CASE STUDY:

Santa Barbara County navigates flood challenges with improved integration of data and imagery

Managing flood risk with data and imagery

OVERVIEW

Situated on the Pacific coast of California and home to the Santa Ynez Mountains, Santa Barbara County rises from sea level to about 3,500 feet – all within the span of about five miles. The steepness of the watershed results in rapid discharge and an increased probability of flash flooding during high-intensity rain events. That fast-flowing runoff can carry substantial amounts of debris that can clog critical choke points and exacerbate problems with flash flooding.

To maintain real-time awareness of such dynamic flood conditions, the county's Flood Control District maintains a public-facing website powered in part by AEM's Contrail® platform. Flood Control also maintains a network of field cameras to supplement its Contrail data and provide even greater situational awareness.

The challenges of dispersed data

Initially, the county chose to host camera imagery on internal servers, separately from its Contrail data. This resulted in the images going through multiple FTP transfers before loading to the public-facing website – a process that was inefficient, unreliable, and slow.

1. TAKING UP SCARCE RESOURCES

Hosting images internally and running regular FTP updates took up valuable time and network resources

2. DELAYED ACCESS TO CAMERA IMAGERY

Access to updated camera imagery had to wait until new images could be transferred via later FTP updates.

3. UNRELIABLE NETWORK ACCESS

Inefficiencies and delays were compounded as the internal hosting/FTP process was subject to unexpected maintenance and firewall changes that could result in a loss of the feed.

WHY TIMELY CAMERA IMAGERY IS IMPORTANT IN SANTA BARBARA COUNTY

In a watershed that can potentially carry water and debris from its upper reaches to the coastline in the span of about 20 minutes, things can change rapidly. Real-time data, analytics, and alarms related to rainfall and water levels have helped the county manage flash flood risks. Yet, that data may not always tell the full story. That's when real-time visual confirmation becomes critical to the decision-making process. When lives and property are riding on those decisions, visual confirmation needs to be completed quickly. Remote camera images, when provided in a timely manner, can quickly confirm the current status of a river, a reservoir, a burn scar, or a debris basin.

> "We've always had a great support structure through Contrail…and now through Contrail Camera. Having the experts available to integrate a new camera or help us with any troubleshooting or if something comes up, as opposed to relying on internal IT to troubleshoot something… That takes a lot of stress out.
>
> **— Alex Doran,**
> Engineering Tech Specialist (Hydrology)

Solution: Contrail Camera

To solve their challenges, the Santa Barbara County Flood Control District has begun to adopt Contrail Camera, the centralized web-based image storage and management tool from our OneRain brand. It seamlessly integrates with our Contrail software platform to incorporate camera imagery into Contrail dashboards and map layers. As a result, the Flood Control District can now make camera images available faster, more efficiently, and more reliably to emergency managers and anybody else who might need them.

IMPROVED EFFICIENCY

The county no longer needs to spend valuable time and network resources to host camera images on one site, then manage their transfer to another site.

NEAR-REAL-TIME ACCESS TO IMAGERY

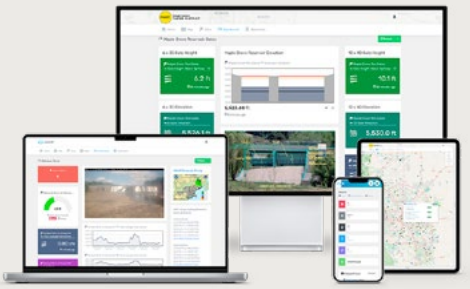
With images updating every 5 minutes, Flood Control no longer has to worry about presenting outdated imagery to its emergency responders and other stakeholders.

ANYTIME, ANYWHERE ACCESS TO IMAGERY

Contrail Camera enables 24/7 access to imagery via any web-enabled device outside the county network, so Flood Control no longer needs to worry about access being disrupted by internal changes or ongoing maintenance to the county's network.

Building a path to the future

The best flood management programs have a vision for how they want to operate and a path to get them there. Having recognized the need to streamline access to the camera images they were collecting, the Santa Barbara County Flood Control District adopted Contrail Camera in 2019. They launched the program with four cameras. They have now expanded it to eight cameras. And going forward, they plan to bring aboard one or two additional cameras per year to expand that capability.



WHY AEM?

AEM's purpose is to empower communities and organizations to survive – and thrive – in the face of escalating environmental risks. In the case of Santa Barbara County, that purpose has translated to helping the county mitigate its flood risks through the timely delivery of actionable data and analytics, as well as camera imagery from the field.

These are a few of the top reasons why communities like Santa Barbara County partner with AEM to manage their flood risks:

ACTIONABLE DATA, ANALYTICS, AND ALERTS

Our Contrail platform empowers clients to take decisive action by delivering real-time, mission-critical data, meaningful visualizations, and customized alerts.

INTEGRATED, TIMELY CAMERA IMAGERY

Contrail Camera further expands clients' situational awareness by enabling them to visually confirm field conditions in almost real time.

EXPERT SUPPORT

AEM offers deep expertise in the development and maintenance of environmental monitoring and early warning systems. Whether a client is looking to expand or troubleshoot their existing system, they know they can count on our team to supply the assistance they need when they need it.