

GIS for Crime Analysis

Building Better Analysis Capabilities with the ArcGIS® Platform



Crime Analysis— The Current State

One of the foundations of criminological theory is that three things are needed for a crime to occur: a motivated offender, a suitable target, and a location. Once the first two pieces of this crime triangle are in place, the opportunity is set for a criminal act to happen, so it is only natural that analysts use geographic information system (GIS) technology to map crime locations. However, putting dots on the map is just the initial step in understanding a crime problem. The context of the criminal event must be analyzed and compared with other crime data to derive meaning from it, detect patterns in the data, and grasp the bigger picture.

As crime analysis has matured, so, too, have the techniques for mapping crime. Analysts began by aggregating crime data, identifying patterns and clusters, exploring the relationship between crime and other types of datasets, and assessing the effectiveness of crime-reduction strategies. All these techniques relied on GIS mapping. At the same time, researchers and police agencies began to realize that they could integrate Esri® mapping software with law enforcement records management systems.

This integration of systems with advanced analysis techniques enabled more sophisticated methods of mapping and analyzing crime incidents and patterns.

Today, analysts are not only expected to participate in the tactical crime analysis process but also support CompStat, data-driven, and strategic policing initiatives; public information requests; crime statistics reporting and investigations; and the management of databases and sensor systems. Analysts are facing new challenges with the following:

- Disparate systems
- Limited access or discovery
- Sharing and collaboration

Building Better Analysis—with GIS

The Esri platform breaks down data barriers and integrates multiple systems to present a complete picture—using geography. Analysts can derive meaning from data, using location as the foundation for sophisticated analysis. Web GIS extends analysis beyond the desktop by giving the analyst a means to mash up and deliver data, maps, and analytical products as online maps and apps that can then be shared with the rest of the organization.



The result is a complete crime analysis system that reveals trends, patterns, and relationships.

Esri ArcGIS® software improves your crime reduction strategy by helping you

- Develop robust crime analysis capacity.
- Organize and understand your data.
- Achieve comprehensive situational awareness.
- Enable agency-wide self-service mapping.
- Empower officers in the field with real-time data.

ArcGIS as a System of Record

The ArcGIS platform is made up of many different components: desktop, server, portal, and web GIS (including the many apps, solutions, and online content). ArcGIS can integrate the many different systems and sensors owned by a police agency.

For example, a typical agency may have the following separate systems in place:

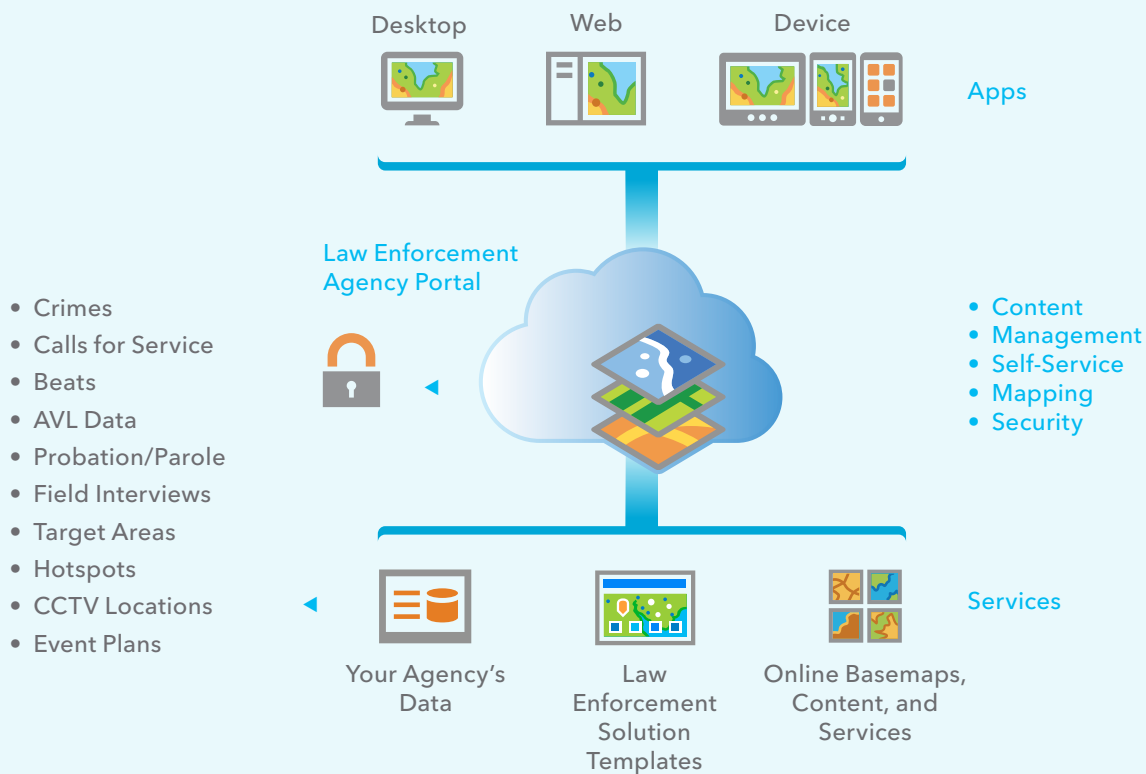
- Computer-aided dispatch (CAD)
- Record management systems (RMS)
- Offender and case management
- Warrants and citations
- Citizen complaints

In addition, there are the many different sensors an agency owns:

- Automatic vehicle location (AVL)
- License plate readers (LPR)
- Body-worn cameras
- Closed-circuit television (CCTV)

ArcGIS becomes the single system of record—organizing and managing your entire agency's assets and resources based on the one thing they have in common: location.

