

**National Geospatial Advisory Committee Webinar  
Meeting October 16-17, 2024  
Draft Minutes**

The National Geospatial Advisory Committee (NGAC) held a public meeting on October 16-17, 2024, from 9:00 a.m. to 5:00 p.m. on October 16<sup>th</sup> and from 9:00 a.m. to 4:00 p.m. on October 17<sup>th</sup>. The meeting was held via webinar, teleconference, and in-person at the Department of Interior (DOI) Headquarters in Washington D.C. In accordance with the requirements of the Federal Advisory Committee Act, the meeting was open to the public.

**NGAC members present:**

Maggie Cawley, NGAC Chair  
Bert Granberg, NGAC Vice Chair  
Nadine Alameh  
Clio Andris  
Frank Avila  
Chad Baker  
Byron Bluehorse  
Jack Dangermond  
Lynn Dupont  
Holli Howard  
Leslie Jones  
Tony LaVoi  
Mark Meade  
Curtis Pulford  
Devaki Raj  
Siva Ravada  
Breece Robertson  
Vasit Sagan  
Kathleen Stewart  
Gary Thompson  
Tim Trainor

Josh Delmonico, Executive Director of the Federal Geographic Data Committee (FGDC) and Designated Federal Officer (DFO) for the NGAC, and Ken Shaffer, Alternate DFO, were also in attendance.

**NGAC members not in attendance:**

Phil Thiel  
Ryan Mattke

**Other Attendees:**

Roxanne Alban Clifton (U.S. Census Bureau), Peter Arnold (National Geospatial-Intelligence Agency (NGA)), Dierdre Bevington Attardi (U.S. Census Bureau), Deirdre Bishop (U.S. Census

Bureau), Earl F. Burkholder (Global COGO, Inc.), John "JB" Byrd (National Society of Professional Surveyors (NSPS)), G David Cackowski (U.S. Census Bureau), Julie Carter (USGS Support), Pat Commens (Esri), Troy D. Curry (George Mason University), Libby DuBan (USGS), Derald Dudley (Department of Transportation (DOT) Bureau of Transportation Statistics (BTS)), Erin N. Dudley (U.S. Department of State), Lara Duffy (Geospatial Consulting Group International, LLC (geocgi)), Eric Finner (National Geospatial-Intelligence Agency (NGA)), Donna Frazier (National Geospatial-Intelligence Agency (NGA)), Eldrich L. Frazier (United States Geological Survey (USGS)), James Irvine (ArdenMC), Michelle Jaeger (USGS Support), Dexter Jagula (SkyWatch), Colin Johnson (Geospatial Consulting Group International, LLC (geocgi)), Nathan Jones (U.S. Census Bureau), Vicki Lukas (U.S. Geological Survey (USGS)), John Mahoney (United States Geological Survey (USGS)), Timothy R. Newman (U.S. Geological Survey (USGS)), Glenn O'Grady (Urban and Regional Information Systems Association (URISA)), Taylor Oshan (University of Maryland), Mark Reichardt (Geospatial World, LLC), Jill Saligoe-Simmel (Esri), Vaishal Sheth (USGS Support), Jim Vrabel (U.S. Geological Survey (USGS)), Lynda Wayne (GeoMaxim)

## **Wednesday, October 16, 2024 NGAC Public Meeting Minutes**

### **Welcome & Brief Introductions**

NGAC Chair, Ms. Maggie Cawley, called the meeting to order at 9:00 a.m. and welcomed members and public attendees.

### **Leadership Update**

The Chair introduced Annalise Blum, Department of the Interior's Deputy Assistant Secretary for Water and Science who provided an update on Departmental activities. Highlights include:

- Partnerships and collaborations are a vital component of the FGDC's work, and the NGAC always plays a key role in facilitating these partnerships.
- Thanked NGAC for their participation in developing the 2025 – 2035 NSDI Strategic Plan. NGAC's perspectives helped to ensure the plan represented a truly national plan and not a Federally focused plan.
- The FGDC approved a new Standards process, an associated standards nomination form, and a Standards Working Group, where subject matter experts will address mandated standards requirements.
- The FGDC is currently identifying the critical issues it will focus on for 2025.
- NGAC's advice and recommendations are important both to the execution of Federal missions and practices, and to the broader national stakeholders and partners who work collaboratively to serve the needs of the Nation and its citizens and deliver high-value geospatial data and services to address local-to-national-to-global issues and priorities.
- The NGAC has been a tremendous benefit to the FGDC, and we appreciate your service on the committee.

## Housekeeping

### Review and Adoption of Minutes from April NGAC meeting

The draft minutes of the April 2024 NGAC meeting were reviewed, and the Chair called for approval.

**DECISION:** The NGAC adopted the minutes of the April 2-4, 2024 NGAC meeting.

### Addition of Non-NGAC Members to Subcommittees

The Chair announced the list of subject matter experts (SMEs) who were proposed by NGAC members to join NGAC subcommittees. Proposed additions of subject matter experts (SMEs) to subcommittees were reviewed and approved. These individuals, though not NGAC members, will support various NGAC activities. Clarification was provided regarding the process of adding new members, emphasizing transparency, term-specific appointments, and the possibility of future nominations. The following SMEs were approved:

Subcommittee	SME	Title
LAG	R. Douglas Ramsey	Professor, Dept of Wildland Resources, Utah State
LAG	Kashif Mahmud, Ph.D.	Asst. Professor, Midwestern State University
LAG	Yufang Jin, Ph.D.	Professor of Remote Sensing and Ecosystem Change & Environmental Scientist in the AES
LAG	Nirav Patel, Ph.D.	Sr. Scientist and PM (Remote Sensing) at DIU
LAG	David Case	Spectral Imagery Scientist at NGA's Office of Sciences and Methodologies
NSDI, Near-term opportunities working group	Alex Harper	GIS Manager Central Arkansas Water / Pulaski Area GIS
NSDI, Near-term opportunities working group	William Johnson	Applied Geographics, Inc. (retired)
NSDI, Near-term opportunities working group	Michael Byrne	Sr. Vice President, Conexon, LLC
NSDI, Best practices working group	Jill Saligoe-Simmel	Principal Product Manager, Esri
NSDI	Josh Campbell	Founder/CEO Sand Hill Geographic
NSDI	Megan Compton	Indiana GIO
NSDI	Taylor Oshan	Associate Professor in GIScience
NSDI	Howard Veregin	Wisconsin State Cartographer

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## Endorsement of the NSDI Strategic Plan

The Chair called for final comments regarding the final draft NSDI Strategic Plan. The FGDC is currently voting to approve the final plan, votes are due October 18, 2024.

