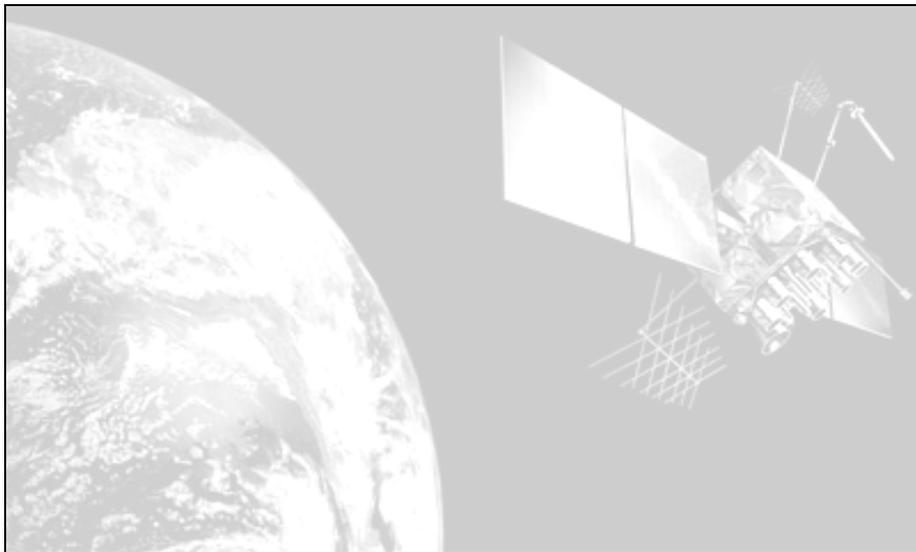


Monitoring Tennessee's Sex Offenders Using Global Positioning Systems

A Project Evaluation



Tennessee Board of Probation and Parole

In conjunction with

**Middle Tennessee State University
Department of Criminal Justice Administration**

April 2007



STATE OF TENNESSEE
BOARD OF PROBATION AND PAROLE
404 JAMES ROBERTSON PARKWAY
SUITE 1300
NASHVILLE, TENNESSEE 37243
Phone (615) 741-4543

April 27, 2007

The Honorable Phil Bredesen, Governor

The Honorable Ron Ramsey,
Speaker of the Senate
The Honorable Jimmy Naifeh,
Speaker of the House of Representatives
and
Members of the General Assembly
State Capitol
Nashville, Tennessee 37243

Ladies and Gentlemen:

Transmitted herewith is a project evaluation of Tennessee's Global Positioning System Pilot Project, Tennessee Code Annotated Global Positioning System Pilot Project, conducted by the Tennessee Board of Probation and Parole from September 2005 through October 2006, as authorized by Tennessee Code Annotated §§ 40-39-301 to 306 (2006).

The Tennessee Board of Probation and Parole and the Department of Criminal Justice Administration at Middle Tennessee State University collaborated on this project evaluation, resulting in several conclusions as well as recommendations for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles M. Traughber".

Charles M. Traughber, Chairman
Tennessee Board of Probation and Parole

Signed for the following Board Members at their request:

Mr. James H. Austin	Ms. Patsy Bruce
Mr. Ronnie Cole	Mrs. Lynn Duncan
Mr. Yusuf Hakeem	Mr. Larry L. Hassell

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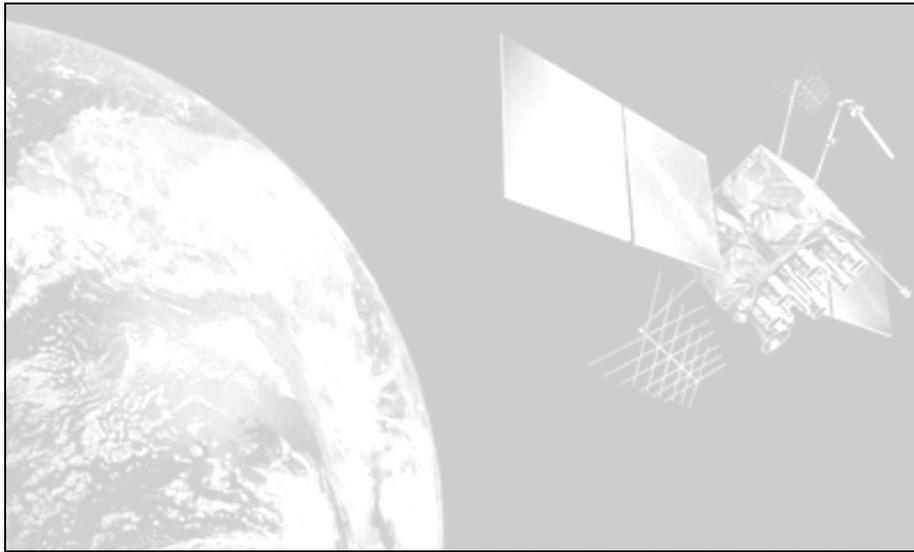


Photo Credit: United States Government,
National Space-Based Positioning, Navigation, and Timing Coordination Office

Tennessee Board of Probation and Parole

Emily Hudgens Wilson, Evaluation Coordinator
Probation and Parole Administrator



Charles M. Traughber, Chairman Bo Irvin, Executive Director
Mr. James H. Austin, Member Ms. Patsy Bruce, Member
Mr. Ronnie Cole, Member Mrs. Lynn Duncan, Member
Mr. Yusuf Hakeem, Member Mr. Larry L. Hassell, Member

In conjunction with



Middle Tennessee State University
Department of Criminal Justice Administration
Dr. Deborah Wilkins Newman, Chair and Professor
Dr. Tae Choo, Assistant Professor

Executive Summary

In July 2004, Governor Bredesen and the General Assembly enacted the “Tennessee Serious and Violent Sex Offender Monitoring Pilot Project Act,” Tennessee Code Annotated §§ 40-39-301 to 306 (2006), authorizing the Tennessee Board of Probation and Parole (hereinafter referred to as BOPP) to monitor sex offenders using global positioning systems (GPS) technology on a pilot basis. The statute specifically enabled BOPP to use satellite-based monitoring as a mandatory condition of release for certain offenders, as deemed appropriate by BOPP.¹

This evaluation analyzes the Tennessee Board of Probation and Parole’s Global Positioning System Pilot Project and reaches several conclusions:

MTSU’s statistical analysis concluded that when the treatment and control groups were statistically compared by their first year of supervision and by the same year of supervision, no statistically significant differences were found in the number of violations, new charges, or in the number of days before the first violations.

Although the empirical analysis did not yield definitive support for satellite-based monitoring, BOPP’s pilot project indicates that GPS provides officers with a unique supervision tool and has potential in aiding officers greatly. GPS officers overwhelmingly reported that GPS is a positive supervision tool that provides them with greater information in offender supervision. Further, officers indicate that the project enables closer monitoring of sex offenders, and with additional staffing, changes to work assignments, and procedural improvements, GPS will be an even more effective tool in supervision.

Some individual incidents reveal the usefulness of satellite-based offender monitoring. Specifically, BOPP filed 133 violation reports on 99 offenders during the pilot project. 31 percent (41) of these reports were filed as a result of GPS information. Of these, officers issued 103 technical violation reports for instances where offenders violated their standards of supervision. GPS technology revealed the circumstances eliciting the violation in 20 percent (30) of the total number of technical violation reports filed during the pilot period.

BOPP issued 12 violation reports for new charges. GPS technology revealed the circumstances eliciting the new charges in 17 percent (3) of the total number of new charges during the pilot period. Further, BOPP issued 13 violation reports for a combination of both technical and new charges. GPS revealed 62 percent (8) of these violation reports. In some cases, BOPP cannot prove that a crime was prevented, but GPS assisted in the detection of the offender’s violation.

BOPP officers found several benefits of using GPS technology to monitor sex offenders:

- Officers report that GPS is a containment tool; it allows officers to monitor offenders’ daily activities.
- Officers establish and monitor inclusion zones, which are locations where the offender must be at specific time periods, such as being at home at night and at work during the day. Exclusion zones are established for places where offenders are not permitted to enter and are also monitored using tracking data.

¹ Tennessee Code Annotated § 40-39-303(a) and (c).

- GPS allows officers to see specific patterns of activity and then follow-up on frequently visited locations.
- GPS may deter offenders from engaging in deviant or criminal activity.
- Officers can determine whether offenders have violated specific supervision requirements using GPS data.
- GPS tracking information allows officers to work with law enforcement agencies to rule out or confirm alleged involvement in criminal activity.
- GPS data provides officers with information to investigate and verify citizen claims of inappropriate offender activity.
- GPS technology provides officers with evidence to present to the releasing authority (Judges or the Board of Probation and Parole) when an offender has violated his or her standards of supervision.
- The web-based monitoring software allows officers to determine whether or not an offender is at home before leaving the office to perform a visit.

GPS offender monitoring also has some limitations discovered during the pilot project:

- BOPP’s GPS pilot project is not adequately staffed, placing undue strain on GPS officers, professionally and personally.
 - GPS officers may receive alerts or violation reports requiring immediate response during any time of the day, on weekends or scheduled days off, and on holidays. As such, GPS officers are continuously on-call to respond when necessary.
 - The continuous on-call status and increased workload has had a significant, negative impact on GPS officers’ personal lives. Specifically, sporadic alert response infringes on officers’ quality time with their families and increases stress to their daily routine.
- GPS supervision requires significantly more time and attention than sex offender monitoring without GPS.
- Officers frequently receive alerts during the night and law enforcement backup is not always available. Responding to alerts late at night presents a safety issue for Probation and Parole Officers who are not armed.
- Officers reported that GPS supervision might not be the most appropriate level of monitoring for all sex offenders. Previous research supports this finding.
- BOPP is currently using GPS as a tool to show what happened in the past, as opposed to a crime prevention tool.
- GPS officers report that they spend a significant amount of time working with GPS equipment, instead of working with offenders.
- Officers report that offenders experience many equipment problems during the first few months they are monitored using GPS and supervise some offenders “who plainly do not intend to wear the GPS equipment as specified.”
- Some Judges and District Attorneys have been hesitant to accept GPS-based evidence of violation in court, due to offender allegations of technical problems with the GPS equipment.
- BOPP officers indicate a desire for more GPS-related training. Further, officers indicate that training for parties external to BOPP may be helpful, as many agencies are not aware of how the equipment works or what information it can provide. Specifically, the availability of training for Judges, District Attorneys, Defense Attorneys, law enforcement agencies, and correctional entities may increase overall awareness and acceptance of the project.

Anecdotal information suggests that GPS monitoring also has an impact on monitored offenders' daily activities. Some officers report morale issues for offenders that were previously in compliance with supervision standards, who now feel additionally punished because GPS has been added to their supervision requirements. Additionally, offender safety, employment denial, disrupted group therapy sessions, additional fees, housing issues, and telephone connectivity are all issues surrounding project impact on offenders.

Because GPS officers are on-call 24 hours per day, seven days a week, BOPP's current staffing pattern for the pilot project is not sustainable. A team monitoring approach to caseload management and implementation of shift assignments would reduce stress on case officers, reduce the need for overtime, improve service delivery, and reduce staff turnover. A reduction in staff turnover would also enhance the agency's proficiency with GPS through increased officer experience.

GPS monitoring is not appropriate for all sex offenders included in the pilot project. MTSU's research yielded statistically significant descriptive and demographic findings, based on subjects from both the treatment and control groups, which are important for the future administration of GPS projects. These are as follows:

- Offenders younger than 40 years old are more likely to commit new offenses while on supervision than are offenders over 40 years old on supervision.
- Offenders in the 30-40 age group are statistically more likely to receive new charges than are other ten-year age groups.
- Offenders with "less than a high school" educational background are more likely to commit new offenses than those offenders with a high school education or higher.

These findings could be useful in determining which offenders are in most need of being equipped with GPS electronic devices, should resources be limited. Research indicates that lower risk offenders who are supervised at enhanced levels re-offend more frequently and have overall higher recidivism rates than similar offenders supervised at lower risk levels.²

Tennessee is not alone in using advanced technologies to monitor offenders. Of the 49 states reporting, 35 other states indicated they use GPS technology to monitor offenders. Of those who have immediate response to alerts, 13 states utilize armed field officers in responding, and 11 also have arrest authority. The most common issues other states experience related to GPS are additional workload and cost.

The GPS pilot project lasted one year, which is not long enough to truly assess the project's impact on offender behavior. Longitudinal analysis will provide a more thorough picture of the successfulness of GPS as a supervision tool. MTSU concluded that: "More data should be collected incorporating all of the above findings in the research design. It is recommended that data be analyzed (annually and cumulatively) at the end of each year for at least five years in order to draw more complete conclusions about the effectiveness of the GPS project. More data over a longer period of time would be more conducive to more advanced statistical analyses and would yield clearer conclusions."

² Christopher T. Lowenkamp and Edward J. Latessa, "Understanding the Risk Principle: How and Why Correctional Interventions can Harm Low-Risk Offenders, *Topics in Community Corrections, Annual Issue, 2004: Assessment Issues for Managers*, 2004, pp. 3-8.

Based on the project evaluation conclusions, the Board of Probation and Parole recommends the following:

The Governor and General Assembly may wish to consider the continuation of global positioning system monitoring of offenders in the State of Tennessee. GPS offers Probation and Parole Officers a unique supervision tool in offender monitoring.

The Tennessee Board of Probation and Parole respectfully requests additional staff should the GPS project be continued and additional operating dollars if the project is expanded.

The Tennessee Board of Probation and Parole should establish criteria for determining individual offender suitability to GPS supervision. Further, the Board should use a tiered monitoring approach to maximize resource expenditures.

The Tennessee Board of Probation and Parole should assess optimal staffing approaches to reduce strain on GPS officers. Such approaches may include a team approach to offender monitoring and/or involve shift work for responding to alerts.

The Tennessee Board of Probation and Parole should further consider officer safety and obtain additional safety equipment for GPS officers, including radio equipment for communication.

The Tennessee Board of Probation and Parole should continue officer training. Additionally, the Board should more actively pursue training and/or GPS information distribution for Judges, District Attorneys, Defense Attorneys, law enforcement agencies, correctional staff, and other interested parties outside the agency.

The Tennessee Board of Probation and Parole should continue study of global positioning systems as a supervision tool, if the project is continued. Longitudinal analysis will provide a more thorough picture of the successfulness of GPS as a supervision tool.

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Background

In July 2004, Governor Bredesen and the General Assembly enacted the “Tennessee Serious and Violent Sex Offender Monitoring Pilot Project Act,” Tennessee Code Annotated §§ 40-39-301 to 306 (2006), authorizing the Tennessee Board of Probation and Parole (hereinafter referred to as BOPP) to monitor sex offenders using global positioning systems (GPS) technology on a pilot basis. The statute specifically enabled BOPP to use satellite-based monitoring as a mandatory condition of release for certain offenders, as deemed appropriate by BOPP.³

Upon passage of the act, BOPP issued Request for Proposals (RFP) from vendors for equipment, training, and continuous monitoring. Following a protest of the original RFP and the issuance of a revision, BOPP selected iSECUREtrac Corporation as the successful vendor on July 7, 2005. The parties executed the contract on July 18, 2005 and the Department of Finance and Administration approved the final contract on August 8, 2005.

In the interim, BOPP sought collaboration with a Tennessee higher education institution to perform an empirical statistical analysis of the pilot project. On August 10, 2004, BOPP and the Department of Criminal Justice Administration at Middle Tennessee State University entered into a formal Memorandum of Understanding for this purpose. Middle Tennessee State University performed this assessment at no cost to BOPP.

Project Implementation

To obtain a cross-section of BOPP’s sex offender population, BOPP selected 11 counties for the study based on a cross representation of the topography, geographic location, and population densities in Tennessee. The pilot counties include rural, suburban, and urban areas with a wide range of offender characteristics. These counties include: Bradley, Cannon, Davidson, Knox, McMinn, Montgomery, Polk, Rutherford, Shelby, Sullivan, and Sumner.

Prior to passage of the act, BOPP had no first-hand experience using global positioning systems to monitor offenders. Based on their experience in other states, iSECUREtrac recommended BOPP consider using a central monitoring system for receiving and routing monitoring data known as “alerts,” as an alternative to all alerts going directly to the supervising officer. BOPP established a centralized monitoring center in Nashville to receive monitoring data from iSECUREtrac, to triage the seriousness of alerts, to clear the alerts through contact with the tracked offender, or to refer the alert to the appropriate BOPP field officers for direct intervention. The GPS Operations Center, or GO Center, continually monitors GPS offenders 24 hours a day, seven days a week.

BOPP and iSECUREtrac formally rolled out the project in each of Tennessee’s three grand divisions in September 2005. Project implementation included equipment delivery; inventory and set-up; officer training; and finally, offender installment. Intensive officer training covered equipment installation, operation, internal procedures, software operation, and overall offender monitoring using GPS technology. In addition to the initial staff training, iSECUREtrac has provided on-site technical assistance throughout the project. Following officer training, BOPP fitted the first offenders with GPS tracking equipment in Knoxville on September 8, 2005; in Memphis on September 14, 2005; and in

³ Tennessee Code Annotated § 40-39-303(a) and (c).

