

No Direction Home: Will The Law Keep Pace With Human Tracking Technology to Protect Individual Privacy and Stop Geoslavery?

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Abstract

The scope and nature of current legal principles regarding individual privacy are not sufficient to respond to the rapid development and use of human tracking technology. The academic use of the phrase “geoslavery” to describe the abusive use of such technology underscores the power of the new technology. This article examines the use of such technology under current federal and state law and suggests potential means for developing greater legal protections against the abusive use of the technology and the intrusion into personal privacy.

The primary legal source for protections against governmental intrusion into an individual’s privacy stem from various federal and state constitutional provisions prohibiting unreasonable searches and seizures. Courts have determined that most technologically based human location tracking outside the home is not subject to Fourth Amendment restrictions because it does not violate an individual’s reasonable expectation of privacy. In contrast, some analogous state constitutional provisions have been held to require a warrant prior to the police utilizing human tracking technology.

The growing proliferation and use of human tracking technology implicates legal issues under the Thirteenth Amendment. Control and restriction of another individual’s location constitutes one of the vestiges and incidents of slavery. The use of mandatory or voluntary human tracking implants may be the subject to future federal legislative prohibition or restrictions under the remedial provision of the Thirteenth Amendment.

Various federal and state laws have been proposed and enacted to place restrictions on both governmental and private use of human tracking technology. In addition, the use of such technology has been subject to challenge under a common law right to privacy. Increasingly, public and private employers are utilizing human tracking devices to monitor employee movement and conduct. Due to the propensity of American labor law to give greater weight to employer property interests over most employee privacy expectations, there are few current limitations on the use of human tracking in employment.

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Table of Contents

Introduction

- I. Constitutional Limitations On The Use of Human Tracking Technology
 - A. Human Tracking and the Fourth Amendment
 - B. The Fourth Amendment Outside and Inside the Home
 - C. The Thirteenth Amendment and Human Tracking
 - D. State Constitutional Limitations on the Use of Tracking Devices
- II. The Implications of Human Tracking Implant Technology
- III. Federal Legislative Responses to Human Tracking and Cellular Technology
- IV. State Common Law and Legislative Responses To Electronic Human Tracking
 - A. The Application of State Tort Law
 - B. State Statutory Limitations on Electronic Tracking Devices
- V. The Use of Tracking Devices In Employment
- VI. Potential Legal Solutions

Introduction

The creation and increased use of various forms of human tracking technology by governmental entities, private entities and individuals raise profound policy and legal issues for our society. The scope of constitutional, legislative or administrative limitations on the use of such technology reflects on our society's concepts of freedom, individual autonomy and protected privacy. As technology advances, it expands the means for privacy intrusions thereby limiting the personal secrets and confidences that can be concealed. The growing availability and use of human tracking technology diminishes privacy interests that may precipitate societal demands for increased legal protections.

How freedom and privacy are defined today has substantive consequences in the legal measures that will be devised and applied to protect those interests. As Columbia University historian Eric Foner has shown, the concept and boundaries of freedom have changed over the course of American history. Throughout our history, the definition of freedom has been constantly redefined but has always been subject to a balance between individual rights and property rights, as well as, a balance between the right of the individual and the power of the state.¹ Similar balances are applicable in how the contours of protected individual privacy are defined.

In order to respond to the power of contemporary human tracking, a new societal consensus needs to be reached regarding what constitutes privacy and how it can be protected. At the same time, a judgment must be reached whether the legal standards applicable to government surveillance under the Constitution should be the same for non-governmental surveillance.

In contemporary American culture, some view the concept of freedom as being manifested in consumerism with the ubiquitous cell phone as a primary symbol. It is

¹ Foner, *The Story of American Freedom* (Norton 1998).

doubtful that most cell phone users are aware that the same technology that grants them this sense of consumer freedom also results in wireless companies receiving automatic and continuous updates regarding their location. Physical possession of a cell phone renders an individual vulnerable to location surveillance by government entities. When an employer distributes a cell phone for use by an employee, the employee's location becomes subject to location monitoring by the employer on and off the job. A third party who obtains physical access to another person's cell phone can easily transform it into a stalking device by registering it with an internet location based services.² Mass recognition of this non-negotiated trade of a cellular sense of freedom for perpetual surveillance may constitute an Achilles heel to the currently unregulated location based tracking marketplace.

Unlike the debates connected with bioethics and stem cell research, the legal and ethical issues connected with human tracking technology have not been subjected to a serious and rigorous debate. Whether our society is prepared to collectively accept narrow notions of privacy and autonomy through electronic location devices remains to a large extent unexplored. Recent media disclosures of unchecked and probable unlawful use of presidential authority to engage in warrantless technologically based surveillance of Americans may spur a more reasoned and spirited societal discussion regarding the impact of new technology on personal privacy.³ Such disclosures may render unuseful the political cliché "9/11 changed everything" as justification for the erosion of protected privacy interests and other civil liberties.⁴ It remains to be seen whether the discussion regarding unchecked presidential power will extend to a broader questioning of electronic surveillance.

This article will discuss various legal principles and issues associated with human tracking technology in both the public and private sectors. In addition, it will aim to suggest potential solutions aimed at creating a balance between liberty and security as they relate to the utilization of human tracking devices. The application of such principles and the nature of the solutions will depend on the type of tracking device and the context in which the device is utilized. For example, the legal rules applicable to mandatory or voluntary human implants containing location technology should be far more restrictive than limitations that may be placed on an employer utilizing a location device to track an employee driving an employer owned vehicle with a GPS installation during working hours.