**DECISION:** The NGAC endorsed *Building the Geospatial Future Together – the NSDI Strategic Plan 2025 – 2035*.

## **OMB Session**

Expected guest Ms. Laura Gerhardt (OMB) was unable to attend. The chair requested related questions be held until a future meeting.

## **Value of Government Data**

Clio Andris provided a brief overview of a recent Georgia Institute of Technology study entitled "Private, Public, and Personal: Shifting Patterns in Geospatial Data Sources," which explored shifts in geospatial data usage in research. Highlights include:

- Key Research Questions included:
  1. How has government geospatial data usage changed in GIS research over time?
  2. Which GIS subfields rely on government data, and how do they compare to private and fieldwork data sources?
  3. Are funding sources for research data consistently reported, and is the underlying data made available for use?
- Findings:
  - Government Data Usage: Government data remains crucial in GIS research, and despite the rise of private data (especially after 2010), private sources have not overtaken government sources.
  - Data Trends Across Fields: Digital elevation models and spatial statistics are heavily reliant on government data, while volunteer geographic information (VGI) leans more on private, crowd-sourced data.
  - Advanced Analysis Methods: Advanced methods such as machine learning were more frequently applied to government and private data than fieldwork, which was often associated with basic analysis techniques.
  - Funding and Data Availability: A significant portion of articles included funding disclosures, especially when using private data. However, data sharing was more prevalent in government datasets than private ones. Journals increasingly require transparency about funding and data availability.
- Limitations:
  - Limited to six specific GIS journals, focusing on data from 2000-2020. The study did not cover remote sensing or non-English journals, which could present a more comprehensive view.
  - Classification of data types between private and government sources can be blurred, highlighting the need for refined categories.
- Key Takeaways:
  1. Government data remains essential and has not been completely replaced by private sources.

2. Access to private sector data is crucial for research replication, and consistent data standards would benefit wider academic use.
  3. Future research could expand to cover remote sensing data, non-English journals, and international perspectives on U.S. data usage.
- NGAC members suggested further exploration in the integration of private sector data and its implications for non-profit funding and international collaboration.

### **FGDC Updates**

Mr. Josh Delmonico provided Federal Geographic Data Committee (FGDC) Updates. Highlights included the following:

#### OMB Circular A-16:

- OMB is working on finalizing updates to OMB Circular A-16, which guides federal geospatial data management.
- The revised circular is expected to provide clarity on the roles and responsibilities of the FGDC and its authority for issuing policy and guidance. .

#### GDA Audits and Reporting:

- The FGDC has been working on streamlining the reporting process under the GDA. Changes include consolidating individual requirement summaries into a single, holistic report to make the process more efficient and reduce redundancy.
- Results from the Fiscal Year (FY) 2024 GDA audits are expected to be published by late fall.

#### GeoPlatform Challenges and Future Direction:

- The GeoPlatform, a shared service, has faced operational and funding challenges. Despite efforts to streamline and improve the platform, there has been criticism regarding its usability and effectiveness.
- Mr. Delmonico noted that one of the main issues has need for FGDC to provide clear requirements tofrom the FGDC to the managing partner.
- Future plans include exploring innovative ways to enhance data integration and usability on the platform, aligning it with broader national geospatial objectives.

#### 2025-2035 NSDI Strategic Plan:

- The strategic plan sets a clear vision for the National Spatial Data Infrastructure (NSDI) over the next decade. The development process engaged over 1,000 individuals and 30 organizations, reflecting a collaborative approach.
- Key goals include improving data interoperability, supporting the integration of various data sectors, and fostering public-private partnerships.
- Implementation plans will be developed, with plans to conduct webinars and workshops to guide agencies and stakeholders through the process. Metrics will be established to track progress and ensure accountability.

- Participants highlighted the importance of broad engagement, suggesting that the FGDC should foster better communication across sectors, including academia, nonprofits, and private industry, to ensure a more integrated and effective national geospatial strategy.

#### Governance and Standards:

- The FGDC is working to update governance structures to better align with evolving geospatial needs. This includes revising charters and establishing clear guidelines for subcommittees to enhance coordination and oversight.
- A new standards endorsement process was approved, aiming to promote interoperability across geospatial systems. The process involves technical reviews by a working group, followed by recommendations to the FGDC Steering Committee for final approval.

#### NGAC Appointments and Schedule:

- The FGDC is authorized to appoint up to 30 members to the National Geospatial Advisory Committee (NGAC). Currently, there are 23 members, and seven new appointments are expected in the fall of 2024.
- The appointment process has been expedited to ensure continuity, though there may be delays in filling 2025 vacancies until summer 2024 with the change in administration.
- The 2025 NGAC meeting schedule was announced, including a mix of virtual and in-person meetings to facilitate collaboration.

