

**Document Title: GPS Offender Monitoring and Tracking  
Pinellas County, Florida/Marion County, Illinois**

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## **GPS Offender Monitoring and Tracking Pinellas County, Florida/Marion County, Illinois**

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### **NIJ Guidance**

The National Institute of Justice (NIJ) does not recommend an evaluation of global positioning system (GPS) offender monitoring and tracking in the sites assessed below. We remain interested, however, in evaluating the impact of this technology in other sites.

Applicants who propose to evaluate this technology are encouraged to consider the outcome variables (including supervision compliance, reoffending while on supervision, and postsupervision recidivism, as well as potential cost savings from reduced incarceration) and obstacles (including incomplete data, unavailable or incomparable control groups, and insufficient experimental group size) identified below.

Applicants may depart from this guidance by providing an appropriate rationale.

**Project Summary:** GPS offender monitoring and tracking technology is designed for use with both sentenced offender and pretrial populations. Two field implementations were examined for this feasibility assessment. The first was in Pinellas County, Florida. Select nonviolent offenders there are sentenced directly by the court to an alternative sentencing program. Under this program they are tracked electronically to insure adherence to conditions of their sentence and supervised by deputies from the sheriff's department. This program began in 2003 and currently has 253 clients participating. The second was in Marion County, Illinois. The primary use there is for offenders sentenced to home detention and a group of pretrial defendants. This program began in 1999 primarily for domestic violence cases and currently has 219 clients participating.

**Scope of Evaluation:** An outcome evaluation of GPS offender monitoring and tracking is not recommended based upon this feasibility assessment.

**Summary of Evaluability Assessment Activity:** The assessment of the feasibility of evaluating GPS offender tracking technologies began with a review of the literature and a web-based search to identify vendors that perform electronic tracking of offenders under community supervision. Telephone interviews were then attempted with eight known electronic-monitoring vendors, although this met with limited success. Interviews of technology experts at the National Law Enforcement and Corrections Technology Centers (NLECTC) were also conducted, as were conference calls with NIJ Program Managers from the Office of Research and Evaluation and the Office of Science and Technology. A conference call with NIJ and Mitretek, which is undertaking an electronic monitoring implementation study for NIJ, was also conducted.

The literature review, telephone interviews, and conference calls revealed that GPS electronic monitoring of offenders in the community, although quite widespread, is a relatively new application in the corrections arena. Very little empirical evidence exists regarding the effects of GPS technology. The handful of studies conducted to date suggests that users have encountered technical problems with some applications. Still, early detection of risky behaviors has been cited as a positive outcome in several jurisdictions. In addition, reduced technical violations, reoffending, and absconding have been noted as observable outcomes of electronic monitoring applications.

The initial screening by Urban Institute (UI) identified eight mature applications of GPS offender tracking technology. These were found in Marion County, Illinois; U.S. Pre-Trial Services in the Central District of California; New Mexico Department of Corrections; the City and County of Denver (Colorado); Oakland County; Michigan, Community Corrections; Court Supervision and Offender Services Agency, Washington, D.C.; Texas Department of Criminal Justice Services; and Pinellas County, Florida, Alternative Sentencing Program.

On the basis of the screening information compiled, NIJ and UI mutually decided on October 2, 2006, that Pinellas County, Florida, would be the location for a further site visit screening.

In addition, Marion County was separately chosen for an evaluability assessment of the Secure Continuous Remote Alcohol Monitor (SCRAM). Because a site screening was already planned there, this site was also selected for a supplemental screening of its GPS offender-tracking program. Findings from those site visit interviews are therefore also provided in this assessment report.