² Goldacre, *How I Stalked My Girlfriend*, Guardian, February 1, 2006.

³Risen and Lichthblau, *Bush Lets U.S. Spy on Callers Without Courts*, New York Times, December 16, 2005, p. A1; Lichthblau and Risen, *Spy Agency Mined Vast Data Trove, Officials Report*, New York Times, December 24, 2005; Wald, *Widespread Radioactivity Monitoring Is Confirmed*, December 24, 2005.

⁴ Rosen, *The Naked Crowd: Reclaiming Security and Freedom In An Anxious Age* (2004) pp.55-61 Among the many questionable uses of the September 11, 2001 tragedy as a rationale for policy changes was the 2004 National Labor Relations Board's decision that cited 9/11 as justification for overturning prior precedent that had recognized a statutory right of a private sector employee in an unorganized worksite to be represented by a co-worker during a disciplinary interrogation. *IBM Corp.*, 341 NLRB No. 148 (2004).

Currently, the contours of protected privacy remain closely linked to property rights. As will be seen, constitutional protections against technological invasions into privacy remain strongest inside one's home or apartment with the windows shuttered. Once an individual leaves his or her home or is visible inside the home from public space, there is a precipitous drop in the scope of legal protections.

In contrast, many of us still retain a subjective sense of spatial autonomy even though within the eyeshot of the public eye. The concept that one can get lost in a crowd and retain a protected zone of privacy and autonomy currently lacks strong legal foundation. Historically, escape to urban areas constituted a means of obtaining anonymity and a new identity.⁵ The growing availability of human tracking technology has the probability of eviscerating any subjective sense of personal autonomy while outside the home unless there is corrective legislative action.

This article will discuss various legal principles and issues associated with human tracking technology in both the public and private sectors. In addition, it will aim to suggest potential legal solutions aimed at creating a balanced approach between liberty and security as they relate to human tracking technology. The application of such principles and the nature of the solutions will depend on the type of tracking device and the context in which the device is utilized. Concerns relating to privacy and autonomy are greatest when global positioning system (hereinafter "GPS")⁶, radio frequency identification (hereinafter "RFID")⁷ and cellular technology⁸ are utilized by the government to conduct surveillance, employers to monitor employees, school districts to

⁵Franklin and Schwenger, *Runaway Slaves*, pp.123-148 (Oxford University Press 1999).

⁶ GPS is a satellite based electronic system that provides very precise tracking of objects, individuals and other animals in real time anywhere on the planet. Originally developed by the military, GPS technology has been available for civilian use for over twenty years. Through triangulation of information from satellite signals, a GPS receiver can determine the speed, latitude and longitude of an object or individual under surveillance. GPS receivers can be attached or installed in objects such vehicles, cell phones and laptops. In addition, GPS receivers can be carried by, attached to or implanted in an individual. See, Otterberg, *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, 665-666 (2005); Edmundson, *Global Positioning System Implants: Must Consumer Privacy Be Lost In Order for People to be Found?*, 38 Ind. L. Rev. 207, 209-210 (2005).

⁷ RFID is a radio based identification system that utilizes tags with computer chips containing digital information that can be used to track and identify humans, animals and inanimate objects. The digital information contained in the microchip can be read through the use of an RFID reader. There are two types of RFID tags. An active RFID tag is battery powered and emits a regular signal. In contrast, a passive RFID tag is powered only when in contact with a reader. See, Hostetter, *When Small Technology is a Big Deal: Legal Issues Arising from Business Use of RFID*, 2 *Shidler J. L. Com. & Tech.* 10 (Dec. 16, 2005), at <http://www.lctjournal.washington.edu/Vol2/a010Hostetter.html>. Common uses of RFID technology include merchandise inventory control, airline luggage location and electronic tolling systems.

⁸ There are two different aspects of human tracking technology connected with the cellular marketplace. Following issuance of E-911 rules by the Federal Communications Commission in 1997, many cellular companies installed GPS chips in their cell phones. In addition, the location of a powered on cell phone can be tracked in real time through the constant and automatic communication between the cell phone and cell towers. Krim, *FBI Dealt Setback on Cellular Surveillance*, *Washington Post*, October 28, 2005; Richtel, *Live Tracking of Mobile Phones Prompts Court Fights On Privacy*, *New York Times*, December 10, 2005.

track their students, rental car companies to monitor the use of rented vehicles and parents to keep track of their elusive teenagers.

Important legal and policy issues also arise in the context of individual volitional use of tracking technology for safety and convenience. The utilization of new technological gadgets can result in unwanted or unanticipated third party surveillance and unforeseen negative consequences such as stalking. Although many motorists enjoy the efficiency of electronic tollbooths and “smart highways” such enjoyment may abruptly end if or when the government begins to issue speeding tickets premised on the electronic information that calculates the average speed of a trip between two electronic points.⁹ The federal government is currently funding state studies regarding the use of GPS tracking on toll roads to develop “mileage-based user fees.”¹⁰ Similarly, market location devices and services do not constitute “magic bullets” that resolve parental fears. Equipment failure or malfunction in such devices and services can increase anxiety, if not panic, for a parent who chooses tracking technology over direct supervision of a child.