#### **NGAC Roadmap Session, Part 1**

Led by Chair Cawley, this was the first of a two-day session focused on aligning NGAC members on their purpose, strengths, and long-term goals. The session aimed to define how NGAC can be more effective and impactful, both internally and in supporting the FGDC. Highlights included:

##### Purpose of the Roadmap:

- The roadmap seeks to clarify roles, streamline onboarding of new members, and increase NGAC's collective impact. It is not an FGDC-specific plan but rather a guide for NGAC to maximize its influence and collaboration.
- Emphasis was placed on creating a shared vision and establishing clear short- and long-term goals, enabling more strategic planning and execution.
- Key Themes Discussed:
  - Purpose and Strengths: Members brainstormed about NGAC's purpose, highlighting the importance of knowledge sharing, problem-solving, and advocacy.
  - Strengths of NGAC: Collective longevity, diversity of experience, and a commitment to collaboration were identified as key strengths. Members emphasized the value of having a unified, collective voice to address national geospatial priorities.
  - Strategic Thinking: The session underscored the need to think big, strategize long-term changes, and tackle complex issues that may not have the bandwidth or resources within other agencies.

- Key Takeaways:
  - Members agreed on the need to streamline processes, reduce duplicative efforts, and improve communication. Suggestions included more defined roles for new members and better use of social media to share outcomes and insights from meetings.

### **Subcommittee Deep Dive Sessions:**

The NGAC Subcommittee Chairs and Vice-Chairs provided an update on the subcommittee activities. Highlights included the following:

#### Landsat Advisory Group (LAG)

Mr. Frank Avila (Chair) and Dr. Vasisht Sagan (Vice-Chair) provided an update on subcommittee activities.

- Task 1: Future Data Products:
  - LAG is working on two key papers. The first focuses on enhancing interagency collaboration between USGS, NASA, and NOAA. It aims to develop standardized and improved data products, particularly addressing user needs for ready-to-use, analytics-ready outputs like temperature maps and deforestation indicators.
  - The group emphasized the importance of standardizing data across sensors (e.g., Landsat, Sentinel) to provide end users with accessible and consistent information.
- Task 2: Interagency Operational Efficiencies:
  - Efforts are underway to improve how various agencies handle the storage, archiving, and dissemination of data. The goal is to find efficiencies and standardize processes across USGS, NASA, and NOAA.
  - A short paper endorsing interagency collaboration has already been completed, and a more detailed analysis is being prepared to explore existing effective models and potential improvements.
- Questions were raised about expanding these collaborations to include international agencies like the European Space Agency (ESA). While not directly addressed in the current task, LAG has considered harmonizing U.S. and European data in past projects.
- The importance of replicating USGS's effective use of LAG's recommendations was noted, with discussions on how other agencies could adopt similar collaborative approaches.

#### National Land Imaging (NLI) Program

Mr. Tim Newman (USGS) shared updates on the National Land Imaging (NLI) Program, emphasizing the successful operation of Landsat 8 and 9 and the planned decommissioning of Landsat 7 following the cancellation of a refueling mission.

- The NLI program, which oversees the Landsat satellite series, is a critical component of the U.S. Earth observation infrastructure. The program supports a range of users across federal, state, and local agencies, as well as international partners.
- Current Status of Landsat Satellites:

- Landsat 7 is being decommissioned following the cancellation of NASA's planned refueling mission. Landsat 7 has provided valuable data for over 25 years, and while it is no longer actively collecting images, its contributions are widely recognized.
- Landsat 8 and 9, both satellites are performing well, continuing to collect high-quality imagery that supports a range of applications. Landsat 8 and 9 data remain essential for ongoing projects, especially in agriculture, forestry, and water resource management.
- Landsat Next Mission:
  - The upcoming Landsat Next mission represents the future of the Landsat program. NASA awarded the instrument contract to Raytheon, and development is progressing, although budget uncertainties for FY2025 are causing delays. The goal is to launch the new satellites around 2031.
  - Unlike previous single-satellite missions, Landsat Next will feature a trio of smaller satellites flying in tandem. This "triplet architecture" allows for improved data coverage, with a revisit frequency of six days and enhancements in spectral and spatial resolution compared to current satellites. The triplet architecture aims to provide twice the spectral and spatial resolution of current missions, which will greatly enhance data utility for users.
  - The Department of State has partnered with Australia, which is investing \$300 million to support infrastructure for the mission, further solidifying international cooperation for Landsat Next.
  - Department of Agriculture (USDA) have strongly endorsed the Landsat program, citing its critical role in agricultural monitoring, drought assessment, and land management. The USDA has expressed support for the triplet architecture, which promises more frequent and detailed data, benefiting a range of agricultural applications.
- Economic Impact Studies:
  - A recent economic study conducted by the Native America Technology Corporation (NATECH) valued the annual global benefits of the Landsat program at \$25 billion. This is a conservative estimate, focusing primarily on users accessing data through USGS's Earth Explorer platform.
  - The study projected even greater benefits for Landsat Next, estimating an annual economic impact of \$33 billion due to the program's improved capabilities. This highlights the substantial return on investment for maintaining and expanding the Landsat program.
  - The National Land Cover Database (NLCD), traditionally, was updated every 2-3 years, but the program is transitioning to annual updates. This shift will provide users with more current and accurate data, aiding in time-sensitive applications such as environmental monitoring and urban planning.
- Public Engagement Initiatives: As part of broader efforts to raise awareness, the program introduced an interactive tool allowing users to create personalized maps using Landsat imagery. This initiative gained traction on social media, sparking public interest and highlighting the program's ongoing relevance.



- Challenges and Future Directions:
  - Budget Uncertainty:
    - The current fiscal uncertainties have posed challenges for the timely progression of Landsat Next. Both NASA and USGS are closely monitoring the budget situation, aiming to mitigate delays and keep the mission on track.
  - International Collaboration:
    - The partnership with Australia is a key milestone, demonstrating the growing international support for the Landsat program. Moving forward, similar collaborations could expand the program’s capabilities, ensuring comprehensive global coverage and data sharing.
  - Technological Advancements:
    - The triplet architecture and improved resolution of Landsat Next represent a significant technological leap, aiming to meet the evolving needs of users worldwide. The focus will be on producing high-quality, frequent data that supports applications across various sectors, including climate monitoring, disaster management, and resource conservation.