Nashville on September 21, 2005. Data collection for the empirical analysis coincided with offender hook-up. At the time of BOPP’s project initiation in September 2005, Tennessee’s project was the largest start-up and one-time rollout in the country. Subsequently, only three states have exceeded Tennessee’s program in size: California, Florida, and Iowa.⁴

Offender Selection Criteria

In order to statistically evaluate the impact of GPS monitoring on sexual offender recidivism, sexual offenders were divided into two comparison groups: sexual offenders who have been equipped with GPS (treatment group) and sexual offenders who have not been equipped with GPS (control group). BOPP originally projected a pool of 1,300 eligible sex offenders for monitoring, which allowed for 650 offenders each in both the treatment group and control group for empirical comparison. The statute as enacted authorized BOPP to study only offenders “convicted” of offenses defined as “sexual offenses” and “violent sexual offenses” as part of the pilot project (see Exhibit 1 for complete list of eligible offenses). After further analysis, BOPP eliminated certain types of offenders from the study. Those eliminated included pre-trial diversion cases, judicial diversion cases, and offenders who had a history of sex offenses, but were currently under supervision for non-sexual offenses. As a result, the pilot project included a total of 863 offenders: 493 equipped with GPS in the treatment group and 370 in the control group. The pilot project began on September 8, 2005 and data collection continued through October 31, 2006.

BOPP has continued GPS offender monitoring since the pilot project time period ended. Through March 31, 2007, BOPP has supervised a total of 831 offenders using GPS technology. Since project inception, the maximum daily population of offenders on GPS was 391, which occurred on January 11, 2006. A total of 371 offenders are on GPS supervision as of March 31, 2007.

Offenses Included in Offender Population, as Defined in TCA 40-39-202	
<i>Sexual Offenses, TCA 40-39-202(16)</i>	
	Aggravated rape
	Rape
	Aggravated sexual battery
	Sexual battery
	Statutory rape
	Sexual exploitation of a minor
	Aggravated sexual exploitation of a minor
	Especially aggravated sexual exploitation of a minor
	Incest
	Rape of a child
	Sexual battery by an authority figure
	Solicitation of a minor
	Criminal attempt to commit any of the offenses enumerated within this subdivision
	Solicitation to commit any of the offenses enumerated within this subdivision
	Conspiracy to commit any of the offenses enumerated within this subdivision
	Criminal responsibility for facilitating the commission of any of the offenses

⁴ Interstate Commission for Adult Offender Supervision, “GPS Update Survey,” April 2007, http://www.interstatecompact.org/resources/surveys/survey_results/SexOffender_GPS_Update_042007.pdf (accessed April 24, 2007).

	enumerated within this subdivision
	Being an accessory after the fact to any of the offenses enumerated in this section
<i>Violent Sex Offenses, TCA 40-39-202(25)</i>	
	Aggravated rape
	Rape
	Aggravated sexual battery
	Rape of a child
	Attempt to commit rape
	Aggravated sexual exploitation of a minor
	Especially aggravated sexual exploitation of a minor
	Aggravated kidnapping where the victim is a minor
	Especially aggravated kidnapping where the victim is a minor
	Sexual battery by an authority figure
	Solicitation of a minor
	Spousal rape
	Aggravated spousal rape
	Criminal exposure to HIV
	Criminal attempt to commit any of the offenses enumerated within this subdivision
	Solicitation to commit any of the offenses enumerated within this subdivision
	Conspiracy to commit any of the offenses enumerated within this subdivision
	Facilitating the commission of any of the offenses enumerated in this subdivision
	Being an accessory after the fact to any of the offenses enumerated in this section

Exhibit 1: List of Offenses included in Project Population

Treatment Group

BOPP monitored a total of 493 offenders using GPS to study as the treatment group. The treatment group included rural, suburban, and urban areas and included only offenders convicted of sex offenses. BOPP selected, with MTSU’s guidance, the 11 counties for inclusion in the pilot project. BOPP purposely selected pilot counties to insure as representative a sample of sex offenders as possible. BOPP did not employ random sampling techniques for treatment group selection. The reason being, a truly random sample could have potentially included offenders from each county in the state, dispersed among BOPP’s 39 field offices. This would have presented insurmountable time and resource expenditure problems during the project’s implementation and operation, and could have potentially caused the project to exceed its budgeted costs. Moreover, statewide implementation appeared to be contrary to the legislature’s intent for a “pilot project.” Finally, a truly random sample could not guarantee that representatives from all geographical areas would be selected for monitoring.

Upon project implementation, BOPP installed GPS equipment on all convicted sex offenders in the selected pilot counties. The following table illustrates the geographic location of offenders selected for GPS monitoring as part of the pilot project.

GPS Offenders (Treatment Group) by Location	
Site	Number of GPS Offenders
Blountville (Sullivan County)	37
Clarksville (Montgomery County)	25
Cleveland (Bradley, Polk, McMinn Counties)	40
Gallatin (Sumner County)	40
Knoxville (Knox County)	68
Memphis (Shelby County)	96
Murfreesboro (Rutherford and Cannon Counties)	50
Nashville (Davidson County)	137
TOTAL	493

Exhibit 2: GPS Offenders by Site

Control Group

The study control group consisted of offenders meeting the basic criteria for GPS monitoring, but who were not monitored using GPS equipment. The control group included a total of 370 offenders. BOPP consulted with Middle Tennessee State University regarding control group selection. Originally, BOPP planned to select the control group from those counties that were not part of the pilot project. However, due to the potential for geographic variance (such as judicial sentencing patterns, county size, and local law enforcement practices), MTSU recommended extracting the control group data from the same counties as the treatment group offenders, but selecting offenders under supervision prior to the implementation of GPS.

Supervision Standards for Sex Offenders

BOPP employs a set of supervision standards in monitoring sex offenders. BOPP based the Supervision Standards for Sex Offenders on the Containment Model,⁵ which emphasizes the concept of limiting access to potential victims. The standards to which BOPP holds sex offenders with current sex offenses include the following:

- Mandatory psychological evaluations as required under TCA § 39-13-705;
- Treatment as required by TCA § 39-13-706;
- Polygraph examinations at least annually;
- Limitations on access to current victim and victim types;
- Limitations on access to certain high-risk locations (schools, day cares and parks);
- Community notification through Sex Offender Registration;
- DNA testing;
- Travel restrictions;
- Home contact visits by Probation and Parole Officers;
- Office contact visits by Probation and Parole Officers;
- Drug testing;
- Employment verification and restrictions;
- Criminal record checks;

⁵ K. English, S. Pullen, L. Jones, and B. Krauth, "A Model Process: A Containment Approach," in K. English, S. Pullen, and L. Jones, eds., *Managing Adult Sex Offenders: A Containment Approach*, Lexington, KY: American Probation and Parole Association, 1996.

- Sex Offender Registration (once annually for sex offenders and four times annually for violent sexual offenders);
- Collaborations with local law enforcement to share intelligence including computer checks; and
- GPS monitoring.

GPS Project Staff

Existing BOPP staff implemented the GPS monitoring project. BOPP Central Office staff and Probation and Parole Officers statewide were transferred from their existing job duties to staff the GPS project. Other staff absorbed the officers' prior duties and assignments. Project staff includes statewide project management, GPS field officers who supervise offenders, and GO Center staff. GPS technology provides the opportunity for analysis of offender movements, which requires extensive staff involvement. Because the pilot project did not include additional staff, BOPP has not had the ability to fully utilize all of the information provided by the technology.

The project, while providing a valuable monitoring tool, has significantly impacted officer morale, work schedules (including increased overtime), quality of life, and turnover. Prior to GPS monitoring, officers scheduled night and weekend work as needed. GPS monitoring may require officer response at any time of the day, making officer work schedules alert-driven, and therefore unpredictable. Increased workloads and the potential 24-hour response requirements have negatively impacted GPS officer morale. Impact on officer morale is discussed in detail in the Qualitative Analysis section, which begins on page 30 of this report.

Since project launch in September 2005 through March 31, 2007, BOPP has spent a total of \$344,159.33 on overtime for 42 GPS officers (includes GO Center monitoring staff, full-time case officers, and part-time relief staff). BOPP has experienced a 27 percent turnover rate among GPS case-carrying officers (PPO2's and PPO3's assigned to the GPS project who have requested non-GPS work duties and were subsequently reassigned within BOPP). This is significantly higher than the 7.9 percent turnover rate of non-GPS Officers during the same time period (percentage of officers who leave BOPP).

GPS Case-Carrying Officers by Location			
Site	GPS Officers since Project Launch	GPS Officers who Left During Project	GPS Officers at Present Time
Blountville (Sullivan County)	1	0	1
Clarksville (Montgomery County)	3.5	2	1.5
Cleveland (Bradley, Polk, McMinn Counties)	1	0	1
Gallatin (Sumner County)	2	0	2
Knoxville (Knox County)	2	0	2
Memphis (Shelby County)	11	4	7
Murfreesboro (Rutherford and Cannon Counties)	4.5	2	2.5
Nashville (Davidson County)	9	1	8
TOTAL	34	9	25

Exhibit 3: GPS Officers by Location and Turnover Rates

In addition to GPS field officers who monitor offenders directly, BOPP has five full-time officers assigned to staff the GPS Operations Center (GO Center) and five part-time relief monitors at the present time. GO Center staff monitor the iSECUREtrac web-based software for offender activity 24 hours a day, seven days a week. BOPP has experienced 34 percent turnover rate among GO Center Officers.

GO Center Officers			
Site	Number of GO Center Officers since Project Inception	Number of GO Center who Left During Project	Number of GO Center at Present Time
GO Center – Nashville	12	4	5

Exhibit 4: GO Center Officer Turnover

GPS Equipment

Each offender is equipped with three basic components upon installation: a Transmitter Cuff (ankle bracelet), a personal tracking unit (PTU) that is worn on the waist, and a Charger Base unit used to charge the batteries daily and with passive units, download tracking history.



Exhibit 5: iSECUREtrac GPS Monitoring Equipment: Transmitter Cuff, Personal Tracking Unit, Charger Base Unit⁶

⁶ iSECUREtrac, “Transmitter,” http://www.isecuretrac.com/products_detail.asp?focus=Transmitter, “Active PTU,” http://www.isecuretrac.com/products_detail.asp?focus=Charger%20Base, and “Charger Base,” http://www.isecuretrac.com/products_detail.asp?focus=Charger%20Base (all accessed April 12, 2007).

How does GPS Monitoring Work?

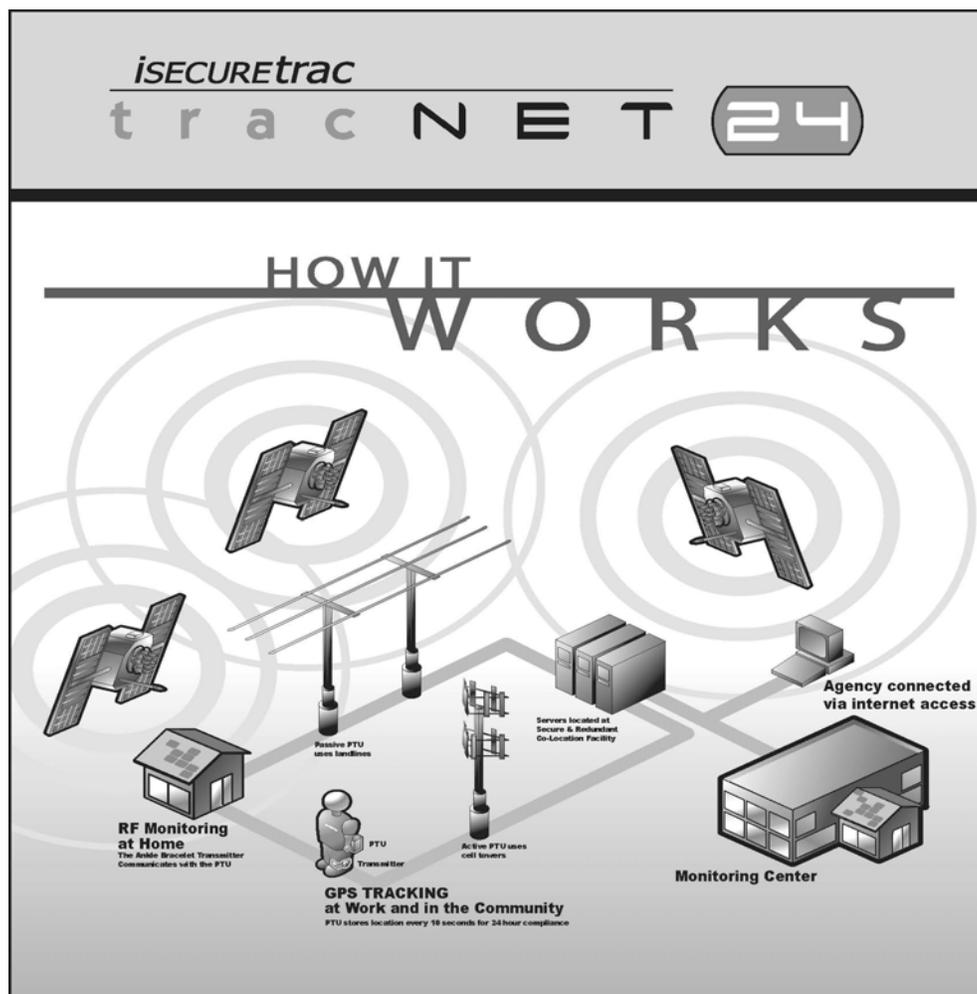


Exhibit 6: iSECUREtrac Diagram, How It Works⁷

The Transmitter Cuff, which is permanently attached around the offender's ankle, contains a battery with a one-year lifespan and gives an alert notice about five days in advance when power is getting low. It has fiber optic cables and an electrical circuit, which create a tamper alert if disrupted by being cut, stretched or otherwise tampered with. The Transmitter communicates with the personal tracking unit (PTU) via radio frequency (RF) and has to be within range for the PTU to detect it. The distance range can vary depending upon a variety of factors, such as electronic or other types of signal disruption or interference, as well as physical barriers. Offenders are instructed to carry the PTU at all times except while at home, when it is placed in the charger base unit or when driving, at which time it is attached to the car window. The purpose of the RF signal is to insure the offender keeps the PTU with him at all times when away from home.

The PTU has a battery that can last up to 30 hours, although they typically last for 16 hours before charging is required. The PTU collects "points" via global positioning systems using satellites in

⁷ iSECUREtrac, "How it Works: GPS Tracking at Work and in the Community," Received from Kori Grosse-Rhode, Director of Customer Support, iSECUREtrac, via email on April 23, 2007.

space. A point is a coordinate of a geographic location. The PTU must be in the direct line of sight of at least three satellites simultaneously to obtain a point. It has a receiver that picks up the radio frequency signal to confirm the offender's proximity. The presence of radio frequency signal, GPS points, and other data such as motion and speed are recorded. The PTU has memory of up to four days. The data it stores is sent to the monitoring center on a regular schedule via cellular connection. If the unit is unable to call out at the designated time, an alert is triggered. Other circumstances that generate an alert will trigger a forced call in addition to the regular call-ins. Every time the unit calls in the data is uploaded onto the vendor website. The unit has to be in cellular range in order to do this. This type of GPS monitoring is referred to as "active monitoring."

Passive monitoring operates in the same manner, with the exception that the charger base unit must be connected to a landline phone. The PTU stores data all day and when put into the charger at night, a call goes out that uploads all the data. This type of monitoring means the website will not have any information until the unit is connected to a landline and makes this call.

BOPP utilized both active and passive GPS monitoring for treatment group offenders. Active monitoring reports offenders' locations in near real-time and provides a history of recent movements. It further provides notification as activities occur throughout the day. Active tracking does not require an active telephone line, but utilizes cellular technology to relay information. BOPP used passive tracking when the cellular service was unreliable in an area or areas where the offender routinely spent a substantial portion of time, such as home or work. Passive tracking stores data throughout the day and reports it when the unit is plugged into a landline phone connection. Notifications are sent when the unit is placed into its charger, which is connected to a land-based phone line and able to complete a call out, instead of near real-time.

Alerts

The GPS Operations Center (GO Center) receives alerts, electronic notification that something out of the ordinary has occurred, from iSECUREtrac via the web-based GPS monitoring software provided by the company. GO Center staff continually view iSECUREtrac's monitoring software using a screen called "Event Viewer," which posts alert notifications as soon as they are uploaded onto the site. iSECUREtrac upgraded the original method of reporting alerts by email through Event Viewer, which has greatly increased the timeliness of alert notices to the GO Center. Monitors investigate the circumstances surrounding the notification in an attempt to clear the alert, by either removing or correcting whatever caused it.

Response to alerts varies by type and severity; however, most alerts require some degree of review by GO Center staff. In some cases, alerts "self clear," meaning that the system resolves them automatically, based on the offender's activity. For example, if the offender entered an inclusion zone such as his home at a time earlier than scheduled, an alert was issued to that effect; however when the scheduled time of arrival came, the alert would self clear since the offender was where he was supposed to be at the proper time. An offender could drive through an exclusion zone, such as a school zone. When the offender entered the zone, the equipment sent an alert, and when he exited the zone, the equipment would self-clear. Neither of these examples would be considered a false alarm or a violation of supervision, but did require GO Center staff to closely monitor what was happening until the self-clear occurred.

GO Center staff may contact the offender directly in an attempt to clear the alert. The GO Center monitors go through a series of steps to either clear the alert or make a determination, based on protocol, whether the circumstances warrant field officer action. Alerts that cannot be cleared from the GO Center are always forwarded to the field officer, and in some cases law enforcement, for further investigation. Several types of alerts may occur: equipment technical alerts, equipment tamper alerts, and location alerts.

Some alerts are caused by the offender's actions: when they do not follow specified equipment procedures, either intentionally or unintentionally. Other alerts are due to environmental factors such as cellular dead spots or the antennae losing line of sight with satellites. Some offenders have unique situations, which are reported to the GO center by the field officer, such as when a curfew violation alert can be disregarded on a specific date due to approved overtime at work. A cuff strap tamper alert might be due to the officer changing out equipment or the equipment may be removed for medical procedures.