The legal implications relating to an individual’s volitional use of a tracking device to monitor his or her own whereabouts or for safety while driving, hiking or boating will not be the subject of this article. Reasonable people can differ whether individual use of such technological devices lead to personal serenity or are necessitated by genuine risks to personal safety.¹¹ There are few justifications for expansive regulation of an individual’s choice to utilize new technological gadgets unless the technology results in unwanted or unanticipated third party surveillance, leads to an increase in reckless and anti-social behavior or is used to intrude on the privacy of others. Tracking devices, like other technological developments, can lead to unforeseen negative social consequences.¹²

I. Constitutional Limitations On The Use of Human Tracking Technology

The primary source for current American legal analysis of protected privacy interests stems from the field of constitutionally mandated criminal procedure based on judicial interpretations of the Fourth Amendment to the United States Constitution.¹³ At

⁹ Caldwell, *A Pass On Privacy?* New York Times Magazine, July 17, 2005, pp. 13-14.

¹⁰ McCullagh, *E-tracking, coming to a DMV near you*, CnetNews.com, December 5, 2005. In New York, over 200 volunteer drivers participated in a federally funded study utilizing GPS devices to create a data flow regarding traffic patterns and speeds in a 40-mile radius. Hill, *Traffic Studied Using Computer-Linked Cars*, Associated Press, April 24, 2005.

¹¹For example, author Ted Conover has noted that use of a vehicle GPS device can deprive enjoyment “of unmeasured moments of suspension between here and there.” Conover, *Get Lost*, New York Times, December 14, 2005.

¹² The great television comic Sid Caesar has observed that the use of television remote control devices has led to negative social consequences: “The remote control took over the timing of the world. That’s why you have road rage. You have people who have no patience, because you get immediate gratification. You go click, click, click, click. If it doesn’t explode within three seconds, click, click, click.” Boedeker, *PBS’ Pioneers’ is a history lesson*, Chicago Tribune, August 8, 2005.

¹³ The Fourth Amendment provides that: “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 shall

present, the United States Supreme Court has not ruled on the applicability of the Fourth Amendment to most recent forms of human tracking technology. Based on precedent over the past four decades regarding the scope of privacy protections under the Fourth Amendment, any expectation for broad judicially based limitations on human tracking technology would be illusory.

The tendency of certain justices and judges to apply judicial restraint with respect to constitutional criminal procedure should not be confused with indifference to the impact technology is having on privacy. Five years ago, Chief Justice Rehnquist, joined by Justices Scalia and Thomas, expressed deep concerns regarding the decline in privacy in the modern technological world:

Technology now permits millions of important and confidential conversations to occur through a vast system of electronic networks. These advances, however, raise significant privacy concerns. We are placed in the uncomfortable position of not knowing who might have access to our personal and business e-mails, our medical and financial records, or our cordless and cellular telephone conversations.¹⁴

Despite such pronouncements, it is unlikely that workable limitations on the use of human tracking devices will grow out of criminal appeals under the Fourth Amendment. In addition, it is unlikely that in present political climate Congress will increase federal restrictions on tracking technology based on contemporary deregulation ideology and the politics of fear. It is far more probable that broader restrictions will come from state legislative initiatives and judicial interpretations of state constitutional provisions, statutes and common law.

A. Human Tracking and the Fourth Amendment

In 1928, fifty years following the invention of the telephone by Alexander Graham Bell, in *Olmstead v. United States*¹⁵, the United States Supreme Court determined that the Fourth Amendment did not prohibit federal Prohibition officials from eavesdropping on telephone conversations taking place in the defendants' homes and offices by inserting small wires on eight telephone lines outside those premises. The *Olmstead* majority reasoned that because the federal agents had placed the wiretaps on the outside they had not engaged in a search or seizure under the Fourth Amendment requiring the issuance of a warrant: "The intervening wires are not part of his house or office, any more than are the highways along which they are stretched."¹⁶ Therefore, the

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."

¹⁴ *Bartnicki v. Vopper*, 532 U.S. 514, 541 (2001) (Rehnquist, dissenting). In that same year, Justice Scalia observed that "[i]t would be foolish to contend that the degree of privacy secured to citizens by the Fourth Amendment has been entirely unaffected by the advance of technology." *Kyllo v. United States*, 533 U.S. 27, 33-34 (2001).

¹⁵ 277 U.S. 438 (1928).

¹⁶ 277 U.S. at 464-465.

majority affirmed the conspiracy convictions under National Prohibition Act that were based on the eavesdropping evidence.

