

THE FUTURE OF GPS TECHNOLOGY AND
ALTERNATIVE-SENTENCING FOR LOCAL CORRECTIONS

Article

by

Captain Mark Getchel
El Dorado County Sheriff's Department

Command College Class XXXII

Sacramento, California

June 2002

The justice system in America has, for the past two decades, incarcerated repeat criminal offenders under progressively increased sentencing guidelines. Legislators in California amended the Penal Code to include penalty enhancements and mandatory minimum sentences designed to keep career criminals locked up for longer periods, up to and including life sentences. Californians have seen the growth of such programs as the Career Criminal Apprehension Program, Sexual Habitual Offender Program, and Three Strikes. The programs are designed to identify and incapacitate—through incarceration—offenders who are likely to continue in their particular criminal enterprises. Crime may be down throughout California and the rest of the country; however, no concrete evidence exists to conclude that longer and harsher sentences are responsible for the trend.

Correctional institutions at federal, state, and local levels are severely and chronically overcrowded. The nation's correctional population, for the year 2000, reached a new high of almost 6.5 million men and women, having grown by 126,400. This total represents 3.1 percent of the country's total adult population, or one in every 32 adults.¹ The latest statistics published by the U.S. Department of Justice reveal that jail populations in California are at 101 percent of capacity.² Overcrowded conditions in some local jails require the early release of certain inmates to avoid exceeding maximum population figures set by statute and local courts.

The simple answer may be to build more prisons and jails, but taxpayers are not willing to pay the high cost of prison construction or the on-going cost of staffing more and more correctional institutions. "A decade ago the estimated cost for jail construction and renovation alone was estimated to be more than a half-billion dollars.

It is believed that the cost is more than the nation can afford.”³ Public officials should expand and improve on various alternatives to incarceration in order to sustain the tough-on-crime trend and minimize its impact on jail overcrowding.

Overcrowded jails have led to increased use of probation, parole and alternative-sentences in many jurisdictions. Alternative-sentences allow certain offenders to avoid spending time in jail if they satisfy certain conditions such as performing community service, participating in certain residential or nonresidential programs, and home confinement to name a few. Alternative-sentences, or community corrections, should be expanded if the justice system continues to apprehend and lock up more offenders for longer periods.

One alternative-sentence, home confinement, provides for a term of incarceration; however, the offender serves that term confined in his or her own home. Combined with electronic monitoring, this sentence offers one of the most popular and widely used alternatives. One problem exists with electronic monitoring; it only accounts for the offender’s presence at home. An offender’s whereabouts are unknown if he or she leaves home. This raises a public safety concern. How do law enforcement and corrections officials offer electronic monitoring programs, hold offenders accountable, and still ensure public safety? Combining home electronic monitoring with Global Positioning Satellite (GPS) technology may be one possible solution. The combination of these two technologies will allow law enforcement agencies to provide needed relief for overcrowded jails, while maintaining accountability for criminal offenders.

Electronic monitoring was first used in the United States in 1983 when Judge Jack Love of Albuquerque, New Mexico sentenced the first offender to house arrest with electronic monitoring. Palm Beach, Florida quickly followed Love's example and adopted the device in its corrections program to reduce jail overcrowding. There were 3,200 offenders being monitored electronically in thirty-two states by 1988.⁴

Approximately 1,500 programs existed, and 95,000 electronic monitoring units were in use in the United States as of January 1998. The total includes individuals on pretrial status, home detention, probation and parole, as well as in juvenile detention. Success rates for offenders in home detention are slightly better, and recidivism rates are slightly less, than offenders in traditional incarceration.⁵

Program costs for electronic monitoring are significantly less than for traditional incarceration. The federal government estimates the cost of electronic monitoring to be about one third that of jail or prison confinement.⁶ Offenders accepted on the program most often pay the operating costs themselves on a per day basis.

The typical equipment used in home electronic monitoring is a pager-size device worn around the offender's ankle. The ankle-unit transmits a signal to a receiver attached to the offender's telephone. The signal remains unbroken as long as the offender stays home. The receiver sends notification to a computer on the other end of the phone line when the offender leaves.

