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A Common Platform: Rapidly Responding to and Recovering from Colorado's Historic Floods

In September 2013, Colorado's Front Range was drenched with record rainfall. Rivers, streams, and reservoirs in the region surged with the influx of precipitation, leading to widespread flooding across nearly 2,000 square miles of the state. The storms and flooding claimed the lives of 10 people, drove more than 18,000 residents from their homes, and completely isolated mountain communities such as Lyons, CO. Countless buildings, roadways, bridges, and critical infrastructure were damaged or destroyed, causing hundreds of millions of dollars in damage.

Government agencies, from local towns all the way up to the state and federal levels, activated their emergency procedures as part of the response. Efforts ranged from protecting lives and property and communicating with the public to documenting damage and developing and executing recovery plans.

The Colorado Department of Public Safety Division of Homeland Security Emergency Management (DHSEM) and Longmont Power & Communications (LPC), a department of the City of Longmont, were two of the hundreds of organizations that were impacted by the floods. For both groups, geospatial technology provided a key mechanism for understanding the evolving nature of the floods and making informed decisions to safeguard citizens and drive recovery.

Streams and rivers surged, overrunning banks and affecting bridges and pathways.

Widespread flooding left residential communities and commercial properties completely inaccessible.

The Challenge

As the primary state response agency, Colorado DHSEM was tasked with understanding where flooding occurred and determining where to deploy response assets. The department needed a platform to share information and perform analysis in real time to coordinate activities across multiple agencies.

With a service territory of 49 square miles covering the towns of Longmont and Hygiene and parts of Lyons, LPC was hit particularly hard by the storm. Significant portions of its infrastructure were damaged, and approximately 1,300 customers were without power for several days. LPC staff needed a way to efficiently manage inspections and repair infrastructure.

The Solution

Both Colorado DHSEM and LPC used ArcGIS℠ Online to visualize information related to the floods and impacted areas. ArcGIS Online enabled Colorado DHSEM and LPC to share continuously updated live maps with staff located in the field and in offices throughout the state.

Coloardo DHSEM worked with local, state, federal, and private partners to collect imagery and geospatial information to create maps related to everything from road closures and traffic control points to evacuation areas and damaged facilities. The myriad maps and data created a common operating platform that decision makers were able to access in support of response and recovery efforts. Regional field managers and other

Flood waters caused severe damage to roadways and other infrastructure throughout the state.

personnel used the maps to maintain situational awareness and make informed decisions that supported their local counterparts.

In addition to ArcGIS Online, LPC also used Collector for ArcGIS, a configurable app for smartphones and tablets that enables field data collection and syncs with online maps. Field crews used Collector for ArcGIS to inspect high-voltage equipment in the field. Their reports were fed into an online map that was instantly updated on all the crews' devices. This let field personnel see what had already been inspected and allowed them to perform their work in smaller groups.
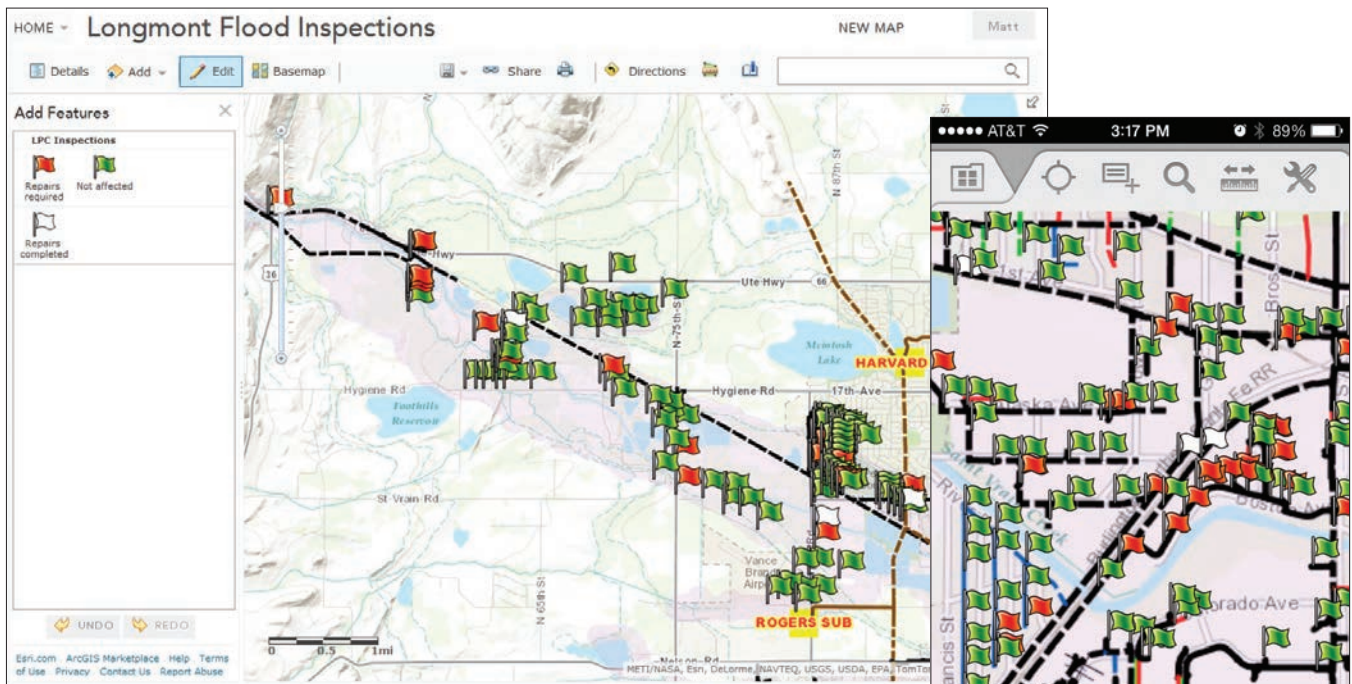
As inspections were completed in the field, they were immediately recorded on an ArcGIS Online map that field workers and office staff monitored.

Collector for ArcGIS helped field crews stay updated about where inspections had occurred and where to focus repair efforts.

The Results

The online maps created by Colorado DHSEM were accessed by hundreds of users to visualize impacted areas and orchestrate response efforts. Other online maps, such as those identifying disaster recovery centers, were also shared with the public. The common operating platform offered by ArcGIS helped leaders understand the size, scope, and proximity of the crisis.

Collector for ArcGIS empowered LPC to complete inspections of all damaged assets in just three days. By replacing paper maps and dispatch lists, LPC was able to operate more efficiently and quickly perform critical tasks. In all, the ArcGIS platform helped LPC gain a better understanding of the impact of the floods and lowered costs by optimizing the efforts of its field crews.

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