Today, the case of *Olmstead v. United States* is primarily remembered for the vigorous dissent authored by Justice Louis D. Brandeis. Well before *Olmstead*, Brandeis was known for his co-authorship of the seminal 1890 Harvard Law Review article “The Right to Privacy” that advocated for enforceable common law rights against the invasion of personal privacy especially in the face of the development of new technologies such as photography.¹⁷

In his *Olmstead* dissent, Brandeis presented a far-sighted critique regarding the government’s use of the new technology to invade the privacy of its citizens. In contrast to the majority’s reliance on concepts of trespass law to limit the zone of privacy protected by the Fourth Amendment, Brandeis articulated a broader concept of constitutionally protected privacy that transcends both property interests and materialism:

The makers of our Constitution undertook to secure conditions favorable to the pursuit of happiness. They recognized the significance of man’s spiritual nature, of his feelings and of his intellect. They knew that only a part of the pain, pleasure and satisfactions of life are to be found in material things. They sought to protect Americans in their beliefs, their thoughts, their emotions and their sensations. They conferred, as against the government, the right to be let alone—the most comprehensive of rights and the right most valued by civilized men. To protect, that right, every unjustifiable intrusion by the government upon the privacy of the individual, whatever the means employed must be deemed a violation of the Fourth Amendment.¹⁸

Close to forty years later, the United States Supreme Court overruled the holding in *Olmstead v. United States*. In *Katz v. United States*¹⁹, the Court held that the FBI’s placement of a microphone on the roof of an enclosed public telephone booth to eavesdrop and tape record telephone calls made by an illegal gambling suspect, without a warrant, constituted a violation of the Fourth Amendment regardless of whether or not a physical intrusion had taken place. In reaching its decision in *Katz v. United States*, the Court’s majority rejected both a strict reliance on trespass law to define the scope of privacy protections under the Fourth Amendment as well as Brandeis’ much broader concept that the Fourth Amendment gave Americans “the right to be let alone” by other people. Nevertheless, by mandating for the first time that the police obtain a court-ordered warrant before engaging in electronic surveillance, the *Katz* decision established

¹⁷ Warren & Brandeis, *The Right to Privacy*, 4 Harv.L.Rev. 193 (1890); See also, Leebron, *The Right to Privacy’s Place in the Intellectual History of Tort Law*, 41 Case W. Res. 769 (1991); Rosen, *The Unwanted Gaze: The Destruction of Privacy in America* (2001), pp.5-7.

¹⁸ 277 U.S. at 479.

¹⁹ 389 U.S. 347 (1967)

a significant judicial check on government agents randomly engaging in such surveillance.²⁰

In his concurrence in *Katz*, Justice Harlan formulated the now uniform test for determining whether the Fourth Amendment is applicable to a particular set of facts including whether a particular use of a new invasive technology is unconstitutional: a) whether the individual possesses a subjective expectation of privacy; and b) whether the individual's subjective expectation is "one that society is prepared to recognize as 'reasonable'."²¹ Despite continued judicial reliance on Justice Harlan's *Katz* formulation regarding the applicable test for what constitutes a protected expectation of privacy, as early as 1971 Justice Harlan distanced himself from the formulation noting that it can "lead to the substitution of words for analysis" and emphasized that the critical question "is whether under our system of government, as reflected in the Constitution, we should impose on our citizens the risks of the electronic listener or observer without at least the protection of a warrant requirement."²²

B. The Fourth Amendment Outside and Inside the Home

The *Katz* reasonable expectation of privacy test has led to a series of federal court decisions that have determined that, in most cases, the use of a tracking device to monitor the location of vehicles and containers are not subject to the Fourth Amendment. The primary exception to this rule is when the device is utilized to determine what is taking place within a person's home.

In 1983, in *United States v. Knotts*,²³ the Supreme Court decided that the police did not have to obtain a warrant under the Fourth Amendment before using a radio beeper to monitor the movement and location of a vehicle. The Court portrayed the use of such tracking technology as a mere extension of the police's power to engage in visual surveillance of a criminal suspect.

In *Knotts*, the police had placed a battery operated radio transmitter in a drum containing chloroform as part of a drug investigation. After the drug suspect purchased the drum, the police used the beeper's signals to assist in conducting surveillance of the movement and location of the suspect's car containing the drum of chloroform. The beeper transmissions, along with additional visual surveillance by the police, resulted in the issuance of a warrant and the disclosure of a clandestine drug laboratory located in a rural Wisconsin cabin. In reaching its decision, the Supreme Court applied a broad legal rule that renders the use of most human tracking devices attached to vehicles to be outside of Fourth Amendment protections: "A person traveling in an automobile on

²⁰ 389 U.S. at 350-353; *See also, Berger v. New York*, 388 U.S. 41, 45-49 (1967).

²¹ 389 U.S. at 361.

²² *United States v. White*, 401 U.S. 745, 786 (1971)(Harlan, J., dissenting).

²³ 460 U.S. 276 (1983).

public thoroughfares has no reasonable expectation of privacy in his movements from one place to another.”²⁴

Under *Knotts*, whether the vehicle is driven unseen on an empty highway, through a long dark tunnel or an unpaved obscure mountainous road is irrelevant. The mere exposure of the vehicle to the sunlight or the exterior darkness grants the police, without a warrant, to monitor the movement of the vehicle utilizing a tracking device lawfully placed.

The principle applied in *Knotts* was based on earlier cases that decided Americans have no reasonable expectation of privacy while outside the home because others may be able to observe them. This voluntary exposure exception to Fourth Amendment protections has been long recognized by the Supreme Court. Under the exception, it does not matter whether the exposure is intentional or inadvertent because the act of exposure defeats any claimed expectation of privacy.

It is reasonable to assume that this limited conception of privacy under the Fourth Amendment would be equally applicable to the use of location devices that are legally attached or carried by an individual on public streets, roads and trails. An expansive application of this principle to new location technology in an unregulated market economy would permit anyone to electronically track anyone else in public.

