Making Progress Toward Fulfilling the Requirements of the Geospatial Data Act of 2018* (OIG Report No. IT2021001), October 2, 2020.

methodology. Exhibit B lists the organizations we visited or contacted, and exhibit C lists the acronyms used in this report.

We appreciate the courtesies and cooperation of Department of Transportation representatives during this audit. If you have any questions concerning this report, please call me at (202) 366-1518 or Nathan Custer, Program Director, at (202) 366-5540.

cc: The Secretary
DOT Audit Liaison, M-1
FAA Audit Liaison, AAE-100

Results in Brief

DOT has made progress complying with lead covered agency requirements but has not completed a plan to implement standards for theme data.

As a lead covered agency under section 756(b) of GDA, DOT must fulfill five requirements related to the maintenance and dissemination of its transportation data theme. The transportation theme includes data related to the movement of goods and people, such as airport and runway data, allowing organizations access to geospatial data for transportation planning. In 2020, DOT met two of the five lead covered agency requirements: information on user needs and theme administration. In 2022, DOT fully meets four and partially meets one. For example, BTS implemented the Transportation Theme Strategic Plan and issued the 2022 Human and Financial Resources Needs Report on the transportation theme. DOT has not yet completed the first requirement for lead covered agencies—a plan to implement standards for theme data.

DOT has made progress as a covered agency but has not fully complied with requirements on strategy, records, and use of geospatial information.

Section 759(a) sets 13 requirements for covered agencies.¹⁰ These requirements include implementing a strategy for advancing geographic information and promoting the integration of geospatial data from all sources. In 2020, DOT had met 4 of the 12 applicable requirements¹¹ and in 2022, fully meets 9. The Department has not yet fully complied with the requirements for the implementation of its geospatial information system (GIS) strategic plan, records preparation, and the use of geospatial information. DOT complied with the requirements on annual reporting and maintenance of a geospatial data asset inventory. The Department provided timely information on its annual self-assessments to FGDC and Congress.

We made one recommendation to help DOT fully comply with the requirements for lead covered agencies in section 756(b) of the act.

¹⁰ 43 U.S.C. § 2808(a).

¹¹ One of the 13 requirements—regarding data declassification—does not apply to DOT.

Background

The Federal Government has long recognized the need to coordinate the collection and management of geospatial data. In 1990, the Office of Management and Budget (OMB) revised its Circular A-16¹²—which provides guidance on coordination of Federal surveying, mapping, and related spatial data activities—to establish FGDC and promote coordinated use and dissemination of geospatial data nationwide. In October 2018, Congress enacted the GDA¹³ to improve collaboration across agencies, improve efficiency, and provide oversight of the Federal Government’s investments in geospatial data. The GDA identifies the NSDI as an enabler to ensure that geospatial data from multiple sources are available and easily integrated to enhance the understanding of the physical and cultural world. The importance of the NSDI is reflected in the fact that both the legislative and executive branches recognize its value and have mandated its development. The congressional findings¹⁴ in the GDA recognize

- the value of greater access and use of government and private sector data to the Nation;
- the important role of the private sector in data and services development and acquisition;
- resulting benefits include sparking new, innovative start-ups and services and spurring economic growth; and
- that the promotion of public access to federally funded geospatial data and services increases its use for the purposes of promoting public health, weather forecasting, economic development, environmental protection, flood zone research and other purposes.

The FGDC designated DOT as the lead covered agency for the transportation theme.¹⁵ Lead covered agencies are responsible for coordinating data management, supporting resources, and related services and products in accordance with GDA’s requirements.¹⁶ FGDC has conducted a baseline inventory on agencies and themes that captured details on 16 covered agencies, 18 themes and 173 associated datasets.

¹² OMB last revised Circular No. A-16, Coordination of Geographic Information and Related Spatial Data Activities, in 2002.

¹³ Pub. L. No. 115-254 (2018) (codified at 43 U.S.C. §§ 2801-2811).

