Case Study

LOCAL GOVERNMENT

Customer
City of Johns Creek, Georgia

Partner
Mapillary

Challenge
Develop a proactive approach to collecting and maintaining comprehensive location data for public and private assets on city streets.

Solution
Mapillary iOS App
Mapillary for ArcGIS Web App
ArcGIS℠ Online
ArcGIS Open Data

Results
Implemented cost-effective street level collecting imagery tool to improve access to open data.

Mastering the Collection of Open Data

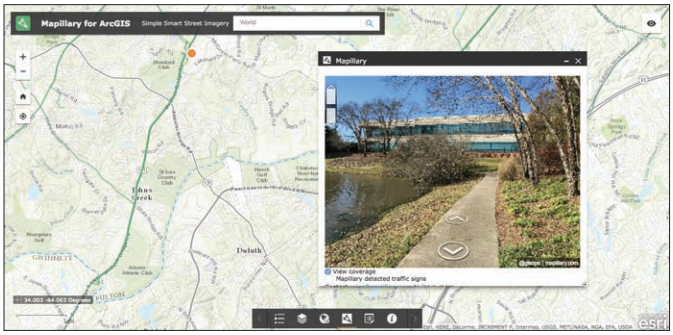
The City of Johns Creek, Georgia, incorporated in 2006 with a population of fewer than 100,000 people and a mission to "be the exception." It now uses a mobile app created by Esri partner Mapillary and ArcGIS® Open Data to give entrepreneurs a wealth of free information and literally drive traffic toward local businesses.

The Challenge

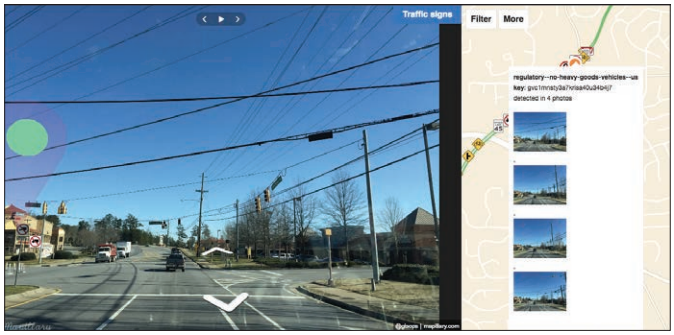
Johns Creek needed to collect and maintain comprehensive location data for public and private assets on city streets. However, capturing every street sign, traffic signal arm, power pole, and street light manually with a GPS unit wasn't feasible given the time frame and the city's limited staff. As the city has a track record of being an early adopter of new technology, the GIS team was eager to address this specific problem with a smart, innovative mobile solution that made the best use of open data.

The Partner

Mapillary is a computer vision startup that created a platform for quick street-level imagery capture while walking, biking, or driving. After data collection, the Mapillary platform stitches together photos with existing imagery and displays it on a map in near real time. Mapillary automates aspects of inspections and surveys that traditionally have been time consuming, error prone, and expensive. It's currently used by local governments and commercial GIS teams around the world to speed and improve surveys, asset inventory, and storytelling.



The Mapillary for ArcGIS Web App, available on the ArcGIS Marketplace



Automated traffic sign detection from Mapillary street-level imagery

"Using Mapillary has saved us months of painstaking work collecting street sign locations manually, but it has also helped us showcase the trail networks within our parks with high-quality, seamless photos. Without Mapillary's technology, we would not have been able to do either of these projects in any realistic timeframe."

Nick O'Day
Senior GIS Manager
City of Johns Creek

The Solution

Mapillary provided Johns Creek with the tools to create its own street-level imagery using mobile phones. The team ran an initial test using the Mapillary app, snapping photos at 2-second intervals with an iPhone mounted on the windshield of a moving car. Back at the office, photos were uploaded to Mapillary, then processed to blur out faces and license plates. Points in overlapping photos were matched to create a point cloud (similar to low-res lidar captures), and photos were then stitched together based on the point clouds to create street-level imagery that can be "walked through" virtually in 3D. When the capture and upload process was stabilized, Mapillary provided the Mapillary for ArcGIS web app, which enabled Johns Creek staff to view and update their web maps using a simple photo viewer. With fresh street-level imagery, the city is now ready to explore Mapillary's automated detection tools for extracting traffic sign data and collaborate on training detectors for capturing more types of assets. This data can now be accessed via an open data portal called Johns Creek OpenData—a site built using ArcGIS Open Data, a rich source of mappable information available in ArcGIS Online.

The Results

By using Mapillary's simple tools, the city is now able to create street-level imagery in a matter of hours, not months. The team not only has access to recent geospatial data across the ArcGIS platform but can also keep the imagery current with frequent updates. That this can be achieved without investing in specialized vehicles, professional camera rigs, or manual inspections translates to significant cost savings for the city. Once the data is collected and updated, being able to quickly locate vandalized street signs, outdated speed limit postings, or broken street lights will help the city respond more efficiently.

The imagery and data also enriches Johns Creek OpenData site with interactive maps and information including address points, parcels, zoning, topology, street centerlines, and public safety. The city multiplied the value of its own data by mashing it up with Esri® demographics data. Users can map open datasets in ArcGIS and view local landmarks, infrastructure, and more. The site also offers instructional videos to help people learn how to use open data to do things such as locate vacant commercial sites or find potential customers.

Mapillary

mapillary.com/arcgis

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Understanding our world.

For more information, visit mapillary.com/arcgis and opendata.arcgis.com.

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