GEOSPATIAL STRATEGIC PLAN FY2023–2027

AWARENESS   **DATA**   **TECHNOLOGY**   **WORKFORCE**   **INVESTMENTS**

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U.S. ENVIRONMENTAL PROTECTION AGENCY ♻EPA
GEOSPATIAL STRATEGIC PLAN
FY2023–2027

Our Mission, Vision, Goals, and Objectives form the Foundation for Our Five-Year Strategic Plan

OUR MISSION	OUR VISION
The Geospatial Program coordinates and integrates geospatial data and technologies into Agency activities to inform better decisions.	The Geospatial Program is fully integrated into EPA's operations and environmental decision-making.

OUR GOALS

AWARENESS	DATA	TECHNOLOGY	WORKFORCE	INVESTMENTS
Build awareness of the geospatial resources and capabilities and foster partnerships to leverage those assets	Manage data to meet EPA's open data requirements and maximize data access and support for EPA decision-making	Integrate appropriate technology and anticipate future enterprise needs	Build capacity and expertise through workforce development and recruitment	Optimize enterprise geospatial investments

OUR OBJECTIVES

AWARENESS	DATA	TECHNOLOGY	WORKFORCE	INVESTMENTS
• Increase internal awareness of EPA's geospatial products, tools and services • Obtain senior-level strategic understanding and support of the program • Build new partnerships with states, tribes, and other federal agencies to increase collaboration and data sharing	• Develop and communicate best practices for collecting geospatial data • Develop a framework and procedures for publishing, accessing, and sharing sensitive data • Enhance discovery, access, and use of data	• Integrate with open-source efforts • Promote interoperability of tools with other agency solutions and infrastructure • Enable better integration with program office and regional tools and solutions • Integrate geospatial enterprise services and capabilities into the EPA architecture	• Conduct workforce planning • Enable efficient recruitment and onboarding of new talent • Provide training on geospatial products and tools	• Develop and improve enterprise geospatial governance • Emphasize the use of consistent policies, processes and procedures across the enterprise • Identify opportunities to improve EPA business processes using geospatial tools • Identify efficiencies through enterprise approaches

INTRODUCTION

The U.S. Environmental Protection Agency *Geospatial Strategic Plan: FY 2023-2027* provides direction and guidance for the EPA Geospatial Program to identify priorities that support the Agency's mission now and in the future. The plan ensures the program's work is aligned and integrated, and the EPA program offices and regions are working together to identify and provide geospatial data, tools and services that support environmental decision-making. The Geospatial Program's Mission, Vision, and Goals and Objectives form the foundation for the five-year Strategic Plan. The plan is a living document that will be evaluated annually and updated as needed to reflect changes in business needs and priorities.

> **Example Applications**
> - AirNow
> - Cleanups in My Community
> - EnviroAtlas
> - How's My Waterway
> - My Environment
> - NEPAssist

The EPA geospatial community is at the center of the Geospatial Strategic Plan. The EPA's Geospatial Advisory Committee (EGAC), which is comprised of representatives from the EPA program offices and regions, provided input into the development of this plan and will conduct annual priority setting exercises to identify projects that will support the realization of the goals and objectives outlined.

Geospatial Program Mission: Who We Are

EPA's National Geospatial Program coordinates the use of geospatial data to assist EPA in carrying out its mission to protect human health and the environment. The program integrates place-based data into the Agency's business to inform evidence-based decision-making that protects human health and the environment through:

> **Geospatial Program Mission**
>
> **The Geospatial Program coordinates and integrates geospatial data and technologies into Agency activities to inform better decisions.**

- Collecting and creating geospatial data,
- Building applications that allow users to search, discover and visualize geospatial information,
- Creating standards and policies that increase the ability for applications and data to be shared and used, and
- Integrating data and spatial analyses into Agency business processes, workflows, and tools.

