



City of Bellingham

Simplifying water shut-off day with mobile GIS technology

On the shores of Bellingham Bay with Mount Baker as its backdrop, Bellingham is the last major city before the Washington coastline meets the Canadian border. The City serves as the county seat of Whatcom County, and is at the center of a uniquely picturesque area that offers a rich variety of recreational, cultural, and educational activities.

About the City of Bellingham

A Geographic information system is used across the City of Bellingham to serve and enable its nearly 89,000 citizens. GIS at the City is distributed throughout various departments, with administration being managed by the City's IT Department and data management overseen by other departments (such as Planning or Public Works). The City employs eight full time staff working with GIS as their primary focus.

City staff currently manage two "kitchen sink" applications (including the [CityIQ](#) Geocortex application) that serve a variety of use cases, and numerous single-purpose applications. A complete gallery of the web maps and applications managed by the City's GIS staff can be found at <https://www.cob.org/services/maps>.

The Challenge

Every Tuesday, a list of 15-90 addresses is generated for water accounts that need to be shut off due to non-payment. In the past, field crews manually tracked their lists on paper and planned out their routes using only their own experience and knowledge of the City. This made the water shut-off process extremely difficult to track, as staff needed to be in constant communication about which addresses had already been visited.

Back at the office, the Finance Department would track incoming payments and notify the field crew about accounts that needed to be turned back on. Sometimes a customer would pay moments before their water was going to be shut off, and a phone call would quickly need to be



“ We have a mature system with a great deal of data, and our users have come to expect high standards in both their applications and the data that is provided. ”

Ann Stark, Senior GIS Analyst, City of Bellingham

made to ensure their service continued. It was typical for over 25 phone calls to occur during the day; because it is illegal to talk on a cell phone while driving in the state of Washington, field crews had to find a safe place to pull over to take the call and make note of the new information before continuing with their work. This was frustrating for all involved.

It took three finance staff to handle the load on a typical water shut-off day, in addition to the two field crews. Inefficient routing frequently occurred because the crews operated independently. For example, two crews could end up servicing the same street one block apart, and as a result staff would often work overtime to get everything done.

The Solution

The City needed a way to make water shut-off day more efficient and less stressful for customers and field/office staff. After implementing an initial mobile application that greatly improved the process, the City took it a step further and moved to a Geocortex application.

City staff now log into the Bellingham Water Shut-off Map application using their desktops (finance staff) or iPads (field crew). The application accesses the list of stored addresses that need to be shut off and marks them on a map using Python scripts. The map is then shared as an app; the field and office crews can view and interact with the features in real-time. When updates are made they are seen by others almost immediately. A system of symbols and colors lets users know which accounts are waiting for action and which are waiting for payment. Field crews can easily determine where they need to be and what action needs to take place.

The switch to Geocortex also streamlined the process in several other important ways. An unexpected issue with the first iteration of the mobile application was that it required users to remember an additional password to log into ArcGIS Online.



Moving to a Geocortex application removed the additional password requirement, as users could log in with the same password they used to log into other City of Bellingham services. Additionally, Geocortex Essentials' data linking capability allowed City staff to use SQL data directly to look up the history of an account from within the application prior to taking action.

The Results

The City saw significant results from the first day the application was implemented. Training new staff on the application takes approximately 15 minutes. The visual map has made dividing tasks much easier, with field crews estimating that they now, on average, complete all of their shut off tasks two hours sooner than before. Time-consuming phone calls to communicate last minute changes have almost entirely been eliminated, resulting in safer driving, happier employees, and greater efficiency.

In the Finance Department, the number of employees needed to manage the process has been reduced from three to one, freeing up a significant amount of time for other tasks. The application has minimized the stress that used to come with water shut-off day, created efficiencies with staff resourcing, and resulted in better service for customers. From a cost perspective, the City estimates that their Geocortex application and new process help them save upwards of \$40,000 each year!