

Offender Tracking in the United States

by

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Introduction

Good morning. My name is George Drake. I am pleased to attend the CEP conference in beautiful Egmond aan Zee. I come from the mountainous deserts of southwestern United States where the climate and topography are quite different. This is a wonderful change of scenery and I compliment the conference planners for selecting such a lovely setting for this conference.

Those of you expecting to hear from Ms. Peggy Conway at this workshop, I am sad to say that she will not be here. She is at home recovering from an illness. She is looking forward to returning next year. In the meantime, you will have to settle for her substitute.

After a 25 year career with the Probation and Parole Division of the New Mexico Corrections Department, I retired in 2006. My last post with the agency was the Deputy Director. During my years there I helped develop the concept of offender tracking. With the help of Sandia National Laboratories, our small agency made the bold proposal that offenders could be tracked in near real time. At the time, which was in the early 1990's, the only electronic monitoring option available was the home detention devices, which is sometimes called RF technology.

One evening in 1990, two probation officers I supervised received a page that an offender had violated the terms of his house arrest by leaving his home in the late evening hours. Being dedicated officers, they scrambled to the scene to investigate the infraction. Being a supportive supervisor, I joined them. Of course, when we arrived, we found nothing but an empty house. The home detention (RF) equipment did everything that it was supposed to do, but it did not provide much help to us in locating the stray offender. It was shortly after this event that we began pressing for a better solution.

During the following years, much of my work was dedicated to the development, design and implementation of offender tracking technologies. Upon retiring from the State of New Mexico, I was pleased to accept employment with the National Law Enforcement and Corrections Technology Center where I continue with my passion of assisting agencies implement offender tracking technologies as part of their supervision strategy. I must stay up-to-date with the industry so I can better serve the agencies that request my assistance. It is my pleasure to spend the next hour with you sharing the developments that have occurred (and are occurring) in the United States with this fast paced industry.

News Coverage

Interestingly, offender monitoring technology has not received its biggest publicity boost from how it has helped jails from overcrowding or from studies showing how it has helped curb recidivism. Instead, the United States, if not the world, has become acquainted with this technology as a result of many high profile celebrities who have managed to get themselves into skirmishes with the law and have been required to add electronic ankle “jewelry” to their wardrobe.

Martha Stewart: America’s good housekeeper and craft person extraordinaire seems to have also had an inside track on some stocks. After an insider trading conviction and a prison stint, she wore a tracking bracelet to keep her within the confines of her palatial estate.

Lisa Nowak: An American astronaut, once lauded as a role model for all young girls, conceived a bizarre plot to kill a fellow female worker. It seems the two ladies were competing for the affection of the same man, another NASA astronaut. She was placed on a tracking device and told to stay out of Florida.

Kwame Kilpatrick: The embattled now ex-mayor of Detroit, Michigan testified under oath that he had never had a liaison with a beautiful young staffer. After explicit voice mails and text messages surfaced that would have made a sailor blush, Mayor Kilpatrick was charged with perjury and placed on electronic monitoring.

Bernard Madoff: The notorious hedge fund manager, turned Ponzi schemer, “made off” with over \$50 billion of his clients’ investments and was required to wear an electronic monitoring device while awaiting trial. He was confined to his luxurious Park Avenue penthouse.

Lindsay Lohan: The wonderfully talented, but horribly dysfunctional darling of the American pop culture was placed on offender monitoring equipment following drug and alcohol related convictions.

Market Trends

The offender monitoring equipment, for purposes of this discussion, can be divided into two categories. Home monitoring equipment is a system that monitors house arrest and curfews. These systems have receivers that remain in the home and detect the presence or absence of an offender who is wearing a transmitter bracelet. The second category is the offender tracking systems. These are devices that stay with the offenders as they move about the community. They use satellite or terrestrially-based location positioning system to track an offender’s whereabouts 24 hours a day.

Let’s first discuss the state of the home monitoring industry in the United States. According to the 2008-2009 Journal of Offender Monitoring Survey, there are 11 manufacturers that provide

home monitoring equipment. They are: Alert Systems Corporation, BI, Inc., Corrections Services, Digital Technologies, Elmo Tech, G4S Justice Services, Guidance Monitoring Limited, iSECUREtrac, Pro Tech Monitoring, Satellite Tracking of People, and Serco Geografix, Ltd. According to Peggy Conway, the Editor of the Journal of Offender Monitoring, there are approximately 100,000 home monitoring devices currently deployed in the United States. Although the rate of growth has slowed significantly, home detention devices continue to be the most widely used means of electronically monitoring offenders in the United States.