¹⁴ 43 U.S.C. § 2801.

¹⁵ 43 U.S.C. § 2805.

¹⁶ 43 U.S.C. § 2805.

The BTS,¹⁷ a part of the Office of the Secretary of Transportation (OST), coordinates the national collection and stewardship of transportation spatial data themes (electronic records). The transportation system includes both physical and non-physical components representing all modes of travel that allow the movement of goods and people between locations.

The Department and BTS have dedicated staff and programs to administer the transportation theme and modify it as necessary. As the theme lead, BTS meets regularly with OST's Geospatial Management Office (GMO) to ensure that the theme complies with GDA requirements and regulations. GMO runs a shared services¹⁸ environment that it uses to publish geospatial data and applications. Various OAs and OST publish their geospatial data to a server within the shared services environment. The BTS also works with OA's geospatial information officers to evaluate geospatial datasets for inclusion in the transportation theme of the NSDI.

DOT, as the lead covered agency for transportation, administers the transportation theme, which currently includes 15 datasets. The address¹⁹ theme has one dataset which is led by DOT, Department of Commerce and Census Bureau. The portfolio of National Geospatial Data Assets (NGDA) datasets is maintained on GeoPlatform.²⁰ Each dataset has a unique identifier, known as its NGDA Identifier or NGDAID that allows the dataset to be tracked throughout its lifecycle.

DOT Has Made Progress Complying With Lead Covered Agency Requirements but Has Not Completed a Plan to Implement Standards for Theme Data

The Department has made progress implementing GDA's requirements for lead covered agencies. However, it has not yet completed a plan to implement standards for its theme data.

¹⁷ 49 U.S.C. § 6302 (3)(vii).

¹⁸ Shared services are web accessible, standards-based tools, applications, and services that enable the discovery, access, integration, and application of geospatial data.

¹⁹ This theme consists of the data elements, attributes, and metadata that specify fixed geographic locations by reference to a thoroughfare or landmark, or a point of postal delivery, or both.

²⁰ GeoPlatform provides capabilities for sharing geographic data, maps, and services that use geospatial data.

DOT Has Made Progress as a Lead Covered Agency

As a lead covered agency under GDA section 756(b), DOT has five categories of responsibilities related to the maintenance and dissemination of its transportation data theme. The Department has now fully implemented four of these responsibilities. In fiscal year 2022, BTS implemented a Transportation Theme Strategic Plan²¹ that describes activities to meet transportation theme goals and objectives per the act.²² It also issued the Transportation Theme's 2022 Human and Financial Resources Needs Report²³ which addresses the human and financial resource needs of the Department and its theme partners.²⁴ The Department has not yet completed a plan to implement standards to support its transportation theme as the act requires.²⁵ See table 1 for explanations of lead covered agencies' responsibilities and DOT's status.

²¹ DOT, *Transportation Theme of the National Spatial Data Infrastructure Strategic Plan 2021-2024*, May 2021.

²² 43 U.S.C. § 2805(b)(3)(B).

²³ DOT, *Transportation Theme of the National Spatial Data Infrastructure Human and Financial Resource Needs Report*, May 2022.

²⁴ Theme partners include BTS, the Federal Aviation Administration, Federal Highway Administration, Bureau of the Census, and U.S. Army Corps of Engineers.

²⁵ 43 U.S.C. § 2805(b)(3)(A)(iii).