Technical alerts typically result from equipment error: such as power loss to the charger, low battery, landline failure, temperature warnings, voltage irregularities, or the equipment failing to complete a scheduled call into the iSECUREtrac monitoring center. Equipment tamper alerts generally indicate that the offender has somehow interfered with normal equipment functioning, including battery tampers, PTU tampers, or cuff strap tampers. These alerts may occur through accidental damage, or the officer changing out the equipment, but may indicate the offender has attempted to disarm, damage, or remove the equipment in some way.

The Green Circle represents an Offender's Inclusion Zone. An Inclusion Zone is an area the offender is restricted to for a scheduled amount of time

The Red Circle represents an Offender's Exclusion Zone. An Exclusion Zone is an area designated "Off Limits". When an Exclusion Zone is entered a violation flag is raised and the Agent is notified when the unit downloads data to the tracNET24 servers.

tracNET24 GPS Tracking

Menu Help Feedback Logout dpetersen

Current Offender
Select Offender
My Offenders
Offender Tools
New Offender
Edit Offender
Notifications
Schedules
New Zone
Edit Zone
PTU Sync
PTU Shutdown

Reports
GPS Tracking
Violation Reports
Violation Notes
History Report
Current Statuses
GPS Losses
PTU Synchronization
Call Problem Report
Assignment Report
Security Report
Active Unit Report
Billing Report
Billing Report Old
Monitoring Center
Productivity

Test 1, Test 1 Start Time: 5/5/2004 9:05:28 PM End Time: 5/20/2004 10:05:28 AM Map

2004-05-18 08:33:32

Click on map to
 Re-center Zoom In Zoom Out RevGeocode

REGION
CITY
STREET
Zoom Scale
Pan Controls

The tracking animation controls work very similar to a VCR. The slider allows the user to move to any point in the animation very easily.

All tracking points show a date time stamp to assist in researching an offender's map. The date time box will follow the tracking path when the animation is in motion.

iSECUREtrac
corp

tracNET24 Animated GPS Mapping

Exhibit 7: iSECUREtrac Web-Based Software, Offender Tracking Screen⁸

⁸ iSECUREtrac, "tracNET24 Animated GPS Mapping," Received from Kori Grosse-Rhode, Director of Customer Support, iSECUREtrac via email on April 23, 2007.

Location alerts are considered the most serious alerts. They occur when offenders enter exclusion zones, leave inclusion zones, or experience a cuff leave. The GPS monitoring software allows officers to electronically input locations where offenders are permitted and are not permitted. For example, officers establish exclusion zones including areas that certain offenders are not legally permitted to go, such as schools, daycare centers, and parks, or a victim’s residence. Offenders may have inclusion zones that require their presence at a specific location at a scheduled date and time, including their home, work place, the Probation and Parole Office, or treatment locations. The software indicates when an offender has entered an area where they are not permitted, as well as indicates when the offender has not arrived at a target inclusion zone as scheduled (failure to arrive on time to work, for example). Cuff leaves occur when the ankle Transmitter has exceeded range from the PTU, which is dependent on environmental factors.

GPS Alerts Received During Pilot Project		
Type of Alert		Number of Alerts Received
Technical Alerts		
	Low Battery Warning	41,688
	Power Loss	9,454
	Cuff Low Battery	163
	Phone Connect Landline Failure	776
Tamper Alerts		
	Battery Tamper	93
	PTU Housing Tamper	464
	Cuff Strap Tamper	685
Violation Alerts		
	Charger Violation	29,453
	Exclusion Zone Violation	4,892
	Inclusion Zone Violation	31,114
	Cuff Leave Violation	102,767
	Equipment did not Call Violation	28,764
	GPS Blocking Violation	8,842
TOTAL		259,155

Exhibit 8: Number of Alerts Received since Project Inception, by Type from September 2005 through October 2006

Violations

BOPP files offender violation reports when an offender has failed to meet standards of supervision in a significant manner that cannot be corrected through intermediate sanctions. Officers submit these violation reports to the releasing authority; the Board of Probation and Parole for parolees; the sentencing Judge for probationers; or to District Attorneys for a new county prosecution for offenders sentenced to community supervision for life. Violations may be technical in nature, the result of a new crime, or both. Technical violations result from offender non-compliance with specified standards of supervision. Some examples of technical violations are: offender does not meet curfew, offender leaves the county or state without permission, or the offender is in possession of alcoholic beverages. Offenders also receive violations when they have a new charge filed against them.

Violation Reports Filed Against GPS Offenders During Pilot Project*					
Violation Type		Number of Violation Reports Filed	Violation Resolution		
			Community Supervision Revoked	Violation Dismissed	Other
Technical Violation		103	56 (48 offenders)	8	39
New Charge		12	2	2	8
Sex offense (occurring prior to GPS start)	2				
Assault offenses	7				
Property crimes	6				
Drug/alcohol offenses	4				
Other (registry, traffic)	7				
Both Technical and New Charge Violations		13	8 (6 offenders)		5
TOTAL		128	66	10	52

Exhibit 9: Number of Violations Received since Project Inception by Type from September 2005 through October 2006, * some offenders have multiple charges

Project Funding

BOPP received an initial \$2.5 million dollar appropriation in fiscal year 2004-05 for GPS offender monitoring. An additional \$1.235 million, which is part of BOPP's base operational budget, was appropriated in fiscal year 2005-06 for project continuation. Project funding does not include personnel expenses and BOPP received no additional positions for project implementation.

Direct Fiscal Impact

To date, BOPP has spent a total of \$1,871,787.96 for the GPS project. GPS equipment costs for the 370-380 offenders daily comprise the largest portion of project expenditures. The contract between BOPP and iSECUREtrac established daily costs for GPS equipment. In fiscal year 2005-06, BOPP paid a daily cost of \$8.40 for active GPS supervision, and \$4.50 for passive supervision. The contract price decreased for fiscal year 2006-07 to \$7.70 for active supervision, and \$4.25 for passive.

As previously stated, BOPP has incurred a significantly increased cost for officer overtime. The following table illustrates the increase in overtime expenditures related to implementation of the GPS project.

BOPP Overtime Expenditures					
	2002-03: Agency-wide	2003-04: Agency-wide	2004-05: Agency-wide	2005-06: GPS Officers ONLY	2006-07: GPS Officers ONLY
BOPP Officer Overtime Expenditures	\$27,800	\$20,000	\$32,600	\$146,215.09	\$197,944.24

Exhibit 10: BOPP Officer Overtime Expenditures

BOPP additionally purchased necessary administrative items during project implementation. BOPP spent a total of \$77,290.93 on cell phones for officers, digital cameras, equipment cases, supplies, and wireless cards for computers.

GPS Project Direct Fiscal Impact	
GPS Equipment Costs for 370-380 Offenders Daily	\$1,450,337.70
Staff Overtime (through March 2007)	\$344,159.33
Administrative Costs	\$77,290.93
Subtotal	\$1,871,787.96
Dedicated Revenues (GPS fees)	\$123,485.00
TOTAL Direct Cost	\$1,748,302.96

Exhibit 11: GPS Direct Fiscal Impact, September 2005 through February 2007

Indirect Fiscal Impact

BOPP has incurred indirect costs as a result of the GPS project as well. Specifically, BOPP staffed the project using existing employees. BOPP reassigned 21 case-carrying officers to the GPS project to supervise offenders (12 PPO2 positions and 9 PPO3 positions). BOPP additionally transferred six existing officer positions from the field to the GPS Operations Center to monitor activity 24 hours a day, seven days each week. BOPP trained other PPO2 staff as sick/training/vacation relief monitors for the GO Center, who volunteer to work overtime shifts in addition to their regular, full-time work assignments. BOPP also devoted the Project Director position to the GPS project full-time. Initially, the Project Director attempted to work on the GPS project on a part-time basis; however, the project required the Director's full attention.

GPS Project Indirect Fiscal Impact	
Probation and Parole Officer Positions	\$310,386.00
GO Center Staff	\$88,926.00
Project Director	\$43,536.00
TOTAL Indirect Cost	\$442,848.00

Exhibit 12: GPS Project Indirect Fiscal Impact

Offender GPS Fee Collections

In addition to standard fees applied to all offenders (supervision and criminal injuries compensation fund), sex offender fees, and applicable fines and/or restitution, GPS offenders are also assessed a monthly GPS fee of \$50.00. To date, BOPP has collected a total of \$123,485, but has spent \$47,290.93 on equipment and supplies using fee dollars, leaving a total of \$76,194.07 in fee collections after expenditures. Some offenders are exempted from paying fees due to an inability to pay.

GPS Fee Collections		
	2005-06	2006-07
GPS Fees Collected	\$64,365.00	\$59,120.00
Fee Dollars Spent for Equipment and Supplies	\$19,358.25	\$27,932.68
Total Fee Collections after Expenditures	\$45,006.75	\$31,187.32

Exhibit 13: GPS Fee Collections, September 2005 through March 31, 2007

Crime Mapping Overlay Function

BOPP and iSECUREtrac made the GPS crime mapping overlay function available to all law enforcement in the pilot counties upon project implementation and again six months after the project began. However, GPS technology is new and may have been perceived as temporary since BOPP's project is in pilot status. Many smaller law enforcement agencies advised that they did not have the computer technology to sufficiently manage the mapping. As such, law enforcement agencies chose to request access to, or assistance with reviewing GPS mapping and data on a case-by-case basis. To date, the arrangement has worked well, however BOPP would prefer that law enforcement agree to overlays upon project continuation, particularly if the project is expanded statewide. BOPP cannot require law enforcement participation.

GPS Pilot Project Assessment: Statistical Analysis

**Statistical Analysis of GPS Data
Collected by the Tennessee Board of Probation and Parole
Statistically Analyzed by the Department of Criminal Justice Administration
Middle Tennessee State University**

In the Summer of 2004, the Chair of the Department of Criminal Justice Administration (CJA) at Middle Tennessee State University began working with the State of Tennessee Board of Probation and Parole (TBOPP) to devise a study for determining if there is a statistically significant difference in the recidivism rates between sexual offenders who have been equipped with GPS (treatment group) and sexual offenders who have not been equipped with GPS (control group). Additionally, variables for the study and general procedures for establishing such a study in Tennessee with treatment and control groups were established in Summer of 2004, months before the project was actually initiated.

TBOPP personnel assigned the subjects to the two groups for study, set up the system for collecting the data, and compiled the data for submission to the CJA Department for statistical analysis. TBOPP submitted the data to the CJA Department in the Spring 2007. The following are the results from the analysis of the data.

The Treatment Group (with GPS) consisted of 493 subjects, and the Control Group (without GPS) consisted of 370 subjects, yielding a total of 863 subjects. Tables 1-27 (see Appendix B) represent demographic and descriptive data of the two groups. Tables 28-33 (see Appendix B) include the statistical analysis between the two groups represented by subgroups of one-year periods.

Results and Recommendations

Results. When the treatment and control groups were statistically compared by their first year of supervision and by the same year of supervision, no statistically significant differences were found in the number of violations, new charges, or in the number of days before the first violations. T-tests, Chi Squares, Mann-Whitney Tests, and Logistic Regression Models were utilized to compare various subgroups and cross-tabulations, but no statistically significant difference was found between the treatment and control groups when testing for number of violations, new charges, convictions, dispositions, or the length of time before the first violation. Due to the following limitations, however, these results should be viewed with caution.

Limitations of the Study. Because random sampling is not generally feasible or possible in this type of study, offenders were not randomly assigned to the treatment and control groups, thus the groups could have sampling errors. When variables of the groups were analyzed, the findings revealed that the treatment and control groups did not significantly differ in age, race, gender, education by years, supervision level, or gender of victims (most were females). The variables of the two groups, however, did significantly differ in other important ways: the sentence types of the two groups differed; the treatment group had a higher percentage of white offenders; the treatment group had a higher educational level; whites were more educated than the minorities in the treatment group; offenders in the control group had committed their initial offenses at a younger age; the age category

31-40 had a higher rate of committing new offenses in the control group; more cases in the treatment group involved victims age 12 or younger while more cases in the control group involved victims ages between 13 and 18; more cases in the treatment group involved family members as victims while more cases in the control group involved acquaintances as victims. The significant differences in these variables between the two groups contribute to the limitations of the study. Ideally, the control group should reflect the identical variables as the treatment group in order to maximize the predictive value of the results. When variables between two groups vary significantly such as these, results may be biased due to assignment of subjects to the groups. Stated simply, conclusions should be viewed as preliminary until further study and analysis can be conducted.

Recommendations. This study yielded statistically significant descriptive and demographic findings, based on subjects from both the treatment and control groups, which are important for the future administration of GPS projects. These are as follows:

- Offenders younger than 40 years old are more likely to commit new offenses while on supervision than are offenders over 40 years old on supervision.
- Offenders in the 30-40 age group are statistically more likely to receive new charges than are other ten-year age groups.
- Offenders with “less than a high school” educational background are more likely to commit new offenses than those offenders with a high school education or higher.

These findings could be useful in determining which offenders are in most need of being equipped with GPS electronic devices should resources be limited.

More data should be collected incorporating all of the above findings in the research design. It is recommended that data be analyzed (annually and cumulatively) at the end of each year for at least five years in order to draw more complete conclusions about the effectiveness of the GPS project. More data over a longer period of time would be more conducive to more advanced statistically analyses and would yield clearer conclusions.

Data analysis supervised and report prepared by Dr. Deborah Wilkins Newman, CJA Chair, MTSU.
Statistical analysis conducted by Dr. Tae Choo, Assistant Professor, CJA, MTSU.

GPS Pilot Project Assessment: Qualitative Analysis by the Tennessee Board of Probation and Parole

GPS tracking devices are a tool and nothing more. They can help trained probation and parole agents monitor offenders, but if they are not coupled with meaningful, court-ordered probation or parole, they are virtually useless. After all, “eyes in the sky” GPS devices can locate a sex offender at a known address... but only “eyes on the ground” can determine whether he is mowing the lawn or babysitting the neighbors’ children.

National Association to Protect Children⁹

BOPP’s “eyes on the ground” have direct experience with GPS monitoring of offenders and can best describe the usefulness and limitations of the technology in supervising Tennessee’s sex offenders. As such, in preparing this report, officers were asked to comment on their experience with GPS monitoring; including benefits, limitations, personal impact, impact on offenders, and suggestions for improving the GPS project, should it be continued. To elicit candid officer response, individual officers are not identified.

Benefits of GPS Offender Monitoring

Although the statistical comparison of GPS- and non-GPS monitored offenders did not yield definitive support for satellite-based monitoring, BOPP has realized some benefits from using GPS, of which decision-makers should be aware. GPS officers overwhelmingly reported that GPS is a positive supervision tool that provides them with greater information in offender supervision. Further, officers indicate that the project enables closer monitoring of sex offenders, and with additional staffing, changes to work assignments, and procedural improvements, GPS will be an even more effective tool in supervision.

***“Without GPS, I feel like someone took away my glasses.
No, I don’t see perfect with them, but it’s better than being blind.”***

Tennessee Probation and Parole GPS Officer

Overall, GPS officers report a positive attitude toward monitoring sex offenders using GPS technology. Officers indicate that supervising sex offenders using GPS provides more information about offender activities and that GPS has “made it much easier to be able to schedule my time more efficiently and be able to monitor more than just offender curfews.”

One officer stated, “If they [offenders] are not on GPS, I simply do not have the time to follow them around. We are here to protect the public and help reduce the number of victims. GPS helps us do that without having to build more prisons. Some of the offenders even like it because it can be used to prove where they are going and they can earn trust faster.”

⁹ National Association to Protect Children, California REAL Safety Coalition, Frequently Asked Questions, <http://www.protect.org/california/realSafetyFAQ.html> (accessed April 12, 2007).

Monitoring Offenders' Daily Activities

Officers report that GPS is a containment tool; it allows them to monitor offenders' daily activities. One officer reported, "GPS lets me know more about what the offender is doing, where they are going, and what their patterns are." The GPS tracking software allows officers to develop an accountability schedule for offenders, and officers can then verify when offenders are or are not meeting their schedule. A GPS officer stated, "When an offender is not on GPS, officers have to rely on the offender being honest about his or her activities and behavior. It takes a significant amount of time to build a case against an offender for violating the terms of their supervision." Moreover, officers can monitor offender accountability schedules of goals and objectives for treatment and employment more readily using GPS.

Information from GPS equipment is near real-time. This enables officers to take appropriate action immediately, as opposed to waiting for an offender to receive a polygraph exam and then obtain and analyze the results.

To illustrate the near real-time monitoring of daily activities, GPS data recently revealed a cuff leave violation for an offender on a holiday. The supervising officer reported to the offender's home to determine the cause of the violation. Upon arrival, the officer observed the offender getting out of a car with his five-year-old niece, the sister of the offender's nine-year-old victim. The officer left the home and immediately contacted law enforcement and the Department of Children's Services. The offender eventually went to prison for violating the conditions of his release.

Establishing and Monitoring Inclusion and Exclusion Zones

Officers establish inclusion zones, which are locations where the offender must be at specific time periods, such as being home at night and at work during the day. Exclusion zones are established for places where offenders are not permitted to enter. For example, one offender was not permitted to be in contact with another person, so the supervising officer established an exclusion zone for the individual's residence. The offender visited the prohibited location and using GPS tracking data, the officer learned of the violation and was able to confront the offender with the evidence. Also during the pilot project, an officer tracked an offender to a park and in the close vicinity of a school. This offender received a violation for not complying with the standards of supervision.