There are two versions of the electronic monitoring system: a passive system that sends monitoring data only in response to an automated phone call, and an active system that sends a continuous signal to the receiver. Either system sends automatic notification to the monitoring computer if the offender leaves home.

Electronic monitoring continues to be an appropriate and effective alternative punishment for non-violent offenders. Electronic monitoring contains sufficient elements of punishment to be accepted by the public and the judiciary as an alternative to imprisonment. The empirical evidence shows electronic monitoring a slightly more effective alternative in delivering rehabilitative programming, and reducing recidivism, than traditional custodial sentences.

The GPS network consists of twenty-four satellites orbiting 12,000 miles above the earth. The U. S. Department of Defense funds and controls the GPS network, which became operational in 1986. The Department of Defense made the system available for civilian users in 1990. Private industries use GPS devices for such purposes as land surveying, portable navigation units for hikers, and as an option on some automobiles to help motorists find their way in unfamiliar areas. Some law enforcement agencies use GPS technology to track the location of field officers.

GPS functions by using orbiting satellites as reference points for locations on earth. Precisely measuring the distance between at least three of the twenty-four satellites, and a radio transmission on earth, allows the GPS network to triangulate the distances and pinpoint the exact location of the transmission within ten meters. Movement can be tracked and recorded through the same triangulation process should the transmission move.

Continental Divide Robotics (CDR) in Littleton, Colorado has taken GPS tracking technology a step further by adding Artificial Intelligence. CDR is testing a system that can locate any person or object anywhere in the world and notify a monitoring station if that person or object breaks an established set of rules. The system resulted from

research done at two Artificial Intelligence laboratories, one at the Massachusetts Institute of Technology and the other at the Colorado School of Mines.

CDR's system was designed for the federal government for use in tracking selected federal parolees. A selected parolee will wear a pager-size transmitting device that uses GPS technology to track and record the parolee's location. The transmitting device notifies CDR's system about its location. Monitoring remains continuous and unbroken. The system will make decisions about violation severity and whom to notify if the parolee leaves a certain area or gets near a particular location. CDR's founder, Terry Sandrin says, "We are literally creating software that is reactive and proactive. It has the ability to make decisions."⁷

ProTech Monitoring operates another similar GPS offender tracking system. The ProTech system, like CDR's, requires the offender to wear an ankle bracelet which acts as a transmitter. The ProTech system has a separate receiver, slightly smaller than a child's lunchbox, which the offender carries at all times. The two devices must remain within a pre-set distance from each other. The lunchbox-size receiver is the actual GPS tracking device. The ankle bracelet ensures that the offender keeps the tracking device close enough to receive and transmit location information.⁸ The ProTech system provides automatic and immediate notification if an offender violates a pre-determined set of rules. The system dispatches law enforcement to apprehend the offender upon notification.

The constant tracking capabilities of the CDR and ProTech systems will make the next generation of electronic monitoring devices more effective. The GPS

component adds greater accountability to the home confinement alternative-sentence, affording opportunity for broader application.

FUTURES RESEARCH

A group of individuals was brought together on November 13, 2001, in Placerville California to assist local corrections in developing useful strategies that might enhance the ability to implement a GPS Electronic Monitoring Program. The diverse group consisted of stakeholders whose backgrounds offered expertise in how the justice system might use emerging GPS technologies to enhance community corrections. The group engaged in brainstorming sessions designed to identify trends and events effecting the question: "How will GPS technology impact the management of alternative-sentenced offenders in a medium-sized sheriff's department by the year 2007?"

Information from the group was used to develop strategies for implementing an alternative sentence which employs electronic monitoring combined with GPS technology to account for offender location at all times of the day or night. Two broad strategies were developed. The first strategy uses an existing home electronic monitoring program and adds the necessary technology to support GPS tracking. No other changes would be made to existing rules or policies. The old and new equipment could be used concurrently to develop data for operational comparisons. Existing employees would be used to avoid the costly prospect of adding personnel.