Table 1. DOT’s Progress as a Lead Covered Agency

Responsibility	Description	Fiscal Year 2020 Status	Fiscal Year 2022 Status
NGDA theme standards	Lead development and implementation of data standards for the transportation theme with emphasis on a data content standard. Before developing new standards, lead agencies must review standards already in use and adopt them if possible.	Did not meet	Partially meets
Theme plan	Lead the development and implementation of a plan for the nationwide population of the transportation theme.	Partially met	Meets
Establish goals	Establish goals that support the strategic plan for the National Spatial Data Infrastructure prepared under section 755(c).	On hold	Meets
Information on user needs	Collect and analyze information from users of transportation theme data regarding users’ needs for the data and incorporate these needs into theme related strategies.	Met	Meets
Theme Administration	Establish a theme point of contact, submit annual performance reports, and publish maps and coordinates with GeoPlatform.	Met	Meets

Source: OIG analysis

DOT Has Not Developed a Plan to Implement Standards for Theme Data

The act’s section 756(b) and the OMB Circular A-119²⁶ require lead covered agencies to develop a plan to implement standards for theme data. However, BTS has not yet completed its Geospatial Standards Implementation Plan (GSIP).²⁷ The GSIP reviews, assesses, and recommends which geospatial data standards should be adopted to facilitate data exchange and integration. BTS initially planned to complete GSIP development by December 2021 but now anticipates completion in February 2023. It informed us that in February 2022, it awarded a contract for GSIP development. The GSIP will call for assessment of international standards for adoption if practical, development of standards when no appropriate standards

²⁶ OMB Circular A-119, *Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities*, January 2016.

²⁷ 43 U.S.C. § 2805(b)(3).

exist, improve geospatial data integration, and encourage feedback from NGDA dataset managers and other transportation stakeholders.

The Department's lack of a GSIP inhibits its ability to meet the outcomes of its Transportation Theme Strategic Plan, including better data integration and improved geospatial data standards.

DOT Has Made Progress as a Covered Agency but Has Not Fully Complied With Requirements on Strategy, Records, and Use of Geospatial Information

The Department has also made progress complying with GDA's requirements for covered agencies. However, it has not yet fully met the requirements on a strategy for increasing its use of geospatial data in meeting its mission, the inclusion of geospatial data in its record schedules, and the promotion of the use of geospatial information.

DOT Has Made Progress as a Covered Agency

GDA outlines 13²⁸ responsibilities under 759(a) or covered agencies, including implementing a strategy for advancing geographic information, promoting the integration of geospatial data, protecting sensitive personally identifiable information, and allocating resources for geospatial data collection, production, and stewardship. In 2020, we found that DOT had met four of these responsibilities. In fiscal year 2022, DOT has met 9 of the 12 applicable responsibilities. Specifically, the Department completed tasks such as tracking allocated resources, developing procedures to prevent the duplication of data, and developing a process to ensure the quality of metadata. See table 2 for details on DOT's status.

²⁸ In 2020, agencies were exempt from the requirement for the use of geospatial data standards based on a March 2020 letter from CIGIE to Congress concerning the challenges of the first GDA audit, such as evaluating geospatial data standards. This year, the exemption no longer applied and we reviewed DOT's compliance with the requirement. The responsibility regarding declassification of geospatial data does not apply to DOT.

Table 2. DOT's Progress on Its Covered Agency Responsibilities

Responsibility	Description	Fiscal Year 2020 Status	Fiscal Year 2022 Status
Strategy	Prepare, implement, maintain, and publish a strategy for advancing geographic information and related geospatial data and activities.	Partially met	Partially meets
Geospatial data	Collect, maintain, disseminate, and preserve geospatial data.	Met	Meets
Promotion of integration	Promote the integration of geospatial data from all sources.	Met	Meets
Inclusion of geospatial data in agency record schedules	Ensure that data information products and other records created in geospatial data and activities are included on agency record schedules approved by the National Archives and Records Administration.	Partially met	Partially meets
Allocation of resources	Allocate resources to fulfill the responsibilities of effective geospatial data collection, production, and stewardship.	Partially met	Meets
Use of geospatial data standards	Use the geospatial data standards, including documenting geospatial data with the relevant metadata and making metadata available through the GeoPlatform.	On hold	Meets
Coordination	Coordinate and work in partnership with other agencies.	Met	Meets
Use of geospatial information	Use geospatial information to make Federal geospatial information and services more useful to the public, enhance operations, support decision making, and enhance reporting to the public and Congress.	Partially met	Partially meets
Privacy and confidentiality	Protect personal privacy and maintain confidentiality in accordance with Federal policy and law.	Did not meet	Meets
Data declassification ^a	Participate in determining whether declassified data can contribute to and become a part of the NSDI.	N/A	N/A
Review of existing geospatial data	Search all sources to determine if existing geospatial data meets the needs of the covered agency before expending funds for geospatial data collection.	Did not meet	Meets