Identifying Patterns of Offender Activity

GPS also allows officers to see specific patterns of activity and then follow-up on frequently visited locations. For example, if an offender stops at the same location everyday after work, officers can determine what is at that location. In one case, the officer determined that an offender was stopping at a convenience store every day on his way home from work. The officer went to the store at that time to determine if the offender was purchasing alcoholic beverages, which are prohibited by supervision standards, or whether the offender was meeting someone at the store.

Tracking data on one offender indicated the offender frequently visited a community center and park in Nashville. The officer was able to track the offender and eventually found him in a restricted residence. The officer filed a violation of probation warrant. The offender's probation was revoked and he is currently incarcerated with the Department of Correction.

By studying daily offender routines, officers can also determine when offenders go places that are “out of the ordinary.” For example, an offender began visiting a new location and the officer questioned the offender about where he was visiting. The offender claimed he was going to his brother’s residence, but GPS data indicated that he was not. The offender admitted to having a new girlfriend and the officer was then able to confirm whether or not children lived at the girlfriend’s residence. These types of patterns, however, are not always immediately identifiable. This pattern variation could be only one set of 300 to 360 GPS points out of 2,100,000 points received in a year. Developing an eye for these subtle changes that could indicate a relapse and potential new offense takes training, experience, and patience.

Potential Deterrent Effect of GPS

Officers are able to show offenders evidence that the officers know where the offenders have been. Some officers report that they have been able to persuade increased offender compliance after seeing the evidence. One officer showed an offender his individual tracking history that revealed the offender had driven a few miles over the speed limit in route to the Probation and Parole Office. While the offender was not violated for speeding, it served as a reminder to the offender that BOPP has detailed information regarding offender daily activities.

Identifying Violation of Supervision Standards

Officers can determine whether offenders have violated specific supervision requirements using GPS data.

- GPS can reveal when an offender has left the county or state without permission. For example, in one case an offender crossed state lines to drag race his car and had a cuff leave while in another state. He also failed to attend treatment with the excuse that he was sick, but tracking data indicated he was moving all over town during the time when he reported to be sick. The tracking information was used, along with other testimony, to have the offender’s probation revoked.
- GPS data also allows officers to consistently verify that offenders are maintaining specified curfews, rather than limited to sporadic random post-curfew home visits.
- It can further alert officers when offenders are having contact with persons they are not permitted to see, or with other offenders. During the pilot project, GPS tracked two sex offenders together. The only time they should be together is at a Probation and Parole Office or at a group treatment meeting. Both offenders received violations for not following supervision requirements.
- GPS can be used to detect deviant behavior, such as consumption of alcoholic beverages, which is not permitted for monitored offenders. Officers found one offender in possession of liquor after an exclusion zone (liquor store) breach. Officers tracked and located another offender inside a sexually oriented adult entertainment establishment.
- GPS enables officers to assess offender work habits. Using GPS tracking data, one officer discovered that an offender was only working two days per week. Additionally, officers learned by reviewing GPS information that several offenders were actively seeking employment as instructed. Officers can record and reprimand offenders for excessive tardiness to work. If corrected, this could positively impact employment retention.

- GPS may help officers determine whether offenders are in compliance with Tennessee Bureau of Investigation sex offender registration requirements.
- Officers have also used GPS to determine when an offender is not truthful about missing a scheduled report to the Probation and Parole Office. For example, one offender missed his report and claimed that he had to work. The officer checked his GPS tracking data and it revealed that he was at home for several hours after he was scheduled to report.

Using Data to Determine Offenders' Criminal Involvement

GPS tracking information allows officers to work with law enforcement agencies to rule out or confirm alleged involvement in criminal activity. For example, in March 2007, a sex offender assigned to community supervision for life, monitored using GPS technology, was arrested for first-degree murder. The offender initially denied knowledge of the crime until confronted with the GPS tracking history. The offender then admitted presence at the crime scene, but did not admit to killing the victim. Law enforcement is currently investigating the murder and the offender was in custody as of April 23, 2007.

Additionally, a cuff leave violation resulted in a post-curfew home visit, where the officer confirmed the offender was not home and had left his PTU at the residence. The offender later admitted to being at the home of his under-age victim during the time. The victim's mother was not home, so without GPS, this visit may have not come to light. The prosecutor declined to pursue a violation due to a lack of evidence and victim cooperation, but the officer is monitoring the offender closely.

Using Data as Investigative Tool for Citizen Complaints

GPS data provides officers with information to investigate and verify citizen claims of inappropriate offender activity. It may also provide officers with a basis for offender questioning. For example, several officers reported that they received claims from victims or citizens indicating specific offenders were visiting the victims' residence, engaged in harassing behavior, and were stalking children. After determining the offender was properly following GPS carry procedures, GPS data enabled officers the ability to determine whether or not the offender was present near the location. If so, the officer investigated the claim further and took appropriate action against the offender. If GPS data revealed that the offender was not near the location, officers were able to narrow the investigation and dismiss the claim as appropriate. In one case, an offender's probation was revoked for three months because officers verified claims with GPS data that an offender had visited their victim's residence.

BOPP received a complaint from a teacher at a nearby school indicating that a suspicious looking vehicle was repeatedly passing by the elementary school playground. BOPP officers used the information and performed a crime scene correlation. No offenders were tracked in the area so officers were able to report that none of BOPP's offenders on GPS were in the area.

Law enforcement also recently received a call from a concerned citizen reporting a license number of a vehicle driving erratically. They determined the car was registered to a sex offender and contacted the supervising Probation/Parole Officer. Using GPS data, the officer determined the offender's current location and provided assistance to the authorities, leading to the offender's arrest for driving

under the influence. The offender had several children in the vehicle at the time of the arrest, resulting in additional charges.

Using GPS Data as Evidence to Releasing Authority

GPS technology provides officers with evidence to present to the releasing authority (Judges or the Board of Probation and Parole) when an offender has violated his or her standards of supervision. Officers indicate that without GPS, violation investigations can be very time consuming, but GPS data is easy to gather and is often more reliable than witness statements.

Verifying Offender Location for Field Visits

Probation and Parole Officers perform home visits on offenders to verify residence, and when supervising sex offenders, to determine whether or not a child is also living at the residence. The web-based monitoring software allows officers to determine whether or not an offender is at home before leaving the office to perform a visit. This means officers do not waste a trip to the residence when the offender may not be at home. Additionally, officers do not have to call the offender before leaving the office, which means the offender does not have prior notice that the officer is making a visit.

Limitations of GPS Offender Monitoring

GPS provides officers with a beneficial tool in monitoring some offenders. However, as the Minnesota Department of Corrections reported in their GPS summary, “it is an aid to supervision and is not capable of eliminating the human element that supervising agents provide (i.e. unannounced visits, direct observation of the presence of pornography or minors in a residence, etc.).”¹⁰

GPS Officers on Call 24 Hours, Seven Days a Week

GPS officers may receive alerts or violation reports requiring immediate response during any time of the day, on weekends or scheduled days off, and on holidays. As such, GPS officers are continuously on-call to respond when necessary. Upon project implementation, BOPP projected neither the high number of staff required for the project, nor did it have adequate staffing resources to assign more officers to the project.

One officer reported working up to 60 hours each week due to GPS alert responses, as opposed to the normal 37.5-hour workweek for non-GPS officers. BOPP has seen burnout and frustration among officers, primarily because of the on-call status. Seasoned sex offender case officers who, for personal reasons (being a single parent, for example), were not able to immediately respond to offender notifications after hours, had to request reassignment to other BOPP duties.

“We [GPS officers] are unable to enjoy our free time off. Our free time is interrupted by alerts from the GO Center. For example, if we are in a movie, we may have to leave and lose our money. We can’t go hiking due to cellular coverage, can’t mow the lawn, we cannot leave the state to visit family

¹⁰ Minnesota Department of Correction, “Electronic Monitoring of Sex Offenders: 2006 Report to the Legislature,” February 2006, p.1.

or friends on our weekend off because of the response time, going out to dinner is often interrupted, and even taking a long bath. We are constantly on edge waiting for our next alert. Concerning our sleep, we may get a call at 2:00 a.m., and by the time we have cleared the later, it is 5:00 a.m. or 6:00 a.m. and we have to get ready to come to the office for our regular scheduled shift. It can be exhausting some weeks.”

To mitigate the negative impact on BOPP staff, field managers have developed back-up GPS officers to cover assigned weeks of the month to allow relief for the primary GPS officers to take vacation and other leave. Even this strategy creates its own set of staffing problems, as the relief officer cannot perform their normal duties while covering for primary GPS officers. This means the relief officers may get behind in their own tasks. Further, relief officers who work GPS cases every few weeks do not have the expertise of the primary GPS officer.

Significant Impact on GPS Officers’ Personal Lives

The continuous on-call status and increased workload has had a significant, negative impact on GPS officers’ personal lives. Specifically, sporadic alert response infringes on officers’ quality time with their families and increases stress to their daily routine. One officer reported, “There is a disruption of the normal routine my household followed, it is effected by unexpected phone calls and my requirement to react to some violations and alerts.” Another officer indicated, “I have had to work a lot more hours, and I do not get to spend as much time with my family. It has raised the stress level that is associated with my job.”

Finally, another GPS officer stated, “Sometimes I want to just turn off my cell phone at night because I’ve already put in a long day, I am tired and just don’t want to have to get up in the middle of the night to deal with something again, but I am terrified if I do, something might happen and everyone would say it was my fault.”

Increased GPS Officer Workload

GPS supervision requires significantly more time and attention than sex offender monitoring without GPS. When new offenders first report to the Probation and Parole Office, GPS officers spend more time with new GPS offenders than non-GPS sex offenders. One GPS officer reports that non-GPS sex offenders require two to three hours for the completion of probation forms, sex offender registration, initial drug screen, and specialized sex offender directives. GPS requires an additional one to two hours to set up the equipment, establish the offender’s account in the GPS tracking software, brief the offender on proper equipment use and care, and complete GPS equipment inventory forms.

Additionally, GPS technology provides officers with an enormous amount of offender data that BOPP officers have not fully been able to utilize during the course of the pilot project. Officers do not have the requisite time to review all of the information they receive. The impact of daily mapping reviews, for example, illustrates the time required to fully review reports. Taking one minute for a cursory look per map to review a week of tracking data to look for trends would take three hours per day, assuming the caseload was limited to 25. This would consume 40 percent of the officers’ workday, without ever leaving the office. One GPS offender could conceivably create 2,100,000 GPS location points in one year. A GPS program with approximately 360 offenders would create 750,000,000 GPS location

points in the same year. This amount of data is unmanageable with creating inclusion and exclusion zones for offenders.

GPS officers report that time management has become an issue in caseload management. Some report that juggling many tasks has meant that something suffers and offenders are not individually supervised as well as they might have been. While tracking is a good tool to have, if the people to operate that tool are busy managing too many tasks, the tool is not used to its full capabilities.

GPS demands officer time when there is an alert, which makes it difficult to plan and implement other tasks. Often, tasks officers planned to do get done are put on hold so that GPS alerts can be cleared and equipment issues resolved. The time officers spend with offenders is often centered on GPS problems and serious supervision issues such as restitution, community service and special condition monitoring get pushed back when time is restricted. Officers often have to choose which task will be done and which task will have to wait, and that can be very dangerous when dealing with this type of caseload. One officer reported, "I know more about the movements of the offender, where he goes and what he does, but I know less about what the offender is thinking and where he might be as far as rehabilitation."

GPS officers have an increased workload, but do not have increased compensation. As currently administered, there is no incentive for officers to volunteer to serve as GPS officers, which requires additional work than regular offender caseloads. BOPP managers report difficulty in recruiting officers with sex offender monitoring experience to work GPS caseloads because of the increased work, but no benefit.

GPS Officer Safety when Responding to Alerts or Violations

Officers frequently receive alerts during the night and law enforcement backup is not always available. Responding to alerts late at night presents a safety issue for Probation and Parole Officers who are not armed. Officers have cellular phones to communicate, but they do not work reliably in all areas of Tennessee. Some GPS officers reported having more face-to-face contact with offenders. They visit offenders' homes and job sites more frequently and offenders tend to spend more time in the Probation and Parole officer during requisite reporting.

While increased offender contact is positive because offenders are aware of the enhanced level of monitoring, increased home visits place officers in dangerous positions in some cases. BOPP has field protocol concerning home visits, which encourages officers to perform home visits in teams or call for police back up. However, staff is not always able to find another officer to accompany them, particularly when responding to late-night alerts when the situations are potentially more dangerous. Law enforcements' ability to respond or respond timely to requests for back up can be limited due to lack of available officers, so Probation and Parole Officers often feel left with choosing between responding quickly and responding safely.

Suitability of GPS for Monitoring Sex Offenders

Officers reported that GPS supervision might not be the most appropriate level of monitoring for all sex offenders. One officer suggested using GPS as an enhanced level of supervision, allowing offenders who have followed the rules and maintain satisfactory treatment records to work their way

off the tracking system. This may also impact overall offender compliance and the volume of alerts, as an offender would have an incentive to comply more closely. Since many alerts do not rise to the level of revocation, some offenders chronically commit minor infractions that trigger alerts (and must be responded to) because they know they are not likely to be sent to prison for being late to work, walking away from their PTU, or “forgetting” to charge their equipment on schedule, for example.

In January 2007, Gable and Gable reported that the appropriateness of electronic monitoring (including GPS) varies by offender characteristics.¹¹ Specifically, electronic monitoring (EM) is generally not likely to significantly reduce recidivism beyond normal probation supervision for first-time, low-risk offenders. Electronic monitoring may slightly impact offender compliance for those classified as low-to-moderate risk. Most important, the authors report, “More intense and prolonged use of EM is appropriate for offenders presenting a moderate of high level of risk.”¹² Their analysis found that re-offending is significantly decreased during monitoring.

Further, Lowenkamp and Latessa found that lower risk offenders who are supervised at enhanced levels re-offend more frequently and have an overall higher recidivism rate than similar offenders supervised at lower risk levels.¹³ While identifying any sexual offender as low-risk is seemingly contradictory, concentrating significant resources on those offenders could unintentionally result in an increase in the number of new sexual crimes.¹⁴

BOPP recently employed the use of the Rapid Risk Assessment for Sex Offender Recidivism (RRASOR)¹⁵ Instrument to determine individual sex offenders’ risk of re-offending. BOPP may determine offender suitability for GPS monitoring using the risk assessment scores in an attempt to place the most serious offenders and better target available resources. The RRASOR instrument gathers static data: prior offense, age at release, victim gender, and offender relationship to victim. Should the GPS project be continued, BOPP will assess other instruments that are more dynamic, assessing offenders’ current activities and compliance, along with the offender’s statistical likelihood to re-offend.

Reactive versus Proactive Monitoring

According to Delson, “GPS is not a device that will prevent sexual crimes from occurring, however, but rather than a promising new technology whose goal is sex offender supervision, management, and control.”¹⁶ BOPP is currently using GPS as a tool to show what happened in the past, as opposed to a crime prevention tool. GPS frequently reveals time sensitive information that officers must respond to immediately. Without adequate personnel to address that information in a timely manner, the benefits of GPS tracking data are not fully realized. Officers report that GPS is a useful tool in offender

¹¹ Robert S. Gable and R. Kirkland Gable, “Increasing the Effectiveness of Electronic Monitoring,” *Perspectives*, Winter 2007, pp. 25-29.

¹² *Ibid.*, p. 25.

¹³ Christopher T. Lowenkamp and Edward J. Latessa, “Understanding the Risk Principle: How and Why Correctional Interventions can Harm Low-Risk Offenders,” *Topics in Community Corrections, Annual Issue, 2004: Assessment Issues for Managers*, 2004, pp. 3-8.

¹⁴ *Ibid.*

¹⁵ R. Karl Hanson, Department of the Solicitor General of Canada, “The Development of a Brief Actuarial Scale for Sexual Offense Recidivism,” 1997.

¹⁶ N. Delson, “Using Global Positioning Systems (GPS) for Sex Offender Management,” *ATSA Forum*, Volume 18, Number 3, pp.24-30.

monitoring, but the tool becomes less effective and the data becomes historical when staff do not have time to investigate leads.

GPS Equipment Distribution, Operation, and Maintenance

GPS officers spend a significant amount of time working with GPS equipment instead of working with offenders. According to one GPS officer, “The main problem I have with GPS is the hardware. If an offender’s PTU is not working properly, I have to change out the PTU. It is time consuming. It can take up to one hour to hook an offender up to a PTU. Many times the new PTU is not working properly, so I have to start the process all over again. This interferes with my schedule of offenders I have to see, paperwork, warrants, violations, court home checks, etc.”

When equipment is not functioning properly, officers must make contact with the offenders (in the field or in the office). At times, troubleshooting a technical problem can be a time-consuming process. According to one officer, “I get angry and frustrated when the equipment fails to work. I am constantly tired from getting calls at midnight or from having to go out and work on GPS equipment at the end of a long day.” Not only does this put our officers at danger by having to go in the field, it can create a stressful situation for the offenders. Some offenders have lost their jobs as a result of tardiness or absence because they must report to their officer to have equipment issues resolved.

Most officers report that iSECUREtrac has been very helpful and responsive to any problems that have come up. One officer reported that he spends the majority of his time addressing equipment problems, rather than using the GPS monitoring data to supervise the offender. Other officers have suggested employing staff whose primary responsibility is working with the equipment. This would allow some staff to become very proficient in troubleshooting, so that it is less time consuming and free other staff to concentrate on GPS data analysis and/or other aspects of the offender’s supervision.

