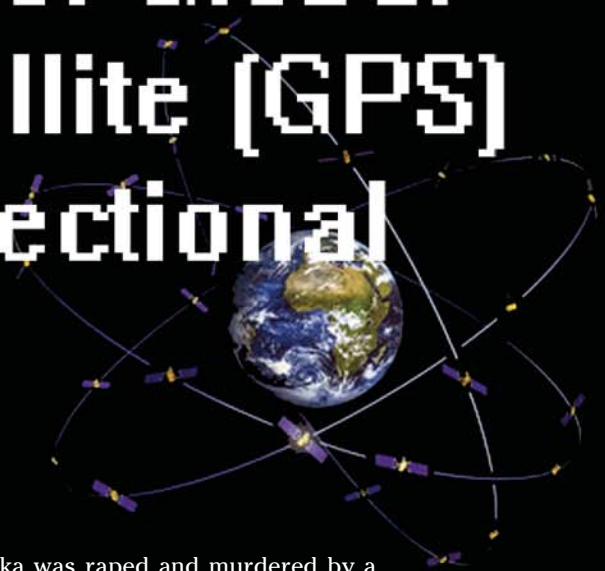


The Emergence of Global Positioning Satellite (GPS) Systems in Correctional Applications

By Hugh Downing



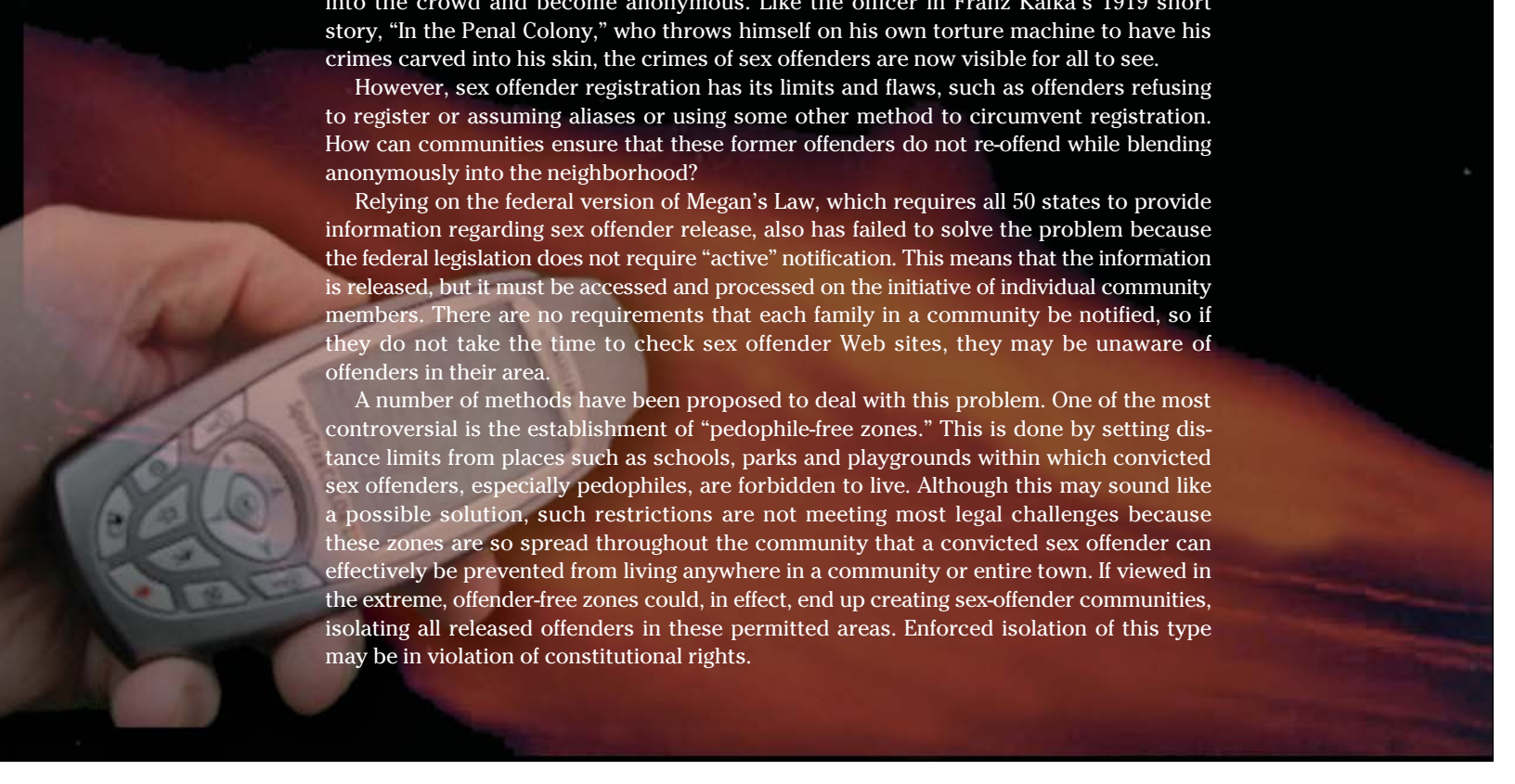
It has been 11 years since 7-year-old Megan Kanka was raped and murdered by a twice-convicted sex offender who lived across the street. Since that terrible event, many lives have changed. Parents now seem to be more watchful of their children. Neighbors are alert to strangers who seem to take undue interest in children. Many children seem more aware of the actions of older children and adults that may be frightening or inappropriate. New Jersey passed the first “Megan’s Law” 89 days after her disappearance, and a federal law, also known as Megan’s Law, was passed in 1996. Today, every state has its own version of this law. Other laws, both state and federal, such as the Jacob Wetterling Act, require registration of sex offenders upon release.

