



We had real success leveraging CrowdPlat on a complex systems implementation.

**Len Materman**

SFCJPA Executive Director



SFCJPA leveraged CrowdPlat's enterprise crowdsourcing platform for an **interactive web solution** that, integrated with strategically placed sensors across **San Francisquito Creek**, would send **auto-SMS and email alerts** on flood monitoring and tracking to the area's civilian population when flood waters are threatening.

"We have had real success solving a complex challenge using CrowdPlat's platform," says Len Materman, Executive Director of the San Francisquito Creek Joint Powers Authority (SFCJPA), a regional government agency in Silicon Valley. In 2018, the project received the Technology Innovation award from Government Technology Magazine and AT&T.



## Excutive Summary

San Francisquito Creek Joint Powers Authority's (SFCJPA) primary goal is to reduce the loss of life, property, and infrastructure due to flooding in the heart of Silicon Valley. In 2015, independent freelance consultants sourced via enterprise freelance platform CrowdPlat engineered a robust, easy-to-use, scalable, and low-cost web-based flood alert system that has helped alert citizens in times of emergencies.



## Client Overview

SFCJPA, an independent regional government agency, monitors the 50 sq. mi. San Francisquito Creek watershed and flood plain stretching from the Santa Cruz Mountains to the San Francisco Bay. Founded by the counties of Palo Alto, Menlo Park, East Palo Alto, and San Mateo, as well as the Santa Clara Valley Water District, the SFCJPA's mission is to work regionally to mitigate frequent flooding, alert these communities in real time to their flood risk during major storms, and enhance the area's natural ecosystems and recreational opportunities.



## Challenge

In recent years, several incidents of sudden flooding have threatened public safety, homes, and businesses situated along the creek. Each occurrence strained emergency response agencies, caused considerable destruction, loss in productive person-days, and disruption of normal life.

In 2000, the City of Palo Alto created an early warning system, but this system had several limitations, including no method to directly notify the public of imminent flooding. In 2014, SFCJPA took on this project because of the clear need for a low cost, advanced, real time, internet-based flood warning system that would be robust, scalable to the broader region, and easily deployable.

This meant that a website would display a map of the creek, using color-coded areas and indicating three levels of flood threats that would automatically update every 15 minutes. The website needed to be mobile-friendly so anyone anywhere in the region would be able to view flood status around the clock. The website would also need to graphically indicate the extent of flooding in affected neighborhoods, send instantaneous emails and SMS auto-alerts to citizens, with an included manual override option, and finally enable quick and easy citizen sign-up for flood updates.

The solution would have to be easy to use for the SFCJPA multi-jurisdictional operations team, citizens, business owners, and emergency responders. For early-warning and tracking alerts, it would have hardware sensors installed at four of the most flood-prone locations. Software-hardware dovetailing would have to be perfect.



## Solution

SFCJPA leveraged enterprise crowdsourcing platform CrowdPlat, which provides skilled, self-managed freelance teams for large, complex projects. Upon being awarded this project, CrowdPlat assigned a project manager who chose an open-source-based, easy-to-build LAMP stack technology proven for its flexibility, customizability, and interactivity in enterprise web application development.

After quick and intensive soft skills and technical interviews with freelancers, CrowdPlat identified a senior India-based hands-on developer with expertise in Linux-Apache-MySQL-PHP technologies. This developer had experience building similar business-critical Agile IT projects.

After understanding SFCJPA's business users' requirements, the developer started work on the project. SFCJPA's functional requirements were incorporated on the fly, using the Agile process. The system was delivered within 90 days and field-tested, with the sensors in operation, well before the rains came. Citizens provided valuable end-user feedback.



## The Crowdplat Advantage

**Delivery assurance.** CrowdPlat's project manager provided SFCJPA with a satisfaction guarantee throughout the project, delivering the solution as per requirements, on time, and within budget. Additionally, CrowdPlat provided the freelancer with its usual smooth, timely payment. In addition, the CrowdPlat portal helped reach out to freelance coders, engaging them in scoping and bidding the work. Finally, CrowdPlat's project manager screened, shortlisted, and selected candidates.

**Cost optimization.** Effort and cost optimization were successful because of the right freelance talent and fixed-bid model, which established a pay-per-output structure for the project. Payment was only made upon successful completion of milestones, resulting in predictable cost and successful outcome.

**Human-friendly design.** Freelance consultants from CrowdPlat implemented a simple, interactive web interface, keeping in mind that humans, who are vulnerable during a crisis, need clear and direct cues for action. CrowdPlat's project manager also facilitated garnering end-user feedback, which doubled as an effective awareness- and confidence-building measure.

**High-performance system.** The SFCJPA website is capable of handling up to 100,000 hits during a major storm without glitches and has sustained three years of operations providing value to citizens. The system was deployed using AWS technologies, leveraging auto-scaling capabilities so the server will scale up to high usage with superior performance and response time during peak load without manual intervention.