Some officers have come to regard leave alerts as potentially unreliable and are not comfortable using the information to pursue an offender evocation. It is possible to get a cuff leave alert, and upon officer investigation, find that the offender is within the proper range, at least by the time the officer arrives. A cuff leave can be caused by environmental factors other than offender non-compliance, particularly when it is in the charger base at the offender’s home and the offender is in a separate area of the home. The high number of cuff leaves and the assumption that they are environmentally rather than offender-caused, could lead officers to not take the alerts seriously. Technological advancements purportedly increase GPS equipment’s ability to overcome environmental factors, which will hopefully reduce this issue significantly in the future.

Officers are trained to take cuff strap alerts seriously because of the possibility that they can indicate that an offender has attempted to remove the strap. Experience indicates that in many instances the nature of the tamper is not readily apparent. A tamper can result from offender manipulation such as attempting to stretch it, whether as an attempt to get it off over the ankle without cutting, or just “get more comfortable.” Offender non-compliance with instructions, such as swimming or prolonged submersion while bathing could also trigger an alert. Such damage to the cuff is not always immediately discernible and can give the appearance of being a false alarm.

When preparing a case for a probation violation on an offender for not actively seeking employment, one officer stated that there were several stretches of time where the equipment had no tracking data.

On another case, officers received a vandalism report in the area where one offender lived. The police department provided a time and location of the incident and the GPS officer checked the tracking data. While the tracking showed the offender leave his house near that time, the tracking stopped before he got to the address and started working again 15 minutes later and the offender was miles away. These types of issues occur when the PTU is not in the satellites direct line of sight. While commonly due to the offender's failure to follow proper carry procedures, particularly not placing the unit in the window clip while driving or deliberately masking or covering the PTU, it can occur on occasion for reasons not under the offender's control such as tall buildings, tunnels, or temporary loss of sight due to angle of unit. For this reason, it is important to confirm not only which offenders' tracks appear at a site, but also that the offender has location points at other sites when attempting to eliminate GPS offenders as suspects for specific incidents.

Field technicians extensively trained in field troubleshooting, equipment installation and equipment replacement would drastically improve officers' supervision capabilities. Additionally, staff specializing in equipment operation could recognize limitations inherent to the technology. Other staff extensively trained in the analysis of the GPS data would improve the ability to more accurately interpret GPS data.

Other states contacted indicate that equipment issues and/or technological limitations span across the industry, and do not appear limited to any particular vendor. Industry-wide equipment issues may be related to the fact that satellite-based monitoring technology is still very new, although advancements are being made and it is evolving at a fast pace. Even during the brief period of the pilot project, some limitations of the technology have been improved, with further substantial improvements anticipated. BOPP required in the contract that the latest technology should be made available to the state at no additional cost.

Offender Equipment Compliance

Officers report that offenders experience many equipment problems during the first few months they are monitored using GPS. This is because it often takes offenders some time to fully understand how the equipment works and how to use it properly. Additionally, there are some offenders "who plainly do not intend to wear the GPS equipment as specified." Staff indicate several offenders have tampered with the equipment and have found offenders who have gone to websites related to "beating" GPS equipment. BOPP has had one offender who had ten different bracelets fail, one after the other, while some offenders had no failures at all, indicating some form of tampering which was never quite figured out. Further, one offender apparently managed to remove the transmitter from his ankle without cutting, stretching, or greasing the strap.

The lack of offender repercussions for not complying with equipment instructions is a significant problem related to the GPS project. Courts in some districts have declined to violate offenders for failure to carry the GPS equipment properly, so BOPP had no recourse for offender non-compliance.

Credibility of GPS Tracking Data as Evidence

Some Judges and District Attorneys have been hesitant to accept GPS-based evidence of violation in court due offender allegations of technical problems with the GPS equipment. Several warrants have been dismissed in court throughout the GPS pilot project because GPS data alone was not accepted as

sufficient evidence to substantiate a violation. BOPP's contract provides that the vendor will supply expert witness testimony, which iSECUREtrac has done, but the court must then recognize the testimony. Although these issues may present some current frustration, as the technology is better understood and more widely accepted, BOPP anticipates its acceptance (or lack thereof) in some courts will become less problematic over time.

GPS Project Training

BOPP officers indicate a desire for more GPS related training. Further, officers indicate that training for parties external to BOPP may be helpful, as many agencies are not aware of how the equipment works or what information it can provide. Specifically, the availability of training for Judges, District Attorneys, Defense Attorneys, law enforcement agencies, and correctional entities may increase overall awareness and acceptance of the project.

Impact on Offenders

Anecdotal information suggests that GPS monitoring has an impact on monitored offenders' daily activities. Some officers report morale issues for offenders that were previously in compliance with supervision standards, who now feel additionally punished because GPS has been added to their supervision requirements.

Officers raised offender safety as an area of concern. Shortly after the GPS project was put into place and was covered by news media, one offender reported that he had been verbally assaulted in the parking lot of a retail store. He alleged that a random male approached him saying, "I know what that is, I know who you are," and pointed to the PTU. The offender felt threatened and felt that he would have been physically harmed had he not immediately removed himself from the situation.

GPS officers also report that some offenders have been denied employment because of the GPS monitoring equipment, and some offenders report that their employers have not allowed them to bring the GPS equipment into the workplace. As employment is a critical factor in offender success in the community,¹⁷ this is an area of concern for BOPP.

During the pilot, numerous sex offender treatment providers reported their group therapy sessions were not as productive because of the amount of time spent dealing with offenders' frustrations with GPS and they perceived GPS as an ever-increasing level of punishment not related to their compliance.

In addition to existing fees, GPS offenders are required to pay \$50.00 each month, unless exempted by the releasing authority. The additional charge has placed a strain on some GPS offenders. Some officers reported that sex offenders moved out of the county, and one out of the state upon learning of GPS supervision requirement and the associated fee.

Some indigent offenders cannot afford a landline telephone and/or live in areas with no cellular phone coverage. Additionally, some situations arose when offenders' family members' would not relinquish the telephone line for the unit to call in. This leads to increased alerts when the equipment is unable to

¹⁷ Joan Petersilia, "Parole and Prisoner Reentry in the United States, *Crime and Justice*, Volume 26, 1999, pp. 479-529.

communicate as scheduled. GPS officers also have no way to reach offenders that have neither cell phones or a home phone to instruct them on how to clear alerts, which creates additional work for officers.

GPS monitoring is also problematic for the homeless, offenders living without electricity, or offenders living in shelters and/or group homes. Illiterate offenders may not be suited for using the PTU equipment that offers LED display of instructions, which reduces the need for officer intervention. Some offender shave a lower level of mental functioning and have not been able to meaningfully comprehend and eventually follow proper equipment procedures.

Other States and GPS Monitoring

Tennessee is not alone in using technological advancement to monitor offenders. BOPP conducted an informal survey of the other 49 states to determine whether other states were using GPS technology; and if so, to learn about the other states’ projects and their level of success. Additionally, the Interstate Commission for Adult Offender Supervision conducted a state survey in April 2007. Exhibit 14 contains combined survey results.

Of the 49 states reporting, 35 other states indicated they use GPS technology to monitor offenders. Of those who have immediate response to alerts, 13 states utilize armed field officers in responding and 11 also have arrest authority. The most common issues other states experience related to GPS are additional workload and cost. Other states also reported equipment problems that are not specific to any vendor in particular. Seven of the responding states use a central monitoring center to field alerts and violation notification; five have on-call officers that receive the alerts, and three use specialized response units or law enforcement. Those states not using monitoring centers tend to be smaller programs and/or supervise very few offenders per officer using GPS.

Other States use of GPS Offender Monitoring					
State	GPS Project	Offenders On GPS	Average GPS Caseload	Alert Processing	GPS Vendor
Alabama	No	N/A	N/A	N/A	N/A
Alaska	No	N/A	N/A	N/A	N/A
Arizona	Yes	15	Not reported	Central Monitoring Center	Pro Tech
Arkansas	No	N/A	N/A	N/A	N/A
California	Yes	1,100	Not reported	Not reported	STOP, LLC
Colorado	Yes	200	Not reported	Not reported	Not reported
Connecticut	Yes	100+	23	Sent directly to officers (text message/email)	Pro Tech
Delaware	No	N/A	N/A	N/A	N/A
Florida	Yes	1,100	Not reported	Sent directly to officers (text message/email)	iSECUREtrac & Pro Tech
Georgia	Yes	170	Not reported	Not reported	Pro Tech
Hawaii	No	N/A	N/A	N/A	N/A
Idaho	Yes	30	Not reported	Not reported	Pro Tech & Secure Alert
Illinois	Yes	200	3 – 5	Central Monitoring Center	BI, Inc.
Indiana	Yes	Not reported	Not reported	Not reported	E.I.
Iowa	Yes	454	Not reported	Not reported	Pro Tech & G4S
Kansas	Yes	340 – 355	25 – 30	Sent directly to officers (text	Rocky Mountain

				message/email)	Offender Mgmt System
Kentucky	No	N/A	N/A	N/A	N/A
Louisiana	Yes	100	Not reported	Not reported	G4S
Maine	Yes	3	Not reported	Not reported	Pro Tech
Maryland	Yes	Not reported	Not reported	Central Monitoring Center	Not reported
Massachusetts	Yes	250	Not reported	Central Monitoring Center	Sentinel Services
Michigan	Yes	Not reported	Not reported	Not reported	Pro Tech
Minnesota	No	N/A	N/A	N/A	N/A
Mississippi	No	N/A	N/A	N/A	N/A
Missouri	Yes	20	5 – 7	Central Monitoring Center	G4S
Montana	Yes	Not reported	Not reported	Not reported	Pro Tech
Nebraska	Yes	20	Not reported	Sent directly to officers (text message/email)	iSECUREtrac
Nevada	No	N/A	N/A	N/A	N/A
New Hampshire	Yes	3	Not reported	Not reported	Sentinel Services
New Jersey	Yes	142	Not reported	Not reported	BI, Inc. & iSECUREtrac
New Mexico	Yes	250 – 300	5 – 10	Sent directly to officers (text message/email)	Pro Tech
New York	Yes	Not reported	Not reported	Not reported	Varies, no universal vendor
North Carolina	Yes	50	Not reported	Sent directly to officers (text message/email)	Pro Tech
North Dakota	Yes	20	Not reported	Not reported	Sentinel Services
Ohio	Yes	25	Not reported	Sent directly to officers (text message/email)	Varies, no universal vendor
Oklahoma	No response				
Oregon	Yes	Not reported	Not reported	Not reported	Varies, no universal vendor
Pennsylvania	Yes	40	Not reported	Not reported	Pro Tech
Rhode Island	No	N/A	N/A	N/A	N/A
South Carolina	Yes	30	1 – 2	Sent directly to officers (text message/email)	iSECUREtrac, BI, Inc., Secure Alert
South Dakota	Yes	3	Not reported	Not reported	iSECUREtrac
Tennessee	Yes	375	20	Central Monitoring Center	iSECUREtrac
Texas	Yes	Not reported	Not reported	Central Monitoring Center	Pro Tech & G4S
Utah	Yes	25	Not reported	Not reported	Secure Alert
Vermont	No	N/A	N/A	N/A	N/A
Virginia	Yes	50	Not reported	Not reported	iSECUREtrac
Washington	Yes	10	Not reported	Not reported	Pro Tech
West Virginia	No	N/A	N/A	N/A	N/A
Wisconsin	No	N/A	N/A	N/A	N/A
Wyoming	No	N/A	N/A	N/A	N/A

Exhibit 14: Other States Use of GPS Offender Monitoring¹⁸

¹⁸ Tennessee Board of Probation and Parole, Telephone Survey of Other States and GPS Technology, conducted in February and March 2007, and Interstate Commission for Adult Offender Supervision, “GPS Update Survey,” April 2007, http://www.interstatecompact.org/resources/surveys/survey_results/SexOffender_GPS_Update_042007.pdf (accessed April 24, 2007).

Additionally, some states and even other countries have contacted and visited BOPP to look at the GO Center and see how BOPP operates the GPS project. BOPP provided tours during the American Probation and Parole Association and American Correctional Association conferences. Representatives from South Carolina, Kentucky, Arkansas, and Louisiana have all visited Tennessee. Further, Missouri, Wisconsin, Rhode Island, Florida, Kentucky, Maine, Oregon, South Dakota, South Africa, Singapore, Great Britain, Jamaica, and Colombian governments have all contacted BOPP for project information.

More and more states are considering using GPS technology to monitor sex offenders. The National Conference of State Legislatures reported that state legislatures passed over 100 bills related to sex offenders in 2005¹⁹ and that 22 states passed legislation requiring or authorizing GPS monitoring of sex offenders.²⁰ Stateline.org lists sex offenders as one of twelve public policy “Issues to Watch” in 2006,²¹ and Fox News reported that legislators in at least 17 states had considered GPS monitoring as part of “Jessica’s Law” legislation.²²

¹⁹ National Conference of State Legislatures, “Criminal Justice Report: State Crime Legislation in 2005,” February 2006.

²⁰ National Conference of State Legislatures, “Criminal Justice Report: State Crime Legislation in 2006,” January 2007.

²¹ Gene Gibbons, “State of the States: 2006 Policy Development and Trends: A Stateline.org Report.”

²² Hannah Sentenac, “More States Move to Use GPS Tracking of Sex Offenders, *Fox News*, May 31, 2006, http://www.foxnews.com/printer_friendly_story/0,3566,196455,00.html (accessed March 22, 2007).

GPS Pilot Project Conclusions

MTSU's statistical analysis concluded that when the treatment and control groups were statistically compared by their first year of supervision and by the same year of supervision, no statistically significant differences were found in the number of violations, new charges, or in the number of days before the first violations.

Although the empirical analysis did not yield definitive support for satellite-based monitoring, BOPP's pilot project indicates that GPS provides officers with a unique supervision tool and has potential in aiding officers greatly. GPS officers overwhelmingly reported that GPS is a positive supervision tool that provides them with greater information in offender supervision. Further, officers indicate that the project enables closer monitoring of sex offenders, and with additional staffing, changes to work assignments, and procedural improvements, GPS will be an even more effective tool in supervision.

Some individual incidents reveal the usefulness of satellite-based offender monitoring. Specifically, BOPP filed 133 violations reports on 99 offenders during the pilot project. 31 percent (41) of these reports were filed as a result of GPS information. Of these, officers issued 103 technical violation reports for instances where offenders violated their standards of supervision. GPS technology revealed the circumstances eliciting the violation in 20 percent (30) of the total number of technical violation reports filed during the pilot period. During the pilot project, technical violations were issued for the following activities:

- Drug use;
- Failure to pay fees;
- Failure to attend treatment;
- Failure to appear for a polygraph examination;
- Having minors in the home;
- Making false reports to Probation and Parole officers;
- Failure to pay court costs;
- Absconding;
- Removal, destruction, and/or loss of GPS equipment;
- Changed residence without permission;
- Failure to maintain employment;
- Residing within 1,000 feet of a school;
- Leaving the state without permission;
- Failure to report to Probation and Parole Officer;
- Possession of pornography;
- Contact with victim;
- Contact with children;
- Presence in a prohibited location;
- Possession of weapons;
- Use of alcohol; and
- Curfew violation.

BOPP issued 12 violation reports for new charges. GPS technology revealed the circumstances eliciting the new charges in 17 percent (3) of the total number of new charges during the pilot period. Some new charges filed against offenders during the pilot project were:

- Violation of TBI's sex offender registration law;
- Domestic assault;
- Resisting arrest;
- Theft under \$500;
- Tattooing a minor;
- Positive drug screens;
- Aggravated cruelty to an animal;
- Cut GPS strap;
- Theft of property;
- Rape of a child (This new arrest was for an offense that allegedly occurred three years ago and the victim only recently came forward. The alleged crime did not occur while the offender was monitored using GPS, but the arrest occurred during the pilot project.);
- Absconding;
- Vandalism over \$2000;
- Traffic Offenses;
- Driving without a license
- Criminal impersonation; and
- A multiple count indictment for: Aggravated Sexual Battery, Sexual Battery, Attempted Sexual Battery by an authority figure, Attempted Rape, Rape, Rape of Child (This multiple count indictment was for one offender for offenses occurring between 1995 and 2003, none while on GPS).

BOPP issued 13 violation reports for a combination of both technical and new charges. GPS revealed 62 percent (8) of these violation reports. In some cases, BOPP cannot prove that a crime was prevented, but GPS assisted in the detection of the offender's violation.

BOPP officers found several benefits of using GPS technology to monitor sex offenders:

- **Officers report that GPS is a containment tool; it allows officers to monitor offenders' daily activities.**
- **Officers establish and monitor inclusion zones, which are locations where the offender must be at specific time periods, such as being at home at night and at work during the day. Exclusion zones are established for places where offenders are not permitted to enter and are also monitored using tracking data.**
- **GPS allows officers to see specific patterns of activity and then follow-up on frequently visited locations.** By studying daily offender routines, officers can also determine when offenders go places that are "out of the ordinary."
- **GPS may deter offenders from engaging in deviant or criminal activity.** GPS officers are able to show offenders evidence that the officers know where the offenders have been. Some officers report that they have been able to persuade increased offender compliance after seeing the evidence.
- **Officers can determine whether offenders have violated specific supervision requirements using GPS data.** GPS can reveal when an offender left the county or state

without permission, monitor curfews, offender contacts, work habits, and compliance with TBI sex offender registration requirements, for example.

