

High-tech with altitude

Oxnard company soars to success

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OXNARD - A specialized team of high-flying police officers has responded to an increasing number. It was quiet and chilly for the first night of spring on the streets of Los Angeles. As the sun set and the freeways lit up with evening commuters, Tactical Flight Officer Chris Vanhorn and a pilot of the Los Angeles Police Department Air Support Division roamed the skies from Downtown west to Santa Monica. Once the last units to arrive at a crime scene, the aerial units are now the first responding to many calls, thanks to an Oxnard company's innovative in-flight computer system. With 10 AeroComputers tactical mapping systems deployed, the LAPD joins other major metropolitan law enforcement agencies, the California Highway Patrol, the Federal Bureau of Investigation, U.S. Army Special Forces, the Los Angeles County Fire Departments and 44 other clients of the company from other agencies.

"From my job perspective it's probably one of the best tools we have," Vanhorn said.

The tool allows Vanhorn to set the helicopter's course, track moving vehicles, operate high-tech cameras and perform other operations to assist the air support division's tactical operations in this mid-city district and throughout Los Angeles. Other uses include fire mapping, tracking of oil spills and various military surveillance applications.



Los Angeles County sheriff's deputies use AeroComputers' tactical flight mapping system.

The Beginning...

Mark Gassaway founded AeroComputers in 1993 after coming out of retirement. Retired and bored after selling another company in 1990, he realized he could do work that would combine his love of flight (he has been a pilot since the 1960s) with his experience working with computers.

"Here I get to play with my airplane and do the work I know," he said. "This is probably the most fun I've had in my life."

Gassaway runs AeroComputers from a hanger at the Oxnard Airport. Later this year the company will expand from its hangar to the site of a shuttered restaurant at the airport.

In addition to equipment and the company's 10 employees, the facility houses a two-seater Cessna outfitted with a mapping system like the one in the LAPD helicopter. Gassaway uses the plane to test future developments of his product.

On a recent spring afternoon he had a \$500,000 camera on loan from Boston-based FLIR systems that is typically used in the military's unmanned Predator surveillance aircraft. The camera allowed Gassaway to keep track of objects at an intersection miles away while circling over Oxnard in his plane. In addition to FLIR, which has offices in Goleta, AeroComputers works with Ontario, Canada-based Wescam and Van Nuys-based Cineflex for camera equipment. Ultimately, however, AeroComputers sells hardware and software to law enforcement agencies as a package deal.

All the ground imagery and mapping used in the system are built in-house using elevation models of the entire United States. The hardware also uses a laser range finder and

other technologies to perform complex tasks such as locking the camera on a specific location and measuring speeds and trajectories of objects.

On a typical call, police officers can use the system to pick up a person or vehicle's range from the helicopter, its exact location and its elevation. The officers can even determine how fast the suspect was moving and keep track of what streets and landmarks he or she might next pass. In turn, they can provide the information back to units on the ground or dispatch facilities to be used in pursuits or apprehensions.

On the Job

Back in Los Angeles, Vanhorn scanned the streets with his ears tuned to the crackling radio as he used AeroComputers' tactical flight mapping system to keep track of the helicopter's position.

An hour into the shift a call came from the parking lot of a convenience store where, hours earlier, a man had been murdered. Someone was seen on top of a building filming the crime scene. Police on the scene were concerned it could have been the suspect's associates keeping track of their investigation.

As the helicopter made a steep, counter-clockwise turn, Vanhorn typed the call's location into a computer in front of him. The address popped up as a target on his screen. The distance from the chopper's current location to the call and the time it would take to arrive was instantly calculated. Soon the unit was on the scene, where black and white cruisers blocked the parking lot and foot patrols fanned the neighborhood looking for clues to the killing.

A clutch of officers circled a building across the street from the murder scene, looking for a way to reach the rooftop to search for a suspicious activity. As they looked for a staircase or ladder, Vanhorn scanned the rooftop with a pair of binoculars. He toggled a switch and the neighborhood's rooftops came into view on the mapping system's screen. The infrared image was synched to a camera mounted to the helicopter that Vanhorn controlled with a joystick-like device.

As the helicopter circled the area, Vanhorn described the scene to officers on the ground and used the camera to search for heat signatures of anyone who may have been filming from the nearby buildings.

This time the call failed to turn up suspicious activity. But Vanhorn and other air support division officers said they regularly use the system during pursuits, burglary calls, car theft investigations and other activities where the air support division regularly provides support.

"Our main job is to help officers on the ground," Vanhorn said.



Aerocomputers' navigation system allows law enforcement officials better control over emergency situations, including pursuits and apprehensions.