The Geospatial Program's success is attributed to its strong customer and mission driven approach that is supported by a robust governance structure that values input and buy-in from EPA's program offices and regions (see Appendix A for an overview of the governance structure). The program provides support to the Agency's geospatial community through enterprise licenses to tools and services, technical support, communications, and training. The program is supported by a Geospatial Information Officer (GIO) who advises EPA on geospatial-related topics, including priority setting, budget planning, and the development and implementation of enterprise tools.

When the Geospatial Program was established in the late 1980s, there was very little basic data to support environmental analysis, and geographic information system (GIS) work was mostly isolated from mainstream information technology (IT). Significant progress over time has broadened EPA

employees' access to and utilization of geospatial data, services, and applications, and streamlined the process for sharing web maps internally, with partner organizations, and the public. The Geospatial Program's significant achievements include implementing the GeoPlatform and establishing an enterprise agreement and funding mechanism for the Esri GIS software license. In addition, EPA has developed many geospatial applications that allow the public to explore and interact with geospatial data. While the Geospatial Program has made significant progress over the years in integrating geospatial capabilities into EPA's mission-essential services, such as emergency operations, more work needs to be done to fully integrate the program into EPA's operations and environmental decision-making processes.

Geospatial Program Vision: Our Future State

To build on the Geospatial Program's current capabilities and broaden adoption across the Agency, the program will build the capacity, staffing, resources, and knowledge of managers and staff to use geospatial tools to share information. The EPA is evolving as an organization with staff gaining more technical experience. The program will support the current and future workforce through communications and training and will foster partnerships and leverage expertise. The program will continue to evolve its technology and implement new tools while ensuring that the current tools and services are

> **Geospatial Program Vision**
>
> **The Geospatial Program is fully integrated into EPA's operations and environmental decision-making.**

maintained and supported. In addition, the program will evolve and mature to support big data management and analytics. Through capacity building, working collaboratively, and promoting consistent implementation, the Geospatial Program will be fully integrated into EPA's operations and environmental decision-making.

GOALS AND OBJECTIVES

This plan lays out five goals and associated objectives to achieve the Geospatial Program's future vision:

1. Build awareness of the geospatial resources and capabilities and foster partnerships to leverage those assets.
2. Manage data to meet EPA's open data requirements and maximize data access and support for EPA decision-making.
3. Integrate appropriate technology and anticipate future enterprise needs.
4. Build capacity and expertise through workforce development and recruitment.
5. Optimize enterprise geospatial investments.

Goal 1: Build awareness of the geospatial resources and capabilities and foster partnerships to leverage those assets

The Geospatial Program will develop strategies to build awareness of the program and foster partnerships that build upon and leverage the program's resources. The geospatial community will break down Agency silos and develop a more enterprise approach to sharing information and tools. The program will increase internal awareness of EPA's geospatial products, tools, and services, and will showcase content directly to the programs within the context of their business needs to foster engagement at the National Program Manager (NPM) level. The Geospatial Program will coordinate with internal data system owners to ensure they appreciate the value of their data beyond their individual system and provide access to support secondary uses to meet other mission needs.

> **Communication Mechanisms**
> - **Internet and Intranet sites**
> - **Training**
> - **Newsletters**
> - **GIS Workshops**
> - **Webinars**
> - **Conferences**
> - **Short Videos**
> - **StoryMaps**

Support from EPA senior management is paramount to the success of the Geospatial Program. The program will identify opportunities to communicate the program's value to EPA senior management and will ensure its activities are aligned with the Administrator's priorities and the EPA Strategic Plan. The program will highlight how geospatial products, services, and tools can address the Agency's top business priority areas and will develop success stories that highlight interoperability across EPA.

The Geospatial Program will leverage current Agency partnerships and will build external partnerships with other agencies and organizations to increase collaboration and data sharing. The program will conduct an annual analysis to identify opportunities to expand communication, collaboration, and partnerships with states and tribes and will coordinate on specific projects and datasets. The program will continue its work to annually identify and communicate geospatial components for the Exchange Network (EN) Grant Solicitation Notice (SN).

