



Harris County Upgrades to Centralized Preemption after Hurricane Harvey

A case study from **opticom**



Table of Contents

Executive Summary	3
Challenges	3
Solution	4
Result	5



Executive Summary

Overview

In August 2017, Hurricane Harvey ravaged southeastern Texas and the Louisiana coastline. The historic flooding damaged or destroyed 135,000 homes, wrecked up to a million cars and affected nearly 13 million people. Adjusted for inflation, damage from the storm was estimated to be \$135 billion.

Harris County is the most populous county in Texas (and the third largest in America) at around 4.1 million residents. It covers 1,170 square miles, 263 intersections (a combination of Harris County, TxDOT and the City of Houston) and four major corridors. The county had first deployed a preemption system back in 2007. But the storm flooded or damaged a quarter of its 280 intersections. Since the technology was more than a decade old and lacked central monitoring, management and reporting, Harvey accelerated the county's decision to upgrade from its legacy technology to a more modern, connected solution.

Challenges

An aging legacy technology

In the wake of Hurricane Harvey, a consortium of seven Emergency Service Districts (known locally as ESDs) with a long history of collaboration came together, led by Harris County ESD No. 16 Commissioner Mike Pate. Once they had reached a consensus on system requirements, they put out a Request for Proposal (RFP). As part of the RFP process, Harris County required vendors to demonstrate their capabilities, even incorporating a potential problem to understand how a vendor would react to it.



Solution

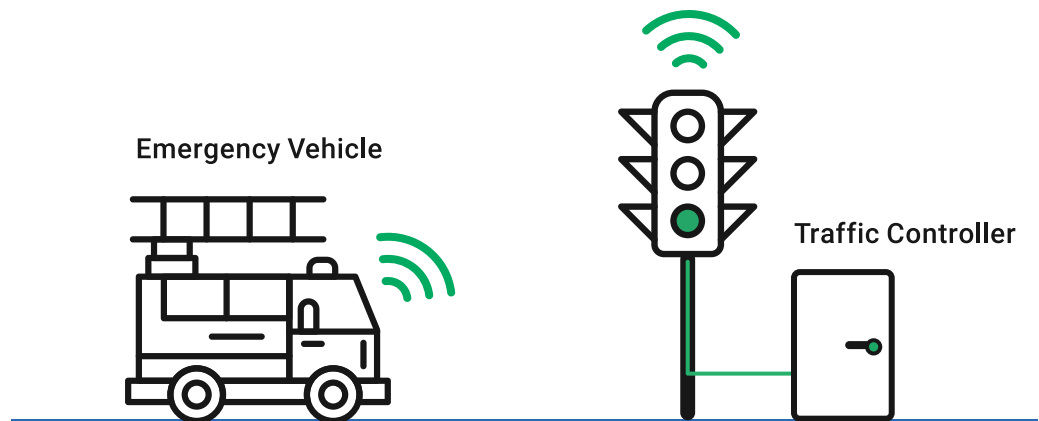
Interoperability and a smoother flow

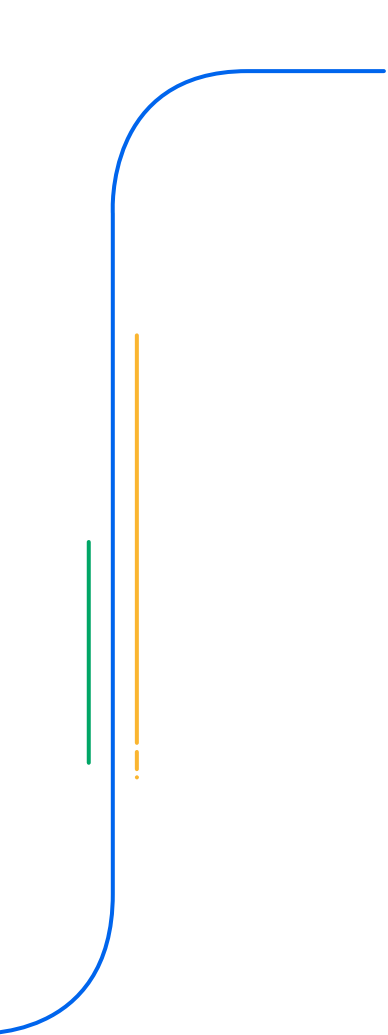
According to Pate, the group ultimately picked Opticom and its centralized architecture, as a service solution because of the company's more than half century of experience, its significant market share and its interoperability. Those factors gave Harris County confidence that Opticom could handle their anticipated growth in the years to come.