As a result, the life of the convicted, paroled or released sex offender has changed. Through this registration process, communities may be made aware of the presence of convicted sex offenders who may pose a risk to public safety. With the posting of offenders’ names, pictures and criminal histories on state Web sites, released sex offenders, particularly those convicted of violent or repetitive assaults, should no longer be able to blend into the crowd and become anonymous. Like the officer in Franz Kafka’s 1919 short story, “In the Penal Colony,” who throws himself on his own torture machine to have his crimes carved into his skin, the crimes of sex offenders are now visible for all to see.

However, sex offender registration has its limits and flaws, such as offenders refusing to register or assuming aliases or using some other method to circumvent registration. How can communities ensure that these former offenders do not re-offend while blending anonymously into the neighborhood?

Relying on the federal version of Megan’s Law, which requires all 50 states to provide information regarding sex offender release, also has failed to solve the problem because the federal legislation does not require “active” notification. This means that the information is released, but it must be accessed and processed on the initiative of individual community members. There are no requirements that each family in a community be notified, so if they do not take the time to check sex offender Web sites, they may be unaware of offenders in their area.

A number of methods have been proposed to deal with this problem. One of the most controversial is the establishment of “pedophile-free zones.” This is done by setting distance limits from places such as schools, parks and playgrounds within which convicted sex offenders, especially pedophiles, are forbidden to live. Although this may sound like a possible solution, such restrictions are not meeting most legal challenges because these zones are so spread throughout the community that a convicted sex offender can effectively be prevented from living anywhere in a community or entire town. If viewed in the extreme, offender-free zones could, in effect, end up creating sex-offender communities, isolating all released offenders in these permitted areas. Enforced isolation of this type may be in violation of constitutional rights.



The question of legality also must be considered in terms of keeping convicted sex offenders from returning to society through the use of sexual predator commitment laws or sexual predator civil confinement laws. Indefinite confinement is not the answer, and released offenders have proved that mandatory registration is avoidable. So, what will work?

The use of global positioning satellite (GPS) system monitoring may play a large part in the accomplishment of expanded monitoring. GPS monitoring would permit law enforcement and parole officers to have daily or, if necessary, instantaneous access to a released offender's whereabouts and notification if the offender leaves a permitted area or enters a forbidden area such as a park, playground or school.

The need to monitor other offender populations also has been examined recently. There is a demonstrated need to know the whereabouts and activities of such released or paroled offenders who have committed acts of domestic violence. Monitoring would greatly expand the authority of a restraining order, helping to ensure that the offender does not contact or attempt to contact the victim. Law enforcement and parole officials must know where paroled and released offenders are and, to the best of their ability, what these offenders are doing.

What Is a GPS System?

The GPS system is a monitoring/tracking system using 24 U.S. government satellites orbiting about 12,000 miles above the Earth. Each satellite transmits its precise time and position in space to receivers on Earth that pick up the signals from multiple satellites simultaneously. A monitoring station determines the location of the receiver by calculating the time it takes the satellite signals to reach the receiver and the relative positions of the satellites at any particular time. This can accurately plot the receiver's position to within a few feet.

