

NOTES

GPS MONITORING: A VIABLE ALTERNATIVE TO THE INCARCERATION OF NONVIOLENT CRIMINALS IN THE STATE OF OHIO

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I. INTRODUCTION

[The] Eye of Sauron now turns to Gondor, the last free kingdom of men . . . [He] did not feel invisible at all, but horribly and uniquely visible; and he knew that somewhere an Eye was searching for him. [He] wish[ed] the ring had never come to [him]. [He] wish[ed] none of this had happened.¹

Although this situation appears to be very unique to the character Frodo in J.R.R. Tolkien's trilogy, *The Lord of the Rings*,² it is actually becoming a much more common phenomenon in today's society. In reality, the Eye of Sauron is not some mysterious and evil power scouring the earth for a single ring; it is a series of twenty-eight satellites orbiting 12,500 miles above the earth, tracking the location of several individuals who possess specific ankle bracelets.³ Furthermore, the bearers of these bracelets are not innocent hobbits, but convicted criminals who have been sentenced to global positioning system (GPS) monitoring as an alternative to incarceration.⁴

The use of GPS monitoring as an alternative to incarceration is becoming an increasingly important topic of consideration by state rehabilitation and correction

¹THE LORD OF THE RINGS: THE FELLOWSHIP OF THE RING (New Line Cinema 2001); LORD OF THE RINGS: THE TWO TOWERS (New Line Cinema 2002).

²*Id.*

³See JOHN SPENCER ET AL., GLOBAL POSITIONING SYSTEM: A FIELD GUIDE FOR THE SOCIAL SCIENCES 27-28 (2003).

⁴See ANN H. CROWE ET AL., AM. PROB. & PAROLE ASS'N, OFFENDER SUPERVISION WITH ELECTRONIC TECHNOLOGY 65-67 (2002), available at <http://www.ncjrs.gov/pdffiles1/nij/grants/197102.pdf>; see also Nat'l Law Enforcement & Corr. Tech. Ctr., *Keeping Track of Electronic Monitoring*, NAT'L L. ENFORCEMENT & CORR. TECH. CTR. BULL., Oct. 1999, at 5-6, available at <http://www.justnet.org/pdffiles/Elec-Monit.pdf> [hereinafter *Keeping Track*].

agencies.⁵ Location tracking systems, such as GPS, have customarily been used solely to track higher-risk offenders.⁶ However, many states are beginning to consider using the technology as a primary sentencing option for select groups of nonviolent offenders.⁷ GPS monitoring can effectively enforce many of the very same restrictions on the liberty of a nonviolent offender that are present with physical incarceration,⁸ while at the same time avoiding the negative physical and psychological impacts that imprisonment can have on the individual, the basic family structure, and the workforce.⁹ Most importantly, several states are realizing that GPS monitoring is an effective means to combat the skyrocketing costs associated with the explosion in the prison population over the last three decades.¹⁰

Ohio is now among this large number of states seeking to devise alternatives to incarceration in order to reduce the heavy public tax burden created by prison overcrowding, especially for nonviolent offenders.¹¹ GPS monitoring of offenders not only comports with constitutional requirements,¹² but it is also permitted under Ohio law.¹³ Sections 2929.17 and 2929.27 of the Ohio Revised Code provide the authority for a court to impose nonresidential sanctions, such as a term of monitored time, upon both misdemeanor and felony offenders who are not required to serve

⁵See Kris Axtman, *The Move to High-Tech Tracking of Inmates*, CHRISTIAN SCI. MONITOR, May 7, 2004, at 2. See generally *Keeping Track*, *supra* note 4, at 5 (describing how agencies are conducting technical evaluations of GPS probation and parole equipment).

⁶See CROWE ET AL., *supra* note 4, at 67. In the past, GPS monitoring has been used primarily to track sex offenders, domestic violence offenders, and pretrial releasees in high-profile cases. *Id.* The emerging technology's limited use was substantially due to the relatively high cost of the newly developed equipment. *Id.*

⁷See Julia Scheeres, *GPS: Keeping Cons Out of Jail*, WIRED, Nov. 15, 2002, available at <http://www.wired.com/news/privacy/0,1848,55740,00.html>.

⁸See *id.*; see also Matt Black & Russell G. Smith, *Electronic Monitoring in the Criminal Justice System*, TRENDS & ISSUES IN CRIME AND CRIM. JUST., May 1, 2003, at 1.

⁹See JEREMY TRAVIS ET AL., URBAN INST., JUSTICE POLICY CTR., FROM PRISON TO HOME: THE DIMENSIONS AND CONSEQUENCES OF PRISON RE-ENTRY 1 (2001), available at http://www.urban.org/UploadedPDF/from_prison_to_home.pdf.

¹⁰See CROWE ET AL., *supra* note 4, at 44. See generally James Austin et al., *It's About Time: America's Imprisonment Binge*, in PUNISHMENT AND SOCIAL CONTROL 433, 433-34 (Thomas G. Blomberg & Stanley Cohen eds., enl. 2d ed. 2003) (illustrating the unprecedented rise in the prison population between 1980 and 2000).

¹¹See Mark Puente, *Counties Overwhelmed by Inmates; Frustrated Officials Struggle to Cope with Numbers*, PLAIN DEALER (Clev.), Sept. 26, 2005, at B1; see also Perry Schaible, *Tracking Device Considered to Enforce Protective Orders*, CINCINNATI ENQUIRER, May 11, 2005, at 2C.

¹²See *United States v. Knights*, 534 U.S. 112, 119 (2001) (holding that a court may impose reasonable conditions depriving the offender of some freedoms enjoyed by law-abiding citizens); *Katz v. United States*, 389 U.S. 347, 351 (1967) (holding that what a person knowingly exposes to the public is not subject to Fourth Amendment protection); see also CROWE ET AL., *supra* note 4, at 23.

¹³OHIO REV. CODE ANN. §§ 2929.17, .27 (LexisNexis 2006) (permitting Ohio courts to impose alternatives to incarceration upon certain misdemeanor and felony offenders).

mandatory prison terms.¹⁴ With both constitutional and statutory authority, GPS technology can provide an effective means for the state of Ohio to combat the rising costs of incarceration without sacrificing the public's safety.¹⁵

This article will discuss the emergence of GPS technology in the field of criminal law and propose that Ohio embrace GPS monitoring as an alternative to the incarceration of nonviolent offenders. Part II will begin by briefly outlining the history of GPS technology. Part II will then discuss the use of GPS monitoring in the field of law enforcement. Specifically, this Part will illustrate the different components necessary for the implementation of an effective GPS monitoring program and explain the use of inclusion and exclusion zones. Part III will examine the status of Ohio's state prison system and will focus on the historical costs associated with housing prisoners. Part III will also briefly discuss recent changes to Ohio's criminal sentencing laws that positively impact and encourage the use of new offender monitoring technology, such as GPS. Part IV will reveal how a properly executed GPS monitoring program can be a constitutional, cost-effective, and community-friendly alternative to the incarceration of nonviolent criminals. Part V will conclude by recommending that Ohio implement a GPS offender monitoring program to be used as an alternative to the incarceration of nonviolent offenders within the state.

II. HISTORICAL OVERVIEW OF GPS TECHNOLOGY AND ITS USE IN THE FIELD OF LAW ENFORCEMENT

Although GPS technology was originally developed by the United States Department of Defense for military use only, its application has been greatly expanded over the past two decades.¹⁶ Among the most surprising and unintended beneficiaries of the new technology are law enforcement agencies seeking to discover an effective alternative to the incarceration of criminal offenders.¹⁷ With several companies now willing to supply both the equipment and personnel necessary to place offenders under GPS surveillance,¹⁸ this nonmilitary application of GPS is becoming a reality in today's criminal justice system.¹⁹

A. Origin of GPS Technology

The roots of GPS technology can be traced back to the "race to space" in the 1950s, which began with the launch of *Sputnik 1*, a low-Earth orbit satellite, by the U.S.S.R in 1957.²⁰ Scientists observing this satellite recognized that its position

¹⁴*Id.*

¹⁵See Scheeres, *supra* note 7.

¹⁶See Sameer Kumar & Kevin B. Moore, *The Evolution of Global Positioning System Technology*, 11 J. SCI. EDUC. & TECH. 59, 69 (2002).

¹⁷See Jim Stark, *GPS Tracking is the Wave of the Future for Law Enforcement Authorities*, DIRECTIONS MAG., Feb. 5, 2003, http://www.directionsmag.com/article.php?article_id=272.

¹⁸See George M. Walker & Eli Goren, *Is GPS the Next Generation of Offender Electronic Monitoring*, 18 J. OFFENDER MONITORING 10, 26 (2005) (listing all current manufacturers of electronic monitoring equipment).

¹⁹*Id.* at 10.

²⁰See Kumar & Moore, *supra* note 16, at 59.

could effectively be monitored by focusing on the relative strength of its radio signal.²¹ Further research demonstrated that if the position of a satellite in space could accurately be obtained from Earth, then the position of a physical object on the Earth's surface could also be determined by focusing on the relative strength of the signal from that satellite.²²

With this new technology, the U.S. Department of Defense quickly developed the first satellite-based radio positioning system.²³ The primitive system's purpose was to provide both the Navy and Air Force with extremely accurate positioning and navigational support for the guiding of missiles during combat.²⁴ In 1973, the U.S. military aggressively implemented a program known as "NAVSTAR GPS" in order to initiate the development of a much more advanced satellite-positioning system.²⁵ Within five years after the program's commencement, the first four satellites were launched into space to provide accurate data on position, velocity, and time to military personnel.²⁶ The use of multiple satellites as opposed to a single satellite not only increased signal availability, but also produced much more timely information as to a mobile object's relative position on the Earth's surface.²⁷ This newly developed GPS technology was used solely for military purposes and was unavailable to the general public for several years after the program's initial implementation.²⁸

In 1983, the narrow military use of GPS was finally expanded, and the technology was made available to the civilian population.²⁹ Although civil application of GPS quickly became widespread, the military still constrained its use for over a decade by intentionally introducing an error into the system, impairing the accuracy of its readings.³⁰ Due to the increased public use and reliance upon accurate GPS information, Congress eventually enacted legislation mandating that

²¹*Id.*

²²*Id.*

²³See SPENCER ET AL., *supra* note 3, at 26.

²⁴*Id.*

²⁵See Kumar & Moore, *supra* note 16, at 61.

²⁶*Id.*

²⁷*Id.*

²⁸See John A. Lever, *Unintended Consequences of the Global Positioning System*, 7 SYS. ENGINEERING 217, 219 (2004).

²⁹*Id.* GPS was made available to the civilian population by President Ronald Reagan as a direct response to the Korea Air Lines incident, which involved an airliner that was shot down after the pilot accidentally strayed off course and violated Soviet Union airspace. See Brandon E. Ehrhart, *A Technological Dream Turned Legal Nightmare: Potential Liability of the United States Under the Federal Tort Claims Act for Operating the Global Positioning System*, 33 VAND. J. TRANSNAT'L L. 371, 379 (2000).

³⁰See Lever, *supra* note 28, at 219. The military's conscious decision to introduce an error into the GPS system available to the civilian population was known as "selective availability." *Id.* With selective availability, the accuracy of location information was limited to one hundred meters of the physical object's actual location. *Id.*

the Secretary of Defense allow all users access to the full capabilities of the GPS technology.³¹ The NAVSTAR system, now simply known as the “Global Positioning System,” presently contains twenty-eight satellites that orbit the earth for the use and benefit of both military and non-military users.³²

B. GPS as a Tool for Monitoring Criminal Offenders

Shortly after Congress enacted legislation allowing all users to access the full capabilities of GPS technology,³³ two companies quickly responded by introducing the first GPS-based continuous monitoring systems for criminal offenders.³⁴ Several other companies³⁵ have since joined the pool of competitors, and the market for GPS products has rapidly spread to many states.³⁶ The ability to provide accurate, twenty-four hour surveillance of an offender creates a whole new realm of opportunities for electronic monitoring³⁷ that has commanded the attention of law enforcement agencies throughout the country.³⁸ This section will illustrate the different components involved in GPS monitoring and explain the use of inclusion and exclusion zones.