The offender tracking market, on the other hand, is expanding at a quick pace. According to Ms. Conway's estimate, there are over 44,000 tracking devices deployed in the US today. A year ago, the number may have been 30,000. Most of the growth can be attributed to a number of states passing legislation requiring the use of offender tracking equipment on sexual predators. California parole officials indicate they are now monitoring 7,000 sex offenders supervised with this technology. Many thousands more probationers in California are also being tracked. The states of Texas and Florida also use the technology extensively. The use of tracking equipment in these three states may account for over half of the devices in service in the United States.

There are ten companies that manufacture offender tracking equipment. They are: ActSoft, , BI, Inc., Elmo tech, Guidance Monitoring Limited, iSECUREtrac, Omnilink, Pro Tech Monitoring, Satellite Tracking of People, SecureAlert and Serco Geografix, Ltd.

Applications for Offender Tracking Technologies

Sex offenders: Without question, the fastest growing application for offender tracking during the past three years has been the monitoring of sex offenders. With at least thirty two states passing some form of mandatory tracking of sex offenders, it is estimated that nearly half of all the tracking devices utilized in the United States is with this segment of the offender population. Some states have passed legislation that requires the most predatory of the sex offenders to wear tracking bracelets during a period of court-ordered supervision. Other states have established a more aggressive policy, requiring all sex offenders to be equipped with tracking devices, in some cases, for the life of the offender.

The requirement of offender tracking on sex offenders has passed through the legislative process with little resistance. After all, what elected official would like to be known as the legislator who is soft on sexual predators? To the contrary, legislators began introducing more punitive measures, in what some have called a game of "political one-upsmanship". As a result, many states now have requirements for offenders to be tracked for the remainder of their lives.

Some states have found that offender tracking is much more costly than anticipated (Wisconsin for example) as the costs associated with offender tracking are easily underestimated. Expenses related to employee compensation, vehicles, office space and administrative overhead are often overlooked. This has been a serious issue in the US.

Other states (California for example) have discovered that it is problematic to require a sex offender to wear a tracking device for life, especially after the individual's period of supervision has expired. There have been disputes over who pays for these services and which agency should be required to monitor the offenders' adjustment, once the court ordered period of supervision has expired. Finding the appropriate sanction for tracked offenders who violate the terms of their monitoring can also be a challenge. Should incarceration be immediately imposed on all violations? If so, how long should they be detained? If not, how many chances should an offender be given? These are just a few of the issues jurisdictions are working through as their programs evolve.

Domestic Violence: Another growing application for offender tracking is the monitoring of domestic violence offenders. Because offender tracking technology lends itself well to monitoring prohibited zones, the use of this equipment to enforce temporary restraining orders seems to be a logical step. The states of Michigan and Massachusetts have developed very aggressive programs using this technology to keep these offenders away from their victims.

At least two vendors have developed systems that allows both the offender and the victim to be tracked simultaneously. The victim becomes a mobile exclusion zone to the offender. If the offender happens to come within a predetermined distance of the victim, the victim is notified by a cellular phone call. This feature may make the use tracking equipment on domestic violence offenders more attractive to law makers.

It is important that victims who participate in this form of "protective" programming realize that the technology is not fool-proof. A motivated offender can circumvent the technology or simply discard the tracking equipment. Because these crimes are often driven by strong emotion, rational thinking does not often prevail. Victims should never let their guard down. If they do, they may be more vulnerable than if this equipment were not utilized at all.

Gang Disruption: Through most urban areas in the United States, gang activity is creating unsafe neighborhoods, especially in the inner cities. Drug trafficking, drive-by shootings and turf wars are common. Offender tracking technology may offer a tool to combat this scourge. Not only can traditional exclusion zones keep gang members away from known trouble spots, the mobile exclusion zones (discussed in the section above) can also be applied to keep gang members from associating with each other. Each gang member, who is under offender tracking supervision, becomes a mobile exclusion zone to other gang members. If they associate with one another, at any location, an alert will be sent to the agency advising of the infraction. This process will serve to disrupt a gang's ability to continue with its criminal enterprises and violent activities.