There are two types of GPS-system monitoring devices: active and passive. Active system monitoring refers to an electronic monitoring system that works through the use of a transmitter (ankle bracelet) attached to the offender. It is real-time monitoring of the offender's whereabouts 24 hours a day, seven days a week, with immediate notification of a violation. The GPS signals a wireless network, reporting offender movement. While the start-up and operating costs of the active system are higher, due largely to cellular phone charges, the active system provides real-time (constant) tracking of the offender's location and does not require the offender to have a land-line telephone. Passive system monitoring ensures that the offender is within the confines of his or her residence or is being tracked outside the residence. Information is stored and downloaded to the data center via telephone wires when the portable tracking device is placed in the charging unit at the offender's residence. While less expensive, the passive system provides next-day rather than real-time notification of the offender's activity and requires a land-line telephone for the charger to transmit data.

Technical Components Of a GPS System

The hardware for an offender-worn GPS system is comprised of the following three components:

Transmitter. This is a small device, about the size of a watch or pager, and usually worn on the ankle in almost the same manner as the more familiar electronic monitoring ankle bracelet now widely in use as a sentencing option. The transmitter emits a radio signal two or more times each minute that is received by a portable tracking device. The transmitter has built-in, tamper-resistant features that prevent the offender from removing the unit. If tampering or removal occurs, it will automatically send an alert to the monitoring center.

Portable Tracking Device (PTD). A PTD must be carried by the offender or be near the offender at all times. The PTD, which picks up the signal from the transmitter, is a small box weighing approximately two to four pounds (although, as most electronic technology, it is growing smaller). The PTD is either carried by hand, by shoulder strap or worn around the waist. It contains several different types of technology: a radio receiver to detect signals from the transmitter, the GPS-system signal receiver, a computer and cellular telephone circuits. The radio receiver simply determines whether the transmitter worn by the offender is within range. The GPS-system unit receives constant satellite signals that include the exact time the signal was sent and the identity of the satellite sending the signal. The computer stores and processes this information and, using mapping technology, determines the offender's location. The cellular telephone then communicates the information about the offender's location to the central monitoring system. PTD batteries must be recharged every 16 to 24 hours, and recharging takes about five hours.

Charging Unit. The charging unit for the PTD is stationed in the offender's residence. The unit also serves as the passive system communication center by downloading the information in the PTD and sending it, via land-line telephone, to the central monitoring station.

Determining Permitted And Forbidden Offender Zones

Using a GPS system, inclusion and exclusion zones can be determined for each offender. Inclusion zones are areas where the offender is expected to be at a certain time each day, such as the workplace during the day and residence at night. Exclusion zones are areas where the offender is not permitted to go, which for sex offenders might include parks, playgrounds or schools. The inclusion and exclusion zones are entered using mapping software that generally only requires entering an address or pointing to a location on a computer map. The computer can then be programmed to send an alert any time the offender enters an exclusion zone or leaves an inclusion zone at the wrong time. The creation of these zones is a key element in the operation of GPS-system monitoring. The offender is aware that authorities know where he or she is, often at any given moment, and have a computer-generated record of this information.

Offenders who want help modifying their negative behavior patterns are helped, knowing the system is keeping its unblinking eye on them and their movements.

Using the Electronic Information Once Gathered

Downloading the data provides information about the offender's movements and activities. Programmed inclusion and exclusion zones provide records and alerts of the offender's movements in the community. This can be especially useful in determining whether the monitored offender may have been near the location of illegal activity at a particular time. Additionally, an active GPS system can accurately locate the offender at any time, if necessary, via cellular technology. This is known as real-time monitoring.

Effectiveness and Limitations

The advantages of GPS monitoring systems are as follows:

- Real-time (constant) tracking of an offender's location is possible in active system monitoring through a continuous cellular telephone connection;
- The transmitter provides an instant alarm if it is tampered with or removed;
- The system permits creation of customized inclusion and exclusion zones and accurate cross-referencing of offender location and activity;
- GPS-system accuracy is accepted by both judicial and scientific communities;
- The system does not require the offender to have a land-line telephone in his or her residence. In active mode, there is constant cellular connection;
- The system protects potential crime victim groups, such as children, through the inclusion and exclusion zones programmed to report an offender's entry into an area where children are likely to be present;
- The system allows the offender to return to the work force while still being monitored; and
- Use of GPS-system monitoring has been shown to positively alter the behavior of those who comply with the programs in states where it is used, and as time goes on, constantly improving technology will create better systems.

