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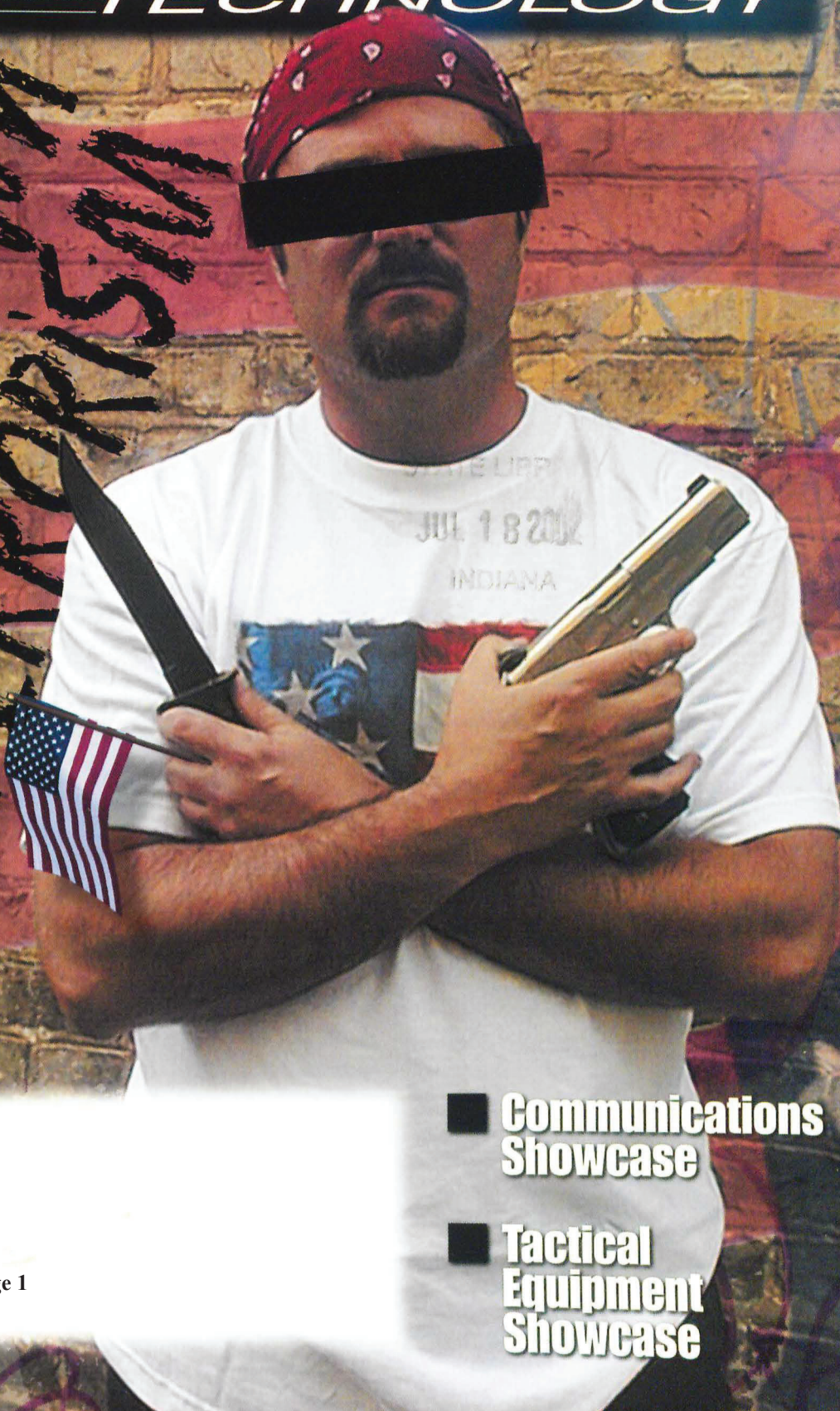
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AW ENFORCEMENT