1. Components of a GPS Offender Monitoring System

There are four main components necessary for the implementation and maintenance of an effective GPS monitoring program.³⁹ The first component is a

³¹See National Defense Authorization Act of 1996, Pub. L. No. 104-106, § 279, 110 Stat. 186, 243-44 (prohibiting the Secretary of Defense from denying access of non-Department of Defense users to the full capabilities of the Global Positioning System).

³²See SPENCER ET AL., *supra* note 3, at 27.

³³See National Defense Authorization Act § 279, 110 Stat. at 243-44.

³⁴See JOSEPH HOSHEN & GEORGE DRAKE, OFFENDER WIDE AREA CONTINUOUS ELECTRONIC MONITORING SYSTEMS, FINAL REPORT 8 (2001), available at <http://www.ncjrs.gov/pdffiles1/nij/grants/187102.pdf>. In 1997, Advanced Business Sciences and Pro Tech Monitoring introduced the first GPS systems to law enforcement agencies in localities in Michigan, Minnesota, Florida, Colorado, Wisconsin, Pennsylvania, South Carolina, Arizona, Ohio, Texas and Nebraska. *Id.*

³⁵Industry leaders among the long list of firms manufacturing GPS offender monitoring equipment currently include iSECUREtrac Corporation, Pro Tech Monitoring, BI Incorporated, Criminal Justice Solutions, Satellite Tracking of People LLC, and Strategic Technologies Incorporated. See Walker & Goren, *supra* note 18, at 26.

³⁶See Axtman, *supra* note 5, at 2.

³⁷“Electronic monitoring” is simply one of the multiple terms used to describe a form of electronic supervision generally associated with “technologies that determine whether an offender is at home (or other locations) as stipulated by his or her conditions of supervision.” See CROWE ET AL., *supra* note 4, at 1. The term is also broad enough to encompass location tracking technology, such as GPS, in which an offender’s location can be determined in real time. *Id.*

³⁸See *Keeping Track*, *supra* note 4, at 5.

³⁹See CROWE ET AL., *supra* note 4, at 66. See generally HOSHEN & DRAKE, *supra* note 34, at 8 (outlining the general components historically used in GPS monitoring).

battery-operated transmitter that is typically placed around an offender's ankle.⁴⁰ Since the device must be worn by an offender at all times, it is tamper-resistant, highly durable, and usually only weighs a few ounces.⁴¹ The most modern transmitters generally emit a radio signal every twenty to thirty seconds that is encoded with both a serial number and transmitter for health information.⁴²

The second component, a portable tracking unit (PTU), receives the signals from the transmitter and is generally worn around an offender's waist.⁴³ If the PTU fails to receive the signal, an alert is instantly sent to notify the monitoring center of a violation.⁴⁴ The interaction between the two system components is for the sole purpose of preventing an offender from simply discarding the PTU and evading supervision.⁴⁵ In addition to the receiver used to detect signals from the transmitter, the PTU is equipped with a GPS signal receiver, a computer, and cellular telephone circuits.⁴⁶ The GPS feature continuously receives signals from several of the twenty-eight satellites orbiting the Earth, while simultaneously capturing the exact time the signal is sent and the identity of the satellite transmitting each signal.⁴⁷ The information is then processed by the GPS receiver to determine an offender's location and is continually stored in the computer located within the PTU itself.⁴⁸

The cellular telephone unit in the PTU communicates all of the newly acquired location-related information to the third component, a central monitoring system.⁴⁹ This system is responsible for tracking an offender's actual movements throughout the day by utilizing advanced mapping technology to process the information received.⁵⁰ Central monitoring systems are usually located within a data center, which is the facility where all of the primary GPS communications equipment is safely stored.⁵¹

⁴⁰See CROWE ET AL., *supra* note 4, at 66.

⁴¹*Id.*

⁴²See iSECUREtrac Corporation, Transmitter, http://www.isecuretrac.com/products_detail.asp?focus=Transmitter (last visited Dec. 26, 2005).

⁴³See CROWE ET AL., *supra* note 4, at 66.

⁴⁴*Id.*

⁴⁵*Id.*

⁴⁶*Id.*

⁴⁷*Id.*

⁴⁸*Id.*

⁴⁹*Id.*

⁵⁰*Id.*

⁵¹See, e.g., iSECUREtrac Corporation, Secure Data Center, http://www.isecuretrac.com/products_datacenter.asp (last visited Dec. 26, 2005); BI Incorporated, BI GuardCenter, <http://www.bi.com/content.php?section=services&page=services&detail=guardcenter> (last visited Dec. 26, 2005); Pro Tech, Offender Tracking Center, <http://www.ptm.com/otcpage.shtml> (last visited Dec. 26, 2005).

The fourth and final component that is indispensable to the operation of a successful GPS monitoring program is the charging unit for the PTU.⁵² The most modern PTUs typically have a battery life of twenty hours or less,⁵³ and offenders are responsible for ensuring that the batteries remain charged at all times.⁵⁴ For the PTU to be fully charged, an offender must rest it on the charging unit for a period of no less than five hours.⁵⁵ During the recharging period, the PTU still maintains continuous contact with the central monitoring system.⁵⁶ An offender must remain within a specified distance from the unit while recharging, or it will fail to detect the transmitter's radio signals, and notice of a violation will be sent to law enforcement officials.⁵⁷

When all of the system's components are functioning properly, an offender's movements can be monitored twenty-four hours a day regardless of location.⁵⁸ GPS monitoring enables law enforcement agencies to collect continuous, real-time location information so that officers can be dispatched to an offender's exact location if necessary.⁵⁹ With the more primitive forms of electronic monitoring, such as continuous signaling devices⁶⁰ and field monitoring devices,⁶¹ supervising agencies

⁵²See CROWE ET AL., *supra* note 4, at 66.

⁵³See iSECUREtrac Corporation, 2150/2250 Personal Tracking Unit Specifications, http://www.isecuretrac.com/downloads/SPECS_20051005_iST_2150_2250.pdf (last visited Dec. 26, 2005); see also BI Incorporated, BI ExacuTrack, http://www.bi.com/content.php?section=products&page=products&detail=bi_exacutrack (last visited Dec. 26, 2005).

⁵⁴See CROWE ET AL., *supra* note 4, at 67.

⁵⁵*Id.*

⁵⁶See HOSHEN & DRAKE, *supra* note 34, at 10.

⁵⁷See CROWE ET AL., *supra* note 4, at 66.

⁵⁸See *Keeping Track*, *supra* note 4, at 2; see also iSECUREtrac Corporation, Active GPS Tracking, <http://www.isecuretrac.com/activeGPS.asp> (last visited Dec. 26, 2005).

⁵⁹See April A. Otterberg, Note, *GPS Tracking Technology: The Case for Revisiting Knotts and Shifting the Supreme Court's Theory of the Public Space Under the Fourth Amendment*, 46 B.C. L. REV. 661, 663-64 (2005) (discussing the extent to which GPS monitoring invades an offender's privacy by continuously tracking every movement in real time).

⁶⁰See CROWE ET AL., *supra* note 4, at 63. Continuous signaling devices operate by the interaction of three distinct components. *Id.* The first component, called a "transmitter," is a tamper-resistant device that is generally worn around the offender's wrist or ankle. *Id.* The transmitter, which is powered by battery, transmits a radio frequency signal multiple times per minute. *Id.* This signal is detected by a corresponding component known as the "receiver," which is attached to the offender's telephone at his or her residence. *Id.* The range by which the receiver can detect the transmissions is programmed at a specified distance from the offender's home, and this can vary from as little as thirty-five feet to more than five hundred feet. *Id.* If an offender ventures beyond the permitted distance from the residence, the receiver will fail to detect the signal and automatically convey a message to the third component, which is a central computer monitored by supervision officers. *Id.* at 64.

⁶¹*Id.* at 65. Field monitoring devices, which are often referred to as "drive by" units, are primarily used in conjunction with continuous signaling devices. *Id.* Supervision officers using the device can conduct surveillance of an offender by driving past locations where the individual is scheduled to be present, such as work, school, or rehabilitation clinics. *Id.* The

were often unaware of an offender's location at various points throughout the day.⁶² GPS monitoring essentially fills in these gaps, and offenders are cognizant that law enforcement officials are monitoring their every movement.⁶³

2. Imposing Restrictions with Inclusion and Exclusion Zones

An important element of GPS monitoring is a law enforcement agency's ability to isolate specific monitoring areas in which offenders are either permitted or restricted from entering.⁶⁴ These areas have been labeled "inclusion" and "exclusion" zones and are typically programmed into a GPS monitoring system with advanced mapping software.⁶⁵ Exclusion zones are areas where an offender is strictly prohibited from entering, such as public parks, school zones, and high crime areas.⁶⁶ They can range anywhere from a three-hundred to two-thousand foot radius, and a multiple number of zones may be selected for each individual offender.⁶⁷ If an offender ventures into a prohibited area, an alert is immediately triggered, and real-time monitoring enables law enforcement agents to be dispatched to the offender's precise location.⁶⁸

Conversely, inclusion zones refer to areas where an offender is expected to be present at various points throughout the day, such as work, school, drug treatment programs, or home.⁶⁹ Multiple inclusion zones can be established to fit the particular needs of each individual offender, and the size of an inclusion zone is generally without limitation.⁷⁰ Similar to exclusion zones, if an offender fails to arrive at an inclusion zone or prematurely departs from the zone, an alert is immediately triggered notifying an appropriate officer.⁷¹ Both inclusion and exclusion zones are vital to the efficient operation of a GPS monitoring program because they provide a

field monitoring device is able to detect the radio signals emanating from the transmitter worn by the offender to determine if the offender is present at the specified location. *Id.*

⁶²See Steve Mainprize, *Elective Affinities in the Engineering of Social Control: The Evolution of Electronic Monitoring*, ELEC. J. SOC., Nov. 1996, <http://www.sociology.org/content/vol002.002/mainprize.html>.

⁶³See Axtman, *supra* note 5, at 2.

⁶⁴See HOSHEN & DRAKE, *supra* note 34, at 13.

⁶⁵See CROWE ET AL., *supra* note 4, at 67; *see also* iSECUREtrac Corporation, Establishing Electronic Boundaries, http://www.isecuretrac.com/tn24_g.asp (last visited Dec. 27, 2005). Mapping software enables inclusion and exclusion zones to be entered into the system by either manually imputing an address or physically pointing to a location on a computerized map. CROWE ET AL., *supra* note 4, at 67. Multiple zones can be created and edited, applied to one or more offenders, and re-sized larger or smaller to best fit the needs of the particular agency. *Id.*

⁶⁶*Id.*

⁶⁷*Id.*

⁶⁸*Id.*

⁶⁹*Id.*

⁷⁰*Id.*

⁷¹*Id.*

means for less labor-intensive supervision.⁷² Correctional officers are no longer required to sit in front of computer monitors twenty-four hours per day and can now simply respond to the various alerts triggered by offender violations.⁷³

III. OHIO'S PRISON SYSTEM AND THE IMPACT OF RECENT LEGISLATION ON CRIMINAL SENTENCING STATUTES

The United States prides itself on valuing liberty and proudly accepts the title "the land of the free."⁷⁴ However, it is difficult to imagine that a nation with the highest incarceration rate on Earth could possibly carry such a label.⁷⁵ Several states, including Ohio, are still experiencing the repercussions of the incarceration binge that began in the country only a few decades ago.⁷⁶ The staggering cost of maintaining such a large prison population and its burden on the local economy remain painfully apparent in Ohio.⁷⁷ Fortunately, the State has recently enacted legislation that encourages the use of electronic monitoring technology, such as GPS tracking, as an alternative to the incarceration of nonviolent offenders.⁷⁸ With this statutory authority in place, Ohio courts may now assist in decreasing correctional spending by reducing the number of nonviolent criminals serving time behind bars.⁷⁹

A. *Portrait of the State Prison System Over the Past Three Decades*

1. Incarceration Explosion Between 1978 and 1998

Between the years 1978 and 1998, the United States experienced an unprecedented explosion in its adult prison population.⁸⁰ Unfortunately, many states were not financially prepared to cope with the overwhelming flood of new prisoners

⁷²See Walker & Goren, *supra* note 18, at 10.

⁷³*Id.*

⁷⁴See e.g., The Star-Spangled Banner, *available at* Wikipedia, The Star-Spangled Banner, http://en.wikipedia.org/wiki/The_Star-Spangled_Banner (last visited Nov. 27, 2006).