One year after *Knotts*, the Supreme Court in *United States v. Karo*,²⁵ was called upon to determine whether the Fourth Amendment was violated when the police during another drug investigation used a beeper in a can of chemicals to determine the can’s location within a private residence not open to visual surveillance. Like *Knotts*, the police in *Karo* had used beeper transmissions and visual surveillance to follow the movement of the can to various locations. However, unlike *Knotts*, the police continued to utilize the beeper to determine whether the can was located in the private house. In concluding that the Fourth Amendment had been violated, the *Karo* majority applied a core Fourth Amendment principle that a search and seizure inside a home without a warrant is presumptively unreasonable absent an exigent circumstance. Based on the fact that the beeper allowed the police to learn that the can was located in the house and allowed for them to monitor its internal movement, the Court concluded that the use of the tracking device constituted an unlawful search under Fourth Amendment.

The broad scope of judicially recognized Fourth Amendment protections against technological surveillance within the home was exemplified in the 2001 decision in *Kyllo v. United States*.²⁶ At the same time, the *Kyllo* decision suggests that the proliferation of invasive technological tools in general public use may eviscerate any reasonable expectation to privacy within one’s home.

²⁴ 460 U.S. at 281.

²⁵ 468 U.S. 705 (1984).

²⁶ 533 U.S. 27 (2001).

In *Kyllo*, the police suspected that marijuana was being grown inside a home utilizing high-density halide lamps. In order to determine whether such lamps were being utilized, the police while seated in their car in the street, scanned the home utilizing a thermal imager to detect infrared radiation that is invisible to the naked eye. The scanning device reported that portions of the house were hotter than other sections of the house and neighboring homes. In concluding that the police's use of the thermal-imaging device without a warrant violated the Fourth Amendment because it was capable of detecting lawful behavior in the house, the *Kyllo* majority stated:

“Where, as here, the Government uses a device that is not in general public use, to explore details of the home that would previously have been unknowable without physical intrusion, the surveillance is a “search” and is presumptively unreasonable without a warrant.”²⁷

At present, the Supreme Court has not interpreted the Fourth Amendment with regard to more advanced forms of tracking technology such as GPS, RFID or real time cell site monitoring. Based on Supreme Court precedent since *Katz*, it is unlikely that the Court will rule that the Fourth Amendment requires a warrant prior to the police utilizing such devices to electronically track movement in public. However, a strong argument can be made that based on the scope of private information obtainable through GPS and cellular tracking technology the Fourth Amendment probable cause and warrant requirements should be found applicable.²⁸ In 2005, a federal District Court in New York, relying on the *Knotts* decision, ruled that the Fourth Amendment was not violated when the police attached GPS devices to the defendant's vehicles because the defendant had no expectation of privacy while driving on public roadways. In contrast, a federal judge in Maryland has questioned, without deciding, whether the extraordinary amount of detailed personal information obtainable through the use of a GPS device would render it subject to Fourth Amendment constraints.²⁹

The *Kyllo* and *Karo* decisions strongly suggest that the use of GPS, RFID and real time cell site technology by the police to monitor the location of an individual or object within a home will be subject to the requirements of the Fourth Amendment. Based on the portability of cell phones, lawful public location surveillance by the police under *Knotts* can easily be transformed into unlawful surveillance under *Karo* by the cell phone being carried into a home or other private space. Last year, three United States District Court Magistrates issued decisions raising such Fourth Amendment concerns with respect to warrantless real time cell site monitoring.³⁰

²⁷533 U.S. at 40.

²⁸ The State of Washington Supreme Court adopted this reasoning when it interpreted that State's broader constitutional provision protecting “private affairs.” *State v. Jackson*, 150 Wn.2d 251, 76 P.3d 217 (2003)(en banc). See also, Otterberg, *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, 695-697 (2005).

²⁹ *United States v. Moran*, 349 F.Supp.2d 425 (N.D.N.Y. 2005); *United States v. Berry*, 300 F.Supp. 2d 366 (D.Ct. Md. 2004).

³⁰ See, *In Re Application for Pen Register and Trap/Trace Device with Cell Site Location Authority*, 396 F.Supp. 747 (S.D. Tex. 2005); *In the Matter of an Application of the United States for an Order (1)*

Finally, it should not be overlooked that the *Kyllo* decision contains an ominous caveat regarding Fourth Amendment protections against electronic surveillance within a home: it is limited to devices that are not “in general public use.”³¹ This expressed limitation in the *Kyllo* holding raises the possibility that the proliferation of cell phones and inexpensive GPS devices could lead the Supreme Court to conclude that electronic monitoring within a home using such devices is not subject to the Fourth Amendment.

C. The Thirteenth Amendment and Human Tracking

Professors Jerome Dobson and Peter F. Fisher have applied the term “geoslavery” to describe how new location tracking devices can result in coercive control over human movement and direction.³² The metaphorical application of the term slavery to electronic human tracking has both historical precedence and legal relevance.³³ From well before the Civil War through the 1930’s, phrases such as “wage slavery” and “industrial slavery” were frequently applied to describe the oppressed conditions and status of workers.³⁴ The brutal reality of chattel slavery was obviously and substantially more oppressive than 19th Century working conditions or contemporary use of electronic monitoring. Nevertheless, in considering possible legal restraints applicable to human tracking it is relevant to consider the value such devices would have had for slaveholders in the 19th Century, the impact such technology would have had on American history and whether such devices constitute a vestige of slavery.

