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Crime in Real Time

Using CAD data for crime analysis

By Steve Walter

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Tristan Gale Geisler holds up her Olympic Gold medal at the Oceanside, Calif. police station. Geisler, who won the medal for skeleton, says she is elated to have her gold medal back after burglars stole it from her home. Analysis of emerging CAD data played a key role in solving the case.

It started as just another pleasant January morning in the beachside community of Oceanside, Calif. The sun had broken through the morning fog that so often hovered over the coastal edges of San Diego County, and the temperature was already touching the mid 70s. At around 11:45 a.m., Oceanside resident Tristan Geisler decided to take her dog for a walk through her neighborhood near the beach. She was out of the house for less than 40 minutes. When she returned, she found her home had been ransacked by burglars.

Unfortunately, in a city of over 165,000 people, no neighborhood is completely safe from property crime. Among the missing items was her 2002 Olympic gold medal, a rare piece of sports history and a priceless possession. It turned out that Geisler, known then as Tristan Gale, was the first American woman to win gold in the winter sport of skeleton.

In the week that followed, the story of the break-in caught fire in the media, grabbing national headlines and prompting skepticism that the medal would ever be recovered. The spotlight shifted to the Oceanside Police Department (OPD), faced with the task of solving the crime, and the near-impossible problem of recovering the medal.

Five days later they found it while serving a search warrant—buried beneath a filthy mattress. The story remained on the front page, and three suspects were ultimately arrested and charged with the crime.

Geisler's husband praised the efforts of detectives in the local paper, writing: "This is incredible. This happened less than a week ago. OPD acted quickly and they were here promptly." Although this was true, many never knew exactly how detectives solved the mystery so quickly.

How It was Done

In the days leading up to the gold medal theft, OPD crime analysts identified an emerging pattern of burglaries in the neighborhood surrounding the Geisler home. Using information from the department's computer-aided dispatch (CAD) system and an application that provided real-time mapping, OPD analysts created a bulletin that included a map of the affected area, detailed the modus operandi of the series and listed the most current suspect and suspect vehicle descriptions.

Knowing they were now dealing with a cluster of crime

cases, as opposed to an isolated incident, responding officers and evidence technicians used information from multiple sources to develop a more complete suspect profile. When the theft of the gold medal occurred, investigators were a step ahead, already working toward the identification of the perpetrators.

Ultimately, it was fingerprint evidence from a case that occurred the day before and just down the street from the Geisler residence that led police to the suspect. Looking back, one can see how the analysis of CAD data kicked off the investigative process, unlocking valuable intelligence and allowing investigators to see the crime series as it happened.

Det. Doug Baxter, lead investigator in the burglary series, said, "The information that trickled in during the early stages of this investigation was critical in solving the entire series of crimes.

"We knew right away which cases were important, and in addition to recovering the gold medal, we were able to return a large amount of stolen property to multiple victims."

Info Overload

If there's a universal problem facing law enforcement agencies today, it's the task of analyzing the massive amount of crime data that flows through police records systems, dispatch logs and criminal databases. Today's cops are on the brink of information overload. Yet, the wealth of information that's collected through these systems obligates police agencies to make use of it for a multitude of law-enforcement purposes.

One type of data that's often overlooked for analytical purposes is CAD data. Just about every emergency response begins with a call to 911, and the nature of that process yields valuable information—locations, incident times—even M.O. and suspect details.

When it comes to this problem of information overload and the massive influx of crime data, the city of Oceanside is no exception. The city sits near the northern edge of San Diego County. It represents a diverse Southern California mixture—part beach community, part military town—and it sits at the crossroads between Los Angeles and San Diego. It has a long tradition of challenges for law-enforcement.

But it's come a long way in the past six years. Crime's dropped nearly 40%. Although it's difficult to measure, at least part of this reduction can be attributed to the police department's implementation of crime analysis and their use of real-time crime data.

CAD Data's Value

In 2005, OPD acquired a program called FirstWatch, a web-based application designed to scan data from various sources for the purpose of identifying emerging trends and patterns. Through this application, data is organized and presented in the form of maps, charts and graphs, allowing the user to visualize the incoming flow of information.

Oceanside's Crime Analysis Unit discovered that this type of analysis provided the perfect starting point for the daily analysis of crime. For the past several years, they've started each day reviewing recent and active calls for service throughout the city.

One of the primary benefits of this approach is that crime information is collated—sorted by crime type—on a daily basis. As any analyst can tell you, you can't analyze unless you organize your data first. OPD makes its CAD data more manageable by breaking it down into specified groups, called triggers. These offer a customized view of a specified problem area, such as burglary, robbery, sex crimes and so on.

Once the calls for service have been parceled out by type, they're mapped with geographic information system (GIS) technology and labeled with distinct symbols for each incident. This system of triggers, along with real-time mapping, creates a visual environment where the user can quickly analyze emerging trends and patterns.

PHOTO DANIEL DIPINTO

Det. Doug Baxter works with members of OPD's Crime Analysis Unit to analyze crime trends as they emerge. Real-time crime mapping helped bring together critical information during the 'Gold Medal Burglary Series' investigation.