Responsibility	Description	Fiscal Year 2020 Status	Fiscal Year 2022 Status
Collection of high-quality data	Ensure that a person receiving Federal funds for geospatial data collection provides high-quality data.	Did not meet	Meets
Appointment of Contact	Appoint a contact to coordinate with the lead covered agencies for collection, acquisition, maintenance, and dissemination of the NGDA data themes used by the covered agency.	Met	Meets

^a DOT does not perform declassification of geospatial data at this time.

Source: OIG analysis

DOT Has Not Fully Met Three Requirements for Covered Agencies

While it has made progress, DOT has not yet met these three requirements.

Geospatial Data Strategy. The act requires each covered agency to prepare, maintain, publish, and implement a strategy for increasing its use of geospatial data. On June 13, 2022, OCIO issued its GIS Strategic Plan²⁹ for fiscal years 2022 through 2024 and posted it at [transportation.gov](https://www.transportation.gov), but has not yet implemented the strategy as the act requires. OST’s GMO will oversee implementation of strategic goals for fiscal years 2022 through 2024 and monitor OAs’ compliance with GDA. OAs will report on their progress achieving the goals and work to foster partnerships across the Federal geospatial community and with external stakeholders and partners.

Inclusion of Geospatial Data in Agency Record Schedules. GDA requires covered agencies to include data information products in agency record schedules approved by the National Archives and Records Administration (NARA). In 2020, BTS did not have a process for identifying which data should be preserved as records. In addition, FAA, FTA, MARAD, NHTSA, OST, and PHMSA did not complete their record keeping processes, including comprehensive file plans and record schedules for geospatial data. In fiscal year 2022, only FAA had not prepared documents and submitted them to NARA for approval. FTA, MARAD, NHTSA, OST, and PHMSA informed us that they are waiting for NARA to complete its approval process, which is lengthy.

At the time of our current review, FAA had not yet developed its record schedule and file plan. DOT officials informed us that FAA was working to finalize a

²⁹ DOT, *GIS Strategic Plan, 2022-2024*, June 2022.

geospatial records schedule. The Department officials stated that FAA expects to complete these records in August 2022 and submit them to NARA in September 2022. On August 25, 2022, FAA's Records Management Team provided FAA's Geospatial Records Schedule to NARA for approval. The estimated time of NARA's approval is 12 to 36 months.

Promotion of Use of Geospatial Information. GDA requires covered agencies to use geospatial information to enhance their operations, support decision making, and improve reporting to Congress. In fiscal year 2020, DOT lacked guidance on using geospatial data to enhance operations. However, the GIS Strategic Plan for fiscal years 2022 through 2024 that OCIO issued in June 2022 includes guidance for enhancing operations with geospatial data. It also establishes ongoing monitoring of its strategy's goals and objectives.

DOT Has Met the Reporting and Inventory Requirements for Covered Agencies

DOT has complied with the reporting and inventory requirements under section 759(b)³⁰ and OMB's Circular A-130³¹ (see table 3).

In April 2022, the Department submitted its annual report to FGDC and Congress. This report documents the activities relating to DOT's preparation and implementation of its strategy for geospatial data, appropriate to the Department's mission, and its achievements in complying with the requirements of section 759(a). Each covered agency must also establish and maintain an inventory of its geospatial data assets. Since 2020, DOT's inventory has increased from 25 to 51 assets (see exhibit E for examples of DOT's inventory).

The Department also conducted an authorization to operate for its GIS, major applications and secured software used to support GIS.