- **GPS tracking information allows officers to work with law enforcement agencies to rule out or confirm alleged involvement in criminal activity.**
- **GPS data provides officers with information to investigate and verify citizen claims of inappropriate offender activity.** It may also provide officers with a basis for offender questioning.
- **GPS technology provides officers with evidence to present to the releasing authority (Judges or the Board of Probation and Parole) when an offender has violated his or her standards of supervision.** Officers indicate that without GPS, violation investigations can be very time consuming, but GPS data is easy to gather and is often more reliable than witness statements.
- **The web-based monitoring software allows officers to determine whether or not an offender is at home before leaving the office to perform a visit.** Probation and Parole Officers perform home visits on offenders to verify residence, and when supervising sex offenders, to determine whether or not a child is also living at the residence. Additionally, officers do not have to call the offender before leaving the office, which means the offender does not have prior notice that the officer is making a visit.

GPS offender monitoring also has some limitations discovered during the pilot project:

- **BOPP's GPS pilot project is not adequately staffed, placing undue strain on GPS officers, professionally and personally.**
 - **GPS officers may receive alerts or violation reports requiring immediate response during any time of the day, on weekends or scheduled days off, and on holidays.** As such, **GPS officers are continuously on-call to respond when necessary.** Upon project implementation, BOPP projected neither the high number of staff required for the project, nor did it have adequate staffing resources to assign more officers to the project.
 - **The continuous on-call status and increased workload has had a significant, negative impact on GPS officers' personal lives. Specifically, sporadic alert response infringes on officers' quality time with their families and increases stress to their daily routine.** The increased stress-level has contributed to the increase in staff turnover.
- **GPS supervision requires significantly more time and attention than sex offender monitoring without GPS.** When new offenders first report to the Probation and Parole Office, GPS officers spend more time with new GPS offenders than non-GPS sex offenders. Additionally, GPS technology provides officers with an enormous amount of offender data that BOPP officers have not fully been able to utilize during the course of the pilot project. GPS officers have an increased workload, but do not have increased compensation. As currently administered, there is no incentive for officers to volunteer to serve as GPS officers, which requires additional work than regular offender caseloads.
- **Officers frequently receive alerts during the night and law enforcement backup is not always available. Responding to alerts late at night presents a safety issue for Probation and Parole Officers who are not armed.**
- **Officers reported that GPS supervision might not be the most appropriate level of monitoring for all sex offenders. Previous research supports this finding.**

- **BOPP is currently using GPS as a tool to show what happened in the past, as opposed to a crime prevention tool.** Without adequate personnel to address that information in a timely manner, the benefits of GPS tracking data are not fully realized. Officers report that GPS is a useful tool in offender monitoring, but the tool becomes less effective and the data becomes historical when staff do not have time to investigate leads.
- **GPS officers report that they spend a significant amount of time working with GPS equipment, instead of working with offenders.**
- **Officers report that offenders experience many equipment problems during the first few months they are monitored using GPS and supervise some offenders “who plainly do not intend to wear the GPS equipment as specified.”** Staff indicates several offenders have tampered with the equipment and have found offenders who have gone to websites related to “beating” GPS equipment. The lack of offender repercussions for not complying with equipment instructions is a significant problem related to the GPS project. Courts in some districts have declined to violate offenders for failure to carry the GPS equipment properly, so BOPP had no recourse for offender non-compliance.
- **Some Judges and District Attorneys have been hesitant to accept GPS-based evidence of violation in court, due to offender allegations of technical problems with the GPS equipment.** Several warrants have been dismissed in court throughout the GPS pilot project because GPS data alone was not accepted as sufficient evidence to substantiate a violation.
- **BOPP officers indicate a desire for more GPS-related training. Further, officers indicate that training for parties external to BOPP may be helpful, as many agencies are not aware of how the equipment works or what information it can provide. Specifically, the availability of training for Judges, District Attorneys, Defense Attorneys, law enforcement agencies, and correctional entities may increase overall awareness and acceptance of the project.**

Anecdotal information suggests that GPS monitoring also has an impact on monitored offenders’ daily activities. Some officers report morale issues for offenders that were previously in compliance with supervision standards, who now feel additionally punished because GPS has been added to their supervision requirements. Additionally, offender safety, employment denial, disrupted group therapy sessions, additional fees, housing issues, and telephone connectivity are all issues surrounding project impact on offenders.

Because GPS officers are on-call 24 hours per day, seven days a week, BOPP’s current staffing pattern for the pilot project is not sustainable. A team monitoring approach to caseload management and implementation of shift assignments would reduce stress on case officers, reduce the need for overtime, improve service delivery, and reduce staff turnover. A reduction in staff turnover would also enhance the agency’s proficiency with GPS through increased officer experience.

GPS monitoring is not appropriate for all sex offenders included in the pilot project. MTSU’s research yielded statistically significant descriptive and demographic findings, based on subjects from both the treatment and control groups, which are important for the future administration of GPS projects. These are as follows:

- Offenders younger than 40 years old are more likely to commit new offenses while on supervision than are offenders over 40 years old on supervision.

- Offenders in the 30-40 age group are statistically more likely to receive new charges than are other ten-year age groups.
- Offenders with “less than a high school” educational background are more likely to commit new offenses than those offenders with a high school education or higher.

These findings could be useful in determining which offenders are in most need of being equipped with GPS electronic devices, should resources be limited. In 2005, Levenson reported “classification systems allow limited resources to be used more cost-efficiently to monitor, treat, and restrict highly dangerous offenders without unnecessarily disrupting the stability of lower risk offenders and their families.”²³ Officers additionally reported that GPS supervision might not be the most appropriate level of monitoring for all sex offenders. Research indicates that lower risk offenders who are supervised at enhanced levels re-offend more frequently and have overall higher recidivism rates than similar offenders supervised at lower risk levels.²⁴

Rather than monitor all offenders in a given district, a tiered approach based on established criteria for determining individual offender suitability may maximize resources. One officer suggested using GPS as an enhanced level of supervision, allowing offenders who have followed the rules to work their way off the tracking system.

BOPP recently employed the use of the Rapid Risk Assessment for Sex Offender Recidivism (RRASOR)²⁵ Instrument to determine individual sex offenders’ risk of re-offending. BOPP may determine offender suitability for GPS monitoring using the risk assessment scores in an attempt to place the most serious offenders and better target available resources. The RRASOR instrument gathers static data: prior offense, age at release, victim gender, and offender relationship to victim. Should the GPS project be continued, BOPP will assess other instruments that are more dynamic, assessing offenders’ current activities and compliance, along with the offender’s statistical likelihood to re-offend.

Tennessee is not alone in using advanced technologies to monitor offenders. Of the 49 states reporting, 35 other states indicated they use GPS technology to monitor offenders. Of those who have immediate response to alerts, 13 states utilize armed field officers in responding, and 11 also have arrest authority. The most common issues other states experience related to GPS are additional workload and cost. Other states also reported equipment problems that are not specific to any vendor in particular. Seven of the responding states use a central monitoring center to field alerts and violation notification; five have on-call officers that receive the alerts, and three use specialized response units or law enforcement. Those states not using monitoring centers tend to be smaller programs and/or supervise very few offenders per officer using GPS.

The GPS pilot project lasted one year, which is not long enough to truly assess the project’s impact on offender behavior. Longitudinal analysis will provide a more thorough picture of the successfulness of GPS as a supervision tool. MTSU concluded that: “More data should be collected incorporating all of the above findings in the research design. It is recommended that data be

²³ Jill Levenson, Ph.D., “Sex Offender Residence Restrictions: A Report to the Florida Legislature,” October 2005, p.7.

²⁴ Christopher T. Lowenkamp and Edward J. Latessa, “Understanding the Risk Principle: How and Why Correctional Interventions can Harm Low-Risk Offenders, *Topics in Community Corrections, Annual Issue, 2004: Assessment Issues for Managers*, 2004, pp. 3-8.

²⁵ R. Karl Hanson, Department of the Solicitor General of Canada, “The Development of a Brief Actuarial Scale for Sexual Offense Recidivism,” 1997.

analyzed (annually and cumulatively) at the end of each year for at least five years in order to draw more complete conclusions about the effectiveness of the GPS project. More data over a longer period of time would be more conducive to more advanced statistical analyses and would yield clearer conclusions.”

Recommendations

The Governor and General Assembly may wish to consider the continuation of global positioning system monitoring of offenders in the State of Tennessee. GPS offers Probation and Parole Officers a unique supervision tool in offender monitoring.

The Tennessee Board of Probation and Parole respectfully requests additional staff should the GPS project be continued and additional operating dollars if the project is expanded. Additional Officers are necessary to decrease strain among existing GPS officers. Field technicians extensively trained in field troubleshooting, equipment installation and equipment replacement would drastically improve officers' supervision capabilities. BOPP needs more staff to fully utilize GPS capabilities. Additional staff could allow GPS officers an opportunity to intensely analyze tracking data, which may increase the impact that GPS monitoring has on offender success.

The Tennessee Board of Probation and Parole should establish criteria for determining individual offender suitability to GPS supervision. Further, the Board should use a tiered monitoring approach to maximize resource expenditures. BOPP recently employed the use of the Rapid Risk Assessment for Sex Offender Recidivism (RRASOR)²⁶ Instrument to determine individual sex offenders' risk of re-offending. BOPP may determine offender suitability for GPS monitoring using the risk assessment scores in an attempt to place the most serious offenders and better target available resources. The RRASOR instrument gathers static data: prior offense, age at release, victim gender, and offender relationship to victim. Should the GPS project be continued, BOPP will assess other instruments that are more dynamic, assessing offenders' current activities and compliance, along with the offender's statistical likelihood to re-offend.

The Tennessee Board of Probation and Parole should assess optimal staffing approaches to reduce strain on GPS officers. Such approaches may include a team approach to offender monitoring offenders and/or involve shift work for responding to alerts.

The Tennessee Board of Probation and Parole should further consider officer safety and obtain additional safety equipment for GPS officers, including radio equipment for communication.

The Tennessee Board of Probation and Parole should continue officer training. Additionally, the Board should more actively pursue training and/or GPS information distribution for Judges, District Attorneys, Defense Attorneys, law enforcement agencies, correctional staff, and other interested parties outside the agency.

The Tennessee Board of Probation and Parole should continue study of global positioning systems as a supervision tool, if the project is continued. Longitudinal analysis will provide a more thorough picture of the successfulness of GPS as a supervision tool.

²⁶ R. Karl Hanson, Department of the Solicitor General of Canada, "The Development of a Brief Actuarial Scale for Sexual Offense Recidivism," 1997.

GPS Staff Listing

CENTRAL OFFICE

Bo Irvin, Executive Director
Gary Tullock, Director of Field Services
Kirk Smith, GPS Project Director
Rhonda Cymbala, Administrative Services Assistant
Robert Nethery, Administrative Services Assistant
Mark Himmelreich, Middle Tennessee State University Intern
Christopher Blake Davis, Middle Tennessee State University Intern

GPS OPERATIONS CENTER

Susan Shettlesworth, Probation and Parole Manager
Randy Smith, Probation and Parole Officer, Lead Monitor
Cathy Davis, Probation and Parole Officer, Monitor
Erin Dawson, Probation and Parole Officer, Former Monitor
Sherrie Hughey, Probation and Parole Officer, Monitor
Cheryl Jackson, Probation and Parole Officer, Former Monitor
Jeff Kelly, Probation and Parole Officer, Monitor
Charlotte Mann, Probation and Parole Officer, Relief Monitor
Sherriell Scott, Probation and Parole Officer, Relief Monitor
Karen Smith, Probation and Parole Officer, Relief Monitor
Dayna Stark, Probation and Parole Officer, Relief Monitor

BLOUNTVILLE (Sullivan County)

Danny McGinnis, District Director
Bob Henshaw, Probation and Parole Manager
Wendy Irwin-Minton, Probation and Parole Officer

CLARKSVILLE (Montgomery County)

Patrice Hannah, District Director
Joe Williams, Probation and Parole Manager
Bruce Duits, Probation and Parole Officer
Rodonna Luedenberg, Probation and Parole Officer
Lewis Baggett, Probation and Parole Officer

CLEVELAND (Bradley, Polk, McMinn Counties)

Jim Alsip, District Director, Former Probation and Parole Manager
John Patterson, Former District Director
Jim Hake, Probation and Parole Officer
Charles Matthews, Probation and Parole Officer

GALLATIN (Sumner County)

Patrice Hannah, District Director
Rick Oakley, Probation and Parole Manager
Mike Keeton, Probation and Parole Manager
Avana Sisco, Probation and Parole Officer
Sabrina Seaborn, Probation and Parole Officer

KNOXVILLE (Knox County)

Vyvian McCarthy, District Director, Former Probation and Parole Manager
Leslie Reeves, District Director, Retired
Dena McCollough, Probation and Parole Manager
Pam Silano, Probation and Parole Officer
Bernice Beedie, Probation and Parole Officer

MEMPHIS (Shelby County)

Helen Ford, District Director
William Rodgers, Probation and Parole Manager
Andrew Bradford, Probation and Parole Officer
Isaac Braxton, Probation and Parole Officer
Joe Williams, Probation and Parole Officer
Maryetta Rudd, Probation and Parole Officer
Derrick White, Probation and Parole Officer

MURFREESBORO (Rutherford and Cannon Counties)

Frank Mabery, District Director
Robert Duffey, Probation and Parole Manager
Jane Luther, Probation and Parole Supervisor
Thomas Resha, Probation and Parole Officer
Rebecca Brian, Probation and Parole Officer
John Parker, Probation and Parole Officer
Jennifer Brittain, Probation and Parole Officer

NASHVILLE (Davidson County)

Bettye Alsup, District Director
C. J. Williams, Probation and Parole Manager
Barry Welch, Probation and Parole Officer
Terrance Bohannon, Probation and Parole Officer
Veronica Daniel, Probation and Parole Officer
Melody Sharafi, Probation and Parole Officer
Peggy Evans, Probation and Parole Officer
Aimee Lieby, Probation and Parole Officer
George Stallworth, Probation and Parole Officer
James Holder, Probation and Parole Officer
Paul Shefferly, Probation and Parole Officer

Appendix A: GPS Monitoring Rules



State of Tennessee
BOARD OF PROBATION AND PAROLE
FIELD SERVICES DIVISION
GLOBAL POSITIONING SYSTEM
MONITORING RULES



The offender, _____ Parole Probation
Print Offender Name TOMIS ID (Circle One)
 resides at _____
 Offender Street Address Town 5-Digit Zip Code

and shall maintain an operating telephone number: _____
 Area Code Number

1. I, the offender, shall maintain an operating private residential telephone land-based (not cordless) line and allow GPS monitoring equipment to be hooked up to this home telephone and to maintain this phone to monitor my physical movements. I have also been advised that for me to leave the range of this monitor, without authorization, will result in a violation and possible revocation from supervision.

Offender Initials

2. I will not move the equipment once it has been installed unless instructed by BOPP personnel, and will not set or place anything on the equipment. I will not remove, disconnect, tamper with or attempt to repair or allow anyone else to tamper with or attempt to repair the unit in the home. I will submit to examination of the GPS equipment by BOPP staff or the vendor.

Offender Initials

3. I understand that the transmitter on my body is waterproof, and will not hurt me to bathe, and that the body equipment shall be worn 24 hours per day. I will to not tamper, disconnect, or rearrange the monitoring device fastened to my body. Intentional damage to the equipment may result in my being charged for repair or replacement and could result in criminal prosecution.

Offender Initials

4. I will report any problems with the equipment to my Officer immediately and understand I must keep the Personal Tracking Unit in the following places:

- A) When at home, I will keep the PTU docked in the charger base,
- B) When in a vehicle, I will keep the PTU located in the provided window clip,
- C) All other times the PTU will be kept in the provided pouch.

Offender Initials

5. I understand that I must have permission from my Officer for unscheduled appointments. This means that I must bring him or her proof of any changes in schedule or emergencies. I will abide by the curfew established by my probation and parole officer
 Call this number to make changes: _____

Offender Initials

6. I understand that any of the listed conditions are physical evidence constituting a violation of supervision and that a computer printout may be used as evidence in a court or board hearing to prove a violation of GPS monitoring program:

- A) Loss of RF Signal (cuff leave)
- B) Tamper violation
- C) Absence from an assigned location (inclusion zone)
- D) Presence in a prohibited location (exclusion zone)

Offender Initials

I _____ understand that the Board of Probation and Parole and State of Tennessee are not liable for any damages incurred as a result of being placed on GPS Monitoring or tampering of the monitoring device. Any and all damages that may result from participating in GPS Monitoring or the use of or tampering of the monitoring equipment are solely my responsibility and I do hereby indemnify and hold those above referenced individuals and agencies harmless from any loss associated herewith.

Offender Initials

I understand that I am to abide by the law of the State of Tennessee as found in Section 40-39-304, which states: (a) Intentional tampering with, removal of, or vandalism to a device issued pursuant to a location tracking and crime correlation based monitoring and supervision program described in Section 40-39-302 by a person duly enrolled in such a program is a Class A misdemeanor for the first offense, punishable by confinement in the county jail for not less than one hundred eighty (180) days. The minimum one hundred eighty-day sentence provided for this Class A misdemeanor offense is mandatory, and no person committing such offense shall be eligible for suspension of sentence, diversion, or probation until the minimum sentence is served in its entirety. A second or subsequent violation under this section is a Class E felony. Additionally, if the person violating this section is on probation, parole, or any other alternative to incarceration, then the violation shall also constitute sufficient grounds for immediate revocation of probation, parole, or other alternative to incarceration. Any violation of this section shall result in the imposition of the mandatory release condition specified in Section 40-39-303(a) and (b).