⁷⁵See International Center for Prison Studies, Entire World-Prison Population Totals, http://www.kcl.ac.uk/depsta/rel/icps/worldbrief/highest_to_lowest_rates.php (follow "Highest to Lowest Rates" hyperlink; then follow "Go!" hyperlink) (last visited Jan. 30, 2006).

⁷⁶See Stephen C. Richards et al., *Thinking About Prison Release and Budget Crisis in the Blue Grass State*, 12 CRITICAL CRIMINOLOGY 243, 243-44 (2004).

⁷⁷See generally OHIO LEGISLATIVE SERV. COMM'N, OHIO FACTS 2004, at 54 (2004), *available at* <http://www.lbo.state.oh.us/fiscal/publications/biennial/ohiofacts/DEC2004/FinalComposite2004.pdf>.

⁷⁸See generally JEFFRY HARRIS & DAVID DIROLL, OHIO CRIMINAL SENTENCING COMM'N, MONITORING SENTENCING REFORM 4-7 (2005), *available at* http://www.sconet.state.oh.us/Sentencing_Commission/Publications/monitoring_report_2005.pdf (summarizing the effects of Senate Bill 2 and House Bill 490 on criminal sentencing statutes in Ohio).

⁷⁹*Id.* at 10.

⁸⁰See Austin, *supra* note 10, at 433.

and the skyrocketing increases in correctional expenditures that ensued.⁸¹ Ohio was among this numerous list of states, as its prison population more than tripled between 1978 and 1998.⁸² In order to accommodate the dramatic increase in the number of inmates, the State was forced to build twenty-four new penal institutions.⁸³ By 1998, annual corrections program spending in Ohio had ballooned from approximately one-hundred fifty million to over one billion dollars.⁸⁴

Although several factors may have contributed to the dramatic increase in the prison population,⁸⁵ the three factors having the greatest impact were stricter sentencing laws, tougher sanctions imposed by judges, and declining parole rates.⁸⁶ Senate Bill 199, which implemented reform in Ohio sentencing laws in 1983, created mandatory minimum prison terms for many crimes and introduced two non-mandatory prison sentence ranges for low-level, nonviolent felons.⁸⁷ In a five-year period, the average time served by first-degree and second-degree felons increased from 3.2 to 5.3 years and 2.1 to 3.6 years respectively.⁸⁸ Judges also began issuing tougher sanctions to nonviolent drug offenders. This class of offenders constituted almost fifty percent of the increase in new commitments between 1987 and 1992.⁸⁹ Finally, the declining parole rates were partially attributable to the thirty-six percent increase in violent crime between 1986 and 1991.⁹⁰ Offenders convicted of violent

⁸¹See Michael S. Vaughn, *Listening to the Experts: A National Study of Correctional Administrators' Responses to Prison Overcrowding*, 18 CRIM. JUST. REV. 12, 12 (1993) (discussing the impact of the incarceration explosion on state budgets).

⁸²SEE OHIO DEP'T OF REHAB. AND CORR., YEARLY INTAKE AND POPULATION ON JANUARY 1, BY SEX, WITH PERCENTAGE CHANGE FROM PRECEDING YEAR, 1972-2006, <http://www.drc.state.oh.us/web/Reports/reports18.asp> (follow "Yearly Intake and Population on Jan. 1 (1972-2006)" hyperlink) [hereinafter YEARLY INTAKE] (last visited Mar. 10, 2006). In 1978, the prison population in Ohio was estimated at 12,846 inmates. *Id.* By 1998, this number had experienced such a dramatic increase that the population was estimated at a staggering 47,808. *Id.*

⁸³See OHIO LEGISLATIVE SERV. COMM'N, *supra* note 77, at 54. In 1978, Ohio's state prison system utilized a total of eight correctional institutions. *Id.* By 2004, the number of institutions had shockingly increased to thirty-two placing a heavy burden upon state correctional resources. *Id.*

⁸⁴*Id.*

⁸⁵See generally NANCY G. LA VIGNE ET AL., URBAN INST., JUSTICE POLICY CTR, A PORTRAIT OF PRISON RE-ENTRY IN OHIO 16-21 (2003), available at http://www.urban.org/UploadedPDF/410891_ohio_reentry.pdf (illustrating historical incarceration and release trends in Ohio).

⁸⁶See OHIO LEGISLATIVE SERV. COMM'N, *supra* note 77, at 55.

⁸⁷See JOHN WOOLDREDGE ET AL., NAT'L INST. OF JUSTICE, THE IMPACT OF OHIO'S SENATE BILL 2 ON SENTENCING DISPARITIES 5 (2002), available at http://www2.uc.edu/criminaljustice/ProjectReports/SB2_final_report.pdf.

⁸⁸See LA VIGNE ET AL., *supra* note 85, at 20.

⁸⁹*Id.* at 16.

⁹⁰*Id.* at 17. "Violent offenders are persons convicted of homicide, kidnapping, forcible rape, sexual assault, robbery, assault, or other crimes involving the threat or imposition of harm upon the victim, including extortion, intimidation, reckless endangerment, hit-and-run

crimes are generally less likely to be paroled and are often forced to endure longer prison sentences.⁹¹ By the late 1990s, all of these factors contributed to Ohio having the sixth largest prison population in the entire country.⁹²

2. Current Status of Ohio's Prison System

After experiencing dramatic increases over the prior two decades, Ohio's prison population finally peaked in 1998 and slowly began to decline over the next three years.⁹³ Between 2001 and 2005, the total number of prisoners remained relatively stable even though the total intake of new inmates continued to rise.⁹⁴ Despite Ohio's stabilization efforts, actual expenditures by the Department of Rehabilitation and Corrections (DRC) exhibited an average annual increase of more than twenty-three million dollars each year over that four-year period.⁹⁵ This alarming trend appears to continue into 2006, as close to \$1.7 billion dollars is budgeted for DRC expenditures in Ohio.⁹⁶

The fluctuation in DRC expenditures between years is the direct result of increases or decreases in several individual DRC departmental and program expenses.⁹⁷ However, the aggregate change in all expenses can be best analyzed as one single unit: the average cost per inmate.⁹⁸ The average cost per inmate encompasses the costs of prison administration, security guards, mental health services, medical services, education of inmates, and every other cost necessary to properly manage and rehabilitate prisoners.⁹⁹ At the end of the DRC's fiscal year

driving with injury, or child abuse." LAWRENCE A. GREENFELD, U.S. DEP'T OF JUSTICE, BUREAU OF JUSTICE STATISTICS, PRISON SENTENCES AND TIME SERVED FOR VIOLENCE 1 (1995), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/psatsfv.pdf>.

⁹¹See generally GREENFELD, *supra* note 90, at 1.

⁹²SEE ALLEN J. BECK & CHRISTOPHER J. MUMOLA, U.S. DEP'T OF JUSTICE, BUREAU OF JUSTICE STATISTICS, PRISONERS IN 1998, at 5 (1999), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/p98.pdf>.

⁹³See LA VIGNE ET AL., *supra* note 85, at 21. Between the years 1998 and 2001, the total inmate population decreased from 49,029 to 44,868. *Id.* The marked decline was due to a 28% increase in the number of releases. *Id.* It is important to note that during this period, the number of admissions still increased by 17%. *Id.*

⁹⁴See YEARLY INTAKE, *supra* note 82.

⁹⁵Total expenditures by the DRC in 2001 and 2005 were \$1,505,722,810 and \$1,599,851,177 respectively. Total expenditures in 2005 (\$1,599,851,177) less total expenditures in 2001 (\$1,505,722,810) divided by the four-year period equals an average increase of \$23,532,092 per year. See OHIO DEP'T OF REHAB. AND CORR., FISCAL YEAR 2001 ANNUAL REPORT 27 (2001), available at <http://www.drc.state.oh.us/web/Reports/reports2.asp> (follow "Annual Report 2001" hyperlink); OHIO DEP'T OF REHAB. AND CORR., FISCAL YEAR 2005 ANNUAL REPORT 30 (2005), available at <http://www.drc.state.oh.us/web/Reports/reports2.asp> (follow "Annual Report 2005" hyperlink) [hereinafter 2005 ANNUAL REPORT].

⁹⁶See OHIO DEP'T OF REHAB. AND CORR., DECEMBER 2005 FACTS 1 (2005), available at <http://www.drc.state.oh.us/web/Reports/reports3.asp> (follow "December 2005" hyperlink).

⁹⁷See generally 2005 ANNUAL REPORT, *supra* note 95, at 36.

⁹⁸*Id.* at 29.

⁹⁹*Id.*

2005, the average cost to house each inmate was estimated at \$68.76 per day, which equates to an astonishing annual cost per inmate of \$25,097¹⁰⁰. This cost has steadily increased each year since 2001,¹⁰¹ and only a relatively small portion can be attributed to yearly inflation.¹⁰²

To combat the high cost of incarceration, Ohio has recently focused on improving community sanctions for low-level, nonviolent offenders in an effort to avoid issuing nonessential terms of imprisonment.¹⁰³ The DRC has also aggressively devoted substantial resources toward the creation of prisoner re-entry programs in order to reduce the rate of recidivism among offenders released into the community.¹⁰⁴ A few of the federal and state-funded re-entry and community sanction projects currently implemented in Ohio include Offender Workforce Development, Protecting Inmates and Safeguarding Communities, Returning Home: Re-entry In Ohio, and Temporary Assistance to Needy Families.¹⁰⁵

B. Impact of Ohio Senate Bill 2 and House Bill 490

1. Ohio Senate Bill 2

The legislature enacted Ohio Senate Bill 2 (SB2) on July 1, 1996 as the result of adult felony sentencing reform recommendations proposed to the General Assembly by the Criminal Sentencing Commission.¹⁰⁶ One of the many goals of SB2 was to divert a greater number of nonviolent offenders from prison to various community-based sanctions in an effort to reduce unnecessary burdens upon correctional resources.¹⁰⁷ The legislation not only modified several provisions in Ohio's criminal code, but it also changed the way in which judges sentenced convicted felons.¹⁰⁸

¹⁰⁰The daily cost per inmate in 2005 of \$68.76 multiplied by a 365-day period results in a yearly cost per inmate of approximately \$25,097. *Id.* This result is astonishing considering that the 2006 poverty threshold for a family of five is estimated at \$23,400, which is \$1,697 less than what Ohio is currently spending to house each inmate per year. *See* Annual Update of the HHS Poverty Guidelines, 71 Fed. Reg. 3848, 3848 (Jan 24, 2006), *available at* <http://aspe.hhs.gov/poverty/06fedreg.pdf>.

¹⁰¹*See* 2005 ANNUAL REPORT, *supra* note 95, at 29.

¹⁰²*See* InflationData.com, Inflation Rate in Percent for Jan. 2000-Present, http://inflationdata.com/inflation/Inflation_Rate/CurrentInflation.asp (last visited Jan. 2, 2006).

¹⁰³*See* LA VIGNE ET AL., *supra* note 85, at 21.

¹⁰⁴At the end of fiscal year 2005, the Ohio Department of Rehabilitation and Correction had created over ninety-seven thousand offender re-entry plans. *See generally* 2005 ANNUAL REPORT, *supra* note 95, at 5-12. The focal point of the plans is to provide proper education and skill training to offenders while strengthening their family units and helping them to develop a strong pool of community resources. *Id.*

¹⁰⁵*Id.* at 15.

¹⁰⁶*See* HARRIS & DIROLL, *supra* note 78, at 4.

¹⁰⁷*Id.* at 10.

¹⁰⁸*Id.* at 4.