Historians John Hope Franklin and Loren Schweninger have detailed and documented the amount of time and resources Southern slaveholders had to expend in searching for and capturing runaway slaves.³⁵ Their study highlights that essential aspects of American slavery included restrictions on the freedom of movement of enslaved African-Americans and severe corporal punishment imposed by slaveholders and overseers when slaves were caught escaping or captured following escape.

Many in bondage attempted and succeeded in escaping for different motives including legal emancipation, reunions with family members and escape from particularly brutal owners. The method and direction of escape differed widely causing slave owners to rely on speculation and surmise in seeking to track down their escaped human property.³⁶ As a means of locating and capturing those who escaped, slaveholders

Authorizing the Use of a Pen Register and a Trap and Trace Device and (2) Authorizing Release of Subscriber Information and/or Cell Site Information, 396 F. Supp. 294 (E.D.N.Y. 2005); *In re Application of the United States for an Order Authorizing the Installation and Use of a Pen Register and a Caller Identification System on Telephone Numbers (Sealed) and the Production of Real Time Cell Site Information*, 2005 WL 3160860 (D.Ct. Md. 2005).

³¹ 533 U.S. at 40.

³² Dobson and Fisher, *Geoslavery*, IEEE Technology and Society Magazine, Spring 2003, 22(1), pp.47-52.

³³ Foner, pp. 29-31.

³⁴ Foner, pp. 60-62, 142, 199-202.

³⁵ Franklin and Schweninger, pp.149-181.

³⁶ Franklin and Schweninger, pp. 97-123.

hired lawyers, petitioned state legislatures, purchased newspapers advertisements and utilized slave catchers. These means of human tracking were expensive and inefficient.

American concerns regarding the location and capture of those who escaped from bondage can be found in the United States Constitution. Slaveholder interest in maintaining physical and legal control over their human chattel was so great that the Constitution was drafted to contain the Fugitive Slave Clause aimed at guaranteeing the return of a runaway who succeeded in an interstate escape.³⁷ The Fugitive Slave Clause, originally proposed by a South Carolina delegate to the Constitutional Convention, was aimed at insuring that slaveholders had a constitutionally based means of obtaining the return of a runaway slave who had escaped to a free state without the drafters' using the word slavery.³⁸ In 1793, the Second Congress enacted legislation granting slaveholders and their agents a specific legal procedure permitting them to seize an individual and take him or her before a magistrate to obtain a certificate requiring a return to bondage in a slave state.³⁹

As part of the Compromise of 1850, Congress enacted the Fugitive Slave Act aimed at easing the ability of Southern slaveholders to recapture fugitive slaves through federal judicial means. However, rather than calming the rising national dispute over slavery, the provisions of the Fugitive Slave Act precipitated an increase in aggressive Abolitionist activity including active resistance to the capture of freed slaves.⁴⁰

The 1851 *Thomas Sims's Case*⁴¹ is an example of the type of antebellum litigation that resulted when slave owners sought the return of a runaway. On April 3, 1851, under the powers of the Fugitive Slave Act of 1850, Commissioner George T. Curtis of the United States Circuit Court issued a warrant to the Massachusetts federal marshal requiring the capture of Sims, an African-American "fugitive from labor" to answer a complaint filed on behalf of a Georgia slave owner.⁴² Following Sims's capture and imprisonment pursuant to the warrant, a habeas corpus petition was filed in Massachusetts's state court seeking to free Sims and challenging the Fugitive Slave Law. The petition was heard before Massachusetts' Chief Judge Lemuel Shaw, the father-in-law of Herman Melville. To avoid the recurrence of Abolitionists' physical efforts to rescue Sims, heavy chains were placed around the courthouse.⁴³ Although personally opposed to slavery, Chief Judge Shaw denied the writ concluding that the Fugitive Slave Act was constitutional based on the history of the Fugitive Slave Clause and precedent

³⁷ United States Constitution, Art. IV, section 2, cl. 3 states: "No Person held to Service or Labour in one State, under the Laws thereof, escaping into another, shall, in Consequence of any Law or Regulation therein, be discharged from such Service or Labour, but shall be delivered up on Claim of the Party to who such Service or Labour may be due."

³⁸ Rakove, *Original Meanings: Politics and Ideas in Making of the Constitution*, pp. 89, 91 (Knopf, 1997).

³⁹ *Thomas Sims's Case*, 61 Mass. 285, 297-298, 301-302 (1851).

⁴⁰ Sewell, *Ballots for Freedom: Antislavery Politics in the United States 1837-1860*, pp. 236-239 (Oxford, 1976); Mayer, *All on Fire: William Garrison and the Abolition of Slavery*, pp.406-442 (St. Martins Press, 1998); Sennett, *North Star Country: Upstate New York and the Crusade for African American Freedom*, pp. 127-153 (Syracuse University, 2002).

⁴¹ *Supra*.

⁴² 61 Mass. at 285.

