

Best Practices For Local Government Geospatial Programs



Local government geospatial programs support a wide variety of government functions and provide the opportunity to minimize costs and maximize benefits for a jurisdiction's investments. A common saying in the geospatial community is "Build it once, use it a bunch." Successful geospatial programs are built on a foundation that includes many of the common elements listed below.

1 Establish a Geospatial Program. Sustained coordination, planning, and execution are critical to working across complex organizations, such as local governments, to manage multiagency investments. Elements of successful programs include

- **Executive sponsorship and support**—Enlightened mayors, county commissioners, city administrators, and tribal leaders don't leave this important function to chance—they use legislation, ordinances, or executive orders to establish geospatial programs.
- **A defined strategic vision/mission**—A vision of the desired future state and a clear mission for the geospatial program guide the direction and investments in the program.
- **Shared governance**—Agencies expected to coordinate activities, share costs, and derive benefits from the geospatial program are engaged in the program's administration through a steering committee or board whose members are drawn from stakeholders in the program.
- **A designated coordinator or manager**—Local communities have an individual assigned with both the responsibility and resources to plan and oversee a geospatial strategy and program. The coordination responsibility is both horizontal (across the locality's departments) and vertical (with federal, state, regional, and neighboring jurisdictions).
- **Use of recognized industry standards**—The geospatial industry has established standards to ensure that data collected for one purpose can be used many times to meet multiple needs. The adoption of standards and specifications published by the Federal Geographic Data Committee (FGDC) and the Open Geospatial Consortium, Inc. (OGC), are recommended.
- **A geospatial strategy or plan**—The plan or road map outlines the jurisdiction's priorities and expected investments in geospatial data and technology. It might also specify what geospatial standards the jurisdiction will adopt to ensure interoperability.

2 Develop and Maintain Data as an Asset. Local government geospatial programs typically create and/or license, maintain, document, and share a variety of datasets.

- **Framework/Base geospatial data**—"Base" geospatial data layers provide the context and means to tie other data to the ground and display it on a map.
- **Transactional/Live geospatial data**—Live data may be 911 and 311 calls, permits issued, inspections conducted, students enrolled, repair and maintenance work orders, and more. All this data can be mapped as it is created, allowing cross-cutting analysis across data sources.
- **Metadata**—Metadata (information about data) is prepared to document the data's origins and limitations.
- **Published data maintenance schedule**—To ensure reliability of the data and avoid duplication of effort and redundancy, effective programs publish maintenance schedules describing when and how the data will be maintained.

3

Take an Enterprise Systems Approach. Local government information technology departments have been successful in promoting the widespread use of the geospatial data and technology by taking an enterprise approach.

- **Applications (web or desktop)**—These most visible geospatial applications assist with public information via mapping websites, providing situational awareness for first responders and emergency managers, assessing property taxes, and many other core government functions.
- **Centralized database/data warehouse**—It is helpful and complementary to also have a centralized “read-only” geospatial database/data warehouse in which all data layers are frequently updated. The central warehouse becomes a one-stop shop for data consumers.
- **Pooled software licenses**—Geospatial coordinators have been successful in driving down software costs by pooling their jurisdictions’ software purchases and by deploying networked licenses in a central pool.
- **Mobile computing**—A comprehensive enterprise system approach includes a plan for supporting the mobile workforce. Deploying geospatial technology in government vehicles and putting the technology in the hands of field crews offer a significant return on investment.
- **Publication of consumable services (service-oriented architecture)**—The goal is publishing geospatial data and functions so that they can be easily consumed by other applications. Geocoding services standardize addresses with location (coordinates), thus allowing jurisdictions to consistently handle addresses across applications and departments. Map services follow OGC’s Web Map Service (WMS) or Web Feature Service (WFS) specifications and allow map layers to be incorporated into other applications.
- **General IT services and support**—Shared storage for secure backup and recovery, a robust network for dependable access, appropriately configured workstations, and customer support (help desk, training, user communities) are critical for a successful geospatial program.

4

Share with the Public. “Build it once, use it a bunch” extends to the public. Successful geospatial programs make their capabilities available to the public.

- **Web-based data clearinghouse**—Clearinghouses make it easy to discover and access a jurisdiction’s geospatial data.
- **Data feedback loop**—Users expect to be able to contribute data and provide feedback in near real time. A robust geospatial program will encourage improvement or expansion of its data holdings through crowdsourcing, allowing the public to comment on and contribute data.

Additional Information and Support

- National States Geographic Information Council (nsgic.org)
- Geospatial Information and Technology Association (gita.org)
- Urban and Regional Information Systems Association (urisa.org)
- Federal Geographic Data Committee (fgdc.gov)
- U.S. Department of Housing and Urban Development (hud.gov)



Geospatial Programs Supporting All Aspects of Local Government



Geographic information system (GIS) technology provides vital support for almost everything a local government does. Well-defined geospatial programs help jurisdictions provide quality service to citizens in a cost-effective manner.

Local government geospatial programs support a wide variety of functions including:

Community Development

- 3D visualization
- Capital improvement planning
- Citizen participation
- Land-use analysis
- Sustainability initiatives
- Zoning efforts

Economic Development

- Affordable housing
- Special district assessments
- Job creation
- Business retention and attraction

Education

- Facilities planning and management
- Classroom instruction
- School boundary assignment
- Long-range planning

Environment

- Air quality improvements
- Endangered species and environmental protection
- Regulation
- Site remediation
- Disaster response
- Storm water management

Health and Human Services

- Disease outbreak tracking and response
- Services locators
- Social services administration
- Fraud detection

Homeland Security and Emergency Management

- Critical infrastructure protection
- Hazmat response
- Natural disaster mitigation and response
- Situational awareness
- Special events planning and management
- Evacuation planning

Open Government

- Open data
- Crowdsourcing

Public Safety

- 911 dispatch and management
- Crime analysis
- Deployment planning and response-time analysis
- Suspicious activity reporting
- Threat assessment
- Community-oriented policing

Public Works

- Vehicle routing for inspections, trash pickup, and snow plowing
- Parks management
- Permitting
- Work order management
- Infrastructure management

Revenue

- Impact and impervious surface fee assessment
- Property tax assessment
- Revenue projection

Transparency

- Place-based citizen notification
- Citizen engagement
- Citizen information portals such as maps of American Recovery and Reinvestment Act of 2009 (ARRA) investments

Transportation

- Mass transit management
- Congestion management
- Demand modeling
- Infrastructure design and maintenance
- Capital project management

Utilities

- Asset management
- Call-before-you-dig programs
- Demand forecasting
- Dispatching
- Outage notification and response
- Broadband availability mapping