Arguably one the most influential changes brought about by the enactment of SB2 was the introduction of the term “community-control sanction” into the Ohio Revised Code.¹⁰⁹ The term was broadly defined under SB2 as “a sanction that is not a prison term and that is described in section 2929.16, 2929.17, or 2929.18.”¹¹⁰ Under section 2929.17, which was also a product of SB2,¹¹¹ a court was generously given the option of issuing felony offenders several different nonresidential sanctions as opposed to house arrest or imprisonment.¹¹² The term “electronic monitoring” was included in this expansive list of sanctions.¹¹³ To further achieve its goal of reducing the population of nonviolent felons in State prisons,¹¹⁴ SB2 actually created a preference that certain fourth-degree and fifth-degree felons be given community-control sanctions, as opposed to terms of incarceration.¹¹⁵ When all of the stated provisions are considered, SB2 appears to have paved the road for the use of electronic monitoring and other community-based sanctions in Ohio sentencing law.¹¹⁶

2. Ohio House Bill 490

Ohio House Bill 490 (HB490), which took effect on January 1, 2004,¹¹⁷ changed several provisions in Ohio’s criminal code in an effort to guide courts in the sentencing of misdemeanants.¹¹⁸ One of the main goals of the legislation was to encourage greater use of both community service and new monitoring technologies for the purpose of punishing offenders and protecting the public from future crime.¹¹⁹ Among other modifications, HB490 had the effect of substantially expanding the availability of nonresidential sanctions to misdemeanants while broadening the definition of “electronic monitoring device.”¹²⁰

Prior to the enactment of HB490, a court could not impose a community-control sanction upon an offender convicted of a misdemeanor and could only impose terms

¹⁰⁹See OHIO REV. CODE ANN. § 2929.01(F) (West 2006); *see also* BURT W. GRIFFIN & LEWIS R. KATZ, OHIO FELONY SENTENCING LAW 624 (2004).

¹¹⁰See § 2929.01(F); *see also* 1995 Ohio Legis. Serv. Ann. L-2663 (West).

¹¹¹See 1995 Ohio Legis. Serv. Ann. L-2680 (West).

¹¹²See OHIO REV. CODE ANN. § 2929.17 (West 2006).

¹¹³*Id.*

¹¹⁴See HARRIS & DIROLL, *supra* note 78, at 4.

¹¹⁵See OHIO REV. CODE ANN. § 2929.13(B)(2)(b) (West 2006).

¹¹⁶See *generally* HARRIS & DIROLL, *supra* note 78, at 3.

¹¹⁷See DAVID DIROLL, OHIO CRIMINAL SENTENCING COMM’N, MISDEMEANOR SENTENCING UNDER H.B. 490 & S.B. 57 PRIMER 3 (2004), *available at* http://www.sconet.state.oh.us/Sentencing_Commission/publications/HB490_summary.pdf.

¹¹⁸*Id.* at 4.

¹¹⁹See HARRIS & DIROLL, *supra* note 78, at 7.

¹²⁰See DIROLL, *supra* note 117, at 11-12.

of probation.¹²¹ Further, a term of probationary electronic monitoring could only be issued if it was accompanied by house arrest.¹²² HB490 removed a court's authority to impose probation altogether, and granted broad authority to directly sentence a misdemeanor offender to one or more community-control sanctions.¹²³ The new legislation also removed the requirement that electronic monitoring be partnered with house arrest, making electronic monitoring a solitary nonresidential sanction.¹²⁴ Finally, HB490 expanded the definition of "electronic monitoring device" to include any technology that can adequately track the location of either a misdemeanor or felony offender at any time, which includes satellite technology.¹²⁵ The provisions of HB490 not only made it possible for misdemeanants to receive community-control sanctions as opposed to imprisonment,¹²⁶ but also increased Ohio courts' awareness of modern technologies that will greatly improve nonresidential primary sentencing options.¹²⁷

IV. ANALYSIS: GPS MONITORING AS A CONSTITUTIONAL, COST-EFFECTIVE, AND COMMUNITY-FRIENDLY ALTERNATIVE TO INCARCERATION

When planning the implementation of any electronic offender monitoring program, a state must consider several important variables.¹²⁸ Among the most crucial factors to consider include the possible constitutional challenges to the program,¹²⁹ the tangible and intangible costs and the source of funding,¹³⁰ and the effects that the program will have on the community.¹³¹ Although a state agency may be confronted with difficult constitutional issues at the inception of a GPS monitoring program,¹³² proper planning, accompanied by the development of strict administrative guidelines, will suffice to eliminate virtually any meritorious constitutional claims brought by disgruntled offenders.¹³³ Sentencing nonviolent

¹²¹See OHIO LEGISLATIVE SERV. COMM'N, FINAL ANALYSIS, AM. SUB. H.B. 490, at 2, <http://www.lsc.state.oh.us/analyses124/02-hb490-124.pdf> [hereinafter H.B. 490 FINAL ANALYSIS] (last visited Jan. 15, 2006).

¹²²*Id.* at 11.

¹²³*See id.* at 2; *see also* OHIO REV. CODE ANN. § 2929.25(A)(1)(a) (West 2006).

¹²⁴*See* H.B. 490 FINAL ANALYSIS, *supra* note 121, at 53; *see also* OHIO REV. CODE ANN. § 2929.27(A)(2) (West 2006).

¹²⁵*See* DIROLL, *supra* note 117, at 12; *see also* OHIO REV. CODE ANN. § 2929.01(VV)(3) (West 2006).

¹²⁶*See* H.B. 490 FINAL ANALYSIS, *supra* note 121, at 2.

¹²⁷*See* HARRIS & DIROLL, *supra* note 78, at 7.

¹²⁸*See* CROWE ET AL., *supra* note 4, at 8.

¹²⁹*Id.* at 21-23.

¹³⁰*Id.* at 41.

¹³¹*Id.* at 33.

¹³²*Id.* at 21-23.

¹³³*Id.*

criminals to terms of monitored supervision can also lead to substantial cost savings,¹³⁴ especially if the program requires eligible offenders to contribute to the costs of their supervision.¹³⁵ Finally, a properly run GPS offender monitoring program will not only eliminate most serious threats to the general public,¹³⁶ but will actually benefit a community by preventing the negative effects of incarceration, such as loss of employment, increases in correctional spending, increases in offender recidivism, and deterioration of the family structure.¹³⁷

A. *Constitutional Challenges to the Use of GPS Monitoring Technology*

When the concept of electronic monitoring was first introduced in the 1960s by Dr. Robert Schweitzgebel, an American psychologist, the general public quickly expressed strong concerns about possible violations of offenders' constitutional rights.¹³⁸ The rights in controversy included an offender's right to privacy, right to due process, freedom from cruel and unusual punishment, and equal protection under the law.¹³⁹ The use of GPS technology to track an offender's movements is the most modern form of electronic monitoring,¹⁴⁰ and the identical constitutional issues previously debated several decades ago may once again fall under public scrutiny.¹⁴¹ However, with proper planning and adequate safeguards, a well devised GPS monitoring program is more than certain to pass constitutional muster in the state of Ohio.¹⁴²

1. Fourth Amendment Challenges

The Fourth Amendment to the U.S. Constitution broadly guarantees freedom from government intrusion into a citizen's privacy.¹⁴³ In *Katz v. United States*, the

¹³⁴See BI Incorporated, BI Solutions for Budget Constraints, <http://www.bi.com/content.php?section=solutions&page=budget> (last visited Jan. 19, 2006).

¹³⁵See Scheeres, *supra* note 7; see also BI INCORPORATED, BI CASE STUDY: ALASKA DEPARTMENT OF CORRECTIONS (2004), http://www.bi.com/pdfs/BI_CS_Alaska.pdf.

¹³⁶See generally iSECUREtrac Corporation, Recidivism, Compliance, and Reentry into Communities, http://www.isecuretrac.com/sa_cr.asp (last visited Jan. 19, 2006).

¹³⁷See Stark, *supra* note 17; see also Patrick Hyde & Nicole DeJarnatt, *GPS Offender Tracking and the Police Officer*, LAW ENFORCEMENT TECH., June 2005, available at <http://www.officer.com/article/article.jsp?siteSection=20&id=25189>.

¹³⁸See JOHN HOWARD SOC'Y OF ALTA., ELECTRONIC MONITORING 8 (2000), available at <http://www.johnhoward.ab.ca/PUB/PDF/A3.pdf>.

¹³⁹See CROWE ET AL., *supra* note 4, at 21-23; see also U.S. CONST. amend. IV, V, VIII, XIV, § 1.

¹⁴⁰See William Saletan, *Call My Cell: Why GPS Tracking is Good News for Inmates*, SLATE, May 7, 2005, <http://slate.msn.com/id/2118117>.

¹⁴¹See CROWE ET AL., *supra* note 4, at 21; see also Stark, *supra* note 17.

¹⁴²See *id.* at 21-23. See generally JOHN HOWARD SOC'Y OF ALTA., *supra* note 138, at 8.

¹⁴³The Amendment provides the following:

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants

Supreme Court held that “[w]hat a person knowingly exposes to the public . . . is not a subject of Fourth Amendment protection” and “what he seeks to preserve as private . . . may be constitutionally protected.”¹⁴⁴ Since GPS technology has the capability of tracking an offender’s every movement,¹⁴⁵ its effect upon the privacy rights of both offenders and their families may raise public concern over the use of the new technology in an offender monitoring program.¹⁴⁶ By obtaining knowledge of an offender’s precise locations twenty-four hours a day,¹⁴⁷ a correctional agency has a front row seat into a program participant’s habits, personal affairs, and relationships.¹⁴⁸ Conclusions subsequently formulated about such private relations may appear to invade an offender’s sense of autonomy and privacy, subjecting the offender to a high degree of ridicule and humiliation.¹⁴⁹

Although Fourth Amendment issues presented a substantial impediment to the implementation of offender monitoring programs when electronic monitoring technology was first introduced,¹⁵⁰ it is now widely accepted that monitored offenders are afforded a lower degree of constitutional protection than the ordinary law-abiding citizen.¹⁵¹ The primary reason why such monitoring has been determined not to constitute an unlawful invasion of privacy is because the sanction is usually imposed only with the full consent of an offender.¹⁵² With this consent, an offender is considered to have knowingly exposed all facets of his private life to the correctional agency and is no longer entitled to a high degree of Fourth Amendment protection under *Katz*.¹⁵³ Therefore, if the administrator of a GPS monitoring program adequately ensures that all participants fully understand the terms of monitored release and willfully accept all conditions imposed, the offenders will be

shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.
U.S. CONST. amend. IV.

¹⁴⁴*Katz v. United States*, 389 U.S. 347, 351 (1967)

¹⁴⁵*See Keeping Track*, *supra* note 4, at 2.

¹⁴⁶*See JOHN HOWARD SOC’Y OF ALTA.*, *supra* note 138, at 8-10; *see also* Otterberg, *supra* note 59, at 670.

¹⁴⁷*See Keeping Track*, *supra* note 4, at 5.

¹⁴⁸*See* Melissa Anne Emmel, Center for the Study of Law, Science and Technology, *GPS: Saving Lives or Invading Them?*, at 15, <http://www.law.asu.edu/files/Programs/Sci-Tech/Commentaries/emmel.GPS%20Paper.doc> (last visited Nov. 27, 2006) (independent study paper for the Center for the Study of Law, Science and Technology, Sandra Day O’Connor College of Law, Arizona State University).

¹⁴⁹*Id.*

¹⁵⁰*See JOHN HOWARD SOC’Y OF ALTA.*, *supra* note 138, at 8.

¹⁵¹*See id.*; *see also* *United States v. Knights*, 534 U.S. 112, 119 (2001) (stating that a court may impose reasonable conditions depriving the offender of some freedoms enjoyed by law-abiding citizens).

¹⁵²*See JOHN HOWARD SOC’Y OF ALTA.*, *supra* note 138, at 9.

¹⁵³*See Katz v. United States*, 389 U.S. 347, 351 (1967); *see also* *Florida v. Riley*, 488 U.S. 445, 449 (1989); *California v. Ciraolo*, 476 U.S. 207, 213 (1986); *Cardwell v. Lewis*, 417 U.S. 583, 591 (1974).

deemed to have substantially waived their expectations of privacy protected by the Fourth Amendment.¹⁵⁴

2. Eighth Amendment Challenges

The Eighth Amendment to the U.S. Constitution unconditionally guarantees all people the right to be free from “cruel and unusual punishments.”¹⁵⁵ In *Furman v. Georgia*,¹⁵⁶ the Supreme Court set forth a series of principles used to determine whether a particular punishment is cruel or unusual.¹⁵⁷ Among these principles, the severity of the punishment must not be “patently unnecessary,” inflicted in a “wholly arbitrary fashion,” or “degrading to human dignity.”¹⁵⁸ One of the primary public concerns with GPS tracking is that certain offenders will be sanctioned to a term of monitoring when they may have otherwise received a less punitive sanction if GPS technology had been unavailable.¹⁵⁹ An additional Eighth Amendment concern is that compliance with the terms associated with GPS monitoring may prove to be impossible for an offender.¹⁶⁰ Finally, the general public has expressed Eighth Amendment concerns that the requirements of GPS monitoring, such as the requirement of having to wear the tracking equipment in public, can be viewed as oppressive or humiliating to an offender.¹⁶¹

When conducting research into possible Eighth Amendment challenges, the American Probation and Parole Association concluded that the use of electronic monitoring technology generally does not constitute cruel and unusual punishment.¹⁶² The principle rationale for this decision is that an offender’s compliance with the terms of a monitoring program can ultimately be considered

¹⁵⁴See JOHN HOWARD SOC’Y OF ALTA., *supra* note 138, at 9; see also *Minnesota v. Carter*, 525 U.S. 83, 88 (1998) (asserting that a person’s capacity to claim the protection of the Fourth Amendment depends upon whether the person had a legitimate expectation of privacy); *Hudson v. Palmer*, 468 U.S. 517, 527-28 (1984) (holding that loss of privacy is an inherent consequence of incarceration).