The second strategy uses jail overcrowding as a catalyst to initiate a GPS criminal offender tracking program, in lieu of traditional incarceration. The latest statistics published by the U.S. Department of Justice, show that jail populations in

California are at 101 percent of capacity.⁹ Overcrowded jails force some jurisdictions to release criminal offenders based on statutory or court-mandated jail population limits. This second strategy would establish objective criteria which jail staff will use to identify suitable inmates for release well in advance of reaching maximum inmate capacity. Inmates would be selected based on objective criteria. For example, offenders held for theft or drug offenses, could be released from custody to be confined in their own homes. A GPS tracking system would allow for remote monitoring of these offenders. Each released offender's location would be known at all times.

The U.S. Department of Justice, Bureau of Prisons, has used the home confinement alternative for more than a dozen years on sentenced and pre-sentenced offenders.¹⁰ Defendants and prisoners are confined in their homes for all or parts of each day, under the federal program. The program uses three levels of increasing restrictions defined by the time participants must remain in their home. The first level, or Curfew, requires the offender to remain at home for just the evening hours. The second level, or Home Detention, requires the offender to remain home except for work or other approved activities. The third level, or Home Incarceration, requires the offender to remain home at all hours except for work, medical reasons, court appearances or court-ordered activities.¹¹

The federal system only accounts for the participant's presence at home through a device connected to the telephone line. A central monitoring station monitors each participant. Adding GPS technology will improve the federal system. GPS allows for the continuous tracking and monitoring of each offender, not just while they are at

home. Offenders who violate the conditions of sentencing or release could be tracked and apprehended before they have an opportunity to commit more crime.

Home confinement has another benefit; it reduces the cost of incarceration by one-third.¹² Home confinement also allows an offender to remain employed and supporting their families. Civil libertarians may be encouraged to support the strategy on that basis alone. The sheriff's department benefits through increased flexibility for correctional staff to regulate the number of inmates in a jail facility, while still maintaining offender accountability.

CONCLUSION

Promoting public safety and community wellness is a primary mission of law enforcement. Therefore, actions taken by law enforcement organizations and their leaders should include community safety as a goal. Statistics reveal that California's jail population currently exceeds maximum capacities.¹³ The time to act is now. Overcrowded correctional facilities result in criminals being set free without restrictions on their movement or activities. Some may choose to engage in further criminal conduct, thus risking public safety. How can government meet the correctional needs of the justice system while maintaining safe communities? The simple answer may be to build new correctional facilities or expand existing ones. However, experience shows that communities cannot build their way out of the problem of jail overcrowding, the cost is far too burdensome. New cost-effective options are needed which keep the public safe and achieve criminal justice system goals.

The need to explore other forms of criminal sanctions makes sense for a variety of reasons. Primarily, government agencies operate on limited budgets making fiscal responsibility a critical operational consideration. Alternatives to incarceration must be expanded and improved should funding not be available for more jail construction. Alternatives should provide a measure of safety for all members of the community. A program that approaches complete restriction of freedom, at reduced operating costs, might be acceptable to all stakeholders as an effective solution. Electronic monitoring combined with GPS tracking is just such a program.

Home electronic monitoring programs have been in use for decades. Electronic monitoring's widespread use as an alternative to incarceration provides a strong platform for a new program, one that produces greater offender accountability. The current home monitoring weakness of not knowing an offender's location can be corrected through the addition of GPS tracking. This allows for broader application of home electronic monitoring without compromising community safety.

GPS technology will improve future management of alternatively-sentenced offenders through constant, remote surveillance. The ability of law enforcement officials to restrict movement and track offender location on a continuous basis makes sense for the future of community corrections. The accepted and widespread use of home electronic monitoring programs across America, from federal agencies to local sheriff's departments, confirms their effectiveness. Incorporating GPS tracking with current monitoring programs will limit opportunities for monitored offenders to engage in conduct which brought them to the attention of the criminal justice system in the first place. This project concludes with the recommendation that medium-sized sheriff's

departments, in California and elsewhere, begin planning to incorporate electronic monitoring and GPS tracking into future corrections strategies. GPS technology has a definite place in the future of corrections and may well be the best solution to overcrowded jails.