### 3D Elevation Program (3DEP) Subcommittee

Mr. Gary Thompson (Chair) and Ms. Gale Blackmer (Vice-Chair) provided an update on subcommittee activities.

- Recent activities have focused on enhancing the program’s research capabilities and collaboration with academic and private sectors. The subcommittee recommended engaging with the OpenTopography Facility to foster community-wide participation in advancing 3DEP’s research.
- Regular upgrades to LiDAR sensors are necessary; annual reviews can ensure equipment remains state-of-the-art. Total Propagated Uncertainty (TPU) modeling is important for accurate data.

Ms. Vicki Lukas (USGS) provided an update on 3D National Topography Model (3DNTM) Update.

- The initiative aims to create a seamless, integrated 3D topographic model of the U.S., combining elevation and hydrography data. The 3DNTM is a key component of the broader 3D Nation Vision, which seeks to map from the ocean floor to mountain peaks.
- 3DEP has achieved 98.3% baseline coverage of the U.S., with plans to complete the dataset by FY2026. Partnerships have been critical, with over 350 organizations contributing 65% of funding.
- Using Inflation Reduction Act funding, USGS is developing a one-meter seamless digital elevation model, piloted in the Androscoggin River watershed. There are also efforts to create a federated data governance model to integrate various LiDAR datasets collected by different agencies.
- 3D Hydrography Program: A major initiative to align hydrography data with 3DEP, ensuring vertical, horizontal, and temporal consistency. FY2024 saw significant progress, with over 16% of the nation covered.

## Geospatial Data Act of 2018 (GDA) Subcommittee

Mr. Chad Baker (Chair) provided an update on subcommittee activities and a number of subcommittee focus areas. These focus areas are in response to the GDA Implementation Evaluation paper NGAC approved in 2023.

- Focus Area 1: Reporting Requirements:
  - Recommendations aim to shift from process-oriented to outcome-oriented metrics, advocating for changes in how data reporting is managed, including the frequency of audits and the nature of reporting. The subcommittee seeks more flexible, impactful measures rather than rigid compliance checks.
  - A key goal is to reduce the burden on agencies by suggesting that full audits occur every four years instead of two.
- Focus Area 2: NGDA Assessment:
  - The subcommittee plans to revisit how National Geospatial Data Assets (NGDAs) are prioritized and assessed, ensuring that the most critical datasets receive attention. They have proposed engaging with the new NSDI Geospatial Data Coordinator once the position is filled.
- Focus Area 3: GeoPlatform:
  - Discussions centered on improving the GeoPlatform, a key tool for data sharing. Recommendations include clarifying its business case and governance structure to better serve federal and national data needs. The subcommittee stressed the importance of collaboration with the Findable, Accessible, Interoperable, and Reusable (FAIR) Data Subcommittee.
- The subcommittee is working closely with FGDC to ensure recommendations are actionable and aligned with FGDC's strategic goals. They plan to present a comprehensive report by early 2025, aiming for timely implementation before changes in committee membership.

## **Adjourn**

### Closing Remarks

Ms. Cawley provided an overview of the Day 2 agenda and a recap of Day 1.

She expressed gratitude to several individuals attending their final public meeting, acknowledging Clio Andris, Frank Adler, Byron Bluehorse, Darlene LaVoy, Kathleen Stewart, and Gary Thompson for their service and contributions.

## Thursday, October 17, 2024 NGAC Public Meeting Minutes

### Welcome

The meeting was called to order at 9:00 a.m. by NGAC Vice Chair, Mr. Bert Granberg, who welcomed members and public attendees. Ms. Julie Carter, FGDC Support, provided an overview of the day's schedule.

### Subcommittee Deep Dive Sessions, Continued

The Chair and Vice-Chair for the final subcommittee provided an update on the National Spatial Data Infrastructure (NSDI) subcommittee activities.

#### National Spatial Data Infrastructure (NSDI) Subcommittee

Mr. Granberg (Chair) provided an update on subcommittee activities. The subcommittee is working on several initiatives aimed at improving geospatial data accessibility, documentation, and standardization within the NSDI.

- The current NSDI subcommittee combined the FAIR Data subcommittee and the Standards and Data Access subcommittee. The NSDI subcommittee now includes a number of working groups focused on data access, standards, and "quick wins," streamlining efforts and aligning focus areas under a cohesive structure.
- The subcommittee is currently working on three main papers, with a potential fourth in the works. The goal across these papers is to improve information products, enhance data accessibility, and create efficiencies.

#### Best Practices for Metadata and Publishing Data to the Web:

- Led by Ryan Mattke, this paper focuses on standardizing essential metadata elements to ensure that critical information is well-documented across geospatial datasets. The emphasis is on maintaining existing standards and improving adoption within federal agencies and other NSDI contributors.
- The paper aims to document best practices for minimum viable product (MVP) metadata and promote consistent use across platforms. Although it may seem straightforward, documenting these practices is seen as valuable for creating a model that could be adopted nationwide.

#### Best Practices for Publishing Geospatial Data:

- This paper, also led by Ryan Mattke, seeks to outline guidelines for publishing geospatial data on the web, emphasizing key principles such as persistent URLs, search engine optimization, and the importance of open licenses to enable broader data reuse.
- The goal is to formalize best practices that can be implemented within the federal space and serve as a national model for geospatial data sharing.