"One reason we went with Opticom is the company's vast experience with multiple vendors [and] multiple technologies," Pate said. "They're staying up-to-date on all the government mobility initiatives, so, it's a win-win all the way around. We don't have the burden of wondering about future technologies and preemption – that's Opticom's responsibility. And given their history and experience in the industry, we don't lose any sleep over that."

Mike Taylor, a senior technical specialist with Taylor Traffic Systems, helped design the system's specifications and implement the solution. The county ensures their emergency vehicles request preemption about 80 seconds out from the intersection, so the controller at the intersection knows when the vehicle will arrive based on the GPS location and speed of the approaching vehicle.

"The controller has an app in it that knows where the emergency vehicle is and when it's going to get there, so it can shorten phases and get to that green as quickly as possible," Taylor explained. "That reduces the impact on [non-emergency] vehicles, so the impact on traffic is minimal and [the traffic] recovers right away."





Spring Fire Chief Scott Seifert is responsible for a department whose nine stations and 46 different apparatuses covers an area of about 62 square miles. Since they respond to 16–17 calls a day and around 100 a week, his department is benefitting constantly from preemption.

"Usually, we can only save the time [between when] we get the call to the time we get the wheels rolling," Chief Seifert said. "Now, with traffic preemption, we're able to decrease the response time because we get a smoother flow on the way to the call."

Result

More insights, less guesswork

In the city of Ponderosa, Fire Chief Fred Windisch and his firefighters in Station One must navigate a six-lane main street with a median and turn lanes that sees 65,000 vehicle a day pass by.

"The GTT system has had a positive impact on reducing our total response time," Chief Windisch said. "We have less exposure to vehicular risk because traffic continues to flow while we're giving them the green light. It has significantly assisted us in our actual drive time response."

The centralized solution also provides web-based central management and monitoring that generates alerts to counties and ESDs as well as automated and customized reporting.

"One of our biggest surprises is how much information we can obtain through the weekly reports," Pate said. "We like to look at our most active (and inactive) vehicles when it comes to requesting preemption. If we notice that certain frontline vehicles aren't preempting, it gives us insight into potential problems that we can proactively fix."

Deployment flexibility with PCaaS

The group has elected to purchase the preemption as a service. With the previous solution, none of the agencies involved wanted to be responsible for maintaining the system. The subscription model puts the responsibility for making repairs and upgrading technology on the vendor (i.e., Opticom). Given the coastal location of Houston, future flooding from the remnants of hurricanes is a constant threat to Harris County. So, there was little appetite to have another system to directly support.

PCaaS mitigates the risk of future damage, whether from future natural disasters or trucks accidentally knocking down traffic cabinets.

"The Opticom package has just been a phenomenal replacement for what we had [...] I wish we'd have done it sooner!"

*– Scott Seifert,
Spring Fire Chief
Harris County*

"Taking care of the maintenance and logistics of repairing broken equipment has always been a real hassle," Chief Seifert said. "With the subscription model and technology changing so quickly, now we can upgrade our system in a matter of minutes."

PCaaS offers deployment flexibility, whether cities want to leverage their existing technology for an Infrared (IR), Radio-based (GPS) or centralized (software cloud-based) preemption solution. It also prevents technological obsolescence, a real concern for agencies in this rapidly advancing digital age.

"With the subscription, [the] technology [is] protected; you pay the fee and as the tech evolves, you get the latest and greatest software and hardware updates," Taylor said. "And it is the responsibility of the solution provider to make sure your technology stays up and running. So, it takes a lot of the load off the traffic department as far as maintenance and operations go."

A predictable cost of ownership

Pate believes the total cost of ownership is the biggest benefit of purchasing via a subscription model like PCaaS.

"A fixed, all-in price provides a predictable cost for budgeting, which is key to government agencies," Pate said. "Since PCaaS is a fully managed subscription, we've eliminated our maintenance and support costs. We learned this lesson the hard way with our previous solution, because we didn't do a good job of forecasting future costs, which negatively impacted our budgets."

Harris County provides a good example of how a cooperative, multi-agency approach can make financial sense and benefit multiple communities that want to make smart, safe investments in technology that will last.

"The Opticom package has just been a phenomenal replacement for what we had," Chief Seifert said. "I wish we'd have done it sooner!"