## **1. Brief Literature Review**

**What do we already know about projects like these? Would this evaluation add to what we know?**

*According to an April 2006 survey, 22 States are currently using GPS monitoring systems (ICAOS, 2006). GPS is most commonly used to track sex offenders, but some states are using GPS to monitor other high-risk offenders. For example, New Jersey and California are contemplating GPS monitoring in domestic violence cases; Delaware uses GPS to track movements of juveniles under house arrest; and Pasco County, Florida, is using GPS for pretrial inmates to reduce jail overcrowding (Perlman, 2005).*

Despite its prevalence in the field, GPS monitoring has not been the subject of much formal evaluation. However, a recent study in Maryland found that staff training in the use of the technology was inadequate, the system often emitted false readings, hardware failed repeatedly (with vendor response times often taking 2–3 days), and batteries routinely died. Nonetheless, researchers determined that GPS aided in the early detection

of risky behaviors before offenders committed new crimes (MTOP, 2004). Several other California assessments reinforce these findings (Perlman, 2005). Another recent study (Padget, Bales, and Blomberg, 2006) found this technology resulted in significantly reduced technical violations, reoffending, and absconding.

### **What audience would benefit from this evaluation?**

The primary beneficiaries would be corrections, probation, and parole policymakers and practitioners, as well as judges and court administrators. An evaluation would also contribute significantly to the field of empirical knowledge about using technology for offender and pretrial monitoring which would benefit the research community. Federal funding agencies would also find the results of an evaluation useful for policy and program development.

### **2. Level of Site Cooperation**

Both Pinellas and Marion Counties voiced a willingness to cooperate in an evaluation.

### **Is there a local evaluation?**

There have been no formal evaluation in either county to date and none is currently planned.

### **3. Background History**

The Pinellas County Sheriff's Department originally implemented GPS technology in 2003. An alternative sentencing program using GPS emerged from an in-house work release program that was in place at that time. Two hundred fifty-three sentenced offenders currently participate. Each participant is affixed with an ankle bracelet and is required to carry a portable GPS transmitter when away from home. When at home, the mobile unit is normally plugged into its charger and passive transmitter. Offenders are typically sentenced to this program by the court for periods ranging from 10 days to 1 year. Violent and sex offenders are excluded from participation in this program. In addition to those sentenced to this program, the sheriff's department recruits participants from its regular jail population based upon written eligibility requirements. Approximately one-third of current participants are recruited from the jail population and a current waiting list of 50-75 exists.

A sheriff's deputy is assigned to each participant; each deputy typically has a caseload of 40-45 offenders and must visit each offender every 7-10 days. Offenders must reimburse the department \$6per day for equipment costs. An active monitoring alarm system notifies the supervising deputies if the bracelets are tampered with or the GPS transmitter is more than 30 feet away from the offender. Passive transmission of the daily GPS-tracked whereabouts of each offender is automatically made daily from the GPS unit when docked in the charging unit. The vendor, ProTech, produces a comprehensive report on the movements of each offender each morning. The alternative sentencing team

reviews this report daily for violations. In addition, the vendor's software can display maps of offender locations in 15-second intervals and track movements of offenders over the previous 24 hours throughout the county and beyond. These maps are regularly overlaid on maps of crime in the county for the previous day to see if offenders may have been in the area of a crime when it was reported to have occurred.

Marion County began using GPS in 1999, primarily for domestic violence cases and specifically in response to a particularly high-profile domestic violence case that resulted in a homicide. Shortly thereafter, the legislature became interested in GPS after another high-profile case during which a parolee on electronic monitoring managed to sneak next door and kill his neighbor without triggering an alert on his electronic monitoring unit. This prompted the passage of a law requiring all violent offenders on home detention to be tracked by GPS. In addition, all sex offenders are required to be on parole and GPS-monitoring for life. While not all judges follow these laws, most do, which eliminates any opportunity for a meaningful control group among the sentenced population. Among the pre-trial population on GPS, judges do have discretion, but many are unwilling to make a bail decision without the security of GPS to back them up.

#### **4. Program Design**

### **Target Population**

The population for Pinellas County is 253 nonviolent offenders sentenced by the court to the alternative sentencing program or recruited from a similar population currently incarcerated in the county jail. In Marion County, 219 clients (133 pretrial and 64 sentenced) were reported as currently on GPS tracking. The majority of offenders were sentenced for either a felony D offense or a class A misdemeanor (violent or sex offenses).

### **Project Goals and Objectives**

The basic outcome logic of this technology is that nonviolent offenders can be supervised in the community through electronic monitoring of their movements using GPS. The primary outcome suggested is a reduction or minimization of jail overcrowding. In addition, supervision costs using this technology are perceived by program staff to be much lower than incarceration. Theoretically, this technology may also reduce technical and criminal offenses during the period of supervision and reduce longer term recidivism. However, in Pinellas, at least, these last outcomes were not emphasized.