> **Example Federal Partnership Projects**
> - **EnviroAtlas**
> - **Department of Homeland Security Homeland Infrastructure Foundation-Level Data (HIFLD)**
> - **Federal Geographic Data Committee (FGDC)**
> - **National Oceanic and Administrative Administration's (NOAA) Climate Resilience Information System**
> - **Lead Mapping**
> - **Department of Interior (DOI) Tribal Boundaries**
> - **United States Geological Survey (USGS) National Hydrography Dataset Plus (NHDPlus)**

Goal 1 Objectives:

1.1 Enhance partnerships and increase internal awareness of EPA's geospatial data, products, tools, and services

1.2 Obtain senior-level strategic understanding and support of the Geospatial Program

1.3 Build new partnerships with states, tribes, and other federal agencies to increase collaboration and data sharing

Goal 2: Manage data to meet EPA's open data requirements and maximize data access and support for EPA decision-making

Data are key to making decisions, and the Geospatial Program supports open data initiatives to enable EPA partners and the public to use data for environmental decision-making. The Geospatial Program will be a data steward and work closely with EPA's Chief Data Officer (CDO) to align the Geospatial Program's activities with EPA's data management program.

The Geospatial Program will develop and communicate best practices for collecting geospatial data. The program will collaborate with EPA's data collection programs to plan for the eventual use, analysis, and visualization of data, and will ensure EPA's data collection standards and methods include best practices for collecting geospatial data that can be integrated with data from EPA and other agencies. The community will share best practices with Agency partners for accurately collecting and integrating locational data into EPA reporting systems and will communicate and encourage the adoption of EPA's open data requirements to state and tribal partners.

The Geospatial Program will develop a framework and procedures for publishing, accessing, and sharing sensitive data. To ensure the appropriate access and sharing of sensitive data, the Geospatial Program will implement a secure GeoPlatform instance that is integrated with EPA's Data Management Analytics Platform (DMAP).

The Geospatial Program will enhance the discovery, access, and use of data by working with the CDO to utilize the metadata catalog that is under development. The program will work to close the gap between the information in the GeoPlatform and the new metadata catalog to ensure data are registered in one place and are more discoverable. In addition, the program will work to improve the discoverability and findability of data and resources through its existing intranet and internet sites.

> ### FAIR Data Principles
>
> **The Geospatial Program will coordinate with the CDO and federal agency partners to support the FAIR data principles to ensure EPA's data is *findable*, *accessible*, *interoperable*, and *reusable*.**

> ### Spotlight Project Geosecure
>
> **Geosecure was implemented in FY22 to ensure that sensitive data, such as drinking water, parcel data and EPA occupied building data, are available within EPA with appropriate access controls.**

Goal 2 Objectives:

2.1 Develop and communicate best practices for collecting geospatial data

2.2 Develop a framework and procedures for publishing, accessing, and sharing sensitive data

2.3 Enhance discovery, access, and use of data

Goal 3: Integrate appropriate technology and anticipate future enterprise needs

The Geospatial Program will leverage and integrate current and appropriate new technology to support EPA operations and decision-making. The program will promote EPA's current suite of tools and will evaluate new technology to determine alignment with the Agency's mission needs and interoperability with current tools and platforms. To expand geospatial capabilities and enable the integration with other analytic and modeling tools, the Geospatial Program will continue to embrace scalable cloud-based capabilities, APIs, and platform services.

The Geospatial Program will continue to support opportunities for integrating with open-source capabilities and platforms, such as Esri, R, PostGIS, and QGIS. The Geospatial Program will learn and communicate findings from the program offices and regions who are on the cutting edge of researching and adopting new and innovative open-sources tools.

