

# OPTICOM™ Emergency Vehicle Preemption

## Faster and Safer: Opticom's GPS Preemption System Helps Emergency Responders on the Las Vegas Strip

Las Vegas Boulevard, also known as "The Strip," is one of the most iconic stretches of roadway in the world and has been featured in countless movies, TV shows and music videos. Over 43 million visitors flock to The Strip each year, taking in sights like dancing fountains, a replica Eiffel Tower, an erupting volcano and some of the world's largest and most impressive resort hotels and casinos.

With so many visitors, street congestion inevitably causes Las Vegas Boulevard to be one of the busiest roadways in the country.

With responsibility for the safety of citizens, entertainers and visitors, Clark County Fire Department (CCFD) needed help to ensure that emergency vehicles were able to reach their destinations swiftly and safely, even when traversing The Strip. CCFD reached out to Global Traffic Technologies (GTT) and invested in the Opticom GPS Emergency Vehicle Preemption system.

### Clark County

Clark County is responsible for an area the size of New Jersey and is the USA's 13th largest county. In addition to the Las Vegas Strip, it includes the nation's 9th busiest airport and Nevada's largest hospital, University Medical Center. There are in excess of 150,000 hotel and motel rooms in Clark County to accommodate those 43 million-plus visitors.

Municipal services, including fire protection, are provided to more than 900,000 permanent residents. The Clark County Fire Department protects an area of 7,420 square miles and operates 30 paid fire stations, staffed by 667 firefighters and 13 volunteer fire stations, with 180 volunteer firefighters.

It goes without saying that the Fire Department plays a vital role in the safety of Clark County, responding to emergencies of all types. To illustrate the importance of its role, in 2013 the Fire Department responded to 143,263 calls, of which 2,834 were fire incidents and 132,963 were medical needs.

### Opticom Heritage

When responding to emergency calls on the congested Las Vegas Strip, the key objective is focused on fast, safe passage of emergency vehicles – in this case fire trucks and rescue vehicles – through massively busy intersections.

Previously, to address this issue, many agencies throughout the Las Vegas area, including the Clark County Fire Department, the City of Las Vegas Fire and Rescue, the Regional Transportation Commission of Southern Nevada and the Metro Area Police, invested in Opticom Vehicle Preemption systems from GTT.



### LOCATION

Las Vegas, NV

### MUNICIPALITY

- Clark County Fire Department
- City of Las Vegas Fire and Rescue
- Regional Transportation Commission of Southern Nevada
- Clark County Public Works Department

### CHALLENGE

- Navigate through highly congested areas
- Preempt even through obstacles

### SOLUTION

- Upgrading existing Opticom Infrared technology to Opticom GPS

### PERFORMANCE

- Improved response times by greater than 30%
- Obstacles are no longer a problem
- Maintenance and upkeep is easier
- Visitors are able to better accommodate to emergency vehicles

The Opticom Emergency Vehicle Preemption systems work by sending a request to provide emergency vehicles with green lights at the intersections – as required – to pass through swiftly and safely. As a result, agencies can improve response times while reducing the potential for costly accidents.

## CHALLENGE

The original systems installed throughout Las Vegas used infrared (IR) communication between authorized vehicles and intersection controllers. But over time, the Clark County Fire Department recognized that there was a need to upgrade the system.

GTT's Dewey Garner explains, "The problem was that rescue vehicles and fire apparatuses were turning onto Las Vegas Boulevard and going right into traffic gridlock. They were then often sitting too far back from the intersections to trigger the infrared detectors to change the lights in front of them. The result was that traffic was just stuck. They were dead in the water and couldn't move, sometimes for two or three light cycles.

"So the challenge was thrown out by the Clark County Fire Department: fix the problem on The Strip and then we'll find the money to upgrade all the other challenging intersections too. So they worked with us and our authorized dealer, Advanced Traffic Products, to begin the transition."