Jail Overcrowding: Many jurisdictions are struggling with overcrowded jail facilities. Oftentimes, advocate groups for the incarcerated file law suits against the jail that demand improved living conditions and less crowded conditions. In order to avoid such litigation, many jails have opted to begin community supervision programs, often utilizing offender tracking technology as a means of keeping closer tabs on the offenders. Although the jails run the risk of one of these lower risk offenders committing a serious crime while in the community-based

program (and the public relations nightmare that goes with such an occurrence), many jails have found the offender tracking technology to be a valuable tool for their population control strategy.

Habitual Offenders: Nearly all dangerous and/or habitual offenders will eventually return to the community. With this in mind, many jurisdictions have opted to use offender tracking technology for these chronic and troublesome offenders. Offender tracking equipment works in the dimensions of time and location. Therefore, this technology is very well suited for this application. To illustrate this point, a residential burglar, who is driven to commit crimes because of a crack cocaine addiction, may commit numerous thefts each day to support his habit. A well run offender tracking program should be able to quickly correlate the crime scenes with the offender's location history and charge the offender with the burglaries. If offender tracking technology is not used in such cases, dozens, if not hundreds of crimes could be committed before the offender is eventually taken off of the streets. We will discuss crime scene correlation in more depth in a later portion of this presentation.

Truancy Prevention: A relatively new application for offender tracking is the monitoring of truants. When a truant officer learns that one of the tracked students is missing from school, the student's location can quickly be ascertained and, when appropriate, authorities can be dispatched to retrieve the child and return the student to the classroom. Not only is it important for teenaged children to benefit from classroom instruction, but it is a well documented fact that juveniles who habitually miss school are more likely to fall into criminal lifestyles. The municipalities of Midland and Dallas, Texas have begun innovative programs using this technology to keep troubled teens in school.

Crime Scene Correlation

The idea of correlating offender's tracking points with known crime scene locations is not new. In fact, when the concept of electronically tracking offenders was first conceived, the benefit of crime scene correlation was thought to be one of its most important benefits. If an offender knows all of his locations will be correlated with reported crimes, it would stand to reason that an offender would think twice before committing a crime that would result in a police report being prepared.

Currently, two vendors offer automated crime scene correlation software. Protech Monitoring, Inc has produced the CrimeTrax software and Satellite Tracking of People (STOP) offers the VeriTracks system. These automated systems will cross-reference crime scene data collected by a cooperating law enforcement agency with the location history of all offenders being monitored. The tolerances of the systems are adjustable. One agency may want to know if any offender has been within 1000 feet of any reported crime scenes within 1 hour of the offense occurring. Other agencies may want to narrow the search by asking for a list offenders who were within 250 feet of any crime scene within 15 minutes of the crime occurring.

Most systems on the market offer simple correlation software as part of their basic service. The address of a single known crime scene can be checked against the recorded locations of all

offenders being monitored. Although this is a valuable tool, it is not nearly as powerful as the automated systems that check all recorded crime scenes against all offender locations at one time.

When crime scene correlation is used, an offender has three options when contemplating a criminal act. First, he can choose to commit the crime, knowing full well that he will quickly be identified as the likely suspect which will result in his arrest. His second option is to remove and discard his assigned tracking equipment before committing the crime. He would then be subject to arrest for violating the terms of his supervision. Because he discarded his tracking device, the police authorities may wish to question the offender about many crimes that occurred after the discarding of the bracelet, including crimes he had nothing to do with. His last option, and the option that seems most reasonable, is to decide against committing the crime. It is felt, at the very worst, most tracked offenders would choose to postpone their criminal activity until such a time that their locations are no longer being monitored.

The value of automated crime scene correlation is finally beginning to be realized. Why it has not been a more integral part of offender tracking programs is perplexing. Perhaps it is a lack of knowledge that the technology is available. It could be that some law enforcement agencies are unwilling to share their data. Interagency cooperation takes time and planning which some agencies fail to meet due to competing obligations and commitments.

Advances in Offender Tracking Technology

As the marketplace is expanding, the technology is improving. Much research and development is being focused on developing better indoor tracking capabilities. For the most part, tracking equipment currently in use has one significant shortcoming. Tracking capabilities are compromised indoors. Commercial structures are especially problematic. Considering that the average person spends approximately 90% of his time indoors, this is no small problem. There are currently several initiatives underway to overcome this problem.