TECHNOLOGY

A Cygnus Publication

HOME GROWN
TERRORISM



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■ Communications
Showcase

■ Tactical
Equipment
Showcase

LAW ENFORCEMENT TECHNOLOGY

Volume 29, Number 7

July 2002

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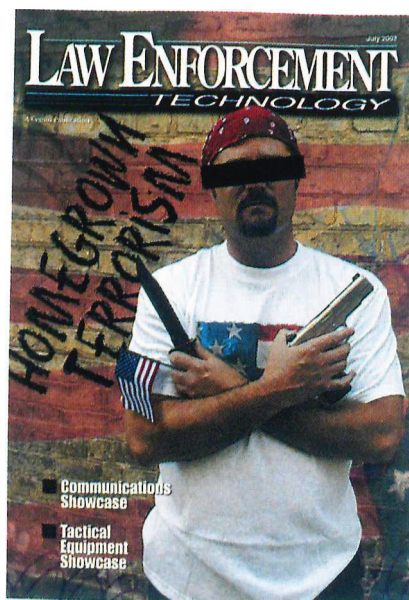
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Know Before You Go

Introducing Pictometry - Information System



All images and information were generated by Pictometry's software.

Second Entry
Team Staging
Area 369ft. Away

Surveillance
Pole Camera
29ft. High



Designated
Area For
Evacuation

First Entry
Team South
On Oak Street

See Everywhere • Measure Anything • Plan Everything



Pictometry[™]
Visual Intelligence

Pictometry captures every square foot of your county from up to 12 different views. Next time, *Know Before You Go*. Get Visual Intelligence from Pictometry. Call for a presentation about this revolutionary new technology.

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Preparing for terrorist attacks

Since 9-11, we've seen a ratcheting up of larger departments into areas that previously were viewed more military in nature. Both the New York City and Los Angeles police departments have sent officers to Israel for training related to suicide bombers. The FBI is being reconfigured to address the war on terrorism. But what does the average-sized department in the medium- to small-sized community do to gear up for the war against terrorists? How do you ensure your officers are fully prepared to protect the public at a moment's notice if a terrorist event occurs in your community?

"While the potential for terrorism is great, a lot of potential damage can be avoided through careful planning, prevention and a well thought out response," says Brian Levin, director for the Center for the Study of Hate & Extremism at California State University, San Bernardino.

Levin recommends developing a regional task force headed up by a terrorism liaison officer. A working group such as this would team up with fire departments, emergency medical services, businesses and other private entities,

"...a lot of potential damage can be avoided through careful planning, prevention and a well thought out response."

— Brian Levin, Center for the Study of Hate & Extremism

as well as federal organizations, like the FBI, to develop memorandums of understanding on what to do if specific types of terrorist attacks occur in the community.

Does your department have a terrorism liaison officer? Maybe it should. This person would act as the incident commander if an event occurs, calling the immediate shots after things happen and coordinating the department's response with federal officers, medical teams, fire and rescue, and so on.

Do you know your community? The primary job of this working group should be to identify high-risk areas in the communities you serve then develop response plans for protecting these areas in an emergency. Some places to pay attention to include airports,

nuclear plants, infrastructure (water, electrical, gas), government buildings, and high-density areas where large numbers of people are coming and going.

Have you tapped into the expertise the community has to offer? Obviously the liaison officer and the members of this working group cannot possibly be experts in every area. Know the people who are. Meet with the manager of a nuclear plant to develop a response plan and learn the vulnerabilities that might exist at this facility. Learn who has expertise in disengaging a dirty bomb or dealing with a biological threat.

Do you keep training a top priority? These groups should meet and train regularly to keep their response plans fresh.

This type of forward-thinking can save lives in an emergency. As Levin says, "Coordination, planning and a knowledge of the threats that are out there is important when preparing for these attacks. The people that commit these attacks may be evil, but they are not 10 feet tall." Planning and preparation can help you cut them down to size. □



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INVESTIGATIONS TECHNOLOGY

By LET Staff

Pictometry: aerial photography on steroids

When a call comes into a 911 center from a cell phone, an approximate location can be determined. However, that location might be as much as 100 yards away. What if a dispatcher could pull up straight-down or oblique views of the area and while talking to the caller pinpoint the exact location of the call right down to the street corner from which the citizen was calling?

With a new system from Pictometry International Corp. of Rochester, New York, this is entirely possible. Pictometry is a visual intelligence system that uses aerial photography to capture, process and analyze orthogonal (straight down) and oblique (taken from angles) images to create aerial "maps" of a given area in 3D.