Mapping, Analysis, Data Management, and Collaboration for the Law Enforcement Organization



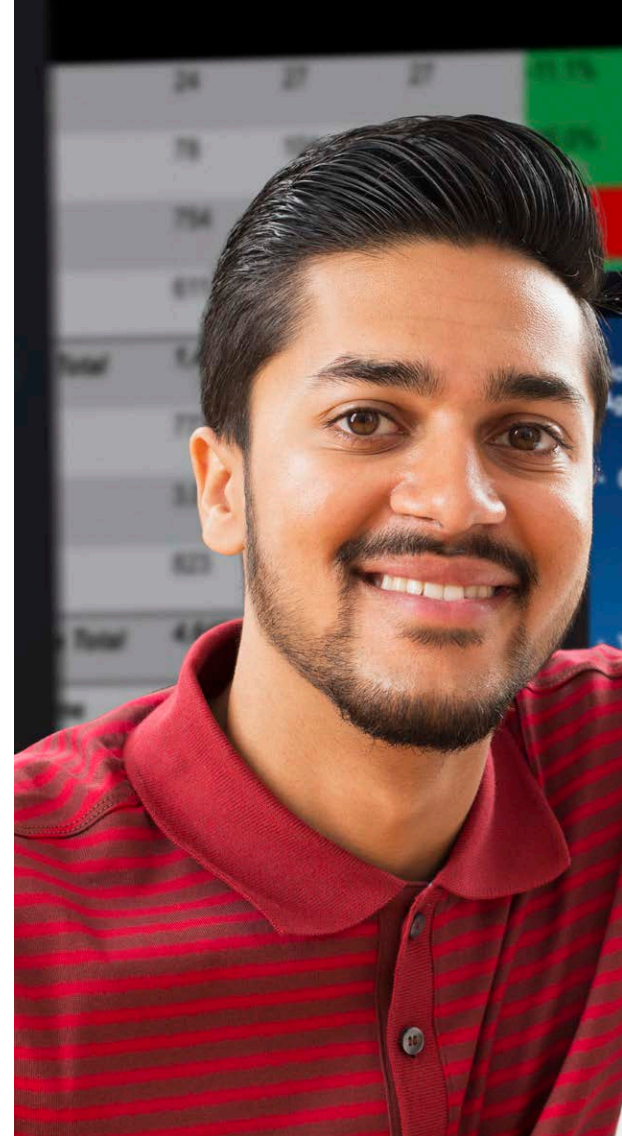
Crime Analysis Transformed

The power of Esri intelligent mapping goes beyond identifying crime. Analysts use sophisticated Esri spatial statistics and predictive analysis tools to forecast when and where the next event will occur. By applying geography to trends, you can correctly understand community issues and respond with accurate intelligence. With Esri tools, you can also analyze crime patterns; identify hot spots; and link crimes, offenders, vehicles, and associates—all through location. The ArcGIS platform gives police the ability to make better informed decisions with configurable desktop, web, and mobile apps that support the following:

- Tactical analysis
- Strategic analysis
- Administrative analysis
- Intelligence analysis
- Public information sharing

Leverage Esri tools and solutions to make an immediate impact on crime in your community:

- Improve efficiency with tools for automated geocoding
- Use out-of-the-box tools for predictive policing
- Develop more compelling grant applications with powerful socioeconomic analysis tools
- Employ advanced spatiotemporal tools for analysis and visualization in 2D and 3D
- Engage citizens by transforming strategic and administrative reports into interactive dashboards and story maps



Your Analysis Is the Key—Web GIS Is the Portal

Though much of your core work will still be done in the desktop environment, web GIS has become the platform that you can use to deliver your authoritative maps, crime data layers, and analytics to the rest of the organization. With the ArcGIS web portal, you can

- Organize all your geospatial content into galleries.
- Manage who has access to what, with secure groups according to unit functions.
- Create self-service tools that run on any device with Web AppBuilder for ArcGIS.
- Create dynamic analytical reports with Esri Story Maps.
- Support real-time operational awareness using Operations Dashboard for ArcGIS.
- Deliver maps to officers in the field on any device with Collector for ArcGIS and Explorer for ArcGIS.



ArcGIS for Desktop

The foundation of the ArcGIS platform, ArcGIS for Desktop gives you the fundamental tools you need to import data and perform analyses. Use our advanced data management and analysis tools for spatial analysis, geocoding, and map creation. ArcGIS Pro and the ArcGIS Spatial Analyst extension add even more powerful analysis capabilities to your crime-fighting toolbox, including kernel density estimation and 3D integration.