#### Near-Term Opportunities or "Quick Wins":

- The subcommittee has compiled a list of "quick wins" that could enhance NSDI efforts. These opportunities were evaluated by members through a survey, resulting in a ranked list of potential initiatives, which include:
  1. Clearly Define "What is the NSDI?":
    - The need for a clear, pragmatic definition of the NSDI, including data and services, was the top priority. Participants emphasized the importance of

making the NSDI concept accessible and understandable to stakeholders, ensuring clarity on its purpose and scope.

2. Implementation Plans for NGDA Themes:
    - Developing plans to improve the quality and accessibility of National Geospatial Data Assets (NGDA) themes received strong support. The aim is to ensure comprehensive and consistent data across various agencies.
  3. Define a Tier Structure for NGDA Layers:
    - Participants suggested prioritizing foundational data layers to help data managers and users better understand the hierarchy and significance of different datasets.
  4. Articulate Key NSDI Use Cases and Core Capabilities:
    - Highlighting how NSDI data can support critical applications, including public safety, disaster response, and economic development, would help communicate the value of the NSDI to a broader audience.
- Other Recommendations: Develop an NSDI website or curated data guide to improve data discoverability, support pilot projects, and add open licenses to datasets to facilitate reuse.
  - A survey was conducted to rank the proposed quick wins, with responses showing broad support for initiatives. However, lower scores on some topics indicated the need for more information or adjustments to specific proposals.

#### User-Centric Data Discovery and Experience:

- This paper focuses on enhancing the user experience for data discovery, ensuring that individuals can easily find and access the geospatial data they need. It proposes practical guidelines to improve the overall journey from data search to usage, reducing friction points that might discourage data utilization.
- Emphasized the importance of efficient and intuitive data interfaces, like clear search functionalities, metadata previews, and download options, to support users ranging from students to professionals.

#### Next Steps

- The subcommittee aims to finalize drafts of the papers by December for review, with a goal of adoption by February. This timeline allows for a quick turnaround, ensuring that new guidelines and recommendations can be implemented efficiently.
- Members were encouraged to continue providing feedback on the quick wins and potential new initiatives to ensure that the subcommittee's efforts align with the broader goals of the NSDI and FGDC.

#### **“Core” Geographic Data Panel**

Mr. Granberg introduced the panel, which featured presentations on three key topics: a recap of the recent GeoGov Summit, updates on Federal data from the National Geospatial-Intelligence Agency, and insights from the U.S. Census Bureau on managing core geographic data including boundaries, features, and addresses.

## GeoGov Recap

Mr. Mark Reichardt (Geospatial World) and Dr. Leslie Jones (Alaska) provided an update on GeoGov 2024 Summit activities.

- The 2024 Summit saw over 200 attendees and brought together stakeholders from various sectors, including state and local governments, industry, and NGOs. The focus was on fostering national dialogue to advance the NSDI and build partnerships.
- Key Findings and Themes:
  - NSDI Clarity: A recurring theme was the need for clearer definitions and branding of the NSDI. Many attendees expressed confusion about what the NSDI entails, underscoring the need for straightforward explanations to help the user community understand its scope and value.
  - Governance and Pilot Programs: The summit emphasized the importance of governance, with pre-conference sessions aiming to develop pilot projects to tackle key issues. These pilots, scheduled to begin in the first quarter of the following Fiscal Year, are intended to inform scalable national solutions.
  - Workforce Readiness: Discussions stressed the need for a well-prepared workforce, including non-traditional training across various disciplines, and the development of competencies, certifications, and lifelong learning opportunities.
  - GeoAI and Networking: Sessions on GeoAI highlighted the potential for building governance processes around artificial intelligence in geospatial applications. Networking was a crucial aspect of the event, allowing stakeholders to build partnerships and collaborate on shared challenges.
- Recommendations:
  - Strategic Communication: Attendees stressed the importance of strategic outreach and simplifying technical language to better communicate the NSDI's value to external audiences.
  - Branding: A proposal was made to establish a recognizable brand for NSDI products, similar to how Google Maps emphasizes user interaction without delving into technical details. This would help in making NSDI more accessible and tangible.

## Federal NGA Data activities

Mr. Patrick Ellis (NGA) provided an update on NGA's data activities.

- The NGA (National Geospatial-Intelligence Agency) plays a role in managing foundational geospatial data on a global scale, including topographic, maritime, aeronautical, and human geography data. The focus is on integrating diverse data sources to create cohesive, reliable datasets.
- Challenges:
  - Data Integration and Standards: The primary challenge lies in bringing together data from various sources, each built on different standards and created for different uses. Conflation and quality assurance are critical issues, with a need for automation to handle the vast amount of data.

- Shortening Production Cycles: Currently, data production follows an annual cycle. There are efforts to predict where changes are needed based on existing data, reducing the need for lengthy requirement processes.
- Cultural and Lexicon Differences: Each department within NGA has its own culture, standards, and lexicons, making integration across different domains difficult. The goal is to move towards a data-centric approach that focuses on creating data usable across multiple products.
- Opportunities:
  - Global Digital Twin: NGA is working on developing a "foundation digital twin," a global model that integrates diverse geospatial data. The vision is to create a system that allows users to interact with data seamlessly, similar to using a tool like Google Maps without needing to understand the underlying complexities.
  - Collaborative Efforts: There are opportunities to partner with other agencies, including civilian organizations, to develop unified systems that serve multiple purposes, such as navigation and disaster response.

### U.S. Census

Ms. Deirdre Dalpiaz-Bishop (US Census Bureau) provided an update on Census Bureau's management of geospatial data through their MAF/TIGER system.