This method of gathering images allows users to view and analyze any house, building, intersection, fire hydrant, tree or other physical feature in a given area. The advantage of this becomes clear in the above scenario where the dispatcher would use Pictometry's Electronic Field Study (EFS) software to view actual imagery of the area where the call was originating from to pinpoint the caller's exact location. This information then could be passed on to first responders dispatched to assist the caller.

"Public safety can see where that person is without having to guess that the individual is within 100 yards or meters of where that cell phone is telling them the caller is," says Lou Oshier, director of law enforcement communications in Erie County, New York. "Today, if they pull up a map they get a 2D map. With this software,

**"They
[command
staff] really
need to know
what goes on
and in great
detail.
Pictometry
provides them
with the
information
they need."**

— Scott Hill,
Pictometry International Corp.

they see actual imagery of where the person is located [in 3D]." Oshier points out that Erie County is in the process of implementing this technology, which he dubs as either Phase 1.5 or 2.5, depending on what level of compliance the PSAP is in. Dan Pennacchia, Pictometry's senior vice president of sales and marketing says, "With Pictometry's newly formed partnerships and applications with Plant Equipment Inc., Tiburon Inc. and Brite Computers, 911 call-takers will be able to see an actual picture of where the person is calling from within seconds and dispatchers will be able to send those coordinates to public safety computers in mobile vehicles within seconds." Pennacchia says Pictometry is going to develop additional partnerships and applications with

other companies that perform similar solutions where necessary."

After a terrorism incident or natural disaster, this capability has many applications. It can be used for planning purposes to help first responders plan perimeters, roadblocks, evacuations, etc. In fact, pictometry was used in Arlington, Virginia, after 9-11, because the company had already gathered imagery for the Pentagon (see images on Page 115). Arlington Fire Department officials used pictometry images of the Pentagon taken before the crash to plan their response after the disaster. "We used the software to measure the area of the crash and the extent of the damage, and provided county authorities with as many as 12 views of the building," says John Snyder, Arlington County Fire Department management specialist.

"In any immediate situation, you can be looking at the imagery, plan around the imagery and communicate that information in terms of what fire, police, EMS or other groups need to know about or do around the disaster area," Snyder says. "This helps users every single day by providing them with a visual view of where they are going before they get there."

What is pictometry?

Unlike satellite image photography, which only allows the tops of buildings to be photographed, pictometry, which was introduced by the company about two years ago, is able to capture every feature in its entirety. This is possible because in addition to using the orthogonal images captured in typical aerial photography, up to 80 percent of pic-

tometry's images are oblique, or taken from angles, allowing users to see a complete view of every feature in a given area. So, instead of seeing just the tops of buildings, users see the sides of these buildings right down to the street level.

Pictometry International Corp. captures these images with a camera-equipped Cessna 172 light aircraft; an aircraft chosen for its flexibility and its ability to fly down low. It takes the company anywhere from 10 to 60 days to gather the images, depending on the size of the county and other conditions such as weather. Most pictures are taken when the leaves are off the trees and there isn't any snow on the ground. Images also are not gathered when it's rainy.

When gathering images, the company breaks the county to be photographed into square mile sectors. Each square mile sector is called a community sector. Crews begin capturing imagery in each community sector from three views: straight down and from 40-degree oblique angles i.e., one from the north to south and one from east to west. "In a sector that has any kind of development [residential, commercial, industrial, hospitals, schools, road systems, etc.], we come down very low and take that one square mile and break it into 49 sub-sectors [or neighborhoods]. Each one of these is approximately 750 feet square in size," says Dick Kaplan, president and CEO, Pictometry International Corp. Each 750-foot-square neighborhood is captured from two opposing views (one from east to west and the other from west to east). "When we are done, we literally have every square foot of the county captured from up to 12 different views," Kaplan says.

The company then catalogues these full-color digital images, which are updated every two years, into software libraries called Electronic Field Study, or EFS, that are

ZOOMING IN

Users can click on any point on the map and view images of the area. For example:

Map or satellite view

1) After receiving an emergency call about an attack on the Pentagon, a dispatcher would first bring up a map view.

Community view

2) Then the dispatcher could zoom in for a wider look at the area around the Pentagon.