¹⁵⁵U.S. CONST. amend. VIII.

¹⁵⁶*Furman v. Georgia*, 408 U.S. 238 (1972).

¹⁵⁷*Id.* at 281.

¹⁵⁸*Id.* The principals consisted of the following: the severity of the punishment must not be “degrading to human dignity”; the punishment must not be inflicted in a “wholly arbitrary fashion”; the punishment must not be “clearly and totally rejected throughout society”; and the punishment must not be “patently unnecessary.” *Id.* These standards are still considered by courts today when determining whether a particular sentence is “cruel and unusual.” See, e.g., *Atkins v. Virginia*, 536 U.S. 304, 323 (2002); *Simmons v. South Carolina*, 512 U.S. 154, 173 (1994); *Wilson v. State*, 830 So. 2d 765, 782 (Ala. Crim. App. 2001).

¹⁵⁹See *Axtman*, *supra* note 5, at 3. Although the American Civil Liberties Union (ACLU) feels that GPS technology is a good alternative to incarceration, it also has expressed general concern that people will be unnecessarily placed into GPS monitoring programs as opposed to less punitive sanctions. See *id.*; see also *Scheeres*, *supra* note 7.

¹⁶⁰See CROWE ET AL., *supra* note 4, at 23.

¹⁶¹See *id.*; see also JOHN HOWARD SOC’Y OF ALTA., *supra* note 138, at 9-10.

¹⁶²See CROWE ET AL., *supra* note 4, at 23.

voluntary because the offender always possesses the option to remain incarcerated.¹⁶³ Further, although the use of an ankle device may at times be embarrassing or uncomfortable for an offender,¹⁶⁴ it is undisputedly less restrictive and more humane than physical incarceration.¹⁶⁵ Correctional agencies also possess a strong financial incentive to impose a less restrictive sanction upon an offender, such as house arrest, as opposed to GPS monitoring, because the cost is substantially less.¹⁶⁶ A state will only plan to allocate GPS monitoring resources to offenders who pose a general risk to the public or who are likely to disobey less restrictive sanctions.¹⁶⁷ All of the evidence taken together indicates that the use of GPS technology in an offender monitoring program will not violate the principles underlying the Eighth Amendment.¹⁶⁸

3. Fourteenth Amendment Challenges

The Fourteenth Amendment to the U.S. Constitution declares that no state shall “deprive any person of life, liberty, or property, without due process of law.”¹⁶⁹ Under *Goldberg v. Kelly*,¹⁷⁰ procedural due process includes an offender’s right not only to be adequately notified of proceedings but also to have the opportunity to be heard at those proceedings.¹⁷¹ An alleged violation of procedural due process rights may occur in a GPS monitoring program when an offender disobeys specific terms of a sanction and is consequently forced to serve the remaining time in prison.¹⁷² This situation occurred in *Long v. State*,¹⁷³ where the State sought to remove an offender from his electronic monitoring program and place him in prison for

¹⁶³*Id.* Research has shown that offenders unanimously prefer electronic monitoring as opposed to physical incarceration. See Brian K. Payne & Randy R. Gainey, *The Electronic Monitoring of Offenders Released From Jail or Prison: Safety, Control, and Comparisons to the Incarceration Experience*, 84 PRISON J. 413, 428-29 (2004). The ability to maintain family ties, continue employment, and reflect upon the future, represented just a few of the reasons why offenders favored such a sanction. *Id.*

¹⁶⁴See e.g., Gersh Kuntzman, *Martha Gripes About Bracelet in E-Chat*, N.Y. POST, March 15, 2005, (Late City Final Section), at 15.

¹⁶⁵See CROWE ET AL., *supra* note 4, at 23; see also JOHN HOWARD SOC’Y OF ALTA., *supra* note 138, at 10.

¹⁶⁶See OFFICE OF PROGRAM POLICY ANALYSIS & GOVERNMENT ACCOUNTABILITY, ELECTRONIC MONITORING SHOULD BE BETTER TARGETED TO THE MOST DANGEROUS OFFENDERS 5 (April 2005), available at <http://www.oppaga.state.fl.us/reports/pdf/0519rpt.pdf> (Report No. 05-19) [hereinafter OPPAGA]. Radio Frequency, which is often used to enforce house arrest curfews, is estimated to cost \$2.34 per day. *Id.* In comparison, active GPS monitoring is estimated to cost \$8.97 per day. *Id.*

¹⁶⁷*Id.*

¹⁶⁸See generally CROWE ET AL., *supra* note 4, at 23.

¹⁶⁹U.S. CONST. amend. V.

¹⁷⁰*Goldberg v. Kelly*, 397 U.S. 254 (1970).

¹⁷¹*Id.* at 267-68.

¹⁷²See generally CROWE ET AL., *supra* note 4, at 23.

¹⁷³*Long v. State*, 717 N.E.2d 1238 (Ind. Ct. App. 1999).

allegedly tampering with his ankle transmitter.¹⁷⁴ The court held that the State's failure to notify the offender in writing of its intention to seek revocation of the monitoring program violated his right to due process.¹⁷⁵

Long does not imply that the use of GPS technology in a carefully administered offender monitoring program is likely to create an abundance of nonfrivolous litigation against a state correctional agency.¹⁷⁶ However, an agency must diligently establish adequate policies and procedures to safeguard an offender's due process rights.¹⁷⁷ This may include ensuring that the GPS equipment contains an accurate mechanism for detecting violations and recording them as evidence in a manner acceptable to courts.¹⁷⁸ Further, the agency must also develop a routine for promptly notifying offenders of violations in order to afford them a fair opportunity to present contradicting evidence.¹⁷⁹ With these two security measures properly in place, a state correctional agency can comfortably avoid burdensome procedural due process lawsuits.¹⁸⁰

The Fourteenth Amendment also states, in pertinent part, that no state shall "deny to any person within its jurisdiction the equal protection of the laws."¹⁸¹ Under *Griffin v. Illinois*,¹⁸² the Supreme Court interpreted this clause to hold that "a State can no more discriminate on account of poverty than on account of religion, race, or color."¹⁸³ The danger of violating an offender's constitutional right to equal protection may arise in two seemingly similar situations.¹⁸⁴ In both scenarios, the GPS monitoring program requires offenders to contribute to the cost of their supervision.¹⁸⁵ The first situation occurs when an offender, who is otherwise qualified for an electronic monitoring program, is incarcerated solely due to insolvency.¹⁸⁶ The other problematic situation transpires when an offender becomes

¹⁷⁴*Id.* at 1240.

¹⁷⁵*Id.*

¹⁷⁶See CROWE ET AL., *supra* note 4, at 22.

¹⁷⁷*Id.*

¹⁷⁸*Id.* at 23.

¹⁷⁹See *Long*, 717 N.E.2d at 1241.

¹⁸⁰See CROWE ET AL., *supra* note 4, at 22.

¹⁸¹See U.S. CONST. amend. XIV, § 1.

¹⁸²See *Griffin v. Illinois*, 351 U.S. 12 (1956).

¹⁸³*Id.* at 17-18.

¹⁸⁴See CROWE ET AL., *supra* note 4, at 23.

¹⁸⁵*Id.* It is becoming increasingly more common for state correctional agencies to require offenders to pay all or a portion of the cost of expenses related to their supervision. *Id.* at 47; see also National Association of Pretrial Services Agencies, 33rd Annual Conference and Training Institute, 2005 Exhibitors, Sentinel Offender Services, LLC, <http://www.napsa-acti.org/expages/sentinel.htm> (last visited Dec. 29, 2005).

¹⁸⁶See CROWE ET AL., *supra* note 4, at 23; see also *Bearden v. Georgia*, 461 U.S. 660, 674 (1983) (holding that a defendant cannot be imprisoned for failure to pay a fine due to insolvency).

insolvent while on a GPS monitoring program and can no longer afford to pay the costs necessary to maintain the monitoring equipment.¹⁸⁷

Fourteenth Amendment challenges under the Equal Protections Clause will be completely avoided by selecting GPS monitoring program participants based on factors other than offenders' financial resources.¹⁸⁸ Mechanisms such as "sliding fee scales"¹⁸⁹ provide effective tools for ensuring that offenders from all different income levels have the same opportunity to be considered for a term of monitored supervision.¹⁹⁰ Further, state funds should be available to cover the cost of monitoring in situations where offenders, through no fault of their own, become indigent while on monitored supervision.¹⁹¹ A state should also consider the possibility of requiring insolvent offenders to perform community service as a method of paying their way through the program.¹⁹² If an offender monitoring program selects participants based on criteria other than ability to pay and adequately provides a means for insolvent offenders to participate, a state agency will not be overburdened with legitimate Fourteenth Amendment claims based on the Equal Protection Clause.¹⁹³

B. Cost Saving Potential of a GPS Monitoring Program

1. Declining Price of GPS Technology

When GPS offender monitoring technology was first introduced in 1997,¹⁹⁴ the newly developed equipment was significantly more expensive than other more primitive forms of electronic monitoring.¹⁹⁵ The steep price was a direct consequence of the various manufacturers' attempts at recovering research and development expenses,¹⁹⁶ which can generally be expected with the introduction of

¹⁸⁷See CROWE ET AL., *supra* note 4, at 23; *see also* United States v. Stevens, 986 F.2d 283, 284 (8th Cir. 1993) (holding that if an offender cannot pay despite sufficient bona fide efforts to acquire the resources to do so, the court must consider alternative measures of punishment other than imprisonment).

¹⁸⁸See CROWE ET AL., *supra* note 4, at 23.

¹⁸⁹*Id.* A sliding fee scale will determine the amount that an offender is required to contribute to the cost of electronic monitoring based on the individual's income level. *Id.* Under this mechanism, offenders with lower income levels will be required to contribute less than offenders with higher income levels. *Id.* Agencies may even require wealthier offenders to pay more than the actual costs of their electronic supervision in order to compensate for indigent offenders who wish to participate in the GPS monitoring program. *Id.*

¹⁹⁰*Id.*

¹⁹¹*Id.* at 47.

¹⁹²*Id.*

¹⁹³*Id.* at 23.

¹⁹⁴See HOSHEN & DRAKE, *supra* note 34, at 8.

¹⁹⁵See Bill McGarigle, *Satellites Help Track Offenders in Realtime*, GOV'T TECH., May 1, 1997, available at <http://www.govtech.net/magazine/story.php?id=95330&issue=5:1997>.