The goals of the use of this technology are to provide a safe and secure alternative to incarceration through electronic GPS monitoring. The objectives are to: 1) reduce jail overcrowding; 2) decrease supervision costs; and 3) prevent reoffending while under supervision (through detection of technical and criminal violations).

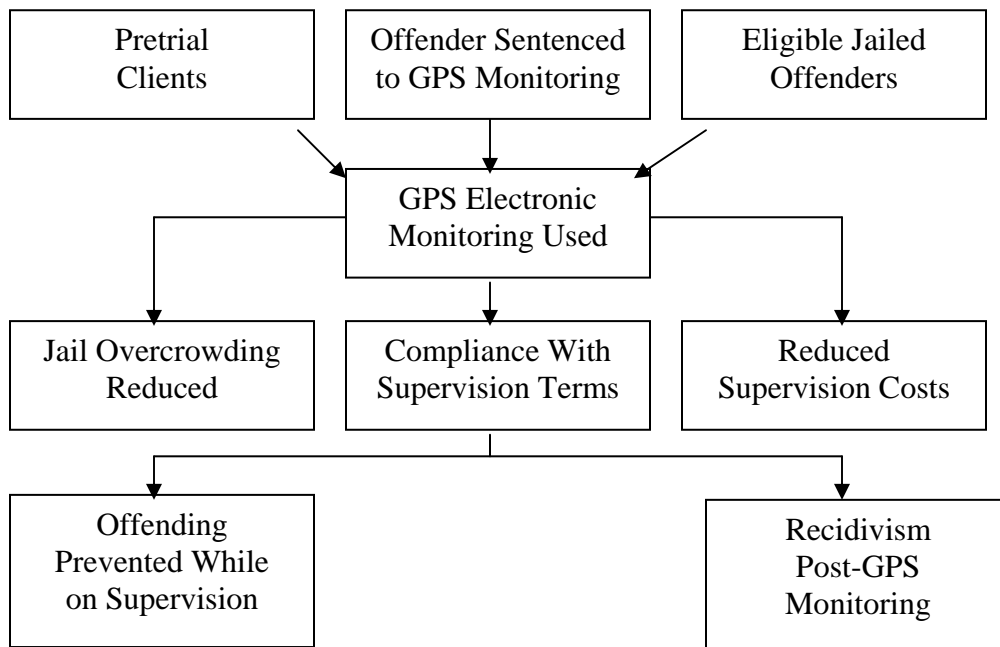
#### **5. Program Logic Model**

**Describe the logic that connects project activities to project goals.**

The basic technology logic model is presented in exhibit 1. As can be seen in this model, GPS monitoring can be implemented with several populations. Pretrial clients released on bail or their own recognizance are one possible application. Sentenced offenders are another population, and those monitored by GPS tracking technology can be directly sentenced as an alternative to incarceration. Alternatively, at least as is the case in Pinellas County, clients can be recruited from low-risk offenders currently incarcerated, much as they might be for work release.

Three primary intermediate outcomes were noted during background research and onsite screenings. First, the use of this technology is an alternative to incarceration and can therefore reduce jail populations and overcrowding. Second, by supervising clients in the community and requiring them to contribute to the costs of this program, supervision costs will be reduced, particularly in comparison to incarceration in the local jail. Third, this technology will increase the likelihood that clients will comply with the conditions of their supervision. For example, they will be deterred from breaking curfews or frequenting locations where they are not supposed to be. As a result, it may be hypothesized that reoffending will be prevented while under electronic monitoring. Theoretically, long-term recidivism might be reduced should this technology have its desired effect as well. It should be noted, however, that officials in Pinellas County emphasized repeatedly that they held no such belief and that neither rehabilitation nor reduced recidivism was considered as likely long-term outcomes.

**Exhibit 1. GPS Monitoring Logic Model**



### **Is the logic supportable by empirical evidence?**

No empirical evidence was offered in support of the logic model. Anecdotal evidence provided by deputies and program administrators suggests that the vast majority of those participating return to the criminal justice system. One official characterized the system as “a revolving door,” although neither jurisdiction reported actually tracking recidivism systematically.