³⁰ 43 U.S.C. § 2808(b).

³¹ Under OMB Circular A-130, agencies must ensure that physical devices, software applications, hardware platforms, and systems within the organization are inventoried.

Table 3. Status of DOT’s Compliance with Its Covered Agency Reporting Responsibilities

Responsibility	Description	Fiscal Year 2020 Status	Fiscal Year 2022 Status
Annual report	Each covered agency shall submit an annual report to FGDC and Congress.	Did not meet	Meets
Geospatial data asset inventory	Each covered agency shall maintain an inventory of its geospatial data assets in accordance with OMB Circular A-130.	Did not meet	Meets

Source: Geospatial Data Act of 2018 and OIG analysis

Conclusion

DOT has made progress meeting the requirements of the Geospatial Data Act of 2018 for both lead covered agencies and covered agencies. However, it lacks a Geospatial Standards Implementation Plan, the full implementation of its GIS Strategic Plan, and compliance with records and use of geospatial information requirements. These deficiencies inhibit the Department’s ability to meet the goals of its Transportation Theme Strategic Plan, including better data integration and improved geospatial data standards.

Recommendations

To help the Department continue to fulfill the requirements of the Geospatial Data Act, we recommend that the Chief Information Officer implement our previous recommendations that remain open (see exhibit D) and:

1. The Director of Bureau of Transportation Statistics complete and implement the DOT Geospatial Standards Implementation Plan in accordance with section 756(b) of the Geospatial Data Act of 2018.

Agency Comments and OIG Response

We provided OST with our draft report on August 10, 2022, and received its formal response on September 12, 2022. OST's response is included in its entirety as an appendix to this report. OST concurred with our recommendation and proposed appropriate actions and completion dates.

Actions Required

We consider our recommendation resolved but open pending completion of the planned actions.

Exhibit A. Scope and Methodology

We conducted this performance audit between February 2022 and August 2022. This performance audit was conducted in accordance with generally accepted Government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

GDA³² requires inspectors general of covered agencies to report to Congress at least once every 2 years on their agencies' collection, production, acquisition, maintenance, distribution, use, and preservation of geospatial data. This audit is the second in a series of audits mandated by Congress to oversee compliance with the act, due no later than October 4, 2022. Our audit objectives were to assess DOT's progress since our 2020 GDA audit³³ in implementing its responsibilities (1) as a lead covered agency under section 756(b) and (2) as a covered agency under sections 759(a) and 759(b) of the act. For this second audit, we:

- coordinated with other covered agencies' Offices of Inspector General through the Council of the Inspectors General on Integrity and Efficiency (CIGIE) on our approach to this audit;
- reviewed applicable laws, legislation, and regulatory requirements and guidance related to geospatial data;
- interviewed DOT, BTS, OST's GMO, and OA program and security personnel responsible for implementing lead covered agency and covered agency requirements per the act;
- obtained and analyzed DOT and OA documentation of organization collection, production, acquisition, maintenance, distribution, use, and preservation of geospatial data;
- assessed DOT's progress in implementing its responsibilities since the first GDA audit by obtaining status updates and documentation of open recommendations and determined if these recommendations were ready for closure or should remain open;

³² 43 U.S.C. § 2808(c).

³³ *DOT Is Making Progress Toward Fulfilling the Requirements of the Geospatial Data Act of 2018* (OIG Report No. IT2021001), October 2, 2020.

- confirmed whether the Department submitted an annual report to Federal Geographic Data Committee (FGDC) and Congress on its geospatial data-related activities and achievements as a covered agency; and
- assessed whether the Department maintains an inventory of its geospatial data assets in accordance with OMB Circular A-130.³⁴

³⁴ OMB Circular A-130, *Managing Information as a Strategic Resource*, 2016, Agencies must ensure that physical devices, software applications, hardware platforms, and systems within the organization are inventoried.