¹⁹⁶*Id.* With GPS offender monitoring companies, research and development costs generally include the "cost of outside contracted engineering and design, staffing expenses . . .

any new technology.¹⁹⁷ In addition to staffing expenses, the equipment once cost a state agency between thirty and forty dollars per day for the monitoring of each individual offender.¹⁹⁸ Due to state budget restraints, the use of GPS technology was initially targeted at higher-risk offenders, such as sex offenders, domestic violence offenders, pretrial releasees in high-profile cases, and parolees with histories of violent crime.¹⁹⁹

As predicted,²⁰⁰ equipment costs have been declining dramatically in recent years, making the use of GPS monitoring a more attractive option for other types of offenders.²⁰¹ The least dangerous nonviolent offenders are slowly becoming the primary focus of GPS monitoring programs, and the more dangerous criminals are being denied the opportunity to participate.²⁰² Further, GPS firms are currently advertising prices that are less than ten dollars per day for the use of their equipment.²⁰³ For example, a recent report issued by the Florida Office of Program Policy Analysis & Government Accountability found that tracking offenders in real time with GPS equipment costs the State an average of less than nine dollars per day for each offender.²⁰⁴ The dramatic decrease in price has closed the gap between the costs of GPS supervision and the costs of other less restrictive forms of electronic monitoring,²⁰⁵ and correctional agencies are becoming increasingly willing to pay for the additional layer of protection that GPS technology can provide.²⁰⁶

2. GPS as a Proven Means for Reducing Correctional Expenditures

Many states, such as Ohio, are still experiencing difficulty with reducing DRC expenditures and are continuing to encounter highly undesirable annual budget

for engineers and software developers, and the actual costs of components, prototypes, and testing equipment and services used in the product development functions." See iSECURETRAC CORPORATION, 2004 ANNUAL REPORT 3 (2004), http://www.isecuretrac.com/sec/20050923_2004AnnualReport.pdf.

¹⁹⁷See generally Wikipedia, Research and Development, http://en.wikipedia.org/wiki/Research_and_development (last visited Jan. 19, 2006).

¹⁹⁸See *Keeping Track*, *supra* note 4, at 5.

¹⁹⁹See CROWE ET AL., *supra* note 4, at 67.

²⁰⁰*Id.*

²⁰¹See Stark, *supra* note 17.

²⁰²See Saletan, *supra* note 140.

²⁰³See, e.g., iSECUREtrac Corporation, Making the Most of Limited Budgets, http://isecuretrac.com/sa_bc.asp (last visited Dec. 29, 2005); MICROSOFT CORPORATION, MICROSOFT MAPPOINT SYSTEM CUSTOMER SOLUTION CASE STUDY, NEW LOCATION-BASED SOLUTION PRECISELY MONITORS OFFENDERS AND GENERATES REVENUE (2005), available at http://www.bi.com/pdfs/BI_CS_MPRoanoke.pdf; Charles Crumm, *High-Tech Tether Program Praised*, OAKLAND PRESS, Feb. 28, 2002, available at <http://204.176.34.196/oaklandpress/article.asp?ID=3413190>, http://www.ptm.com/oaklandpress_022802.shtml.

²⁰⁴See OPPAGA, *supra* note 166, at 4-5.

²⁰⁵See Walker & Goren, *supra* note 18, at 10.

²⁰⁶See Hyde & DeJarnatt, *supra* note 137.

increases.²⁰⁷ Prisons are generally overcrowded,²⁰⁸ often creating uncontrollable caseloads for officers.²⁰⁹ One of the most alarming statistics is that a number of states are burdened with an average annual cost per inmate of over twenty-three thousand dollars.²¹⁰ Further, recent reports illustrate that only approximately one-half of all male and one-third of all female state prisoners are incarcerated for violent crimes.²¹¹ With heightened financial and political pressure bearing down upon them, some state and local correctional agencies have begun piloting GPS offender monitoring programs in an effort to integrate nonviolent offenders back into the community.²¹² Current results indicate that these programs have been extremely successful,²¹³ and other agencies are wisely beginning to follow this trend.²¹⁴

²⁰⁷See, e.g., 2005 ANNUAL REPORT, *supra* note 95, at 36; PENNSYLVANIA DEPARTMENT OF CORRECTIONS, 2005 BUDGET PRESENTATION 1 (2005), available at <http://www.cor.state.pa.us/stats/lib/stats/2005budgetpresentation.pdf>; SOUTH CAROLINA DEPARTMENT OF CORRECTIONS, OPERATING EXPENDITURES FISCAL YEARS 2000-2006 (2006), available at <http://www.doc.sc.gov/research/BudgetAndExpenditures/OperatingExpenditures06.pdf>; VIRGINIA DEPARTMENT OF CORRECTIONS, FINANCIAL/OPERATING OVERVIEW, TOTAL EXPENDITURES BY CATEGORY - FY 2005 (2005), available at <http://www.vadoc.virginia.gov/about/facts/financial/2005/05expendcat.pdf>.

²⁰⁸See *GPS Changes Face of Corrections for Nonviolent Offenders*, 10 CORRECTIONS PROF. 13 (2005). At year-end 2004, twenty-four states reported their prison populations to be at or above highest capacity. See PAIGE M. HARRISON & ALLEN J. BECK, U.S. DEP'T OF JUSTICE, BUREAU OF JUSTICE STATISTICS, PRISONERS IN 2004, at 7 (1995), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/p04.pdf>. Ohio was included in this list of states, operating at approximately 19% above its recommended capacity. *Id.*

²⁰⁹See, e.g., iSECUREtrac Corporation, *supra* note 203. The current inmate to correction officer ratio in Ohio's state prison system is 6.1 to 1. See OHIO DEP'T OF REHAB. AND CORR., JANUARY 2006 FACTS 1 (2006), available at <http://www.drc.state.oh.us/web/Reports/reports3.asp> (follow "January 2006" hyperlink) [hereinafter JANUARY 2006 FACTS]. This illustrates an increase over the prior year ratio, which was 5.8 to 1. See OHIO DEP'T OF REHAB. AND CORR., JANUARY 2005 FACTS 1 (2005), available at <http://www.drc.state.oh.us/web/Reports/reports3.asp> (follow "January 2005" hyperlink).

²¹⁰See, e.g., JANUARY 2006 FACTS, *supra* note 209, at 1; NEB. DEP'T OF CORR. SERV., ATTESTATION REPORT OF THE NEBRASKA DEPARTMENT OF CORRECTIONAL SERVICES JULY 1, 2005 THROUGH JUNE 30, 2005, at 1 (2005), available at http://www.auditors.state.ne.us/local/pdfSearch/PDF/2005_Corrections_Highlights.pdf; ALLIANCE CONN., 2005 CORRECTIONS FACT SHEET 2 (2005), available at http://www.thealliancect.org/pdf/fact_sheet_corrections.pdf.

²¹¹See HARRISON & BECK, *supra* note 208, at 1.

²¹²See Axtman, *supra* note 5, at 2; see also Hyde & DeJarnatt, *supra* note 137.

²¹³See, e.g., Crumm, *supra* note 203; BI INCORPORATED, BI CASE STUDY: NEW HAMPSHIRE COUNTY EXPANDS ALTERNATIVE SANCTIONS (2006), available at http://www.bi.com/pdfs/BI_CS_Strafford.pdf; BI INCORPORATED, BI CASE STUDY: HAMILTON COUNTY, INDIANA (2004), available at http://www.bi.com/pdfs/BI_CS_Hamilton.pdf [hereinafter HAMILTON COUNTY CASE STUDY]; BI INCORPORATED, BI CASE STUDY: LUZERNE COUNTY ADULT PROBATION AND PAROLE DEPARTMENT PARTNERS WITH BI INCORPORATED (2005), available at http://www.bi.com/pdfs/BI_CS_Luzerne_County.pdf; BI INCORPORATED, BI CASE STUDY: ROANOKE COUNTY VIRGINIA (2006), available at http://www.bi.com/pdfs/BI_CS_Roanoke.pdf [hereinafter ROANOKE COUNTY CASE STUDY]; BI INCORPORATED, BI CASE STUDY: SULLIVAN

Oakland County, a prominent community located in the state of Michigan,²¹⁵ is among the list of states and localities piloting GPS offender monitoring programs.²¹⁶ The county first began launching the program in May 2001, and the majority of the original thirty-two participants were nonviolent felony offenders who had already served a portion of their jail terms.²¹⁷ Participating offenders were not only required to maintain employment, but were also expected to contribute ten dollars per day to take part in the program.²¹⁸ These modest contributions were used to pay for the GPS monitoring equipment,²¹⁹ which cost substantially less than the eighty dollars per day incurred by the County to physically incarcerate each offender.²²⁰ With an average jail term between two and four months for each participant,²²¹ the estimated savings were substantial.²²² After evaluating the program's success, Oakland County is aggressively considering expanding its use of GPS monitoring to further reduce correctional expenditures and alleviate jail overcrowding.²²³ Additionally, neighboring counties in Michigan are currently attempting to implement similar pilot programs with the expectation of achieving comparable results.²²⁴

Another county that has recently piloted a GPS offender monitoring program is Sullivan County,²²⁵ which is considered to have one of the smallest populations in all of New Hampshire.²²⁶ In 2003, after experiencing dramatic increases in its adult correctional population, the County began implementing an inmate transition program with the goal of releasing certain nonviolent offenders back into the

COUNTY, NEW HAMPSHIRE INMATE TRANSITION PROGRAM (2005), *available at* http://www.bi.com/pdfs/BI_CS_Sullivan_County.pdf [hereinafter SULLIVAN COUNTY CASE STUDY].

²¹⁴See Press Release, iSECUREtrac Corporation, iSECUREtrac GPS Offender Monitoring Expanded to 40 States (Sept. 8, 2004), *available at* <http://www.isecuretrac.com/news.asp?ID=142>; see also Mary Whitford, *Long Arm of the Law*, GPS WORLD, Aug. 1, 2004, *available at* <http://www.gpsworld.com/gpsworld/article/articleDetail.jsp?id=109506>.

²¹⁵See generally Oakland County, Michigan, www.oakgov.com/index.html (last visited Aug. 1, 2006).

²¹⁶See Crumm, *supra* note 203.

²¹⁷*Id.*

²¹⁸*Id.*

²¹⁹See Jim Lynch, *Can Tethers Give Jails Leg Up On Space*, DETROIT NEWS, Dec. 6, 2005, at A1.

²²⁰See Crumm, *supra* note 203.

²²¹*Id.*

²²²With the average jail term of a program participant ranging between two and four months, the potential savings to the County could have approximated up to \$9,600 per offender (120 days (four months) multiplied by eighty dollars per day). *Id.*

²²³See Lynch, *supra* note 219.

²²⁴*Id.*

²²⁵See SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2.

²²⁶See Sullivan County, New Hampshire, <http://www.sullivancountynh.gov/> (last visited Jan. 21, 2006).

community.²²⁷ Eligible offenders must have been serving sentences of no less than three months in duration and were carefully selected based upon good behavior.²²⁸ A key component of this program was the use of GPS monitoring technology to closely supervise each of the eighty-seven participants within the community.²²⁹ Similar to the Oakland County program,²³⁰ offenders were required to pay the full cost of their monitoring by personally contributing ten dollars per day.²³¹ By avoiding the high cost of incarcerating each program participant, Sullivan County has successfully reduced its correctional expenditures by more than one-hundred and thirty thousand dollars.²³² The County has also been able to substantially reduce the number of inmates, alleviating much of the pressure placed upon its sole correctional facility.²³³ Due to the program's prosperity, other counties within the state of New Hampshire are strongly considering the use of GPS technology to monitor offenders within their own jurisdictions.²³⁴

A third GPS offender monitoring program was successfully piloted in Roanoke County, Virginia in 2002.²³⁵ After reaching more than double its intended capacity, the County jail, acting in concert with the sheriff's department, developed a community release program aimed specifically at low-level, nonviolent offenders.²³⁶ Each participant was not only required to wear a GPS tracking unit to ensure compliance with terms of release,²³⁷ but was also expected to live within one mile of the monitoring center.²³⁸ Like most other GPS pilot programs,²³⁹ offenders contributed eleven dollars per day towards the cost of their supervision.²⁴⁰ By permitting the participants to live at home and maintain employment, Roanoke County was able to save local taxpayers approximately two-hundred seventy thousand dollars.²⁴¹ The most astonishing detail about this result is that it was

²²⁷See SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2.

²²⁸*Id.*

²²⁹*Id.*

²³⁰See Crumm, *supra* note 203.

²³¹See SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2.

²³²*Id.*

²³³*Id.*

²³⁴*Id.*

²³⁵See ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2.

²³⁶*Id.* Most of the offenders permitted to participate in the program were convicted of either petty larceny or alcohol-related offenses. *Id.*

²³⁷See Trudy Walsh, *GPS is a Gem for Bracelets*, GOV'T COMPUTER NEWS, June 13, 2005, at 32, available at http://www.gcn.com/24_14/product-briefs/36047-1.html.

²³⁸See ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2.

²³⁹See, e.g., Crumm, *supra* note 203; SULLIVAN COUNTY CASE STUDY, *supra* note 213; HAMILTON COUNTY CASE STUDY, *supra* note 213.