> **Evidence Act**
>
> **The Geospatial Program provides data and capabilities to support the Evidence Act, which requires the federal government to modernize its data management practices and ensure evidence-based policymaking is supported by reliable data and analysis.**

The Geospatial Program will ensure the continued integration of its current suite of tools, including Qlik, SharePoint, and DMAP, and will utilize existing governance and modernization processes to enable better interoperability with future tools. The program will bolster integrations of program office and regional tools and solutions, and will ensure that integrations stay current, are linked, and work together. The program will mine data from governance processes and databases, such as the Federal Information Technology Acquisition Reform Act (FITARA), Information Technology Portfolio Reviews (ITPRs), and the Application Review Process (ARP) to identify new services and integrations based on business needs. The program will promote a culture of partnerships versus silos.

> **Geospatial Data Act**
>
> **The Geospatial Data Act of 2018 requires the availability of high-quality geospatial data and metadata and the development of shared services to support geospatial analysis. EPA participates on the Federal Geographic Data Executive and Steering Committees.**

As the Agency identifies new tools, the program will work with the Office of Mission Support-Environmental Information (OMS-EI)/Office of Digital Services and Technical Architecture (ODSTA) to ensure the new tools are aligned to and integrated with the Agency's architecture and the IT Standards Profile is updated to include the new and approved tools and platforms.

Goal 3 Objectives

3.1 Integrate with open-source efforts

3.2 Promote interoperability of tools with other Agency solutions and infrastructure

3.3 Enable better integration with program office, regional, state, and tribal tools and solutions

3.4 Integrate geospatial enterprise services and capabilities into the EPA architecture and IT/IM governance processes

Goal 4: Build capacity and expertise through workforce development and recruitment

The Geospatial Program will build Agency capacity and expertise through workforce planning, recruitment, new talent onboarding, and training to broaden the community of experts who can assist with visualizing and analyzing data to answer mission-related questions. The program will conduct workforce planning, implement best practices for institutional knowledge transfer, such as the Institutional Knowledge Retention toolkit, and develop a process to establish mutual support agreements between program offices and regions to support short-term, high-priority projects. The program will influence Agency succession planning to include required geospatial skillsets. Through the implementation of standard techniques, platforms, and analytical methods, the program will gain a deep bench of skills.

> **Spotlight Projects**
> - **Workforce Planning**
> - **Standard Hiring Packages and Position Descriptions**
> - **Formal Mentorship Program**
> - **Task Oriented and User Focused Training Videos**

The Geospatial Program will enable efficient recruitment and onboarding of talent and will work with the Office of Human Resources (OHR) and the HR Shared Service Centers to establish standard hiring packages for key positions, such as GIS Lead and GIS Coordinator. The program will coordinate with the CDO and the Data Governance Council (DGC) to develop standard position descriptions for data scientists and coordinate on cross-agency recruitments. To assist with onboarding of new talent, the Geospatial Program will establish a formal mentorship program to align experienced geospatial subject matter experts with new employees to ensure they have the guidance to succeed. The program will utilize training to successfully transition employees into new positions and ensure they have the knowledge and tools to prosper.

The Geospatial Program will continue to provide training to broaden the community of experts who can leverage the tools for decision-making. The program will continue to host GIS Workshops and Webinars and provide training on geospatial products and tools. The program will develop new, shorter task-oriented training videos and user-focused training sessions that are targeted to managers, power users, and non-geospatial staff. The program will expand and coordinate open office hours across the Agency to provide employees with opportunities to ask questions in an informal setting.

Goal 4 Objectives:

4.1 Conduct workforce planning

4.2 Enable efficient recruitment and onboarding of new talent

4.3 Provide training on geospatial products and tools

Goal 5: Optimize enterprise geospatial investments

The Geospatial Program will manage the EPA's enterprise geospatial resources effectively and realize efficiencies through enterprise approaches and processes. The Geospatial Program's governance structure (see Appendix A) optimizes the distribution and management of enterprise geospatial resources. Through its governance framework, the program manages enterprise geospatial resources, such as the GeoPlatform. The program will continually look for opportunities to evolve the governance framework to ensure it is consistent with and aligns to the broader EPA IT/IM governance framework, including the Chief Information Officer Strategic Advisory Council (CIO SAC) and the IT/Information Management (IM) Operations Committee (IOPC). The program will work with the IOPC to share requirements and collaborate on key initiatives such as integrating EPA datasets with GIS resources.