Exhibit B. Organizations Visited or Contacted

DOT Organizations Contacted

Bureau of Transportation Statistics
Federal Aviation Administration
Federal Highway Administration
Federal Motor Carrier Safety Administration
Federal Railroad Administration
Federal Transit Administration
Geospatial Management Office
Maritime Administration
National Highway Traffic Safety Administration
Office of the Chief Information Officer
Office of the Secretary of Transportation
Pipeline and Hazardous Materials Safety Administration

Exhibit C. List of Acronyms

BTS	Bureau of Transportation Statistics
CIGIE	Council of the Inspectors General on Integrity and Efficiency
DOT	Department of Transportation
FAA	Federal Aviation Administration
FGDC	Federal Geographic Data Committee
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GDA	Geospatial Data Act
GIS	Geospatial Information System
GLS	Great Lakes Saint Lawrence Seaway Development Corporation
GMO	Geospatial Management Office
GSIP	Geospatial Standards Implementation Plan
MARAD	Maritime Administration
NARA	National Archives and Records Administration
NGDA	National Geospatial Data Assets
NHTSA	National Highway Traffic Safety Administration
NSDI	National Spatial Data Infrastructure
OA	Operating Administration
OCIO	Office of the Chief Information Officer
OIG	Office of Inspector General
OMB	Office of Management and Budget
OST	Office of the Secretary of Transportation
PHMSA	Pipeline and Hazardous Materials Safety Administration
RTAD	revised target action date

Exhibit D. Status of Prior OIG Recommendations

No.	Description of OIG Recommendation	Status
1	Update the NGDA Theme plan with the processes to identify, assess, and develop NGDA standards based on the Act.	Closed 3/22/2022
2	Develop and implement a process to track the financial resources necessary to manage the NGDA Transportation data theme.	Closed 5/13/2022
3	Develop, publish and implement DOT's strategy for geospatial data-related activities as defined in its Geospatial Information System Strategic Plan.	Open RTAD 12/30/2022
4	Work with the Chief Data Officer to verify that all OAs designate an appropriate individual as a geospatial information officer.	Closed 10/27/2020
5	Work with OA records officers to verify that FAA, FTA, MARAD, NHTSA, OST, and PHMSA allocate appropriate resources to complete file plans and record schedules development activities through submission to the DOT Records Management Office.	Closed 9/16/2022
6	Track and monitor FRA's, MARAD's, NHTSA's, and PHMSA's allocated resources to meet the responsibilities of effective geospatial data collection, production, and stewardship.	Closed 6/1/2022
7	Develop, disseminate, and implement a uniform process for all OAs to perform a quality review of geospatial data to verify compliance with DOT's information quality guidelines. This process should include a method of ensuring recipients of DOT funds for geospatial data collection meet appropriate quality standards, as well as an assessment of stakeholder and peer reviews in order to validate the quality of all disseminated information.	Closed 2/18/2022
8	Update, disseminate and implement DOT's internal data inventory policy to address how the OAs should verify that geospatial data and metadata does not inappropriately disclose personally identified information to external parties and include guidelines on tracking and maintaining geospatial data asset inventory and validating that inventories are complete.	Closed 6/29/2022
9	Develop a process to verify that the OAs are aware of and apply DOT's Privacy Risk Management Policy, requiring privacy risk management activities to be completed for geospatial information systems prior to next system reauthorization.	Closed 6/1/2022
10	Develop and implement a procedure that documents and tracks all responsibilities outlined in the Geospatial Policy on Reducing Duplication are implemented to include DOT's and OAs' implementation of geospatial clearinghouse searches to validate no duplication of funds.	Closed 10/28/2021
11	Develop and maintain a process to verify that all geospatial metadata meets quality standards that strengthen the internal control process to improve the quality of metadata reported on DOT's enterprise data inventory.	Closed 1/19/2022
12	Establish, document and implement a process for ongoing monitoring of its strategy for advancing geospatial information and related geospatial data and activities appropriate to its mission in accordance with requirements of the Federal Internal Control Standards	Open RTAD 12/30/2022
13	Working with the OAs, require that all geospatial information systems maintain authorization status in accordance with departmental cybersecurity policies.	Closed 6/1/2022