²⁴⁰See ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2.

²⁴¹*Id.*

achieved while consistently maintaining a maximum of only twenty-five participants in the program throughout the entire year.²⁴² After thoroughly assessing the program, the County determined that it had achieved several of its original goals²⁴³ and decided to continue the use of GPS monitoring technology in subsequent years.²⁴⁴

Although the correctional department savings generated by the three offender monitoring programs illustrated above²⁴⁵ may not initially appear significant on a state level,²⁴⁶ this observation is clearly erroneous.²⁴⁷ In Ohio, current statistics indicate that, on average, there are approximately 7,500 “Truly Non-violent” (TNV) offenders occupying a costly prison bed during any period throughout the year.²⁴⁸ A TNV offender is “one who has no violent current conviction or indictment offense, no prior felony conviction for a violent or sex offense, no gun time, and no weapon involvement in the current offense.”²⁴⁹ With an average cost of \$68.76 per day to house each offender in an Ohio state prison,²⁵⁰ a GPS monitoring program requiring each offender to pay for equipment expenses may result in correctional savings of several hundred thousand dollars per day.²⁵¹ Further, the total annual savings could be astronomical since the average time being served in prison for many of the offenses qualifying as TNV is generally greater than six months.²⁵² When

²⁴²*Id.*

²⁴³*Id.*

²⁴⁴See Walsh, *supra* note 237.

²⁴⁵See Crumm, *supra* note 203; SULLIVAN COUNTY CASE STUDY, *supra* note 213; ROANOKE COUNTY CASE STUDY, *supra* note 213.

²⁴⁶In 2005, total Ohio DRC expenditures were estimated to be \$1,599,851,177. See 2005 ANNUAL REPORT, *supra* note 95, at 30. Therefore, the cost savings reported by Oakland, Sullivan, and Roanoke Counties would all result in a very insignificant decrease in state correctional expenditures. See Crumm, *supra* note 203; SULLIVAN COUNTY CASE STUDY, *supra* note 213; ROANOKE COUNTY CASE STUDY, *supra* note 213.

²⁴⁷See OHIO CMTY. CORR. ASSOC., TESTIMONY PRESENTED TO THE TRANSPORTATION AND JUSTICE SUBCOMMITTEE OF THE OHIO HOUSE OF REPRESENTATIVES 5 (2005), available at <http://www.occaonline.org/pdf/OCCATestimony2005house%20revised.pdf> (testimony of Neil F. Tilow, Past President); see also BI Incorporated, *supra* note 134.

²⁴⁸See OHIO CMTY. CORR. ASSOC., *supra* note 247, at 3.

²⁴⁹See OHIO DEP'T OF REHAB. AND CORR., 2004 INTAKE STUDY viii (2005), available at <http://www.drc.state.oh.us/web/Reports/reports18.asp> (follow “Intake 2004” hyperlink) (emphasis omitted).

²⁵⁰See 2005 ANNUAL REPORT, *supra* note 95, at 29.

²⁵¹The number of TNV offenders (7,500) multiplied by the daily cost of housing each offender (\$68.76) results in total correctional savings of approximately \$515,700 per day. The savings may be inflated due to unascertainable fixed costs associated with prison maintenance.

²⁵²See generally OHIO DEP'T OF REHAB. AND CORR., CALENDAR YEAR 2004 TIME SERVED SUMMARY DATA 1, <http://www.drc.state.oh.us/web/Reports/reports15.asp> (follow “Time Served 2004” hyperlink) [hereinafter TIME SERVED SUMMARY] (last visited Jan. 27, 2006). The average time served for the TNV fourth and fifth-degree felonies of forgery, receipt of stolen property, bad checks and credit card fraud, and theft/theft in office were all greater than

considering the total number of TNV offenders currently housed in Ohio prisons,²⁵³ the average daily cost per inmate,²⁵⁴ and the average time served by TNV offenders,²⁵⁵ Ohio would experience significant cost savings by employing GPS monitoring technology as an alternative to the incarceration of such nonviolent criminals.

C. GPS Monitoring Programs and the Community

The decision to monitor offenders electronically within the community is often extremely controversial and may be met with a high degree of public resistance.²⁵⁶ One of the primary concerns expressed by state correctional agencies when considering the implementation of a GPS monitoring program is whether the program will impair public safety or diminish the public's confidence in the criminal justice system.²⁵⁷ Fortunately, recent statistics indicate that offenders who are released into the community under GPS supervision have a much lower rate of recidivism²⁵⁸ than offenders who have been released from terms of incarceration.²⁵⁹ This result is not surprising considering the negative impact that imprisonment can have on an offender's family support structure and ability to obtain meaningful employment.²⁶⁰ Further, many of the commonly perceived limitations as to the overall effectiveness of the GPS monitoring equipment are no longer valid due to recent technological advancements.²⁶¹ Educating the public on all aspects of an electronic monitoring program, including the equipment's capabilities, will clarify many of the misconceptions held by members within the community.²⁶² Finally, current surveys illustrate that the public's perception of appropriate sanctions for

six months. *Id.* Similarly, the average time served for failure to provide support for dependents was also greater than six months. *Id.*

²⁵³See OHIO CMTY. CORR. ASSOC., *supra* note 247, at 3.

²⁵⁴See JANUARY 2006 FACTS, *supra* note 209, at 1.

²⁵⁵See TIME SERVED SUMMARY, *supra* note 252, at 1.

²⁵⁶See CROWE ET AL., *supra* note 4, at 33.

²⁵⁷See *GPS Changes Face of Corrections for Nonviolent Offenders*, *supra* note 208, at 1.

²⁵⁸"Recidivism is measured by criminal acts that resulted in the rearrest, reconviction, or return to prison with or without a new sentence during a three-year period following the prisoner's release." See U.S. Dep't of Justice, Bureau of Justice Statistics, Reentry Trends in the U.S., Definitions, <http://www.ojp.usdoj.gov/bjs/reentry/definition.htm> (last visited Jan. 30, 2006).

²⁵⁹Compare PATRICK A. LANGAN & DAVID J. LEVIN, U.S. DEP'T OF JUSTICE, BUREAU OF JUSTICE STATISTICS, RECIDIVISM OF PRISONERS RELEASED IN 1994, at 3 (2002), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/rpr94.pdf> (illustrating rate of recidivism among offenders released from incarceration), with ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2 (illustrating rate of recidivism among offenders participating in GPS monitoring pilot program).

²⁶⁰See TRAVIS ET AL., *supra* note 9, at 1.

²⁶¹See generally Walker & Goren, *supra* note 18, at 10.

²⁶²See CROWE ET AL., *supra* note 4, at 121.

nonviolent offenders is no longer balanced in favor of harsh prison sentences.²⁶³ The attitude reflects the philosophy that purely punitive sanctions have failed to reduce crime rates, while endorsing a movement toward more preventative and rehabilitative solutions.²⁶⁴

1. Reducing Rates of Offender Recidivism

When considering the fact that the United States currently has the highest prison population in the world,²⁶⁵ it should not be surprising to discover that many offenders released from incarceration are quickly finding themselves back behind bars.²⁶⁶ The results of a recent research study tracking several offenders released from prisons in fifteen different states, including Ohio, indicated that approximately 67.5% of all releasees were ultimately rearrested within three years.²⁶⁷ Further, approximately 44% of the re-arrests were documented as occurring within only one year of obtaining freedom.²⁶⁸ Among the categories of released prisoners with the highest rearrest rates were several classes of nonviolent offenders.²⁶⁹

Conversely, several pilot offender monitoring programs utilizing GPS technology have produced results indicating much lower rates of recidivism among nonviolent participants.²⁷⁰ The program piloted in Roanoke County, Virginia has reported that, on average, less than 10% of all participants violate their terms of monitored release.²⁷¹ Similarly, over 80% of offenders who participated in pilot programs that were implemented in Sullivan County, New Hampshire and Hamilton County, Indiana have successfully completed their transitions into the community.²⁷² Although the three county programs monitored a relatively low number of

²⁶³See PETER D. HART RESEARCH ASSOC., OPEN SOC'Y INST, CHANGING PUBLIC ATTITUDES TOWARD THE CRIMINAL JUSTICE SYSTEM 1 (2002), available at http://www.soros.org/initiatives/justice/articles_publications/publications/hartpoll_20020201/Hart-Poll.pdf.

²⁶⁴See *id.*; see also BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., OPTIMISM, PESSIMISM, AND JAILHOUSE REDEMPTION: AMERICAN ATTITUDES ON CRIME, PUNISHMENT, AND OVER-INCARCERATION 3 (2001), available at http://www.prisonworks.com/scans/overincarceration_survey.pdf (findings from a national survey conducted for the ACLU).

²⁶⁵The United States is currently imprisoning approximately 2,135,901 people, which is over 500,000 more individuals than the country housing the next highest total number of prisoners (China). See International Center for Prison Studies, *supra* note 75.

²⁶⁶See generally LANGAN & LEVIN, *supra* note 259, at 1.

²⁶⁷*Id.*

²⁶⁸*Id.* at 3.

²⁶⁹*Id.* at 8. The classes of nonviolent offenders with the highest recidivism rates were the following: motor vehicle thieves (78%); stolen property (77.4%); burglary (74%); possession (67.5%); and fraud (66.3%). *Id.*

²⁷⁰See, e.g., ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2; SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2; HAMILTON COUNTY CASE STUDY, *supra* note 213, at 2.

²⁷¹See ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2.

²⁷²See SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2; HAMILTON COUNTY CASE STUDY, *supra* note 213, at 2.

participants, the results appear to indicate that GPS monitoring is an effective tool for reducing offender recidivism.²⁷³

Perhaps the most compelling evidence that GPS technology can reduce recidivism rates is captured in a recent large-scale study conducted in part by the Florida Department of Corrections.²⁷⁴ This study, which tracked data on the activity of over seventy-five thousand offenders released into Florida's communities, revealed that offenders who had been placed under GPS supervision were approximately 94.7% less likely to commit new crimes than offenders who were not electronically monitored.²⁷⁵ Further, less than 6% of all nonviolent offenders placed in a GPS monitoring program during 2001 or 2002 committed a new offense.²⁷⁶ Based on its findings, the study concluded that the use of GPS technology appears to materially decrease the rates of recidivism for both violent and nonviolent offenders.²⁷⁷ However, this conclusion refrained from offering any further insight into the possible reasons why GPS monitoring is able to successfully deter program participants from re-offending.²⁷⁸

When offenders are initially released from prison, they are forced to immediately transition from a very controlled environment with few personal responsibilities to one of complete freedom and total responsibility.²⁷⁹ Two of the overwhelming pressures that such individuals report experiencing at the moment of release are the necessity of having to locate employment and the difficulty of repairing shattered family ties.²⁸⁰ Offenders have often responded to the situation by employing destructive coping mechanisms that result in re-incarceration and increased rates of recidivism.²⁸¹ Fortunately, research has demonstrated that sanctioning offenders to terms of electronic supervision, such as a term of GPS monitoring, effectively alleviates these pressures.²⁸² In a recent study, over 95% of offenders who had been sentenced to a term of electronic monitoring agreed that the sanction is more effective than incarceration because they were able to remain employed and preserve

²⁷³See ROANOKE COUNTY CASE STUDY, *supra* note 213, at 2; SULLIVAN COUNTY CASE STUDY, *supra* note 213, at 2; HAMILTON COUNTY CASE STUDY, *supra* note 213, at 2.

²⁷⁴See Kathy G. Padgett et al., *Under Surveillance: An Empirical Test of the Effectiveness and Consequences of Electronic Monitoring*, 5 CRIMINOLOGY & PUB. POL'Y 61 (2006).

²⁷⁵*Id.* at 79.

²⁷⁶See FLA. DEP'T OF CORR., A REPORT ON COMMUNITY CONTROL, RADIO FREQUENCY (RF) MONITORING, AND GLOBAL POSITIONING SATALITE (GPS) MONITORING 26 (2004), available at <http://www.dc.state.fl.us/pub/gpsrf/2004/index.html> (Table 3F, GPS Placements in FY 2001-02 Outcomes through 2 Years).

²⁷⁷See Padgett et al., *supra* note 274, at 24.

²⁷⁸See generally *id.* at 25-31.