Improved GPS reception: GPS chip sets that are currently on the market are designed in such a way as to promote the more efficient reception of the location data provided by the satellites. Using assisted GPS (or AGPS) along with sophisticated algorithms, location can be ascertained even if only partial signals are received from the satellites. Improvements in antenna technology have also made it possible for tracking devices to collect satellite data in conditions that were previously impossible. Many traditional residences made of a wood frame construction and having a generous supply of windows are no longer a significant barrier for many of the new tracking devices. However, structures made from concrete, steel or aluminum siding are still very problematic, especially if the device is located away from external windows.

Cell tower trilateration: The US government requires all cellular telephone networks to provide the location of cell phones making emergency 911 calls. The major cellular providers use different approaches to meet this requirement. Most services simply use GPS to comply. Sprint, Inc., which uses the CDMA communication network, provides location by measuring the

distance the handset is from three or more cell towers. The algorithms that have been developed provide fairly accurate location information, usually within 25 meters. The process, known as Advanced Forward Link Trilateration (AFLT), has the advantage of working in any environment where cell towers can be accessed. Since the signal strength used in the cellular network is significantly more robust than GPS, the location of CDMA network cell phones can be ascertained in most metropolitan indoor environments where GPS devices cannot.

At this time, two offender tracking companies (Omnalink of Alpharetta, GA and BI, Inc of Boulder, CO) are offering devices that use AFLT as a supplement to GPS tracking. A major drawback of AFLT tracking is the limited availability of CDMA service. Coverage is good in most metropolitan regions of the United States, but beyond that, there is only limited coverage in Canada and in the Caribbean. There is no CDMA coverage outside of North America.

Additional satellite location systems: As the European Union's Galileo system and the Russian GLONASS system begin to come online, chip manufacturers are already developing chip sets that will take advantage of these systems. The more satellites a tracking device can hear, the more likely a location fix can be established. The Chinese are planning a 35 satellite navigational system that will be known as Compass. Compass was originally being developed exclusive for military applications. However, there are reports that the Chinese will also provide a public location service that will be less accurate than the military service. If true, it will be helpful in complementing the other navigational systems and will improve accuracy and help penetrate even more challenging environments.

WiFi and WiMax: Companies like Skyhook Wireless (of Boston, MA) have recognized the potential of using WiFi and WiMax systems to acquire location information. Many wireless devices can currently share location information with one another by enabling the location feature of their wireless device. As the number of communication nodes increase, the more viable this methodology will become. Obviously, the more densely populated urban centers will be a better environment for WiFi and WiMax location applications because of the higher concentration of communication nodes. Because the signals are coming from close by, they can be acquired in many locations where GPS is completely shielded.

Deduced (Dead) Rekening: Dead Rekening is the process of estimating one's current position based upon a previously determined position and advancing that position based upon known or estimated speeds and direction over elapsed time. The most promising Dead Rekening advancement for personal tracking devices involves the use of accelerometers, digital compasses, gyroscopes and altimeters. When GPS is lost, these high tech location devices take over until GPS can be re-established. By sensing direction, altitude, and rates of acceleration and deceleration, these devices can estimate the path an individual is taking even though there is no satellite signal available. According to Seer Technology (Salt Lake City, UT), their experimental device will continue to monitor the location after GPS is lost with an accuracy loss of about 10% of distance travelled. This will certainly be helpful in determining whether an individual has remained inside of the building that caused GPS to be lost.

TV/FM/Public Safety Radio Signals: Another clever means of establishing location is the analysis of certain radio signals being transmitted simultaneously from multiple repeaters. Rosum Technologies (Mountain View, CA) is offering equipment that listens for FM and/or television signals being broadcasts from multiple repeaters. Because the locations of the repeaters are known, the time difference of arrival can be analyzed to ascertain the location of a tracking device. Similarly, the Locus Location Systems, LLC (West Melbourne, FL) uses the time of arrival approach to ascertain location by analyzing public safety radio transmissions. Both of these companies are looking at the possibility of entering into the offender tracking marketplace.

Developing a standard for the industry

The offender tracking industry, driven by market forces, has developed a good selection of offender tracking devices with many attractive features. The costs have come down as the market has increased in size. Although the market forces have provided agencies with many attractive and affordable options, the industry has no standards. Manufacturers may claim that they have a tracking device that is accurate to within 20 feet, yet there is no testing standard to verify this claim. Manufacturers make other claims about their products, including battery life, recharge times, indoor tracking capabilities, ruggedized designs, and water tightness, just to name a few. Without standards and a uniform means of measuring a product's performance against a standard, the manufacturers' claims mean little to an agency.