Exhibit E. Examples in DOT's Inventory of Geospatial Assets

OA	Type of Asset	Name of Asset
FAA	Dataset	Airports (National) Airports
FAA	Dataset	Runways (National) Runways
FAA	Information System	Emergency Operations Network
FAA	Information System	EON (Google) Earth
FAA	Major Application	Aviation Environmental Design Tool
FAA	Major Application	Aeronautical Data Exchange
FAA	General Support System	ATO Non-Federal Facilities Web Application
FAA	General Support System	FALCON
FHWA	General Support System	Information Technology Division General Support System
FHWA	Information System	National Tunnel Inventory
FHWA	Dataset	National Bridge Inventory
FMCSA	Information System	Motor Carrier Management Information System
FRA	Information System	Railroad Network System
FRA	Dataset	Rail Nodes
FRA	Software Licenses	ArcGIS Server
MARAD	Dataset	America's Marine Highway Routes
MARAD	Dataset	Strategic Ports
NHTSA	Major Application	Crash Data Acquisition Network
OST/BTS	Dataset	Freight Intermodal Facility (National) Intermodal (Freight)
OST/GMO	Desktop Application	ArcGIS Pro
OST/GMO	General Support System	Data Access and Visualization Environment
PHMSA	Major Application	National Pipeline Mapping System
PHMSA	Major Application	Pipeline Risk Management Information System

Source: OIG analysis of DOT's GIS and major applications security documents that support the authorization to operate and related documents.

Exhibit F. Major Contributors to This Report

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Appendix. Agency Comments



Memorandum

**U.S. Department of
Transportation**

Office of the Secretary
of Transportation
Office of the Chief Information Officer

Subject: **INFORMATION:** Management Response to the
Office of Inspector General (OIG) Draft Report - DOT
Has Made Progress Meeting the Requirements of the
Geospatial Data Act of 2018

Date: September 12, 2022

From: Daniel Morgan
Chief Data Officer
Office of the Chief Information Officer

DANIEL SCOTT MORGAN

Digitally signed by DANIEL SCOTT
MORGAN
Date: 2022.09.12 08:50:28 -04'00'

To: Kevin Dorsey, Assistant Inspector General for Information Technology Audits

The Department of Transportation (Department or DOT) is a leader in the Federal geospatial community. When the Geospatial Data Act (GDA or Act) was signed into law in October 2018, DOT immediately began implementation. We chair the cross-agency working groups focused on addressing the Act's requirements. The Department's Chief Data Officer and Chief Geospatial Information Officer (GIO) coordinated with Operating Administration (OA) subject matter experts, the Bureau of Transportation Statistics, Chief Information Security Officer, Privacy Officer, and Records Management liaisons to implement actions to comply with the GDA.

DOT has made steady progress on implementing the requirements of the Act. Ten of the thirteen recommendations from the 2020 OIG Audit have been closed. Two of the remaining three recommendations are anticipated to be closed by the end of calendar year 2022. DOT recognizes that geospatial endeavors are important to the Department's operations. Further, the Geospatial Management Office continues to grow its staffing, resources, and partnerships. Each OA having geospatial data and/or programs has selected its GIO. This team of GIOs monitor geospatial programs in the OAs, report geospatial expenditures and resources, and assist the Geospatial Management Office with GDA compliance.

After reviewing OIG's draft report, DOT concurs with recommendation 1 as written. We plan to complete actions to implement recommendation 1 by September 30, 2023.

DOT appreciates the opportunity to respond to the OIG's draft report. Please contact Daniel Morgan, Chief Data Officer, at daniel.morgan@dot.gov or (202) 366-4308, with any questions or if you would like additional details.

U.S. Department of Transportation
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