- The MAF/TIGER system handles a vast array of geographic information, including boundaries, features, and addresses. The Census Bureau is responsible for 20% of the nation's geospatial data assets, which supports governmental units and contributes to NGDA themes.
- Key Initiatives:
  - Boundary and Annexation Survey: The Census Bureau is the federal agency responsible for maintaining legal boundaries. Each year, they conduct a survey to update these boundaries, and they have streamlined processes by establishing state agreements to handle changes more efficiently.
  - Address Certification: The Bureau has moved to a data-driven assessment to certify the accuracy of addresses in their database, achieving over 97% certification. Efforts are focused on refining the remaining 3%, including specialized attention on group quarters like dormitories and nursing facilities.
  - Automated Change Detection: Using tools like Google Earth Engine and Sentinel-2, the Census Bureau has implemented a multi-phase process to detect changes, starting with moderate-resolution data and then drilling down with higher-resolution imagery. This helps in updating road networks, housing units, and more.
- Challenges:
  - Geographic Coverage Gaps: There are still challenges in remote areas, such as Alaska and American Indian reservations. The Bureau is piloting new approaches, including a partnership with the Navajo Nation, to improve rural addressing.
  - Collaboration with Other Agencies: The Census Bureau is exploring further collaboration with agencies like the Department of Transportation to align efforts on data features such as road networks.

- Tools and Future Directions:
  - New Online Tools: Deirdre highlighted a new "housing unit change viewer" that allows users to see changes at the census block level between 2020 and 2024. This tool aims to make data more accessible and transparent to the public.
  - Outreach and Partnerships: The Bureau is committed to engaging with stakeholders to refine their processes, and there are ongoing discussions to pilot new initiatives, including collaborations on updating trails and other geographic features.

### **General Transit Feed Specification (GTFS)**

Mr. Brian Ferris (Google) shared his insights on the evolution and impact of General Transit Feed Specification (GTFS), a global data specification for public transit information. Originally developed as the Google Transit Feed Specification in 2006, GTFS has become widely adopted by transit agencies, mapping services, and applications worldwide.

The presentation focused on how GTFS has evolved, its guiding principles, and the processes behind maintaining and updating the specification.

- GTFS was created to standardize public transit data, allowing agencies to publish schedules and routes in a consistent format. This has made it easier for applications like Google Maps to provide accurate, up-to-date transit information.
- Initially designed to be simple and easy to implement, GTFS's success lies in its focus on passenger information, deliberately excluding operational details that might complicate the data.
- The specification emphasizes ease of use and backwards compatibility. Data should be simple to create and edit, allowing even smaller transit agencies without dedicated engineering teams to participate. Changes to the spec must avoid breaking existing feeds, ensuring continuity for data producers who might struggle to update their systems quickly.
- GTFS discourages speculative features. New additions must have both producers (agencies providing data) and consumers (applications using data) ready and capable of using them. This ensures that features added to the specification are practical and widely adopted.

Change Process and Governance:

- GTFS changes are driven by a consensus-based voting process, this encourages thorough discussions and constructive feedback, although it can slow down decision-making.
- Maintaining flexibility while accommodating diverse stakeholders has been a challenge. Balancing efficiency and inclusivity requires careful management, especially as the specification has grown more complex over time.
- There is ongoing work to improve the process, including considering extensions and how they can be integrated into the official spec without disrupting the existing ecosystem.

Key Features and Practical Considerations:

- GTFS strives to keep data feeds straightforward, using simple formats like CSV files. This makes the data easier to produce and consume, even for transit agencies without extensive technical resources.

- The specification has adapted over time to include more complex features, such as fare information (FARESv1 and FARESv2), while still maintaining its core principles of simplicity and usability.
- Backward compatibility ensures that existing data feeds remain functional even as the specification evolves. While this has prevented disruptive changes, it has also required a deliberate approach to updates, weighing the benefits against potential upgrade costs.
- The GTFS community is cautious about introducing major revisions that might disrupt existing systems. However, there are ongoing discussions about the possibility of a significant overhaul (GTFS v2) that would modernize the spec to reflect changes in the transit ecosystem.

#### Broader Ecosystem and Extensions:

- Beyond the core specification, agencies have developed custom extensions to address specific local needs. While not officially part of GTFS, these extensions allow flexibility and innovation, with the possibility of being integrated into the spec if they gain widespread adoption.
- This approach has helped accommodate diverse requirements across regions, from small local agencies to large metropolitan systems.
- GTFS has been a success story of global standardization, with adoption in numerous countries. It serves as a model for how a flexible, community-driven approach can unlock data and improve services on a global scale.
- Attendees noted that the GTFS process could offer valuable lessons for NSDI initiatives, particularly in maintaining backward compatibility, building consensus, and defining clear scopes for data standards.

#### Future Directions and Questions:

- Current projects, such as GTFS-Flex (to handle flexible transit services), are examples of how the community addresses emerging needs through coordinated, multi-year efforts.
- Discussions around a potential GTFS v2 highlight the balance between innovation and stability. While stakeholders recognize the benefits of modernizing the spec, there is a need to consider how changes would impact existing users.

## Addresses

Mr. Derald Dudley (DoT) discussed updates on efforts related to address data management, emphasizing the importance of accurate, comprehensive address databases for transportation and public services. The discussion covered existing challenges, potential solutions, and the implications of improved address data sharing.

#### Current Address Data Landscape:

- The U.S. lacks a centralized, openly accessible national address database. While agencies like the U.S. Postal Service (USPS), FedEx, and UPS maintain their own address datasets, these are not integrated into a cohesive national system.
- Address data is crucial for navigation, route optimization, and enhancing safety, particularly as autonomous navigation systems become more widespread.

#### Legal and Regulatory Challenges:

- Title 13 and 39:



- Under current U.S. law, the Census Bureau’s master address file is restricted from public sharing due to privacy considerations defined under Titles 13 and 39. This poses a significant barrier to creating a unified, national address database.
- Recent legislation in California has further complicated matters by classifying addresses as personal information, which conflicts with how address data is treated in other jurisdictions.

Examples of International Success; Denmark’s Model:

- Denmark successfully opened its national address database in the early 2000s, leading to significant improvements in emergency response times, urban planning, and infrastructure development. The economic benefits of this openness were highlighted, with a net social benefit of €62 million, equivalent to around \$95 million. Applying a similar model across the U.S. could yield substantial economic advantages.