The National Institute of Justice, the agency that has developed standards for personal protective equipment and restraint equipment, has started a project to develop a standard for the offender tracking industry. NIJ has tasked the National Law Enforcement and Corrections Technology Center – Rocky Mountain Region with coordinating project. NLECTC has put together a team that includes officials from the American Corrections Association, American Probation Parole Association, National Sheriff's Association, International Association of the Chiefs of Police and the National Jail Association. Work will begin in the summer of 2009. It is anticipated to be an 18 month project.

When work is completed, an agency can require in any new Request for Proposal or Invitation to Bid that all proposed equipment be compliant with the NIJ standard. Because all vendors will need to subject their equipment to vigorous independent laboratory testing, agencies can be assured that the equipment they obtain will meet the minimum standards of operability.

Electronic Monitoring Resource Center

The Electronic Monitoring Resource Center website was developed by the National Law Enforcement and Corrections Technology Center – Rocky Mountain Region. It was developed specifically for criminal justice professionals who currently use or are planning to implement an offender monitoring program.

The website is provided free of charge to probation and parole personnel, law enforcement officers, jail administrators and other criminal justice professionals. It provides a secure environment for obtaining important information about the technology, including:

- News Articles
- Legal Issues
- Legislative Initiatives
- Procurement Assistance
- Administrative Help
- Technology Innovations

The technology associated with tracking offenders has becoming quite complex. It is impossible for an administrator to keep up-to-date on all the advances which are documented in hundreds of journals every month. The National Law Enforcement and Corrections Technology Center searches for all the latest issues that pertain to the industry. When an article is found that contains information the field should know, it is promptly posted in the site

Whether you need to learn about the procurement process, legal issues, tracking policies and procedures or if you want to keep up-to-date on all of the latest technical issues, EMRC can be of great assistance. The website is:

<https://emresourcecenter.nlectc.du.edu>

Closing Remarks

As I travel around the United States assisting agencies with their offender tracking programs, I encounter recurring problems. By sharing my experiences I hope to help agencies make smarter choices and have more successful programs.

The most common problem I encounter stems from unrealistic expectations concerning equipment. With the entertainment industry featuring shows like CSI or 24 that depict technology that is more science fiction than reality, people have come to expect much more from technology than it can deliver. As a result, agencies are often less than satisfied with their tracking equipment's performance. Also, when a tracked offender commits a newsworthy crime, the media questions the equipment's performance, and the public in general also becomes disappointed with the technology.

A second common problem I encounter concerns budgets. Many agencies have grossly underestimated the cost of properly funding an offender tracking program. Some administrators are quoted a daily lease rate for active tracking and establish a budget solely on that figure. Even worse, some agencies have unfunded mandates from their legislators to track certain classes of offenders. A stipulation is made that requires the *offender* to pay the lease rate. With a typical collection rate being about 30%, an agency can be left owing the balance. Agencies often

overlook much of the personnel, overtime, vehicle, furnishings, and administrative costs associated with offender tracking programs. Inadequate budgets are perhaps the most common cause of program failures.

A third common problem concerns the lack of sufficient manpower. Many agencies will take on the responsibility of monitoring tracked offenders without increasing staff. Active offender tracking is a very time consuming undertaking. It requires the ability to respond to incidents 24 hours each and every day. Agencies that only have staff to support a single shift during the work week cannot successfully operate an active tracking program. Asking the staff to respond to alerts throughout their off hours will lead to officer burnout and poor offender accountability. The most successful programs have established multiple shifts and have created monitoring centers to screen the incoming alerts.

Finally, I see programs struggle because of poor administration and oversight. I visited one tracking program that had been operating for over five years. They still had not developed any policies and procedures. A lack of response protocols can be a source of frustration to officers as they do not know what actions to take when an alert is generated. Other programs have sufficient policies and protocols, but there is a lack of oversight and accountability. A robust audit system needs to be in place to assure that all alerts are handled according to the policies that have been set forth.

Establishing a successful offender tracking program is not easy. It requires knowledge of the technology that is available, a sufficient budget, adequate funding and a highly professional and motivated work force. An efficient management team is also needed to put all the pieces together and keep the program running smoothly. The rewards for establishing a successful program are great. With offenders held to a high degree of accountability, individuals who a decade ago could not have been considered for community supervision are now good candidates. Offenders held to this higher level of accountability are much more likely to comply with terms of their supervision. This, we hope, will lead to a higher incidence of rehabilitation and safer communities for us all.