This is exactly what happened during the gold medal burglary series. The analyst was able to track the larger pattern of burglaries as the incidents popped up one by one on the real-time map. From there, the user was able to drill down into the actual CAD report and view the dispatch comments. This ability to view the narrative text provided critical information, including a suspect and suspect vehicle description.

Even with the use of customized triggers and real-time mapping, the analytical routine described above is largely a hands-on process. So what happens when the analyst is away from their desk? How would someone know if a pattern is developing on a day when they aren't able to physically sit in front of their computer terminal?

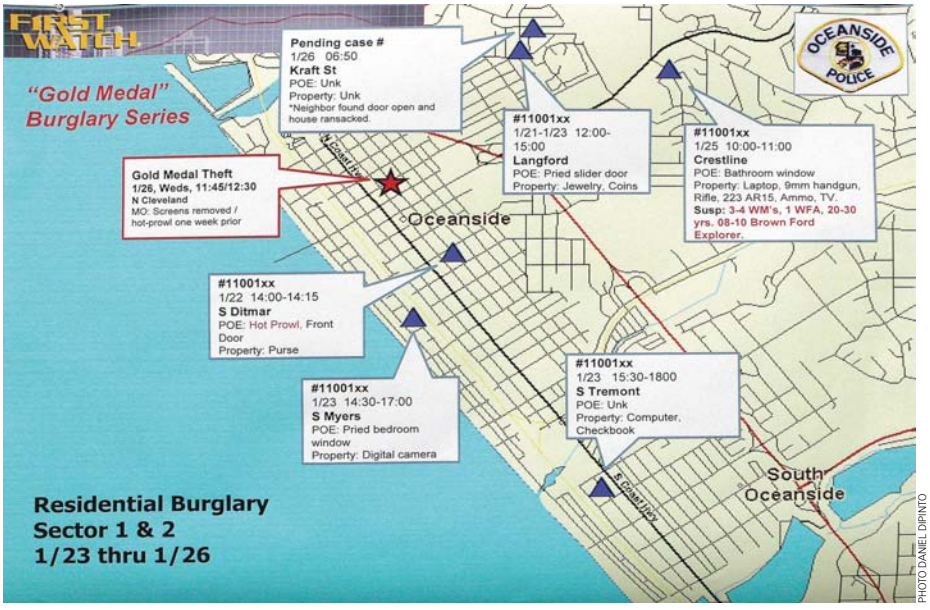

PHOTO DANIEL DIPINTO

The crime map used to track the progression of the 'Gold Medal Burglary Series.'

Oceanside's system was actually designed with this problem in mind. The maps and event lists are constantly refreshing. So, in a sense, the computer is tracking crime when the analyst can't. Furthermore, a mechanism for generating automated alerts is programed into the system.

The most common type of alert is a "geocluster alert." This pattern-seeking feature is designed to identify clusters of activity that occur within close proximity of each other, within a limited timeframe. *Example*: The system can be programed to generate an alert if three or more residential burglaries occur within half a mile of each other, in less than 48 hours. This would notify the user of a possible emerging trend, which could then be investigated further.

CAD Data & Investigations

More sophisticated types of alerts can also be customized according to specific needs. One such alert was used by Oceanside robbery investigators to monitor a neighborhood that was the focus of a strong arm robbery series. In this case, a "geofence," or geographic boundary, was drawn around the neighborhood and added as a layer within the map in order to track robbery activity. In the days that followed, any robbery occurring in this geofenced area would generate an alert, which was then sent to the robbery task force. Each member of the team knew immediately when a robbery had occurred in the area of concern.

The idea of real-time alerts, designed around ongoing problems or trends, can be expanded beyond mapping. Keyword searches against information within CAD can also be used in similar fashion. In an effort to track and combat gang related crime, OPD is utilizing a "gang sentinel" that hits on any incident in which the word "gang" is displayed in the comments. This helps identify crimes that may be gang-related, but not identified as such in the crime report.

Systems that analyze CAD data are not only useful in monitoring ongoing problems, but they can also be used to assist specific, ongoing criminal investigations.

One method for using CAD data as an investigative tool is through "free-text alerts." Free-text alerts work in much the same way as the gang sentinel—constantly scanning dispatch text for words of interests. On occasion, OPD has programed alerts for a sequence of license plate numbers. This generates alerts for specific incidents, such as a traffic stop in which a vehicle with a license plate matching a certain description is stopped.

Conclusion

As the problems of policing become more complex, making the best possible use of information within CAD becomes more important. Why? It's because this type of information is timely and provides a unique opportunity to be proactive. OPD is looking to design and employ a trigger that searches for keywords that might point to incidents with a possible nexus to terrorism. One can only imagine the implications of letting a suspicious incident with ties to a terrorist plot slip through the cracks.

Whether a department uses a product from a company like FirstWatch, or finds its own way to analyze CAD data, the bottom line is simple—it needs to be done. Any agency that ignores of the value of real-time information is selling itself short, overlooking an effective method for fighting crime.

The examples described here may only be the tip of the iceberg. Innovation is the key to moving forward. Throughout the country, there remains a need to put this type of technology in the hands of more analysts, so that they can then facilitate the flow of information in a way that gives every cop on the street the ability to visualize crime as it happens. LOM

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