The National Address Database (NAD):

- The DoT is leading efforts to develop a National Address Database (NAD) under the Federal Geographic Data Committee (FGDC). The aim is to collect and standardize address data, making it more accessible for public use. Although some progress has been made, challenges persist in terms of data integration and legal constraints.
- Government Accountability Office (GAO): The GAO has requested a review to explore legal pathways for creating a national geospatial address database. They are examining possible changes to allow limited release of address data without compromising privacy.

Collaborations and Future Directions:

- Potential Partnerships:
  - There is ongoing interest in collaborating with private companies as well as other government agencies, to improve the scope and quality of the NAD. Addressing concerns around proprietary data sharing is a key focus, as private companies often have sophisticated address datasets that could enhance national efforts.
  - Building a strong interest group, including public and private stakeholders, could help advocate for better address data sharing practices.
- Proposals for Improved Data Management:
  - Establishing an Address Subcommittee: There was discussion on the potential benefits of creating a dedicated address subcommittee within the National Geospatial Advisory Committee (NGAC), similar to existing groups for Landsat and 3D Elevation Program (3DEP). This would enable more focused efforts on improving address data standards and integration.
  - Open Standards and Public Access: The session emphasized the need for open data standards to facilitate integration across different jurisdictions. There was interest in exploring how best to implement standardized address systems, potentially modeled after successful international examples.

Questions and Audience Interaction:

- The discussion included questions about the feasibility of open address data and the role of private entities in sharing their address datasets.

- Attendees expressed support for the idea of reframing address data to navigate legal issues and discussed the potential for cost-sharing models or grants to incentivize data sharing.

## **Public Comment**

### Modeling and Integrating Hydrology

Jack Dangermond (Esri) presented a summary update from a recent presentation he attended on hydrology and hydrography by NOAA. Highlights included the following:

- Hydrology and hydrography have been integrated within geospatial platforms. They play a critical role in disaster response, environmental monitoring, and water management. GIS is not only about data collection but also about analytics, planning, and decision-making, making it an essential tool for connecting land and water systems.
- The presentation showcased how integrating multiple systems—such as weather, hydrographic, and land data—can provide a more comprehensive view of water movement across landscapes, supporting real-time decision-making and forecasting.
- The National Water model simulates water movement by tracking rainfall as it interacts with terrain models, following the flow through networks to estimate downstream volumes. This system integrates data from agencies like NOAA, USGS, and others, providing a holistic approach to water management.
- This represents a major shift from traditional hydrography, where the focus was on points and charts, to spatial modeling that visualizes water flow across entire networks. This allows for better flood prediction and real-time monitoring.

Applications Beyond Flooding:

- **Drought Monitoring:** A new application provides near real-time drought data, showing overlays with agricultural production to better understand the impact. Having interactable, web-based maps can enable users to combine various data layers—like drought and population density—to gain deeper insights.
- **Atmospheric Rivers:** Using data from the European Space Agency (ESA), the presentation highlighted atmospheric rivers in the Pacific that draw moisture from the ocean and deposit it over California, often causing significant rainfall. These visualizations demonstrate the scale and movement of water vapor, helping with weather forecasting and flood preparedness.

## **Lightning Talks**

### NGA Unclassified Data Lake (NUDL)

Mr. Eric Benin (NGA) presented the NUDL platform, referred to as "Noodle." Highlights included the following:

- NGA Unclassified Data Lake (NUDL) is a cloud-based, unclassified data lake developed by the National Geospatial-Intelligence Agency (NGA) to enhance collaboration with industry, academia, and other mission partners. It allows external users to access and experiment with NGA imagery and geospatial data, providing a sandbox for innovation.
- Users can develop, test, and deploy machine learning (ML) models, creating new tools and solutions that can be shared back with NGA. The platform is designed to streamline prototyping and allow quick iterations. The data lake offers a "bring your own

algorithm" approach, allowing integration with industry and academic tools, and feedback loops to refine solutions.

- NUDL supports AI, ML, and geospatial tools with over a million images available for experimentation. Users bring their own data, develop models, and interact with the system through API interfaces.
- Designed as a collaborative environment with easy access, users must meet specific agreements with NGA to onboard, using Login.gov for authentication.

#### Accreditation of GEOINT Artificial Intelligence Models (AGAIM)

Dr. Heather Martin (NGA) presented the Accreditation of GEOINT Artificial Intelligence Models (AGAIM), referred to as "A-Game." Highlights included the following:

- AGAIM, or "A-Game," is a program launched by NGA to accredit geospatial intelligence (GEOINT) AI models. The accreditation process aims to build trust in AI technologies by ensuring they meet rigorous standards for development, testing, and deployment.
- The program features four levels of accreditation, ranging from basic documentation reviews (Level 1) to comprehensive evaluations involving real-world testing (Level 4). Models are registered in an intelligence community registry, providing information about their usage, accuracy, and limitations.

#### Joint Agency Commercial Imagery Evaluation (JACIE)

James Vrabel (USGS) presented the Joint Agency Commercial Imagery Evaluation (JACIE). Highlights included the following:

- JACIE, formed in 1999, is a collaborative effort involving multiple federal agencies, including NGA, NASA, and USGS, to assess the quality and accuracy of commercial remote sensing data. The initiative ensures that data from new commercial satellites meets government standards.
- JACIE conducts evaluations in areas such as radiometric, geometric, and spatial accuracy, providing detailed reports on system performance.
- Regular assessments and workshops help vendors validate their data, promoting trust and confidence in using commercial imagery for federal projects.
- The group collaborates with the European Space Agency (ESA) and shares data to ensure consistency and reliability across international boundaries.
- Annual workshops, such as the 22nd held in March 2024, bring together participants from multiple countries, facilitating discussions on new satellite systems and emerging technologies.
- Future directions include enhancing collaboration with ESA, expanding evaluations to cover constellations of satellites, and considering a process similar to FedRAMP for certifying commercial data vendors.

