Data Fusion Centers
Transforming Public Safety Information into Actionable Knowledge
Defining Geospatial Data Fusion

Homeland security relies on fusion—the ability to capture and analyze data from multiple sources to effectively detect, deter, and respond to natural and man-made threats. Because every potential threat and hazard starts with a location, GIS technology is essential to the data fusion process.

Fusion centers facilitate the collection, analysis, and dissemination of crime, terrorism, and hazard-related data. A fusion center is defined as a collaborative effort of two or more agencies that provide analytic capabilities, resources, and expertise.

Enterprise GIS provides you with the platform and framework to collect, integrate, analyze, and disseminate data—turning your data into actionable knowledge.

GIS benefits data fusion centers by providing

- Interoperability with existing systems and technology
- Instant access to spatial and tabular data
- Improved collaboration and communication across intelligence, command, control, and response teams
- Increased ability to analyze and respond to events as they unfold by using a single, common view of operations
- Improved situational awareness for intelligence analysts and decision makers
Applying GIS Technology to Data Fusion
Transforming Public Safety Information into Actionable Knowledge

Geographic information system (GIS) technology provides the capability to analyze and visualize data from disparate sources through a common reference point—geography.

Whether you are a fusion center director, analyst, investigator, or first responder, you need information to quickly gain awareness and understanding of events across multiple jurisdictions. GIS provides the tools to collect, integrate, analyze, and disseminate information quickly and easily.

The use of geographic information systems by fusion centers provides a foundation to integrate all types of data for easy analysis and dissemination. ESRI’s ArcGIS® Server technology, combined with an easy-to-use ArcGIS Explorer globe, enables data fusion analysts to identify and communicate threats or risks in a secure manner across local, state, and federal agencies.

At the Massachusetts Commonwealth Fusion Center, ArcGIS integrated with workflow, link analysis, and collaboration tools provides the geographic advantage with real-time transactions to identify threats and distribute information across agencies.

The Strathclyde Police in Scotland applied GIS in the follow-up investigation to the attempted Glasgow airport bombing of June 30, 2007. The police use GIS to efficiently conduct their search, looking for additional evidence captured on surveillance cameras.

The United States Postal Service uses GIS for situational awareness of suspected criminal activity. Using analytic tools, money laundering activity is detected.
More than a map display or visualization tool, ArcGIS software is the foundation for geoprocessing and analyzing data. ArcGIS Explorer is a 3D globe optimized with the analytic capabilities of ArcGIS. It provides accurate and secure imagery and data access.

**Foundational Data Fused with Dynamic Data**
Fusing dynamic data—such as real-time 911 incident data, weather, and sensor detections—with foundational data, such as infrastructure and streets, into a geographic model helps identify potential threats and assets at risk.

**Analysis and Decision Making**
ArcGIS provides a rich set of tools to distill large volumes of data into information, improving situational awareness and decision making.

**GIS for Data Fusion Personnel**

**Data Fusion Center Analyst**
- Improved capability to identify patterns, trends, and relationships
- Ability to create repeatable and shareable information and models
- Easy-to-use, proven set of templates and tools

**Data Fusion Center Director**
- Increases capability to rapidly process and disseminate information
- Provides a platform to rapidly integrate new/additional information
- Improves a data fusion center’s ability to provide an all-hazards approach to prevention and collaboration

**Senior Government Officials**
- Eliminate data silos and reduce costs in maintaining multiple information systems.
- Reuse information and services across systems and jurisdictions.
- Leverage GIS data already collected and maintained throughout the state or local communities.
The Role of GIS in a Data Fusion Center

Data and information on its own can appear to be independent or disconnected. ArcGIS brings data, people, and organizations together using an enterprise platform with a proven track record of success.

**Data Collection**
Using GIS across the enterprise supports the aggregation of data from multiple sources into a commonly referenced data model based on geography. The ArcGIS platform provides a flexible information architecture, including Web services and desktop, browser, and mobile support, to ensure no data is left out.

**Integration, Analysis, and Modeling**
A flexible information exchange platform, ArcGIS rapidly integrates information across centralized and remote operating environments. It provides powerful geospatial analysis and modeling for all types of hazards, threats, and crimes.

**Dissemination and Knowledge Capture**
ArcGIS Explorer increases the capability to rapidly process and disseminate information. ArcGIS supports interoperability with other systems using open standards, allowing analysts to quickly share information with other public safety systems.

GIS provides rich tools to distill large volumes of data and information into meaningful and actionable knowledge.

Rapidly process, access, share, and disseminate actionable knowledge when and where it is needed.
ArcGIS®: The Complete Enterprise GIS

Whether you need to perform spatial analysis, manage large amounts of spatial data, or produce cartographically appealing maps to aid in decision making, ESRI’s ArcGIS software allows you to use one common platform to meet all your GIS needs. And because ArcGIS is built using technology standards, it will integrate well with your existing systems.

ArcGIS is a complete system for authoring, serving, and using geographic information. It is an integrated collection of GIS software products for building and deploying a complete GIS wherever it is needed—on desktops or servers or in custom applications; on the Web; or in the field.

Learn more about GIS for Data Fusion Centers at www.esri.com/publicsafety.