²⁷⁹See LA VIGNE ET AL., *supra* note 85, at 18.

²⁸⁰*Id.* The majority of offenders are released with no more that a bus ticket and a small amount of cash, and very few resources are made available to assist them in securing employment or re-establishing critical family ties. *Id.* at 19.

²⁸¹*Id.* at 19.

²⁸²See Payne & Gainey, *supra* note 163, at 423.

vital family relationships.²⁸³ Some offenders indicated that the relationships with their families had actually improved while on electronic monitoring and that the ability to maintain one's wealth was very significant.²⁸⁴ Therefore, the opportunity to maintain close family relationships and to avoid the loss of employment appear to represent plausible explanations as to why GPS monitoring is able to successfully reduce recidivism rates among offenders released into the community.²⁸⁵

2. Commonly Perceived Limitations of GPS Monitoring Technology

The introduction of GPS monitoring as an alternative to incarceration has been met with an anticipated level of public resistance and genuine concerns related to the overall effectiveness of the new technology.²⁸⁶ However, most of the limitations commonly perceived by the general public are currently no longer valid due to recent technological advancements.²⁸⁷ Providing educational seminars on all aspects of GPS supervision will clarify many of these misconceptions entertained by members of the community.²⁸⁸ The three primary limitations that are often cited by opponents of GPS monitoring programs are the occurrence of satellite signal interruptions, the presence of "dead spots" in cellular telephone networks, and the burden of reviewing unmanageable quantities of information.²⁸⁹

Certain geographic conditions have been documented to temporarily create difficulties with a GPS receiver's ability to detect satellite signals.²⁹⁰ Examples of such conditions include deep canyons, dense vegetation, large buildings grouped closely together, enclosed means of transportation, and weather conditions including rainfall, deep fog, or snowfall.²⁹¹ If a satellite signal is no longer detected, a correctional agency will momentarily lose the ability to track an offender's movements in real time.²⁹² Although this situation may still occur, most PTUs worn by offenders immediately transmit an alert to the central monitoring system notifying authorities of the problem.²⁹³ The most modern systems have further reduced this shortcoming by incorporating omni-directional antennas into the PTUs, enabling them to receive GPS coverage under almost any circumstances.²⁹⁴ Even in the absence of GPS signal availability, these devices retain the capability to detect

²⁸³*Id.*

²⁸⁴*Id.* at 429.

²⁸⁵*See generally id.* at 428-29.

²⁸⁶*See Stark, supra* note 17; *see also* CROWE ET AL., *supra* note 4, at 118.

²⁸⁷*See generally* Walker & Goren, *supra* note 18, at 10.

²⁸⁸*See* CROWE ET AL., *supra* note 4, at 121.

²⁸⁹*See generally id.* at 66-67.

²⁹⁰*Id.* at 66.

²⁹¹*See* BI Incorporated, *supra* note 53.

²⁹²*Id.*

²⁹³*See* CROWE ET AL., *supra* note 4, at 66.

²⁹⁴*See* BI Incorporated, BI ExacuTrack Information, http://www.bi.com/content.php?section=products&page=products&detail=bi_exacutrack_info (last visited Feb. 1, 2006).

motion in order to determine whether an offender is attempting to escape.²⁹⁵ As proof of the modern PTUs' effectiveness, the Florida Department of Corrections recently reported that, over a two-year period, the rate of absconding²⁹⁶ was less than 1% for offenders placed in a GPS monitoring program.²⁹⁷

Another commonly perceived limitation inherent with GPS monitoring is the possibility of encountering "dead spots" in cellular telephone networks.²⁹⁸ Because most PTUs communicate location-related information through cellular telephone units,²⁹⁹ the device may momentarily fail to track an offender in real time when a cellular signal is weak or unavailable.³⁰⁰ The computer located within the PTU will continue to store an offender's location-related information, but this information will not be relayed to the central monitoring system until the device is removed from the problem area.³⁰¹ State correctional agencies can substantially eliminate the limitation created by "dead spots" with proper planning.³⁰² Prior testing of the GPS equipment will ultimately reveal the areas within a community where cellular signals are weak or unavailable.³⁰³ An agency can then program these specific locations as exclusion zones within the system, strictly prohibiting an offender from entering the area and avoiding any possible loss of cellular signal.³⁰⁴

The final limitation that skeptics of GPS monitoring often advance in opposition to the new technology is that the system produces an unmanageable amount of information and is, thus, too labor intensive.³⁰⁵ This assertion is perhaps one of the greatest indications of a lack of understanding as to how the technology is used by law enforcement officials.³⁰⁶ The primary function of GPS monitoring is not to actively scrutinize an offender's every movement by placing a correctional officer in

²⁹⁵See ISECURETRAC CORPORATION, TRACNET (24), http://isecuretrac.com/downloads/20041124_iST_2150_2250_Specs.pdf (last visited Feb. 1, 2006); see also PRO TECH, SMART ACTIVE TRACKING SYSTEM, <http://www.ptm.com/images/activebrochure.pdf> (last visited Feb. 1, 2006).

²⁹⁶An offender absconds from supervision when his or her whereabouts are unknown and the court is forced to issue a warrant for violation of supervision. See FLA. DEP'T OF CORR., *supra* note 276, at 3 (Glossary of Terms).

²⁹⁷See *id.* at 20 (Outcomes, Executive Summary).

²⁹⁸See CROWE ET AL., *supra* note 4, at 66.

²⁹⁹See, e.g., iSECUREtrac Corporation, Active GPS Tracking Keeps Tabs on Individuals in Real Time, <http://isecuretrac.com/activeGPS.asp> (last visited Feb. 1, 2006); Pro Tech, Smart Active Tracking Components, <http://www.ptm.com/activecomp.shtml> (last visited Feb. 1, 2006); BI Incorporated, FAQs—BI ExacuTrack, http://www.bi.com/content.php?section=products&page=products&detail=bi_exacutrack_faq (last visited Feb. 1, 2006).

³⁰⁰See CROWE ET AL., *supra* note 4, at 66.

³⁰¹*Id.*

³⁰²*Id.* at 67.

³⁰³*Id.*

³⁰⁴*Id.*

³⁰⁵See Walker & Goren, *supra* note 18, at 10.

³⁰⁶*Id.*

front of a computer screen twenty-four hours per day.³⁰⁷ The central focus of the system is actually on the alerts that are transmitted when an offender enters an exclusion zone, fails to enter an inclusion zone, or when the equipment is malfunctioning.³⁰⁸ If an alert is received, a correctional agency is able to pinpoint the offender's precise location and react according to a set of detailed response procedures.³⁰⁹ Further, if the GPS equipment malfunctions, most of the vendors will send their own employees out into the field to correct the problem at no additional charge.³¹⁰ Similar to the other perceived limitations, the presumption that GPS monitoring produces an unmanageable amount of information and is too labor intensive is without merit.³¹¹

3. Public's Changing Attitude Toward Punishment

Over the past few years, the United States has been experiencing a significant shift in the general public's attitude towards crime and appropriate prison sentences.³¹² The majority of citizens now appear to be in favor of abandoning the purely punitive approach to punishment that has dominated for several decades and adopting alternative sanctions that focus primarily on crime prevention and offender rehabilitation.³¹³ Many Americans are also beginning to realize that most offenders will eventually be released from prison and reintegrate into their communities.³¹⁴ With a lack of marketable skills and employment opportunities, offenders will be forced to obtain income by illegal means.³¹⁵ This changing philosophy of punishment has been especially apparent toward nonviolent offenders, who have arguably been receiving excessively harsh prison sentences for their crimes.³¹⁶

The most persuasive evidence that the general public no longer prefers physical incarceration as the appropriate sanction for nonviolent offenders is captured within a series of nationwide surveys published by esteemed research institutes.³¹⁷ In each survey, the majority of participants, who were drawn from the general public,

³⁰⁷*Id.*

³⁰⁸*Id.* at 10-11.

³⁰⁹*Id.* at 11.

³¹⁰*Id.* at 11.

³¹¹*Id.*

³¹²See PETER D. HART RESEARCH ASSOC., *supra* note 263, at 1.

³¹³See *id.*; see also BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 3.

³¹⁴See PETER D. HART RESEARCH ASSOC., *supra* note 263, at 4.

³¹⁵*Id.* at 4-5.

³¹⁶See *id.* at 5; see also BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 9.

³¹⁷The three most influential surveys were published by the U.S. Department of Justice, the ACLU, and The Open Society Institute. See MARK A. COHEN ET AL., MEASURING PUBLIC PERCEPTIONS OF APPROPRIATE PRISON SENTENCES (2002), *available at* <http://www.ncjrs.gov/pdffiles1/nij/grants/199365.pdf>; BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264; PETER D. HART RESEARCH ASSOC., *supra* note 263.

avored alternative non-prison sanctions over incarceration for nonviolent offenders.³¹⁸ Most participants were also unwilling to allocate additional tax dollars toward the prison budget,³¹⁹ and many even felt that reducing prison expenditures provided the best opportunity to curtail state spending.³²⁰ Additionally, the survey results indicated that more focus should be placed upon rehabilitating nonviolent offenders and preventing future crime than on improving prisons.³²¹ When reducing participant responses into their basic conclusions, two of the overriding themes in each survey were: (1) fewer nonviolent offenders should be placed behind bars, and (2) public support for purely punitive sanctions is weakening.³²²

V. CONCLUSION

Ohio, like many other states, is engaging in a seemingly endless battle between reducing correctional expenditures and maintaining a high level of safety within its communities.³²³ Fortunately, Congress has generously provided a solution to this dilemma by bestowing upon the public access to the full capabilities of the most powerful offender-monitoring technology ever created: GPS tracking.³²⁴ Offender monitoring programs utilizing GPS technology have consistently proven to be a constitutional means for decreasing correctional expenditures without impairing public safety.³²⁵ Equally encouraging is the fact that modern society appears to favor such alternative non-prison sanctions, and support for the prior regime of purely punitive sentencing is dwindling.³²⁶

Although Ohio has wisely enacted legislation paving the road for the use of GPS monitoring as a primary sentencing option for offenders,³²⁷ the State appears to be somewhat reluctant to venture down this new path. Ohio should take a closer look at GPS offender monitoring programs implemented in other states, which would quickly demonstrate that the benefits of such programs greatly outweigh any possible

³¹⁸See COHEN ET AL., *supra* note 317, at 34; BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 9; PETER D. HART RESEARCH ASSOC., *supra* note 263, at 4.

³¹⁹See COHEN ET AL., *supra* note 317, at 53; BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 5; PETER D. HART RESEARCH ASSOC., *supra* note 263, at 15-16.

³²⁰See PETER D. HART RESEARCH ASSOC., *supra* note 263, at 15-16.

³²¹See COHEN ET AL., *supra* note 317, at 53; BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 3; PETER D. HART RESEARCH ASSOC., *supra* note 263, at 13.

³²²See generally COHEN ET AL., *supra* note 317, at 79; BELDEN RUSSONELLO & STEWART RESEARCH & COMM'N., *supra* note 264, at 9; PETER D. HART RESEARCH ASSOC., *supra* note 263, at 5.

³²³See Puente, *supra* note 11, at B1; see also Schaible, *supra* note 11, at 2C.

³²⁴See National Defense Authorization Act of 1996, Pub. L. No. 104-106, § 279, 110 Stat. 186, 243-44.

³²⁵See, e.g., Crumm, *supra* note 203; SULLIVAN COUNTY CASE STUDY, *supra* note 213; HAMILTON COUNTY CASE STUDY, *supra* note 213.

³²⁶See PETER D. HART RESEARCH ASSOC., *supra* note 263, at 1.

³²⁷See OHIO REV. CODE ANN. §§ 2929.17(B), 2929.27(A)(2) (West 2006).

costs. In order to increase public acceptance of the new technology, Ohio should also offer educational programs explaining the capabilities of the GPS monitoring equipment to all interested parties. By reserving valuable prison space for the truly violent criminals, the State would experience substantial savings that could then be passed on to the taxpayers. Further, releasing TNV offenders into the community under GPS surveillance would not pose a threat to the general public and would only serve to prevent the negative effects of incarceration. With the State's best interest at heart, this article adamantly proposes that Ohio implement a GPS offender monitoring program to be used as an alternative to the incarceration of nonviolent criminals.