⁴³ Delbanco, *Melville*, pp. 153-154 (Knopf, 2005)

upholding the earlier 1793 federal fugitive slave law.⁴⁴ Following Chief Judge Shaw's application of judicial restraint, Sims was returned to bondage in Georgia and subjected to a severe public beating.⁴⁵

The use of GPS and RFID technology by slave owners would have perpetuated the enslavement of African-Americans, substantially decreased the cost of tracking down runaways and altered American history. The use of real time location technology would have vastly improved the monitoring of the daily productivity of slave labor thereby increasing efficiency along with the economic value and power of America's peculiar institution. Such technology would have also made slave resistance and escape far more difficult. Through GPS or RFID implants, slaveholders would have been able to easily locate and identify individuals who succeeded in escaping. Working together, slaveholders would have been able to establish geo-fences and a communications network that would have substantially aided in slaveholder domination over the personal lives of those held in bondage. By undermining the ability of individuals such as Frederick Douglas from escaping, these technological tools may have decreased the awareness in the North of the horrors of American slavery prior to the Civil War.⁴⁶

In 1865, Congress adopted the Thirteenth Amendment, subsequently ratified by the States, banning slavery and involuntary servitude. Unlike other constitutional amendments, the Thirteenth Amendment uniquely restricts both private conduct as well as governmental action.⁴⁷ The Thirteenth Amendment states:

- “1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the the United States, or any place subject to their jurisdiction.
2. Congress shall have power to enforce this article by appropriate legislation.”

The Thirteenth Amendment was never intended to be limited to ending the enslavement of African-Americans. In 1911, the United States Supreme Court highlighted the amendment's broad breath when it described the amendment as “a charter of universal civil freedom of all persons, of whatever race, color or estate, under the flag” that was intended to abolish both slavery as well all vestiges, badges and incidents of slavery.⁴⁸ In addition to outlawing slavery, the Thirteenth Amendment also prohibits involuntary servitude.

The amendment granted Congress the power to enact legislation targeted at eliminating those badges and incidents of slavery including the “privilege to go and come” as one pleases.⁴⁹ Congressional authority under the amendment includes the power

⁴⁴ 61 Mass. at 294-307.

⁴⁵ Delbanco, p. 154.

⁴⁶ McFeely, Frederick Douglass (Norton, 1991).

⁴⁷ *United States v. Kozminski*, 487 U.S. 931, 942 (1988).

⁴⁸ *Bailey v State of Alabama*, 219 U.S. 219, 241 (1911).

⁴⁹ *Jones v. Alfred H. Mayer Co*, 392 U.S. 409, 429-430 (1968)(quoting from Senate Judiciary Chairman Trumbell during a 1866 legislative debate).

“to determine what are the badges and the incidents of slavery, and the authority to translate that determination into effective legislation.”⁵⁰ However, it was not intended to be the basis for challenging various established societal power relationships such as parent-child.⁵¹

Based on the history and interpretation of the Thirteenth Amendment, Alexander Tsesis has argued that the amendment provides the constitutional predicate for the enactment of broad federal laws banning public and private limitations on universal liberties.⁵²

Whether a majority of the United States Supreme Court would concur with Tsesis’ thesis of such broad congressional power under the Thirteenth Amendment remains in doubt. Various Supreme Court decisions in the past fifteen years have demarcated newly established limitations on congressional legislative power under the Commerce Clause, the Eleventh Amendment and the remedial provision of the Fourteenth Amendment.⁵³

Nevertheless, a reasonably strong argument can be made that Congress does have the constitutional power under the remedial provision of the Thirteenth Amendment to ban the use of tracking devices to dominate and control the location of others. Imposing restrictions, control and monitoring over another’s location constitutes a vestige and incident of slavery.

In addition, mandatory tracking or identification implants or attachments on another human being would be subject to court challenge under the Thirteenth Amendment. Such devices are the technological equivalent, in many respects, to various slaveholder tools, including branding, utilized to keep African-Americans from escaping from bondage or as punishment for such escapes. As such, the use of such devices to establish geo-fences and even impose corporal punishment would constitute a vestige of slavery. In addition, the imposition of physical injury or threat of physical injury emanating from a tracking device would be subject to challenge as a form of involuntary servitude especially if the electronic punishment is aimed at forcing an individual to continue working.⁵⁴

⁵⁰ *Jones v. Alfred H. Mayer Co*, 392 U.S. at 440.

⁵¹ *Kozminski*, 487 U.S. at 944; *Robertson v. Baldwin*, 165 U.S. 275, 282 (1897)

⁵² Tsesis, *The Thirteenth Amendment and American Freedom: A Legal History* (NYU Press, 2004), pp. 86-87, 89, 104-105.

⁵³ See, *United States v. Lopez*, 514 U.S. 549 (1995)(federal statute prohibiting guns in the vicinity of public schools declared unconstitutional on the grounds that it went beyond congressional power granted by the Commerce Clause; *Alden v. Maine*, 527 U.S. 706 (1999)(federal overtime law determined to be unconstitutional under the Eleventh Amendment to the extent that it granted employees the right to sue State employers in federal court); *United States v. Morrison*, 529 U.S. 598 (2000)(portion of federal Violence Against Women Act declared unconstitutional as beyond congressional authority under the Commerce Clause; *Board of Trustees of University of Alabama v. Garrett*, 531 U.S. 356 (2001)(holding the Americans with Disabilities Act unconstitutional as applied to a State’s workforce).

⁵⁴ Dobson and Fisher, *Geoslavery*, pp.47-49; Fisher and Dobson, *Who Knows Where You Are, and Who Should in the Era of Mobile Geography?* *Geography*, Vol. 88(4), pp. 335-336 (2003); *United States v. Kozminski*, 487 U.S. at 944, 952.