Research for this project found two private companies developing products that might be used by a sheriff's department to initiate a GPS electronic monitoring, alternative-sentencing program. Continental Divide Robotics, or CDR, is one such company. Tracking equipment developed by CDR uses artificial intelligence to make decisions about whether or not a particular offender complies with the conditions of their release or sentencing. CDR's system fits the criteria for an effective alternative-sentencing program. Their system can be used to reduce operating costs and jail overcrowding while retaining the basic features of an already established alternative sentence. CDR's system establishes greater accountability for offenders, thereby promoting community safety.

CDR's Director of Operations, Mr. Ed Sokoloski, was interviewed on December 19, 2001. He said that CDR's GPS monitoring system was now being field-tested on parolees in the state of Virginia. The daily cost will be \$8.95 per participant for active monitoring. Passive monitoring will be available for \$4.95 per day. The cost includes an ankle-bracelet monitoring device, and requires no additional hardware or software. Tracking will be accomplished by logging onto a secure website accessed by a standard Internet connection.¹⁴

Sokoloski said that his product now includes a feature which notifies authorities if an offender comes within close proximity to a person—victim, witness, etc.—from whom

they are order to stay away. The feature, unique to CDR's tracking system, should attract the attention of victim's groups and judges. Judges sometimes issue restraining orders as a condition of offender release or sentencing. CDR offers a device which can be worn by persons specified in a restraining order. Should a restrained offender come within a specified distance from a protected person the system will automatically summon police. Sokoloski says the addition of this feature allows for the creation of moving exclusionary zones. Authorities will receive quick and efficient notification of an offender who approaches someone wearing the exclusionary device. CDR's system enables police to locate and arrest the monitored offender, possibly avoiding further criminal action or violence.

Sokoloski was asked if anyone had raised concerns about potential violation of the civil rights of those who associate with a monitored offender. Sokoloski said that he did not believe his company's tracking system posed a valid Constitutional concern. He explained that although offender locations are tracked and recorded, one cannot know whom an offender meets with, or speaks to, without visual verification.

Sokoloski was interviewed again on June 18, 2002 to determine whether his company's tracking system was available for general use. Sokoloski said that CDR's GPS tracking product became fully operation in May of 2002.¹⁵

Many organizations today employ research and development teams to develop new products and technologies or to implement strategies that enhance business opportunities and make organizations more competitive. Law enforcement leaders can do the same by holding brainstorming sessions with stakeholders or by scanning the media for new technologies with potential application to law enforcement. Law

enforcement leaders can form strategic alliances with companies whose products and services assist law enforcement with its vital mission of promoting safe communities.

Today's law enforcement leaders will help define and shape the future of public safety through strategic planning, by looking for new technologies that enhance service delivery, and by encouraging innovation within their organizations. The military has successfully used GPS to improve the safety of front line troops and deploy forces more efficiently. Civilian and law enforcement applications for GPS technology are expanding. The future of community corrections should include the use of GPS tracking and electronic monitoring to protect society more effectively and reintegrate criminal offenders back into communities. Based on research for this project, an electronic monitoring program, which incorporates GPS technology for the tracking of criminal offenders by 2007, is achievable and warranted.

How will Global Positioning Satellite Technology impact the management of alternatively-sentenced offenders in a medium-sized sheriff's department by 2007? GPS technology will impact the future management of alternative-sentenced offenders by allowing for broader application. Accountability for persons who are currently serving alternative-sentences is insufficient. Visits by probation officers, or others, are infrequent and brief. The addition of GPS tracking technology will add a level of accountability that can only be matched by traditional incarceration. An offender's location and movement is under constant surveillance, affording little opportunity to engage in criminal activity. GPS offers restriction of freedom, offender accountability, and sufficient punishment to be accepted by all components of the criminal justice system.

Notes

¹ U.S. Department of Justice, Bureau of Justice Statistics; Press Release: National Correctional Population Reaches New High Grows By 126,400 During 2000 To Total 6.5 Million Adults, August 26, 2001. Internet. <<http://www.ojp.usdoj.gov/bjs/abstract/ppus00.htm>>.