### **Are there apparent contradictions or conflicts between certain activities and the outcome expected?**

A question exists about the logic of this technology reducing overcrowding. At the time of our visit, the jail in Pinellas County housed almost 300 offenders over capacity, which suggests that the extent of overcrowding may be the most appropriate outcome measure. In addition, it may be that there is a “widening of the net” phenomenon at work with this technology. That is, it may be that these clients might have been sentenced to other community programs or released on bail or personal recognizance anyway. This may just be a supervision tool for those on community release or community sentence and not really a technology that could affect some of the longer term outcomes hypothesized.

## **6. Implementation Issues**

### **Is the project being implemented as planned?**

Yes, according to field interviews in Pinellas County. In fact, it is anticipated that the program will expand in the near future. Similarly, in Marion County GPS use appears to be running very smoothly. There were some vendor problems there initially, but the latest GPS technology employed in Marion County sends alerts to a central monitoring unit, which is more efficient than the officer pager system previously employed. Moreover, Marion County GPS clients are now equipped with small personal digital assistant (PDA)-size units rather than the larger more cumbersome units that were originally used.

### **Describe staffing.**

In Pinellas County 6 deputy sheriffs are responsible for caseloads of approximately 45–50 clients each. They are supported by five alternative sentencing support staffers (not including information technology support) that screen and report cases for the deputies and department administrators. Marion County currently has 24 officers responsible for the county’s entire home detention caseload of 1,700 clients assigned to one or a combination of the following technologies: electronic monitoring through radio frequency, GPS, and SCRAM.

## **Describe the stability of the project over time**

The implementation of this technology is mature in both jurisdictions. Initial implementation problems arose with technical issues surrounding use and alerts, but these have been largely overcome.

## **What aspects of the project could be evaluated for outcome?**

An impact evaluation would need to explore whether GPS changes client behaviors, making them less likely to commit new crimes while on supervision or awaiting trial and more likely to follow all their terms of supervision. The outcome measures, therefore, would be changes in the rate at which GPS clients commit new crimes and the rate at which they are returned to jail for failing to comply with other terms of supervision or pretrial release.

The most rigorous impact evaluation design would be a randomized controlled trial (RCT), whereby candidates for GPS are randomly assigned either to be on GPS or to receive an alternative sanction (most likely electronic monitoring). It is highly unlikely, however, that judges would agree to random assignment, as that would require them to relinquish judicial discretion.

An interrupted time series design is another method often employed in impact evaluations. However, the way in which GPS was implemented does not suit itself to this evaluation method. For example, in Marion County, GPS was implemented with a very small number of clients in 1999, and those numbers grew slowly until recent years. It is unlikely that the impact of GPS would be so great that one would observe an aggregate effect over time, even if one existed.

The third approach would be to select a matched comparison group among those clients who were not assigned GPS. This would require the identification of characteristics of GPS clients and selecting non-GPS clients who have those same traits (age, race, criminal history, current offense, etc.). Both groups would be tracked over time to compare outcomes and determine if statistically significant differences exist between treatment and comparison groups. However, there are other design issues that would need to be overcome. For example, since neither county maintains recidivism data, it is difficult to determine the appropriate sample sizes that would yield enough statistical power to identify a treatment effect if one exists. Researchers would have to pull historical data by hand to identify the recidivism rate, which could be very time consuming.

## **What would the outcome measures be?**

Outcome measures would be jail population trends, compliance with supervision terms, costs, reoffending on supervision, and postmonitoring recidivism.



### **How could an appropriate comparison group be created?**

Creation of appropriate comparison groups was noted as a serious issue for evaluation in both jurisdictions. Random assignment of sentences by judges was viewed as not feasible and naturally occurring samples of similar comparison groups do not exist.

### **Are the sample sizes statistically significant?**

The population of clients is quite small in both jurisdictions and sampling would not be required.

### **Is random assignment possible?**

This did not appear to be feasible in either jurisdiction.

