CSAC Award Executive Summary – Drone Intelligence Gathering Program

Overview: Santa Barbara County Public Works uses drone technology to gather information that improves decision-making, public outreach, and business with regulatory agencies and contractors.

Challenge: Santa Barbara County Public Works is responsible for maintaining the majority of the transportation and hydrology infrastructure below the Thomas Fire burn area. The aftermath of the fire and 1/9 Debris Flow created many challenges. The potential for future debris flows made quick and efficient responses to maintenance issues essential. Increasing work with regulatory agencies and contractors required fast and detailed data sharing. We also needed to build upon existing relationships with residents and the local media to mitigate public fear or frustration during the recovery, rebuilding, and future preparation processes.

Solution: We used drone technology to address these issues. The technology uses a Small Unmanned Aircraft (drone) and a phone or tablet to capture media and distribute it through text or email. The photographs and video provided images that were more descriptive than pictures taken from the ground. The media was downloaded onto a cellular phone and distributed immediately.

Innovation: While local government has used drones for public safety or to capture footage for marketing campaigns, our program is innovative by how it uses the technology for infrastructure maintenance. Three staff members are licensed to fly under the FAA and complete all work in-house. Two staff members are environmental planners who use drones to enhance the efficiency and effectiveness of their work. The department's Public Information Officer uses drone photographs and video for public outreach and media relations.

Results: The use of the drone proved to be a success in many ways. Incident Command in the Emergency Operations Center reviewed drone photographs during events to determine the effects of the storm on local infrastructure. Drone technology helped to determine the extent of debris accumulation, water flow, and any related damage at major flood control facilities after every storm. Photography and videos of infrastructure taken before and after every storm showed regulatory agencies, FEMA, and other partners where maintenance work was performed and to what extent.

Drone photographs continue to be used extensively in project monitoring reports required by State and Federal regulatory agencies. The media in these reports helps us to provide a "big picture" view that cannot be conveyed by ground photos. The drone helps us to convey location in the watershed and overall project size. Drone photography is also used for vegetation analysis and habitat restoration

planning and tracking. We are monitoring the impacts and effectiveness of beach nourishment via drone photography. We can create panoramic views of the area and achieve heights and observation angles unattainable by traditional photography. The drone program allows us to create longitudinal studies of weather and tide conditions through time. Staff worked with CSU Channel Islands and other partners to analyze the data to show coastal erosion cycles.

We used images for the planning of the Randall Road Basin for an artist's rendering of the project, a CEQA scoping meeting, to raise private funds for the project, and in the environmental impact report. We will also use images during the construction projects at two debris basin removal sites. We will use these images to document the restoration efforts and monitor the restored stream channel to view how the stream flows through the site. Drone footage was also used in the design of the new Ashley Road Bridge that will be constructed in the summer of 2019.

Photos and video posted on social and traditional media channels and online neighborhood groups educated the public on the maintenance work going on in their community. Reactions to these posts were extremely positive, and account likes and follows increased because of each post. Social media posts with drone footage achieved five times the reach and reactions of an average post. Our most popular post of the effects of a debris flow that closed State Highway 154 achieved a reach of 7,300 and received 368 reactions and 77 shares. Television news also used drone footage shared on social media for their daily broadcasts.

Replicability: The total cost for the drone is around $1,500 and the cost to license a staff pilot is $150 every two years. The cost of each flight is relative to staff time. Flights can last between 10-30 minutes. The Public Information Officer delivered a presentation that addresses the replicability of this program ("How to Create Your Own Agency Air Force") at the 2018 California Association of Public Information Officials (CAPIO) annual conference.

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Optional submission: See attached.