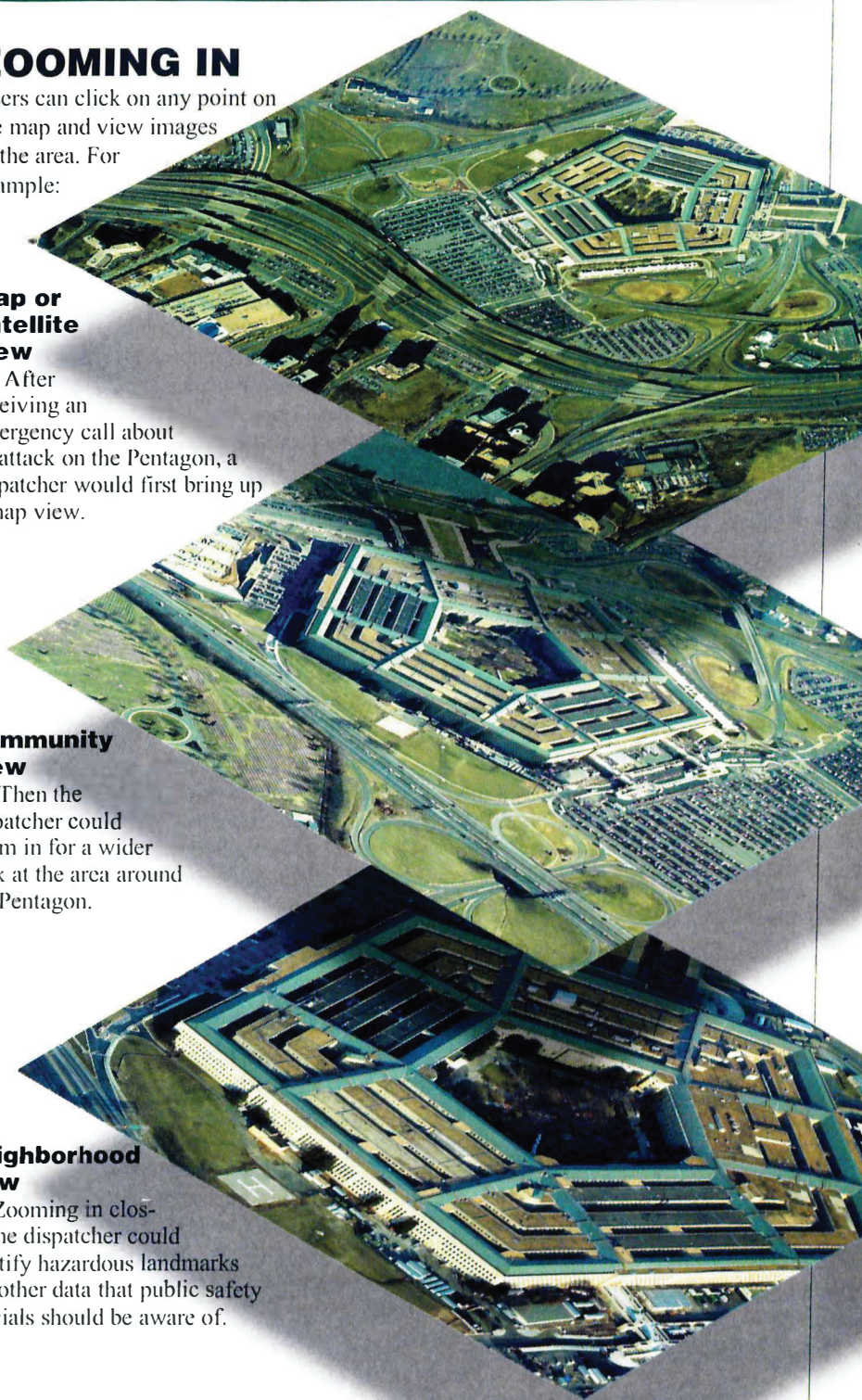
Neighborhood view

3) Zooming in closer, the dispatcher could identify hazardous landmarks and other data that public safety officials should be aware of.

arranged by county for use by law enforcement, fire departments, EMS agencies, public works and other municipal departments. "Anyone who needs geographic referencing, planning or measuring ability can benefit from these images," says Kaplan.

Using the images

These high-resolution images, combined with EFS, which enables zoom, measurement, location and annotation — make pictometry an indispensable tool for first responders. Emergency teams can coordinate and communicate



INVESTIGATIONS TECHNOLOGY

much more effectively when they are all viewing the targeted areas from multiple angles, using the same images and data sets, whether in the command center or in the field. A tour of an area can be made from the desktop with a bird's eye view, allowing agencies to save time and respond more accurately.