However, the disadvantages of GPS systems are:

- The signal cannot track inside large buildings, subways or tunnels, heavily wooded areas, or those shielded by metal;
- Their use is limited to areas with good quality cellular telephone coverage;
- The initial and replacement costs are high;
- The system requires the cooperation of the offender;
- The system requires timely responses to notice of violation;

- The system requires comprehensive training, both for the offender and monitoring staff;
- Large amounts of data need to be processed on a daily basis;
- Active system operating costs can be relatively high due to cellular telephone charges; and
- Notice will be sent any time the offender enters an exclusion zone, even if accidentally, such as if the offender is on a bus that passes within an exclusion zone.

The greatest limitation of GPS-system monitoring may be in the perception of what the GPS can and cannot do. Use of such a system, no matter how sophisticated, will not completely solve the problem of tracking sex offenders. It is not a panacea but only a monitoring device.

Population Applicability

Sex offenders. Of all offender populations currently monitored by GPS systems throughout the country, sex offenders make up the largest. As with the implementation of Megan's Law, New Jersey is again set to become a leading player in GPS-system monitoring. Given the GPS system's ability to create customized inclusion and exclusion zones, its applicability to sex offender monitoring is obvious. This inclusion/exclusion zone customization has not been seen as raising constitutional concerns, as did proposed pedophile-free zones around schools, parks and playgrounds, and local residency restrictions. Because New Jersey currently uses a multitiered classification for sex offenders, based on the likelihood of the offender re-offending or committing a violent assault, the GPS system would initially be targeted for use by offenders who are considered at the highest risk for repeating a sex offense.

Domestic violence offenders. Another viable use of GPS-system monitoring is for domestic violence offenders. The ability to customize exclusion zones would permit instant notification if an offender violates a restraining order or other court-imposed restriction. GPS systems are being proposed where the offender would wear a tracking device and the victim a PTD. This would ensure notification of encroachment into a moveable exclusion zone when the victim was outside of his or her residence. At the time of this writing, four states are using GPS-system monitoring for domestic violence perpetrators, while at least one other state is using GPS monitoring in selected counties.

Post-work-release offenders. Monitoring for inmates completing work release or other community residential programs would permit an additional re-integration step between supervised living and full release. Oklahoma now monitors the activities of those who have completed work release by using the GPS-system tracking as a re-integration tool while reducing the amount of parolee/staff contact.

House arrest offenders. House arrest is another possibility for the effective use of GPS monitoring. Used either to replace or supplement existing electronic monitoring technology (the electronic monitoring bracelet), the use of GPS would permit those sentenced to house arrest to leave for work, school or other authorized activities while verifying movement and ensuring that the wearer returns to his or her place of residence as required.

The Bottom Line: Paying For GPS-System Monitoring

In a time when so many states are trimming budgets and cutting programs, how can GPS-system monitoring programs be funded? Given the harsh realities of trying to do more with less and the rising costs of incarceration, is the use of such monitoring justified?

Looking at this strictly in terms of dollars and cents, even given the initially high start-up costs and price of active monitoring (due to cellular telephone costs), nonincarceration close monitoring seems to make fiscal sense. Depending on the state, incarceration costs can run upwards of \$25,000 per inmate per year. While GPS monitoring is not expensive, with start-up costs for an active system somewhere around \$13 per day per inmate, this adds up to less than \$5,000 per inmate per year, a significant savings over incarceration. Additionally, if the inmate is required to pay some or all of the expenses, the cost

drops significantly. Add to that the ability of the offender to return to the work force, and GPS monitoring seems like a true bargain when appropriately applied.

The value of this type of monitoring goes well beyond the bottom line on a ledger sheet, however. One cannot put a price on the feeling of increased security for the community. While it is known that this is not a preventative measure and will not cure the offender, it will make the offender accountable for his or her movements. It will track the DUI offender to the local bar or liquor store, the domestic violence offender to the victim's residence, the post-work-release offender to work or school, and the sex offender to the park, playground or schoolyard.

Reports from states currently using GPS monitoring seem positive. Offenders who want help modifying their negative behavior patterns are helped, knowing the system is keeping its unblinking eye on them and their movements. While not a panacea, it will give the community in which it is used a greater sense of security to know that the appropriate agency, whether state correctional department, parole, probation or county agency, is aware of the offender and is monitoring his or her movements. In the final analysis, protecting citizens from harm is the primary function of corrections.

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