ArcGIS Online

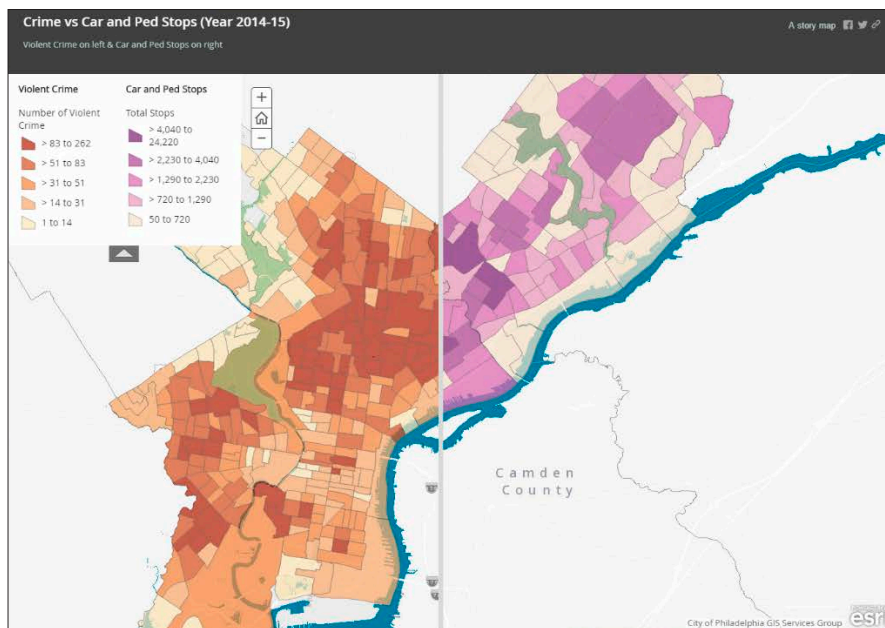
ArcGIS Online sets the stage for information sharing and collaboration. Be up and running in minutes with ready-to-use maps and apps that include your agency-specific, authoritative data. Easily create and share maps throughout your organization and access critical location information from your desktop, browser, tablet, or smartphone—anytime, anywhere.

Law Enforcement Specific Tools

Supported by ArcGIS Online, Esri solutions are free and can be quickly deployed on any device, anywhere, anytime. These ready-to-use solutions allow you to transform web maps into interactive maps and applications that can be extended to your entire organization or shared with the public.

- Predict crime
- Create incident maps
- Analyze cell phone data
- Conduct field interviews
- Fulfill service requests





Esri Story Maps

With Esri Story Maps, you can highlight community policing efforts, share information about ongoing crime trends, and enlist the public's help in solving a case. Easily combine maps, photos, text, and other media into a single interactive application. With story maps, you can

- Build the chronological story of a case to assemble evidence.
- Put together a preincident briefing plan.
- Manage area maps for a CompStat-style briefing.
- Share crime trends and community policing initiatives with the public.

Esri Community Analyst

Improve your administrative and strategic analysis capabilities with thousands of ready-to-use datasets containing data down to the census block level. With Community Analyst, you will gain a better understanding of the community you serve with the ability to

- Access thousands of datasets to formulate better policy decisions.
- Create custom comparison reports to determine where to allocate resources.
- Quickly find areas with the greatest need by using customizable search criteria.
- Support grant writing with access to detailed community data.
- Plan sensibly by recognizing trends using past data and future projections.
- Communicate policy decisions with data and reports customized to your location.
- Reach the public by publishing reports and maps on your website.

ArcGIS Maps for Office

ArcGIS Maps for Office integrates the power of the ArcGIS mapping platform into Microsoft Excel and PowerPoint, making it easy for you to create and analyze data in an environment you're already familiar with. All you need is an Excel spreadsheet and an ArcGIS subscription to quickly and easily start making your own maps. Maps for Office gives your entire agency a secure way to access, publish, and share maps and data.



Training

Whether you are completely new to ArcGIS or a longtime user looking to learn more about Esri's latest solutions, we have the training to help you. We have instructor-led training, Esri Press books, e-Learning courses, massive open online courses (MOOCs), and the annual Esri User Conference. At Esri, we have the training to fit your needs to fully leverage the capabilities of ArcGIS.

Your Trusted Partner

For more than 40 years, Esri has worked with law enforcement agencies just like yours. Esri doesn't just provide software and solutions—Esri partners with you to ensure your success now and into the future. In addition, our partner network provides powerful solutions that extend and add value to your deployment of the ArcGIS platform. As your agency grows, so can your solutions.

Learn more about GIS for crime analysis at esri.com/crime.



Esri inspires and enables people to positively impact their future through a deeper, geographic understanding of the changing world around them.

Governments, industry leaders, academics, and nongovernmental organizations trust us to connect them with the analytic knowledge they need to make the critical decisions that shape the planet. For more than 40 years, Esri has cultivated collaborative relationships with partners who share our commitment to solving earth's most pressing challenges with geographic expertise and rational resolve. Today, we believe that geography is at the heart of a more resilient and sustainable future. Creating responsible products and solutions drives our passion for improving quality of life everywhere.



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