## **Recommended Approach**

An implementation process evaluation may be warranted. There appear to be a number of important implementation lessons learned that would benefit other policymakers and practitioners considering the use of this technology in the future. However, current evaluation design options are not rigorous enough to produce sound outcome findings. Furthermore, the populations are quite small, making detection of effect sizes difficult, even if comparison groups could be identified. Therefore an outcome evaluation of the application of this technology is not presently recommended.

### ***Alternative Approach***

N/A

### **What strengths and weaknesses do the designs have?**

N/A

### **How long in duration would the evaluation be?**

N/A

### **What would be the estimated cost?**

N/A

## **What aspects of the project make an evaluation more difficult?**

Obstacles are described above. The inability to create a similar comparison group and the limited number of participants are the most serious constraints for a successful implementation of a rigorous outcome evaluation of GPS technology at present.

## **7. Measurement Model**

If design challenges could be overcome, the measurement model would correspond to those outcomes described in the logic model and outcome measures section above.

## **8. Data**

### **Comment on the quality and availability of project-generated data to support these measures.**

The Pinellas County Sheriff's Department maintains comprehensive and sophisticated electronic databases that can be used for evaluation purposes. These include arrest and booking data (including digital mug shots) back to 1994, calls for service, incident reports (records management system), and computer-aided dispatch records. Also available are case-specific violation data and location data for each participant over their entire period of participation in the program. These are all maintained by the department itself and access was reportedly not controlled by any of the systems' vendors, as is sometimes the case in other law enforcement agencies. Furthermore, the department voiced support for participating in an evaluation and a willingness to share its internal data with researchers.

Marion County maintains extensive electronic data on clients on GPS, including demographic information, current offense, criminal history, risk level, drug testing dates and results (if applicable), and violations of terms of supervision. This database, however, is case based and does not allow for the creation of reports that aggregate data across the entire client base. Nonetheless, the data exist and could be extracted manually in order to track outcomes and identify characteristics of those on GPS in order to create propensity scores for identifying a comparison group.

### **Can services delivered be identified?**

Delivery of services is not an element of this technology application per se. However, supervision and service delivery are also provided to those participating in these monitoring programs. Whether these services can be systematically identified and tracked was not explored during the site screening since the emphasis was on evaluation of the application of the technology itself.

## **Can target population be tracked over time?**

The current population can be tracked over time. However, there appears to be significant variation in the amount of time any individual client might participate in the program (i.e., dosage). This can range from 10 days to a year for misdemeanants or much longer for felons.

## **Would an evaluation have to generate new or additional data?**

Although extensive case-based databases exist, a substantial amount of extraction would be required for evaluation data analysis purposes. In addition, recidivism and service provision data would need to be generated and collected for research purposes.

## **9. Summary Remarks**

### ***Recommendations for Evaluation***

Due to the current inability to create comparison groups, a relatively small number of participants, and current data limitations, possible outcome evaluation designs would be necessarily quite weak. Therefore, at present the GPS offender tracking technology application, as currently implemented in Pinellas and Marion County, is not recommended for evaluation.

## **References**

- Interstate Commission for Adult Offender Supervision (ICAOS). (2006). *GPS Update Survey*.
- Maryland Transitional Offender Program (MTO). (2004). *Comprehensive Approaches to Sex Offender Management*, Final Report, Grant # 2001-WP-BX-0022.
- McKay, Jim. (2006.) "Electronic Tether," *Government Technology*. Retrieved August 17, 2006, from <http://www.govtech.net/magazine/story.php?id=98310&issue=2:2006>.
- Padget, Kathy G., William D. Bales, and Thomas G. Blomberg. (2006). "Under Surveillance: An Empirical Test of the Effectiveness of and Consequences of Electronic Monitoring," *Criminology and Public Policy* 5(1): 61-91.
- Perlman, Ellen. (2005). "Where Are They Now? States and Localities Are Using GPS to Put Moving Targets on the Map," *Governing Magazine* (October).
- Reza, J.D. (2004). "Do You Know Where Your Offenders Are?" *Law Enforcement Technology* 31(6): 118-123.

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Tewey, John. F. (2005). "Task Force to Study Criminal Offender Monitoring by Global Positioning Systems: Final Report to the Governor and General Assembly," Annapolis, MD.