## Unique Challenges

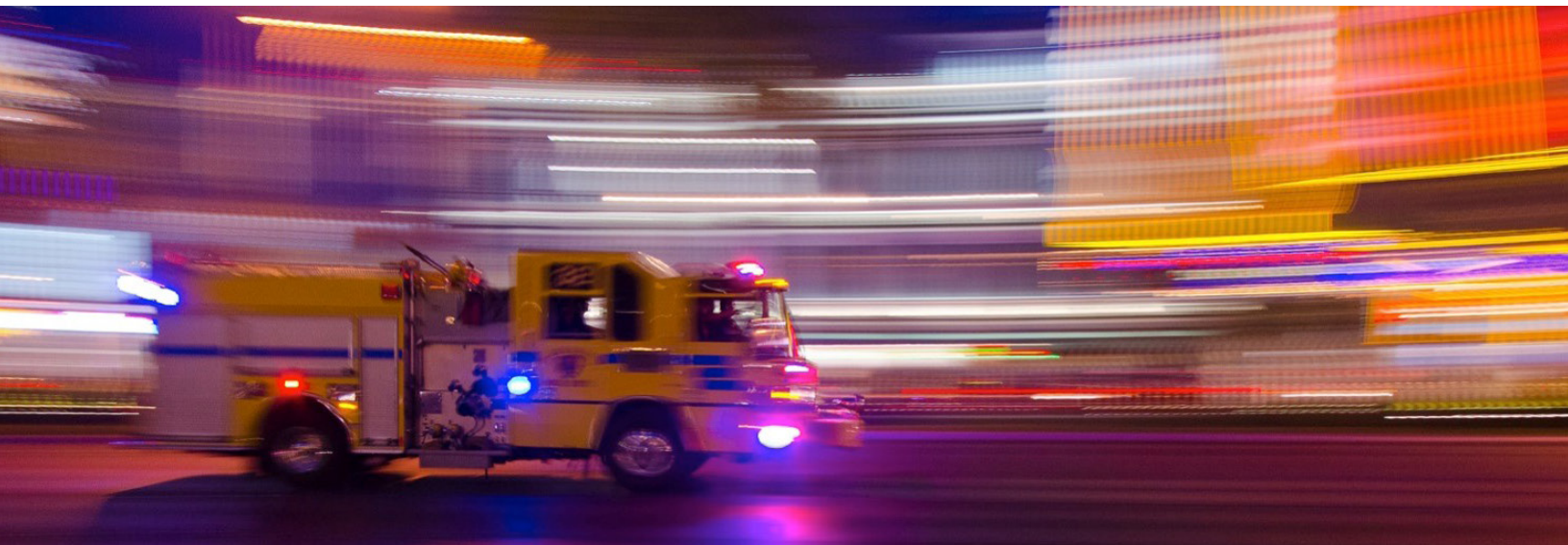
Senior Deputy Fire Chief at the Clark County Fire Department, Erik Newman has worked closely with GTT and likes to monitor new technology developments. "We knew that the City of Henderson Fire Department was using the Opticom satellite GPS equipment and we saw from their reports that they were getting better bang for their buck in terms of moving traffic quickly," he says. "That's how the Opticom GPS solution first came to my attention."



"I had the opportunity to be in front of a Henderson rescue vehicle as it was coming up Eastern, which is a very busy intersection for the City of Henderson and I saw how the sets of lights- two or three sets ahead- started turning green and moving traffic."

Garner says Las Vegas Boulevard presents its own set of unique challenges for EVP systems. "Pedestrian bridges, which go up and over the top of the road, sometimes have a tendency to block the infrared signaling coming from the fire apparatus to the intersection."

"There are also huge planter boxes right down the middle of Las Vegas Boulevard, which create issues with palm trees and palm fronds growing over and blocking the IR signal. The planter boxes also mean that the fire vehicle cannot jump into opposing lanes of traffic when responding to an emergency call. The infrared system is also susceptible to dirt in the air, meaning lenses needed to be cleaned regularly to ensure proper operation. But by switching from infrared to GPS, we overcame some of those obstacles and were able to move traffic much more smoothly."