Once in EFS, the images can be accessed in two ways. One, the user can access them by entering an address. All the pictures of that address will instantly come up as thumbnail images on the side of the screen. The other way is to go to a map and simply click on the area you wish to view. To view in more detail, the user double clicks on the thumbnail images that pop up.

Once the user has pulled up a full-screen image, the software offers a number of tools that can be used to enhance the view. One is the distance tool, which allows the user to measure things contained within the image. For example, firefighters could measure the distance from fire hydrants in the area to the inflamed house while en route to a call to determine the length of the hoses they will need. By drawing a line around a parcel where a hostage situation is taking place, for instance, law enforcement officers could learn the square footage of the area and pre-plan how they will contain the perimeter once they arrive at the scene.

Scott Hill, the company's senior vice president of operations, recalls surveillance, that he was part of as a captain with the Rochester (New York) Police Department, where this technology would have come in handy. A narcotics squad brought a ladder to help monitor drug activity from a vacant building. It was too short. "With this technology, they could have measured and known exactly how much ladder was needed," Kaplan says.

The software's location tool allows users to click on any point in the image and receive coordinates for that point. There's also a bearing tool that enables users to draw a line down a road, for example, and learn how many degrees from north the line is traveling. If there's a fork in the road, users can

utilize this tool to measure that angle. Measuring angles in this way might prove beneficial in a surveillance operation. For instance, in a surveillance of three houses, the tool might help law enforcement determine what lens to place on the camera to enable it to capture all three houses in a single view.

One of the most important tools, says Kaplan, is the annotation tool. This tool enables users to attach unlimited amounts of information to an image. To track crimes, this would eliminate having a map on the wall with pushpins stuck in it. Officers could actually put a dot on the pictometry images in every place that a crime had occurred. Then when an officer clicks on a specific dot in an image, information on every crime that took place at that location would pop up.

"If there were a series of burglaries in an area, you could actually highlight those houses [within EFS], show what kind of burglary it was, and from there start to see some patterns," Hill adds.

Likewise, agencies could attach a list of hazardous materials stored in a building to its pictometry image. So if there's a fire at a specific site, firefighters can click on an image of the building and learn about the hazardous materials stored within it, the name of the building's owner, and where they can gain access to the facility. In addition, they can click on neighboring facilities to learn if hazardous materials are being stored in other buildings adjacent to the fire. This information also would allow incident command to coordinate the services of all first responders. Firefighters would know what hazards exist within the building; EMS would be aware of the hazards rescuers might come in contact with and how to treat them; and law enforcement would know the type of perimeter that needed to be set up around the affected area.

Other information attached to the images might include floor plans; interior images; streaming video; crime scene evidence; and directions or other text information for in-field procedures such as setting up perimeters, access and egress routes, and staging areas.

"Supervisors or command staff have the responsibility for what goes on in an emergency response," says Hill. "They really need to know what goes on and in great detail. Pictometry provides them with the information they need."

Too much info?

Due to pictometry's ability to capture close, detailed pictures of a geographical area, the issue of privacy has come up. Currently, pictometry is being used in Orange County, California, where according to an article in the "Orange County Los Angeles Times," residents are concerned that these photographs and software technology will infringe on their privacy through the software's image enhancing features that allow users to zoom in on an area or an object.

Such privacy concerns are really without merit, Kaplan points out. "We can zoom in to the extent that we can make out a car and the model of a car, but we can't zoom in to the point where you can see faces or number plates," he says. "The images are static and we can't tell identities of the people, homes or vehicles in them."

The benefits of this technology are that it allows public safety professionals to view the physical layout of the area on a computer screen long before they arrive at the scene. This lets them begin reviewing ways to resolve potential problems en route to the call.

"Because you have all this information and so much more on the image, you know the staging areas for emergency situations. You can look for parking lots for emergency vehicles or helicopter landing areas. You could even get the geographic coordinates for the helicopter," Hill says.

Having access to Pictometry information saves time, and in emergency response situations, seconds can mean the difference between success or failure, and even life and death. □

For more information on these companies, use the Reader Service Card and circle the corresponding number.

COMPANY
Pictometry

READER SERVICE NO.
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