#### Collaborators for Geospatial Challenges

Dr. Nadine Alameh introduced collaboration opportunities at the Taylor Geospatial Institute, focusing on advancing geospatial innovations, particularly in AI. Highlights included the following:

- The Institute is engaging in two major initiatives: a geospatial innovation challenge for food security and a generative AI challenge in partnership with AWS. The goal is to foster strategic partnerships across government, academia, and industry, encouraging innovative solutions to complex geospatial problems.
- Geospatial Innovation for Food Security: This initiative focuses on using geospatial tools to address issues like sustainable agriculture and equitable access to nutrition. The Institute plans to conduct ideation workshops with experts from various regions, promoting collaboration across teams that might not typically interact.
- Generative AI for Geospatial Challenge: Launching on October 29, this challenge aims to explore the potential of generative AI in geospatial applications. Participants will receive cloud credits from AWS to develop innovative projects, with a focus on demonstrating new use cases in domains such as urban planning and emergency response.
- Collaboration and Community Building: The Institute is committed to building an open, fair research infrastructure, emphasizing the importance of nurturing the next generation of scientists. They encourage broad participation, aiming to create a more efficient and impactful geospatial ecosystem through collaborative research.

### **NGAC Roadmap Session, Part 2**

The session, led by Ms. Cawley, aimed to build on discussions from Day 1, aligning the NGAC's strategic direction with the development of a roadmap. The focus was on establishing clear short-term and long-term goals, identifying potential obstacles, and leveraging collective strengths for impactful outcomes. Highlights included:

- The session revisited the concept of "Vision 2028," emphasizing the importance of long-term thinking as the NGAC approaches its sunset period. Participants acknowledged that NGAC members have continuity beyond many administrative changes, providing stability and sustained direction.
- Reflecting on past recommendations, members identified factors that contributed to successful initiatives, such as clear mandates, funding, and strong communication with relevant agencies.
- Members proposed developing a one-to-two page roadmap outlining immediate priorities. These include enhancing communication strategies, defining clear deliverables, and focusing on "quick wins" to demonstrate immediate impact.
  - Ideas included creating a dashboard to track key performance indicators (KPIs), making progress more visible and accessible. The dashboard could showcase current initiatives, historical trends, and ongoing partnerships.
  - Participants proposed enhancing communication strategies to better articulate NGAC's value and work. Ideas included creating more visible online presence, engaging in social media campaigns, and leveraging success stories to demonstrate the impact of geospatial data initiatives.
  - There was a call for improved onboarding processes for new members, ensuring that they can quickly integrate into ongoing projects and contribute effectively. This includes creating resources that outline timelines, goals, and ongoing initiatives.

- The role of subcommittees was discussed as a vital mechanism for addressing specific themes. Members suggested forming targeted working groups to tackle key issues and bring external expertise when necessary.
- Long-Term Vision:
  - Discussions centered around establishing a cohesive, strategic plan that aligns with FGDC and broader federal initiatives. Long-term goals should address systemic issues, support innovation, and promote proactive engagement with emerging technologies.
  - There was an emphasis on finding effective ways to integrate geospatial data across sectors, ensuring consistent, interoperable data standards, and engaging with new stakeholders, such as academia and private industry.
- Barriers: Participants identified two categories of obstacles: internal challenges within NGAC, including communication gaps and varying levels of expertise, and external barriers, including political climate, legislative constraints, and funding uncertainties.

#### Next Steps and Conclusion

- The roadmap will include both immediate actions and long-term strategies, with a focus on practical, achievable goals. A draft will be prepared and shared for review by December, with the aim of finalizing it by February.
- Members should consider their strengths and how they can be effectively applied to achieve NGAC's goals. It is important to promote proactive engagement, leveraging collective expertise, and building a strategic vision that can guide future initiatives.
- Members expressed a shared sense of purpose and commitment, looking forward to the continued development of the roadmap and its potential to drive meaningful change.

#### Next Meeting

The next NGAC meeting is scheduled for December 4, 2024. The meeting will be held via webinar. Additional information will be provided prior to the meeting.

#### Adjourn

Ms. Cawley made closing remarks and adjourned the meeting.

#### Certification

I hereby certify that, to the best of my knowledge, the foregoing minutes are accurate and complete.

Ms. Maggie Cawley, Chair, National Geospatial Advisory Committee  
 Mr. Josh Delmonico, Designated Federal Officer, National Geospatial Advisory Committee

These minutes will be formally considered by the Committee at its next meeting, and any corrections or notations will be incorporated in the minutes of that meeting.

## Summary of Presentations and Handouts

The following is a list of the presentations and handouts from the meeting. These meeting materials are posted along with the minutes at: <https://www.fgdc.gov/ngac/meetings/oct-2024/index.html>

### **NGAC Recommendations Inventory**

- NGAC Recommendations Inventory

### **FGDC Update**

- FGDC Update

### **Value of Government Data**

- Value of Government Data Presentation

### **NGAC Roadmap Session**

- NGAC Roadmap Session

### **Subcommittee Deep Dive Sessions**

- Landsat Advisory Group (LAG) Subcommittee Report
  - National Land Imaging (NLI) Program Update
- 3D Elevation Program (3DEP) Subcommittee Report
- Geospatial Data Act of 2018 (GDA) Subcommittee Report
- National Spatial Data Infrastructure (NSDI) Subcommittee Report

### **“Core” Geographic Data**

- GeoGov Recap

### **General Transit Feed Specification (GTFS)**

- General Transit Feed Specification (GTFS)

### **Addresses, DOT**

- Addresses, DOT