> **Example Enterprise Approaches**
> - **Enterprise licenses**
> - **Enterprise hosting (e.g., GeoPlatform, DMAP)**
> - **Security Plans**
> - **SORNs**
> - **Enterprise contract and task order language**
> - **Shared Enterprise Geodata Services (SEGS)**
> - **Data Governance Council**

The Geospatial Program will continue to emphasize the use of consistent policies, processes, and procedures across the enterprise, and will implement regular review cycles to ensure they are kept up to date. The program will identify consistent reusable components within the procedures and will conduct outreach and training to ensure partners and stakeholders are aware of enterprise resources and guidelines.

The Geospatial Program will identify opportunities to improve EPA business processes using geospatial tools. The program will identify and promote GIS tools that can support EPA mission work and will identify enterprise business processes where GIS tools and enterprise solutions can help make better decisions or facilitate decision-making, such as utilizing ArcGIS Indoors for facilities management. The program will develop guidelines for new tools to assist users in understanding how they can be utilized.

The Geospatial Program will continue to identify efficiencies through existing and new enterprise approaches and will identify program and regional applications that can be expanded and adopted enterprise-wide, such EPA floorplan data set and NEPAssist. In addition, the program will identify and provide access to datasets that can be utilized by the enterprise, such as sea level rise data, disaster debris dataset, building footprints, endangered species, basemap data, and parcel and site boundaries.

Goal 5 Objectives:

5.1 Develop and improve enterprise geospatial governance

5.2 Emphasize the use of consistent policies, processes, and procedures across the enterprise

5.3 Identify opportunities to improve EPA business processes using geospatial tools

5.4 Identify efficiencies through enterprise approaches

IMPLEMENTATION

The Geospatial Program will work collaboratively with the geospatial community to implement the Strategic Plan. The plan is a living document that will be revisited each year to ensure the goals and objectives continue to align with the Geospatial Program's, Chief Information Officer's (CIO) and the Agency's priorities. Each fall, the EGAC will conduct an annual planning process to identify priorities and develop an action plan with activities that support the realization of the Strategic Plan goals. The EGAC will develop a workplan and will work with the GIO to ensure the program's priorities align with the CIO's priority areas. The EGAC will align the work plan activities with subgroups for implementation and will identify opportunities to sunset existing subgroups and form new subgroups as needed. The EGAC will obtain feedback on the annual workplan from the Information Management Officers (IMOs) and Information Resource Management Branch Chiefs (IRMBCs) and will identify opportunities to collaborate to implement the annual activities. The EGAC will track the annual priorities and projects in Microsoft Planner. The subgroups will provide regular updates to the EGAC and will highlight risks and challenges for management's assistance. In the fourth quarter of each fiscal year, the EGAC will evaluate progress in implementing the Strategic Plan and will make updates, as needed, to adjust for changing or new priorities. **Figure 1** provides an overview of the Geospatial Program's annual planning process.