## Parting the Red Sea

During the pilot project, 12 intersections were installed on The Strip. The intersections covered in the project run from Tropicana Avenue to Spring Mountain Road: the most popular stretch of Las Vegas Boulevard.

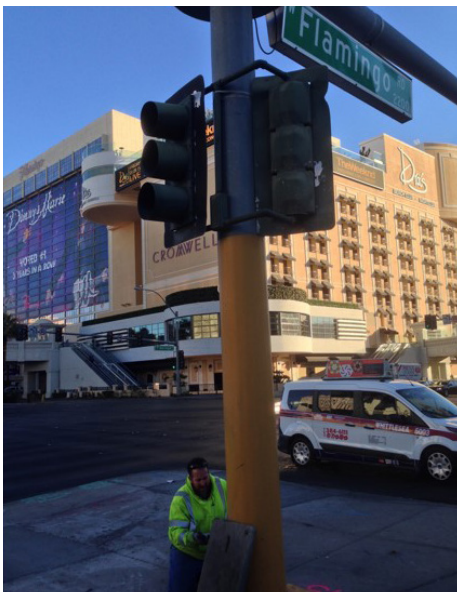
“Our Friday, Saturday night and Sunday traffic is as bad, or perhaps worse than Times Square in New York,” Chief Newman says.

“So we thought it would be quite a challenge for GTT. Once we got the buy-in from the Public Works Department, the new system was installed pretty quickly and during the trial the GPS units were fitted to three fire engines and three rescue vehicles.

“The initial data looked very encouraging, but GTT listened to our feedback and made further adjustments. For instance on one specific intersection, the system was turning lights green, but it wasn’t triggering the other lights for left turning; so we had to make some minor adjustments. After those adjustments were made, performance shot up 30% or so.”

The Opticom GPS system incorporates vehicle turn signals in two modes: to select a turn arrow at the next intersection, or to communicate with the next intersection in the direction of the turn signal – or both.

Chief Newman continues: “One day I just happened to be at an intersection when our vehicles were going on a call. They came around the corner and I saw every light turn green and I thought: this is like parting the Red Sea! Cars were moving, the engines and rescue vehicles were rolling down the Boulevard – and this was about 7 o’clock at night on The Strip. It was amazing.”



## PERFORMANCE

### Outstanding Results

The new system has been in use on The Strip since March of 2015. “It took 30-45 days to install and configure everything,” Chief Newman says. “At that point, we trained all the shifts of users, which occurred over a period of about 60 days, which also served as an evaluation period.”

A key element of the design and installation process was the ability to define “approach zones” – the areas where the vehicles begin communicating with the next intersection.

“We had to adjust the approach zones to accommodate the traffic patterns,” Chief Newman says, “so that lights wouldn’t turn to green too early or too late. Because of the traffic congestion, the approach zones are almost touching each other at this point.”

Early data indicates a 32% reduction in the time taken for emergency vehicles to move through the intersections.

“The value for any emergency agency is to get to the incident faster,” Chief Newman says. “A 32% reduction in time will save lives, because seconds can count when somebody is ill or has been in an accident. But we need to get there safely too, to avoid secondary damage and the expense that can lead to.”

The Opticom system is monitored by Central Management Software at the Regional Transport Commission of South Nevada. Public Works, Clark County and the City of Las Vegas all have access to the system and data.

## Future Expansion

Chief Newman says the new system has been 100% reliable. "It has helped the public and our visitors to get out of the way a bit more quickly," he says. "Because sometimes, if you're in a car and a fire truck comes screaming up on you, you panic and you don't know where to go. So the system has now allowed people to move forward and pull over to the right. I think that is the biggest assistance that has helped our drivers, giving the public more time to move forward and get out of the way of the emergency responders."

And Chief Newman is glowing in his appraisal of the experience of working with GTT: "They're a great company to work with. They listen, pay attention to detail and truly care about building an ever-increasing list of satisfied customers. They've been doing this a long time and they wouldn't have survived if they didn't partner with their customers to ensure success."

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