

Building Your Own Common Operational Picture

Achieve situational awareness through readily available ESRI templates

A common operational picture (COP) can be described as a single display of relevant operational information that is shared by more than one level of command and facilitates collaborative planning. It pulls together a variety of data sources into a single dashboard to reveal patterns and trends in data that enable users to make critical business decisions.

Because COPs are incredibly powerful tools for achieving situational awareness, they are often associated with emergency management and planning. However, they can actually extend far beyond fires and floods to benefit a wide range of industries. Large corporations, utilities, municipalities and many other types of organizations are developing these Web applications to manage their assets, effectively share and manage mobile workforces, maintain operational awareness and foster communication across organizations.

ESRI's ArcGIS Resource Center provides numerous templates that let you download source code and widgets to customize your very own professional-grade common operational picture.

ESRI's JavaScript and Adobe Flex Application Programming Interfaces (APIs) can be leveraged to integrate a wide range of data into a dynamic Web application that will meet your organization's specific objectives. This article will explore templates that are available for Public Safety, Water Utilities and Municipalities to get up and running with customized common operational pictures.

Public Safety

Effective emergency management involves

four key phases – mitigation, preparedness, response and recovery. In support of these four phases, ESRI's Public Safety Resource Center provides a number of applications that can be downloaded by professionals to aid in their daily planning, analysis, mitigation, response and recovery efforts.

These downloads include an Emergency Management common operational picture template that enhances situational awareness so that users can perform daily operations more effectively, coordinate response efforts and make mission-critical decisions. It leverages ArcGIS Server and ESRI's Sample Flex Viewer to provide relevant incident information, base maps,



The Emergency Management COP depicting road incident information that is picked up through traffic cameras.

and operational layers from various sources so that incident status information is immediately available when users are conducting emergency operations.

The downloadable template can be used as a starting point to create a customized common operational picture that will answer critical emergency management questions such as:

- Is the water height at this stream gauge above flood stage and by how much?

- What is the current traffic flow and camera view?
- How can I view my field observations through this dashboard?
- What incidents are occurring and where?
- How does each affect critical infrastructure?
- Where are my public safety resources?
- What is the current weather?

The ability to access data from a central source increases collaboration and information sharing, which in turn, empowers effective preparedness, mitigation and response. It also helps public safety professionals easily communicate and justify response plans during emergency situations.

Water Utilities

Water, wastewater and storm water utilities face common challenges in their daily operations. They all need to be able to communicate efficiently so that managers and directors have an up-to-the-minute understanding of how utility systems are performing, where employees are focusing their efforts, what the current financial status is, and how customers are responding to service.

In response, ESRI's Resource Center for Water Utilities Management delivers three downloadable templates that provide a basis for utilities to build common operational pictures. These templates provide situational awareness to let users determine:

- How many kilometres of infrastructure do I have in total or by zone, and what is the capacity of the system?

- Where are there interruptions in the utility service right now and who is impacted?
- What activities are we doing to maintain the infrastructure, and where is it happening?
- What areas are we investing in for future development, and how much are we investing?
- What maintenance is being done by other utilities, and can we harmonize our activity to minimize costs and minimize disruption?

The Water Distribution Network Editing template is an ArcGIS Desktop product used to create and update a water distribution geodatabase. It provides base maps, water utility data models and a series of ArcGIS Desktop editing tools so that water distribution improvements can be added to the geodatabase and monitored effectively.

The Water Distribution Operations Dashboard template leverages ArcGIS Server and ESRI's Sample Flex viewer to provide a high-level view into the health and operations of a water utility. It comes equipped with base maps and operational layers, information pop-ups and reports so that concise content can be viewed through maps and used to support a water utility's day-to-day operations.

Finally, the Water Utilities Mobile Map template leverages ArcGIS Server and ArcGIS Mobile technology to aggregate base maps as well as water distribution data so that it can be accessed by staff out in the field and used for a variety of work activities.

By implementing an out-of-the-box ArcGIS template, users can achieve a dynamic view of operations and activities across the organization to answer critical questions such as – How is the network performing? What types of pipes have leaked over the last year? What tasks have work crews completed today? What is the status of our Capital Improvement Projects for the fiscal year? All from a single, intuitive dashboard.

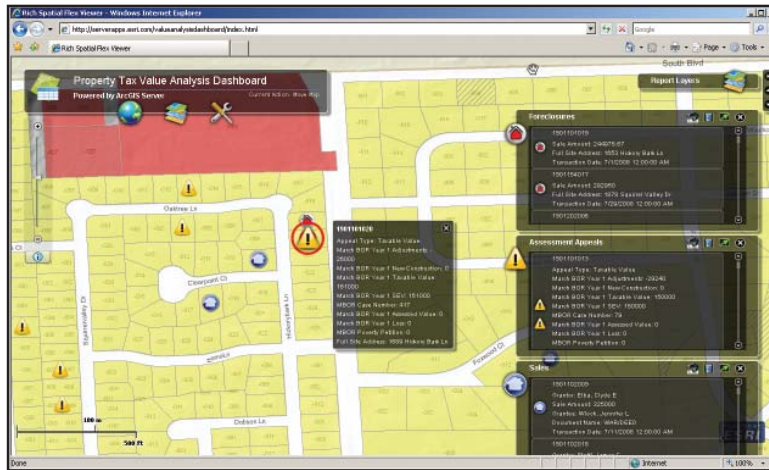
Municipalities

The ESRI Resource Center provides a Land Records Community so that municipalities can download a series of templates to manage assets such as parcel maps and property information,

support analysis and revenue predictions and provide useful information about the land to government, businesses and citizens.

Municipalities can download the Tax Parcel Viewer template to provide public access to tax parcel and related assessment. It utilizes ArcGIS Server and comes already equipped with base maps and a series of information pop-ups and reports so that land record information can be consolidated and visualized through maps.

- Where are foreclosures occurring in my community?
- Where are properties selling in my community?
- How many tax parcel assessment appeals did I have in my community?
- What is the status of assessed value and tax revenue in each of my taxing jurisdictions?



The Property Tax Value Analysis dashboard that reveals assessed value and appeal information within communities.

ArcGIS also helps municipalities communicate changes in tax parcel value and revenue to managers and executive directors, by providing a dynamic view of these value changes within the organization. The Tax Parcel Value Analysis Template can answer questions such as:

- How are assessed values and tax revenue changing year to year on a given tax parcel or at a neighborhood level?

transparency in communicating changes that directly affect local government revenue and services provided to citizens.

For more information on how your organization can benefit from building a dynamic, information-rich common operational picture, and to access a wealth of resources and downloads, please visit: resources.esri.com



The Water Distribution Operations dashboard showing the repair status of a water main break.

The template is an industry-specific configuration of ArcGIS Server and ESRI's Sample Flex Viewer that provides a high-level view into changes in property assessments and tax revenue in a local government. It provides relevant base maps and operational layers from several sources, along with a series of information pop-ups and reports, so concise map-centric content can be visualized and used to assess the impact of property sales, foreclosures, and assessment appeals on real estate value and tax revenue. These templates help municipalities achieve full