Figure 1: Geospatial Program Annual Planning Process
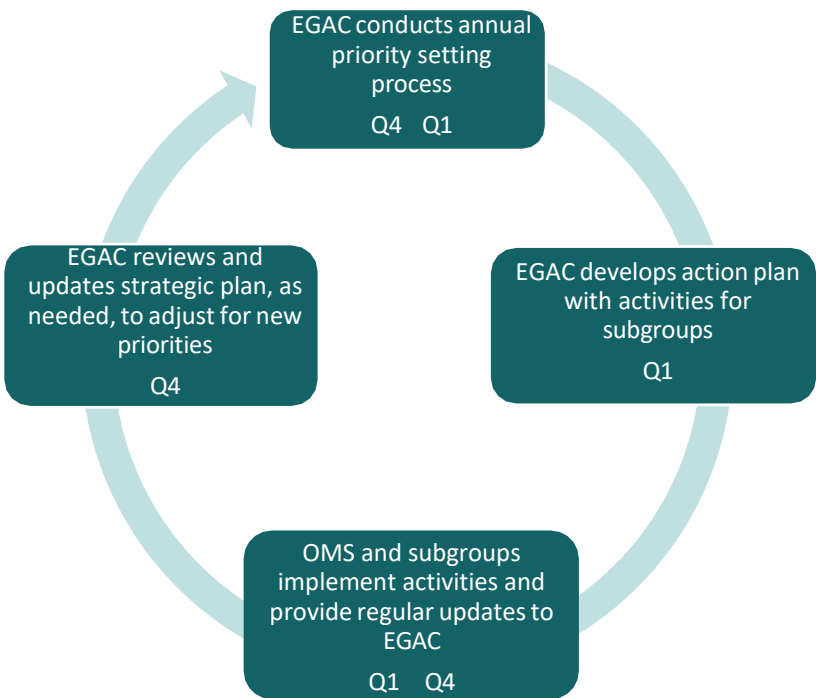
APPENDIX A: GEOSPATIAL PROGRAM GOVERNANCE

The Geospatial Program's success is attributed to its strong customer and mission driven approach that is supported by a robust governance structure that values input and buy-in from EPA's program offices and regions. **Figure 2** provides an overview of the Geospatial Program's governance and execution framework.

Figure 2: Geospatial Program Governance and Execution Framework
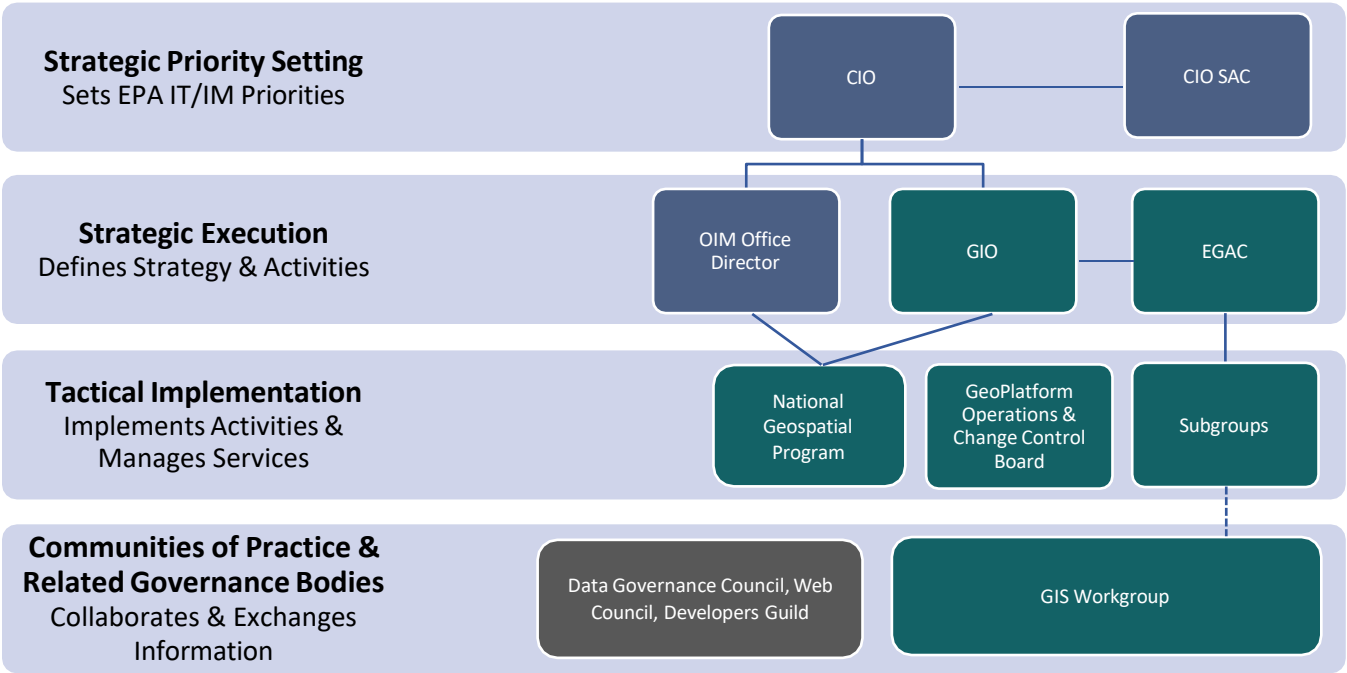
The **Geospatial Information Officer (GIO)** serves as the principal geospatial information subject matter expert and advisor to the **Office of Information Management Office Director (OIM OD)**, **Chief Information Officer (CIO)**, and the Office of Mission Support-Environmental Information (OMS-EI) Senior Leadership Team. The GIO advises the CIO, OIM Director, **CIO SAC**, and the **EPA Geospatial Advisory Committee (EGAC)** about future directions and strategic decisions regarding the use of geospatial information in EPA business processes. The GIO ensures senior leaders are informed of and given the opportunity to comment on proposed actions or decisions affecting their office or responsibilities. In addition, the GIO consults and communicates across the Agency to ensure collaboration and understanding of key issues affecting the **National Geospatial Program**. Both the GIO and the OIM OD ensure the effective management of the overall Geospatial Program, which coordinates with internal and external partners; manages the Geospatial Program's Capital Planning and Investment Control (CPIC) process; manages the program's enterprise licenses and technical support mechanisms; and ensures coordination with the geospatial components of the Facility Registry System, Environmental Dataset Gateway (EDG) and Envirofacts.