Offender Initials

I understand that I will be held criminally and civilly liable for any damage to the equipment placed on me or in my home that exceeds normal wear and tear. This includes loss of the equipment.
I understand I am to follow the above rules and conditions of GPS monitoring and that any violation of these conditions may result in a violation and possible revocation and conviction and incarceration as stated above.

Offender's Signature

Date

Offender's Assigned Probation/Parole Officer

Date

Monitoring equipment returned on: _____
Date

Condition of equipment:
 Excellent Good Poor

Offender's Signature

Date

Offender's Assigned Probation/Parole Officer

Date

Appendix B: MTSU Statistical Analysis, Data Tables

TABLES*

Comparison of Demographic Characteristics of Treatment and Control Groups

Table 1. Age: Mean, Range, Mode

Age		Total	Treatment Group	Control Group
N	Valid	863	493	370
	Missing	0	0	0
Mean		39.22	39.20	39.26
Youngest		18	19	18
Oldest		85	81	85
Mode		30	30	30

The age mean, range, and mode for two groups (treatment and control): almost identical. Among all ages, 30 years of age has the highest number of offenders in both treatment and control group.

Table 2. Age Demographics

Age		Group		Total
		Treatment Group	Control Group	
20 or younger	Count	14	8	22
	% within Group	2.8%	2.2%	2.5%
21-30	Count	126	110	236
	% within Group	25.6%	29.7%	27.3%
31-40	Count	141	92	233
	% within Group	28.6%	24.9%	27.0%
41-50	Count	130	90	220
	% within Group	26.4%	24.3%	25.5%
51-60	Count	54	36	90
	% within Group	11.0%	9.7%	10.4%
61 or older	Count	28	34	62
	% within Group	5.7%	9.2%	7.2%
Total	Count	493	370	863
	% within Group	100.0%	100.0%	100.0%

No statistically significant association was found between group and age.

Table 3. Gender Demographics

Sex		Group		Total
		Treatment Group	Control Group	
Male	Count	468	360	828
	% within Group	94.9%	97.3%	95.9%
Female	Count	25	10	35
	% within Group	5.1%	2.7%	4.1%
Total	Count	493	370	863
	% within Group	100.0%	100.0%	100.0%

No statistically significant association was found between group and gender.

Table 4. Race

			Group		Total
			Treatment Group	Control Group	
Race	Not known	Count	1	0	1
		% within Group	.2%	.0%	.1%
	Black	Count	138	123	261
		% within Group	28.0%	33.2%	30.2%
	White	Count	347	232	579
		% within Group	70.4%	62.7%	67.1%
	Hispanic	Count	6	15	21
		% within Group	1.2%	4.1%	2.4%
	Asian or Pacific	Count	1	0	1
		% within Group	.2%	.0%	.1%
Total		Count	493	370	863
		% within Group	100.0%	100.0%	100.0%

The percentage of white offenders in treatment group is higher than control group.
The percentage of minority offenders in control group is higher than treatment group.
The difference is statistically significant.
Chi square = 10.77, $p < .01$

Table 5. Educational Levels in Years

			Group		Total
			Treatment Group	Control Group	
Education	Third Grade	Count	2	3	5
		% within Group	.5%	1.2%	.8%
	Fifth Grade	Count	2	0	2
		% within Group	.5%	.0%	.3%
	Sixth Grade	Count	1	1	2
		% within Group	.3%	.4%	.3%
	Seventh Grade	Count	7	5	12
		% within Group	1.8%	2.0%	1.9%
	Eighth Grade	Count	11	23	34
		% within Group	2.8%	9.3%	5.4%
	Ninth Grade	Count	35	13	48
		% within Group	9.1%	5.2%	7.6%
	Tenth Grade	Count	37	27	64
		% within Group	9.6%	10.9%	10.1%
	Eleventh Grade	Count	48	59	107
		% within Group	12.4%	23.8%	16.9%
	Twelfth Grade	Count	148	83	231
		% within Group	38.3%	33.5%	36.4%
	Some College	Count	29	8	37
		% within Group	7.5%	3.2%	5.8%
	College Graduate	Count	12	7	19
		% within Group	3.1%	2.8%	3.0%
	Advanced Degree	Count	13	0	13

	% within Group	3.4%	.0%	2.1%
Not Graduated	Count	0	5	5
	% within Group	.0%	2.0%	.8%
Special Education	Count	2	0	2
	% within Group	.5%	.0%	.3%
Non-Institution GED	Count	6	0	6
	% within Group	1.6%	.0%	.9%
Institutional GED	Count	33	14	47
	% within Group	8.5%	5.6%	7.4%
Total	Count	386	248	634
	% within Group	100.0%	100.0%	100.0%

No statistically significant association was found between group and educational level by year.

Table 6. Educational Levels with Groupings

		Group		Total	
		Treatment Group	Control Group		
Education Level	Less than HS	Count	145	131	276
		% within Group	37.6%	52.8%	43.5%
	HS diploma	Count	148	83	231
		% within Group	38.3%	33.5%	36.4%
	any GED	Count	39	14	53
		% within Group	10.1%	5.6%	8.4%
	Post HS	Count	54	20	74
		% within Group	14.0%	8.1%	11.7%
Total		Count	386	248	634
		% within Group	100.0%	100.0%	100.0%

There is a statistically significant association between group and education level.

Chi square = 17.19, $p < .01$

Offenders in treatment group have higher educational level than those in control group.

Table 7a. Education by Race in Treatment Group

Treatment Group		Race			Total	
		Black	White	Hispanic		
Education Level	Less than HS	Count	52	93	0	145
		% within Race	51.0%	33.3%	.0%	37.7%
	HS diploma	Count	32	111	4	147
		% within Race	31.4%	39.8%	100.0%	38.2%
	any GED	Count	11	28	0	39
		% within Race	10.8%	10.0%	.0%	10.1%
	Post HS	Count	7	47	0	54
		% within Race	6.9%	16.8%	.0%	14.0%
Total		Count	102	279	4	385
		% within Race	100.0%	100.0%	100.0%	100.0%

There is a statistically significant association between race and education level in treatment group.

Among offenders in the treatment group, Whites are more educated than Blacks.

Chi square=12.81, $p < .01$ (when only black and white are compared)

Table 7b. Education by Race in Control Group

Control Group			Race			Total
			Black	White	Hispanic	
Education Level	Less than HS	Count	41	89	1	131
		% within Race	46.1%	56.3%	100.0%	52.8%
	HS diploma	Count	36	47	0	83
		% within Race	40.4%	29.7%	.0%	33.5%
	any GED	Count	6	8	0	14
		% within Race	6.7%	5.1%	.0%	5.6%
	Post HS	Count	6	14	0	20
		% within Race	6.7%	8.9%	.0%	8.1%
Total		Count	89	158	1	248
		% within Race	100.0%	100.0%	100.0%	100.0%

On the other hand, there is no significant difference of education level between Black and White in control group.

Table 8. Conviction Age

Conviction Age			Group		Total
			Treatment Group	Control Group	
20 or younger	Count	44	62	106	
	% within Group	9.0%	16.8%	12.3%	
21-30	Count	170	150	320	
	% within Group	34.6%	40.5%	37.2%	
31-40	Count	135	82	217	
	% within Group	27.5%	22.2%	25.2%	
41-50	Count	102	31	133	
	% within Group	20.8%	8.4%	15.4%	
51-60	Count	29	28	57	
	% within Group	5.9%	7.6%	6.6%	
61 or older	Count	11	17	28	
	% within Group	2.2%	4.6%	3.3%	
Total	Count	491	370	861	
	% within Group	100.0%	100.0%	100.0%	

Chi square=40.25, p<01

Offenders in control group committed initial offenses at younger age than treatment group.

Table 9. Comparison of Sentence Types

SENTENCE TYPE			Group		Total
			Treatment Group	Control Group	
DET	Count	18	29	47	
	Determinate release probationer	% within Group	3.7%	7.8%	5.4%
ISC	Count	45	22	67	
	Interstate compact transferred to TN from other state	% within Group	9.1%	5.9%	7.8%
MIS	Count	0	10	10	
	Misdemeanor probationer	% within Group	.0%	2.7%	1.2%

PPO	Count	370	253	623
TN probationer	% within Group	75.1%	68.4%	72.2%
TNP	Count	60	56	116
TN parolee	% within Group	12.2%	15.1%	13.4%
Total	Count	493	370	863
	% within Group	100.0%	100.0%	100.0%

A statistically significant association was found between group and sentence type.
Chi square = 25.57, $p < .01$

Table 10. Comparison of Supervision Levels

SUPERVISION LEVEL			Group		Total
			Treatment Group	Control Group	
ABS	Count	6	0	6	
	absconder offender	% within Group	1.2%	.0%	.7%
DET	Count	0	16	16	
	detainer status offender	% within Group	.0%	4.3%	1.9%
ENH	Count	0	2	2	
	enhanced offender	% within Group	.0%	.5%	.2%
ICU	Count	29	1	30	
	in custody on TDOC/BOPP sent	% within Group	5.9%	.3%	3.5%
IPR	Count	7	17	24	
	intake probation	% within Group	1.4%	4.6%	2.8%
ISC	Count	6	0	6	
	interstate commission transfer out of state	% within Group	1.2%	.0%	.7%
JSS	Count	1	0	1	
	judicial suspension of supervision	% within Group	.2%	.0%	.1%
MAX	Count	0	2	2	
	maximum offender	% within Group	.0%	.5%	.2%
MED	Count	2	47	49	
	medium offender	% within Group	.4%	12.7%	5.7%
MIN	Count	0	3	3	
	minimum offender	% within Group	.0%	.8%	.3%
MSD	Count	0	6	6	
	misdemeanor offender	% within Group	.0%	1.6%	.7%
RTP	Count	2	5	7	
	residential treatment placement	% within Group	.4%	1.4%	.8%
WRB	Count	6	0	6	
		% within Group	1.2%	.0%	.7%
WRT	Count	12	0	12	
	warrant status offender	% within Group	2.4%	.0%	1.4%
XEN	Count	22	10	32	
	enhanced sex offender	% within Group	4.5%	2.7%	3.7%
XMD	Count	227	103	330	
	medium sex offender	% within Group	46.0%	27.8%	38.2%
XXM	Count	153	109	262	
	maximum sex offender	% within Group	31.0%	29.5%	30.4%

XPA	Count	1	10	11
intake sex offender parole	% within Group	.2%	2.7%	1.3%
XPR	Count	17	38	55
	% within Group	3.4%	10.3%	6.4%
ZS1	Count	1	1	2
	% within Group	.2%	.3%	.2%
ZS2	Count	1	0	1
	% within Group	.2%	.0%	.1%
Total	Count	493	370	863
	% within Group	100.0%	100.0%	100.0%

No statistically significant association was found between group and sentence type.

Table 11. County of Convictions

County of Conviction		Group		Total
		Treatment Group	Control Group	
Bedford	Count	0	1	1
	% within Group	.0%	.3%	.1%
Blount	Count	3	0	3
	% within Group	.6%	.0%	.3%
Bradley	Count	13	11	24
	% within Group	2.6%	3.0%	2.8%
Cannon	Count	2	0	2
	% within Group	.4%	.0%	.2%
Carter	Count	1	0	1
	% within Group	.2%	.0%	.1%
Cheatham	Count	3	9	12
	% within Group	.6%	2.4%	1.4%
Claiborne	Count	1	0	1
	% within Group	.2%	.0%	.1%
Cocke	Count	0	1	1
	% within Group	.0%	.3%	.1%
Coffee	Count	0	1	1
	% within Group	.0%	.3%	.1%
Davidson	Count	112	108	220
	% within Group	22.7%	29.2%	25.5%
Dickson	Count	2	1	3
	% within Group	.4%	.3%	.3%
Fayette	Count	1	0	1
	% within Group	.2%	.0%	.1%
Fentress	Count	0	2	2
	% within Group	.0%	.5%	.2%
Hamilton	Count	1	4	5
	% within Group	.2%	1.1%	.6%
Hickman	Count	0	1	1
	% within Group	.0%	.3%	.1%
Houston	Count	0	3	3
	% within Group	.0%	.8%	.3%

	% within Group	.0%	.8%	.3%
Humphreys	Count	0	3	3
	% within Group	.0%	.8%	.3%
Jefferson	Count	0	25	25
	% within Group	.0%	6.8%	2.9%
Knox	Count	59	14	73
	% within Group	12.0%	3.8%	8.5%
Lawrence	Count	2	0	2
	% within Group	.4%	.0%	.2%
Loudon	Count	0	3	3
	% within Group	.0%	.8%	.3%
McMinn	Count	14	5	19
	% within Group	2.8%	1.4%	2.2%
McNairy	Count	1	0	1
	% within Group	.2%	.0%	.1%
Marshall	Count	1	2	3
	% within Group	.2%	.5%	.3%
Maury	Count	1	1	2
	% within Group	.2%	.3%	.2%
Monroe	Count	2	0	2
	% within Group	.4%	.0%	.2%
Montgomery	Count	23	12	35
	% within Group	4.7%	3.2%	4.1%
Obion	Count	0	2	2
	% within Group	.0%	.5%	.2%
Overton	Count	0	1	1
	% within Group	.0%	.3%	.1%
Polk	Count	2	1	3
	% within Group	.4%	.3%	.3%
Putnam	Count	1	0	1
	% within Group	.2%	.0%	.1%
Robertson	Count	5	5	10
	% within Group	1.0%	1.4%	1.2%
Rutherford	Count	46	43	89
	% within Group	9.3%	11.6%	10.3%
Sevier	Count	2	8	10
	% within Group	.4%	2.2%	1.2%
Shelby	Count	79	54	133
	% within Group	16.0%	14.6%	15.4%
Smith	Count	1	0	1
	% within Group	.2%	.0%	.1%
Stewart	Count	0	1	1
	% within Group	.0%	.3%	.1%
Sullivan	Count	34	11	45
	% within Group	6.9%	3.0%	5.2%
Sumner	Count	29	13	42

	Washington	% within Group	5.9%	3.5%	4.9%
		Count	2	1	3
	Weakly	% within Group	.4%	.3%	.3%
		Count	1	0	1
	Williamson	% within Group	.2%	.0%	.1%
		Count	2	3	5
	Wilson	% within Group	.4%	.8%	.6%
		Count	2	0	2
	Other state	% within Group	.4%	.0%	.2%
		Count	45	20	65
Total		% within Group	9.1%	5.4%	7.5%
		Count	493	370	863
		% within Group	100.0%	100.0%	100.0%

Table 12. Sexual Offenses

Offense			Group		Total
			Treatment Group	Control Group	
AGG CHILD MOLESTATION	Count		0	1	1
	% within Group		.0%	.3%	.1%
AGG FELONIOUS SEXUAL ASSAULT	Count		0	1	1
	% within Group		.0%	.3%	.1%
AGG PROSTITUTION	Count		0	1	1
	% within Group		.0%	.3%	.1%
AGG RAPE	Count		13	17	30
	% within Group		2.6%	4.6%	3.5%
AGG SEX ASSAULT	Count		2	0	2
	% within Group		.4%	.0%	.2%
AGG SEX BAT BY AU FIG	Count		1	0	1
	% within Group		.2%	.0%	.1%
AGG SEX BATT	Count		11	28	39
	% within Group		2.2%	7.6%	4.5%
AGG SEX EXPL OF MINOR	Count		7	1	8
	% within Group		1.4%	.3%	.9%
AGG SODOMY	Count		2	0	2
	% within Group		.4%	.0%	.2%
ASLT W/INT RAPE	Count		0	4	4
	% within Group		.0%	1.1%	.5%
ASSAULT W/EXTREME EMOTIONAL DISTURBANCE	Count		0	1	1
	% within Group		.0%	.3%	.1%
ATT AGG RAPE	Count		2	2	4
	% within Group		.4%	.5%	.5%
ATT AGG SEX BATT	Count		95	45	140
	% within Group		19.3%	12.2%	31.5%

ATT ESP AGG KIDNAP	Count	1	0	1
	% within Group	.2%	.0%	.1%
ATT INCEST	Count	0	2	2
	% within Group	.0%	.5%	.2%
ATT RAPE	Count	26	29	55
	% within Group	5.3%	7.8%	6.4%
ATT RAPE CHILD	Count	18	12	30
	% within Group	3.7%	3.2%	3.5%
ATT SEX BAT AUTH FIG	Count	0	1	1
	% within Group	.0%	.3%	.1%
ATT SEX BATT	Count	1	2	3
	% within Group	.2%	.5%	.3%
CARNAL KNW 12-18	Count	0	1	1
	% within Group	.0%	.3%	.1%
CRIM ATT RAPE	Count	1	0	1
	% within Group	.2%	.0%	.1%
CRIM EXP HIV	Count	1	0	1
	% within Group	.2%	.0%	.1%
CRIM SEX COND 1ST DEGREE	Count	3	0	3
	% within Group	.6%	.0%	.3%
CRIM SEX CONDUCT 1ST DEGREE	Count	0	2	2
	% within Group	.0%	.5%	.2%
CRIM SEX CONDUCT 4TH DEGREE	Count	0	1	1
	% within Group	.0%	.3%	.1%
CRIME AGAINST NATURE	Count	0	3	3
	% within Group	.0%	.8%	.3%
ESP AGG SEX EXP MINOR	Count	7	0	7
	% within Group	1.4%	.0%	.8%
FAC AGG SEX BATT	Count	1	0	1
	% within Group	.2%	.0%	.1%
FAC RAPE	Count	2	0	2
	% within Group	.4%	.0%	.2%
FAC RAPE CHILD	Count	4	0	4
	% within Group	.8%	.0%	.5%
INCEST	Count	19	8	27
	% within Group	3.9%	2.2%	3.1%
IND EXP <13 2ND/SUB CONV	Count	1	0	1
	% within Group	.2%	.0%	.1%
LEWD AND LACIVIOUS ASSAULT ON CHILD	Count	16	0	16
	% within Group	3.2%	.0%	1.9%
LEWD AND LASCIVIOUS ACTS	Count	3	0	3
	% within Group	.6%	.0%	.3%
LEWD/LACIV CONDUCT W CHILD	Count	0	4	4