² Beck, Allen J. and Harrison, Paige M. Prisoners in 2000. U.S. Department of Justice Bulletin, August 2001, p. 8.

³ Clear and Cole; American Corrections-Fourth Edition p. 143

⁴ Ibid.

⁵ "Keeping Track of Electronic Monitoring," National Law Enforcement Corrections Technology Center, October 1999. Internet. <<http://nlctc.org/txtfiles/ElecMonasc.html>>. Accessed December 20, 2001.

⁶ "U.S. Probation and Pretrial Services Information Series: Home Confinement," U.S. Courts – The Federal Judiciary. Internet. <<http://www.uscourts.gov/misc/propretrial.html>>. Accessed December 17, 2001.

⁷ Maney, Kevin; Artificial intelligence isn't just a movie. USA Today, June 20, 2001, p.2A.

⁸ Raffaele, Martha; GPS keeps track of parolees. The Nando Times, September 30, 2001. Internet. <<http://www.nandotimes.com/nation/story/113125p-1252410c.html>>.

⁹ Beck, Allen J. and Harrison, Paige M. Prisoners in 2000. U.S. Department of Justice Bulletin, August 2001, p. 8.

¹⁰ "Home Confinement Saves Money, Provides Benefits," U.S. Courts – The Federal Judiciary. Internet. <http://www.uscourts.gov/Press_Releases/homecon.html>. Accessed December 15, 2001.

¹¹ Ibid.

¹² "U.S. Probation and Pretrial Services Information Series: Home Confinement," U.S. Courts – The Federal Judiciary. Internet. <<http://www.uscourts.gov/misc/propretrial.html>>. Accessed December 17, 2001.

¹³ Beck, Allen J. and Harrison, Paige M. Prisoners in 2000. U.S. Department of Justice Bulletin, August 2001, p. 8.

¹⁴ Sokoloski, Ed, Director of Operations, Continental Divide Robotics, Littleton, CO. Telephone interview by Mark Getchel, December 19, 2001.

¹⁵ Sokoloski, Ed, Director of Operations, Continental Divide Robotics, Littleton, CO. Telephone interview by Mark Getchel, June 18, 2002.

BIBLIOGRAPHY

Albrecht, Karl; The Northbound Train: Finding the Purpose, Setting the Direction, Shaping the Destiny of Your Organization, AMACON 135nWEst 50th Street New York, NY 10020, 1994.

Beck, Allen and Harrison, Paige. Prisoners in 2000, U.S. Department of Justice Bureau of Justice Statistics, August 2001.

Clarke, Bill; Aviator's Guide to GPS, McGraw-Hill, Inc., NY, 1994.

Federal Communications Commission. Fact Sheet: FCC Wireless 911 Requirements, Government Printing Office, 2001.

Logsdon, Tom. The Navstar Global Positioning System, Van Nostrand Reinhold, New York, 1992.

Maney, Kevin; Artificial intelligence isn't just a movie, USA Today, Wednesday, June 20, 2001, p. 1A.

Nanus, Burt and Dobbs, Stephen; Leaders Who Make a Difference, Jossey-Bass Publishers 350 Sansome Street, San Francisco, CA 94104, 1999.

Pace, Scott et al. The Global Positioning System: Accessing National Policies, Rand Corporation, Santa Monica, CA 1995.

Schmidt, Tim; Assisted GPS – It's All About Location, Field Force Automation, November 200, p. 26-28.

Schwartz, Peter. The Art of the Long View, Bantam Doubleday Dell Publishing Group, Inc. 666 Fifth Avenue, New York, NY 10103, 1991.

Vancise, W. J. Home alone - but not forgotten: Is electronically monitored house arrest an effective alternative to imprisonment? Canadian Association of Provincial Court Judges (1997). Internet.
<<http://www.acjnet.org/capcj/en/law/publications/elecmoni.html>>. Accessed: December 8, 2001.

York Anthony; THREE STRIKES AND YOU'RE IN. Salon Magazine (1999).
Internet <<http://www.salon.com/news/feature/1999/06/01/prisons/>>. Accessed May 6, 2002.