The **EGAC** guides the direction of the workgroup and functions as a working group for the business issues connected to the Agency's geospatial activities. The EGAC advises the GIO and CIO SAC on geospatial-related issues, including priority setting, budget planning, the development and implementation of the EPA GeoPlatform, enterprise data sets, software, technology, data standards, applications, and policies. The EGAC consists of the Regional and National Program Manager (NPM) GIS Leads.

As needed, **subgroups** are formed to address specific, substantive, or ongoing issues. The EGAC forms new subgroups as topics are identified during its annual planning process in the fall. Some subgroups are long-term such as the GeoPlatform Administrators, whereas other subgroups are for a shorter duration and are formed to address a specific topic or activity.

> **Example Subgroups**
> - **Climate Adaptation Planning**
> - **Clean-up Site Data Initiatives**
> - **Emergency Response Coordination**
> - **Geo Data and Software**
> - **Geo Developers and Integration**
> - **Geo Training**
> - **Geoplatform Online Administrators**
> - **Policy, Guidance, Standards & Sharing**
> - **Recognition**
> - **Remote Sensing**

The **GeoPlatform Configuration Control Board (CCB)** is responsible for establishing baselines and controlling configuration changes to the GeoPlatform. The GeoPlatform is supported by the **GeoPlatform Administrators.** Each region and most program offices have a GeoPlatform Administrator who is their point of contact and coordinates training, serves as a gate keeper for public content, coordinates projects, and serves as a bridge to national efforts. Some offices have multiple administrators.

Each region and most program offices have **GIS Leads** who coordinate training, licenses, and communications within their organization and serve as a bridge to the national program. The GIS Leads and other GIS staff participate in the **GIS Workgroup**, which is a community of practice that provides a forum for discussing and coordinating geospatial technology, policy, and activities within EPA and among its partners. The workgroup consists of several hundred people and is led by a steering committee made up of members from all regions and numerous program offices. The GIS Workgroup provides a forum for discussing and coordinating geospatial technology, policy, planning, and development issues, and is a focus for information exchange and collaboration amongst regional GIS staff. The workgroup advises EPA on geospatial-related issues, including priority setting, budget planning, and the development and implementation of EPA enterprise data sets, software, technology, data standards, and applications. The workgroup is open to all EPA staff, its contractors, and invited representatives of federal, state, local agencies, academia, and the private sector.