	% within Group	.0%	1.1%	.5%
RAPE	Count	40	25	65
	% within Group	8.1%	6.8%	7.5%
RAPE OF CHILD	Count	12	2	14
	% within Group	2.4%	.5%	1.6%
SEX ABUSE	Count	0	2	2
	% within Group	.0%	.5%	.2%
SEX BAT AUTH FIG	Count	42	14	56
	% within Group	8.5%	3.8%	6.5%
SEX BATT BY PER > 18 W CHILD < 12	Count	0	2	2
	% within Group	.0%	.5%	.2%
SEX BATTERY	Count	64	44	108
	% within Group	13.0%	11.9%	12.5%
SEX EXPL MINOR	Count	9	0	9
	% within Group	1.8%	.0%	1.0%
SEX EXPL MINOR (10 COUNTS)	Count	2	0	2
	% within Group	.4%	.0%	.2%
SEX EXPLOIT OF MINOR	Count	0	3	3
	% within Group	.0%	.8%	.3%
SOL OF MINOR	Count	4	2	6
	% within Group	.8%	.5%	.7%
SOL RAPE CHILD	Count	1	0	1
	% within Group	.2%	.0%	.1%
STALKING	Count	1	0	1
	% within Group	.2%	.0%	.1%
STATUTORY RAPE	Count	79	109	188
	% within Group	16.0%	29.5%	21.8%
UNLAWFUL SEX CONDUCT	Count	1	0	1
	% within Group	.2%	.0%	.1%
VIO OF SEX OFFENDER REGISTRY	Count	0	1	1
	% within Group	.0%	.3%	.1%
VIOL REG ACT	Count	1	0	1
	% within Group	.2%	.0%	.1%
Total	Count	493	370	863
	% within Group	100.0%	100.0%	100.0%

Table 13a. New Charge by Age Group for Treatment Group

Treatment Group		Age						Total
		20 or younger	21-30	31-40	41-50	51-60	61 or older	
Yes	% within Age	92.9%	95.2%	93.6%	95.4%	100.0%	92.9%	95.1%
	Count	1	6	9	6	0	2	24
Total	% within Age	7.1%	4.8%	6.4%	4.6%	.0%	7.1%	4.9%
	Count	14	126	141	130	54	28	493
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 13b. New Charge by Age Group for Control Group

Control Group			Age						Total
			20 or younger	21-30	31-40	41-50	51-60	61 or older	
New Charge	No	Count	7	97	66	79	35	34	318
		% within Age	87.5%	88.2%	71.7%	87.8%	97.2%	100.0%	85.9%
	Yes	Count	1	13	26	11	1	0	52
		% within Age	12.5%	11.8%	28.3%	12.2%	2.8%	.0%	14.1%
Total	Count		8	110	92	90	36	34	370
	% within Age		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

For both treatment and control groups, offenders younger than 40 years-old committed most of new offenses. The age category 31-40 reported significantly highest rate in control group, Chi square=25.44, p<.01.

Table 14a. New Charge by Race for Treatment Group

Treatment Group			Race					Total
			Not known	Black	White	Hispanic	Asian or Pacific	
New Charge	No	Count	0	131	331	6	1	469
		% within Race	.0%	94.9%	95.4%	100.0%	100.0%	95.1%
	Yes	Count	1	7	16	0	0	24
		% within Race	100.0%	5.1%	4.6%	.0%	.0%	4.9%
Total	Count		1	138	347	6	1	493
	% within Race		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

No statistically significant association was found between treatment group and race by new charges.

Table 14b. New Charge by Race for Control Group

Control Group			Race			Total
			Black	White	Hispanic	
New Charge	No	Count	102	202	14	318
		% within Race	82.9%	87.1%	93.3%	85.9%
	Yes	Count	21	30	1	52
		% within Race	17.1%	12.9%	6.7%	14.1%
Total	Count		123	232	15	370
	% within Race		100.0%	100.0%	100.0%	100.0%

No statistically significant association was found between control group and race by new charges.

Table 15a. New Charge by Educational Level for Treatment Group

Treatment Group			Education Level				Total
			Less than HS	HS diploma	Any GED	Post HS	
New Charge	No	Count	135	139	38	53	365
		% within Education Level	93.1%	93.9%	97.4%	98.1%	94.6%
	Yes	Count	10	9	1	1	21
		% within Education Level	6.9%	6.1%	2.6%	1.9%	5.4%
Total	Count	145	148	39	54	386	
	% within Education Level	100.0%	100.0%	100.0%	100.0%	100.0%	

For both treatment and control groups, offenders with high school diploma or less than high school educational background committed new offenses more than other educational levels. Even though this difference is not statistically significant, the difference is noted.

Table 15b. New Charge by Educational Level for Control Group

Control Group			Education Level				Total
			Less than HS	HS diploma	any GED	Post HS	
New Charge	No	Count	110	71	13	20	214
		% within Education Level	84.0%	85.5%	92.9%	100.0%	86.3%
	Yes	Count	21	12	1	0	34
		% within Education Level	16.0%	14.5%	7.1%	.0%	13.7%
Total	Count	131	83	14	20	248	
	% within Education Level	100.0%	100.0%	100.0%	100.0%	100.0%	

For both treatment and control groups, offenders with high school diploma or less than high school educational background committed new offenses more than other educational levels. Even though this difference is not statistically significant, the difference is noted.

Demographic Characteristics: Cross tabulations with All Subjects

Table 16. Race by Gender Including All Subjects

			Sex		Total
			Male	Female	
Race	Not known	Count	0	1	1
		% within Sex	.0%	2.9%	.1%
	Black	Count	254	7	261
		% within Sex	30.7%	20.0%	30.2%
	White	Count	552	27	579
		% within Sex	66.7%	77.1%	67.1%
	Hispanic	Count	21	0	21
		% within Sex	2.5%	.0%	2.4%
	Asian or Pacific	Count	1	0	1
		% within Sex	.1%	.0%	.1%
Total	Count	828	35	863	
	% within Sex	100.0%	100.0%	100.0%	

Table 17. Age Group by Gender Including All Subjects

			Sex		Total
			Male	Female	
Age	20 or younger	Count	22	0	22
		% within Sex	2.7%	.0%	2.5%
	21-30	Count	229	7	236
		% within Sex	27.7%	20.0%	27.3%
	31-40	Count	217	16	233
		% within Sex	26.2%	45.7%	27.0%
	41-50	Count	215	5	220
		% within Sex	26.0%	14.3%	25.5%
	51-60	Count	83	7	90
		% within Sex	10.0%	20.0%	10.4%
	61 or older	Count	62	0	62
		% within Sex	7.5%	.0%	7.2%
Total		Count	828	35	863
		% within Sex	100.0%	100.0%	100.0%

Table 18. Education Level by Gender Including All Subjects

			Sex		Total
			Male	Female	
Education Level	Less than HS	Count	259	17	276
		% within Sex	42.7%	60.7%	43.5%
	GED	Count	52	1	53
		% within Sex	8.6%	3.6%	8.4%
	HS diploma	Count	221	10	231
		% within Sex	36.5%	35.7%	36.4%
	Post HS	Count	74	0	74
		% within Sex	12.2%	.0%	11.7%
Total		Count	606	28	634
		% within Sex	100.0%	100.0%	100.0%

Table 19. Race and Conviction Age of Initial Offense Including All Subjects

			Race				Total
			Black	White	Hispanic	Asian or Pacific	
Conviction Age	20 or younger	Count	45	60	1	0	106
		% within Race	17.2%	10.4%	4.8%	.0%	12.3%
	21-30	Count	120	186	13	1	320
		% within Race	46.0%	32.2%	61.9%	100.0%	37.2%
	31-40	Count	63	151	3	0	217
		% within Race	24.1%	26.1%	14.3%	.0%	25.2%
	41-50	Count	24	105	4	0	133
		% within Race	9.2%	18.2%	19.0%	.0%	15.4%

	51-60	Count	7	50	0	0	57
		% within Race	2.7%	8.7%	.0%	.0%	6.6%
	61 or older	Count	2	26	0	0	28
		% within Race	.8%	4.5%	.0%	.0%	3.3%
Total		Count	261	578	21	1	861
		% within Race	100.0%	100.0%	100.0%	100.0%	100.0%

A statistical significant association was found between race and age of offense. Minority offenders tend to be convicted for initial crime at a younger age than Whites.

Table 20. Gender and Conviction Age of Initial Offense Including All Subjects

		Sex			Total
		Male	Female		
Conviction Age	20 or younger	Count	105	1	106
		% within Sex	12.7%	2.9%	12.3%
	21-30	Count	301	19	320
		% within Sex	36.4%	55.9%	37.2%
	31-40	Count	211	6	217
		% within Sex	25.5%	17.6%	25.2%
	41-50	Count	129	4	133
		% within Sex	15.6%	11.8%	15.4%
	51-60	Count	53	4	57
		% within Sex	6.4%	11.8%	6.6%
	61 or older	Count	28	0	28
		% within Sex	3.4%	.0%	3.3%
Total		Count	827	34	861
		% within Sex	100.0%	100.0%	100.0%

No statistical significant association was found between sex and age of offense.

Table 21. Educational Level and Conviction Age of Initial Offense Including All Subjects

		Education Level				Total	
		Less than HS	any GED	HS diploma	Post HS		
Conviction Age	20 or younger	Count	34	12	23	5	74
		% within Education Level	12.3%	22.6%	10.0%	6.8%	11.7%
	21-30	Count	101	24	91	24	240
		% within Education Level	36.6%	45.3%	39.7%	32.4%	38.0%
	31-40	Count	72	12	57	17	158
		% within Education Level	26.1%	22.6%	24.9%	23.0%	25.0%
	41-50	Count	44	4	42	20	110
		% within Education Level	15.9%	7.5%	18.3%	27.0%	17.4%
	51-60	Count	17	0	13	5	35
		% within Education Level	6.2%	.0%	5.7%	6.8%	5.5%
	61 or older	Count	8	1	3	3	15
		% within Education Level	2.9%	1.9%	1.3%	4.1%	2.4%
Total		Count	276	53	229	74	632
		% within Education Level	100.0%	100.0%	100.0%	100.0%	100.0%

No statistical significant association was found between educational level and conviction age.

Table 22. New Charge by Age Group Including All Subjects

			Age					Total	
			20 or younger	21-30	31-40	41-50	51-60	61 or older	
New Charge	No	Count	20	217	198	203	89	60	787
		% within Age	90.9%	91.9%	85.0%	92.3%	98.9%	96.8%	91.2%
	Yes	Count	2	19	35	17	1	2	76
		% within Age	9.1%	8.1%	15.0%	7.7%	1.1%	3.2%	8.8%
Total		Count	22	236	233	220	90	62	863
		% within Age	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

A statistically significant association was found between age group and new charges. Offenders in the 31-40 age group were more likely to receive new charges than other age groups.
Chi square=20.74, p<.01

Table 23. New Charge by Race Including All Subjects

			Race					Total
			Not known	Black	White	Hispanic	Asian or Pacific	
New Charge	No	Count	0	233	533	20	1	787
		% within Race	.0%	89.3%	92.1%	95.2%	100.0%	91.2%
	Yes	Count	1	28	46	1	0	76
		% within Race	100.0%	10.7%	7.9%	4.8%	.0%	8.8%
Total		Count	1	261	579	21	1	863
		% within Race	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

No statistically significant association was found between race and new charges.

Table 24. New Charge by Education Level Including All Subjects

			Education Level				Total
			Less than HS	HS diploma	any GED	Post HS	
New Charge	No	Count	245	210	51	73	579
		% within Education Level	88.8%	90.9%	96.2%	98.6%	91.3%
	Yes	Count	31	21	2	1	55
		% within Education Level	11.2%	9.1%	3.8%	1.4%	8.7%
Total		Count	276	231	53	74	634
		% within Education Level	100.0%	100.0%	100.0%	100.0%	100.0%

A statistically significant association was found between educational level and new charges. Offenders in the less than high school group were more likely to receive new charges than other educational groups.
Chi square=8.95, p<.05

Victim Characteristics

Table 25. Age of Victims

			Group		Total
			Treatment Group	Control Group	
Age of Victim	12 or younger	Count	241	137	378
		% within Group	51.3%	38.2%	45.6%
	13-18	Count	179	168	347
		% within Group	38.1%	46.8%	41.9%
	19 or older	Count	50	54	104
		% within Group	10.6%	15.0%	12.5%
Total	Count		470	359	829
	% within Group		100.0%	100.0%	100.0%

More cases in treatment group involved victims age 12 or younger than control group.
 More cases in control group involved victims, ages between 13 and 18, than treatment group.
 The difference is statistically significant.
 Chi square=14.51, $p < .01$

Table 26. Gender of Victims

			Group		Total
			Treatment Group	Control Group	
Gender of Victim	Male	Count	41	29	70
		% within Group	8.5%	8.1%	8.4%
	Female	Count	439	328	767
		% within Group	91.5%	91.9%	91.6%
Total	Count		480	357	837
	% within Group		100.0%	100.0%	100.0%

Most victims are females in both treatment and control group.
 There is no significant difference between two groups.

Table 27. Relationship of Victim to Offender

			Group		Total
			Treatment Group	Control Group	
Relationship of Offender to Victim	Stranger	Count	62	40	102
		% within Group	13.2%	12.7%	13.0%
	Acquaintance	Count	221	208	429
		% within Group	47.2%	66.2%	54.9%
	Family	Count	185	66	251
		% within Group	39.5%	21.0%	32.1%
Total	Count		468	314	782
	% within Group		100.0%	100.0%	100.0%

More cases in treatment group involve family members as victims than in control group.
 More cases in control group involve acquaintances as victims than treatment group.
 The difference is statistically significant.
 Chi square=32.49, $p < .01$

Statistical Comparison of Treatment and Control Subgroups for One-Year Periods of Time under Supervision/GPS

Table 28. Subgroups for First Year of Supervision/GPS

Sub Groups	N
Treatment Group	121
Control Group	107
Total	228

Table 29. Number of Days before First Violation Report Filed within First One Year of Supervision/GPS

Sub Group	Mean in Days	Number of Violators	Minimum Days	Maximum Days
Treatment Group	152.77	115	7	363
Control Group	173.50	104	6	364
Total	162.62	219	6	364

Table 30. Comparison of First Violations of First Year of Supervision/GPS

Sub group Violations report filed within one year	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	.067	.795	-1.638	217	.103	-20.726	12.652	-45.662	4.210
Equal variances not assumed			-1.640	215.51	.103	-20.726	12.640	-45.640	4.188

T-test results reveal that the treatment group and control group do not significantly differ statistically from each other on average length of days before first violation report filed during first year of supervision/GPS nor in the number of violations.

Table 31. Subgroups for Same Year (11/01/2005-10/31/06) of Supervision/GPS

Group	N
Treatment Group	57
Control Group	85
Total	142

Table 32. Number of Days before First Violation Report Filed within Same Year (11/01/2005-10/31/06) of Supervision/GPS

Subgroup		Mean in Days	Number of Violators	Minimum Days	Maximum Days
Treatment Group	Mean	137.08	13	7	237
Control Group	Mean	134.67	21	24	299
Total	Mean	135.59	34	7	299

Table 33. Comparison of First Violations of Same Year (11/01/2005-10/31/06) of Supervision/GPS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Length of supervision	Equal variances assumed	9.452	.003	-.586	140	.559	-8.047	13.732	-35.196	19.102
	Equal variances not assumed			-.535	84.26	.594	-8.047	15.029	-37.933	21.838
Violations within one year	Equal variances assumed	1.008	.323	.090	32	.929	2.410	26.767	-52.113	56.933
	Equal variances not assumed			.087	22.89	.931	2.410	27.671	-54.846	59.666

T-test results reveal that the treatment group and control group do not significantly differ statistically from each other on average length of days before first violation report filed during same year of supervision/GPS nor in the number of violations.

*Additional data and tables available upon request.

Appendix C: Tennessee Board of Probation and Parole Rapid Risk Assessment for Sex Offender Recidivism (RRASOR) Instrument



STATE OF TENNESSEE
BOARD OF PROBATION AND PAROLES
 404 JAMES ROBERTSON PARKWAY, SUITE 1300
 NASHVILLE, TENNESSEE 37243-0850 (615) 741-1673

The Rapid Risk Assessment for Sexual Offense Recidivism (RRASOR)²⁷

1.	Prior Sex Offenses (not including index offense)		
	NONE	0	
	1 conviction OR 1-2 charges	1	
	2-3 convictions OR 3-5 charges	2	
	4+ convictions OR 6+ charges	3	<input type="checkbox"/>
2.	Age at Release (current age)		
	25 years or older	0	
	less than 25 years	1	<input type="checkbox"/>
3.	Victim Gender		
	only females	0	
	any males	1	<input type="checkbox"/>
4.	Relationship to Victim		
	only related	0	
	any non-related	1	<input type="checkbox"/>
Total			<input type="checkbox"/>

²⁷ R. Karl Hanson, Department of the Solicitor General of Canada, "The Development of a Brief Actuarial Scale for Sexual Offense Recidivism," 1997.