D. State Constitutional Limitations on the Use of Tracking Devices

The application of the reasonable expectation of privacy test to new technological intrusions is not without its critics. As Jeffrey Rosen has pointed out “as advances in the technology of monitoring and searching have made ever more intrusive surveillance possible, expectations of privacy have naturally diminished, with a corresponding reduction in constitutional protections.”⁵⁵ The Oregon Supreme Court in *State v. Campbell* termed the reasonable expectation test “a formula for expressing a conclusion rather than a starting point for analysis, masking the various substantive considerations that are the real bases in which Fourth Amendment searches are defined.”⁵⁶

Various state courts have determined, under their respective state constitutions, that the police are required to obtain a warrant prior to utilizing an electronic device. In reaching such legal conclusions, the courts have recognized that electronic tracking devices are not mere technological enhancements to law enforcement vision but rather a substantial intrusion into an individual’s privacy and autonomy.

In *State v. Campbell*, the Oregon Constitution was interpreted to prohibit the police’s warrantless use of a radio transmitter to locate a private vehicle. In that case, the police used a radio transmitter attached to a burglary suspect’s car to track his movements after the police were unable to maintain constant visual surveillance. In determining that a warrant is required prior to the police utilizing a tracking device, the Oregon Supreme Court rejected the Supreme Court’s rationale in *Knotts* and determined that the transmitter was a location finder rather than a mere extension of police visual tracking. In substitution of the reasonable expectation of privacy test, the Oregon Supreme Court defined a privacy interest as “an interest in freedom from particular forms of scrutiny” and concluded that the use of a radio transmitter to locate a person or object constituted a significant limitation on the freedom from scrutiny.⁵⁷

In reaching its conclusion, the Oregon court recognized the perniciousness of technological tracking devices by creating a daily fear of being watched:

“The limitation is made more substantial by the fact that the radio transmitter is more difficult to detect than would-be observers who must rely upon the sense of sight. Without an ongoing, meticulous examination of one’s possessions, one can never be sure that one’s location is not being monitored by means of a radio transmitter. Thus, individuals must more readily assume that they are the objects of government scrutiny.”⁵⁸

⁵⁵ Rosen, *The Unwanted Gaze: The Destruction of Privacy in America*, pp. 60-61.

⁵⁶ *State v. Campbell*, 306 Ore. 157, 164, 759 P.2d 1040, 1044 (1988).

⁵⁷ 306 Ore. at 170, 172, 759 P.2d at 27, 30. However, more recently in *State v. Meredith*, 337 Or. 299, 96 P.3d 342 (2004), the same court found that the police’s warrantless use of a beeper on an employer’s vehicle, with the employer’s consent, did not violate the employee’s privacy rights under Oregon’s constitution.

⁵⁸ 306 Ore. at 172, 759 P.2d at 30. American history over the past century provides a reasonable basis for concerns relating to unlawful electronic surveillance of legitimate political activities, See, Branch, Pillar of

In 2003, the Washington Supreme Court ruled that under Washington's more protective constitutional provision regarding searches and seizures, the police were required to obtain a warrant based on probable cause prior to attaching a GPS device to a citizen's vehicle.⁵⁹ In accord with the Oregon Supreme Court's analysis, Washington's highest court concluded that a GPS device replaces rather than augments police visual surveillance. In reaching its decision, Washington's highest court recognized the enormous intrusive power of GPS devices to provide a detailed picture of an individual's daily life:

“[u]se of GPS tracking devices is a particularly intrusive method of surveillance, making it possible to acquire an enormous amount of personal information about the citizen under circumstances where the individual is unaware that every single vehicle trip taken and the duration of every single stop may be recorded by the government.”⁶⁰

Two New York State trial courts have rendered conflicting decisions regarding whether the New York State Constitution requires the police to obtain a warrant prior to attaching a GPS device to a vehicle. In *People v. Lacey*⁶¹, one county judge, without articulating a developed legal analysis, concluded in 2004 that a warrant was required. Last year, another county judge in *People v. Gant*⁶² reached the opposite conclusion based on the *Knotts* analysis that an individual does not have a legitimate expectation of privacy while driving on public roads.

In addition to state constitutional limitations regarding governmental search and seizure, certain states have explicit constitutional privacy provisions that may form the basis for future challenges to governmental and private use of tracking devices. For example, California Constitution, Art. 1, §1 contains an explicit reference to a right of privacy applicable to both private as well as state conduct.⁶³ In 1970, Illinois in direct response to the development of new intrusive technologies, amended its' constitution to include an expressed provision protecting its citizens against invasions of privacy

Fire: American in the King Years (Simon and Schuster 1998); Garrow, *The FBI and Martin Luther King, Jr.* (W.W. Norton, 1981). At the same, publicity surrounding the use of electronic tracking devices can lead to irrational concerns. See, *Dunne v. Police Department*, 128 Fed. Appx. 673 (9th Cir. 2005). In *Dunne*, the *pro se* plaintiff's claim that a GPS device had been implanted in his left eye socket to render him a sex slave was dismissed because he was unable to prove the existence of the GPS implant.

⁵⁹ *State v. Jackson, supra.* Article I, section 7 of the Washington Constitution provides that “[n]o person shall be disturbed in his private affairs, or his home invaded, without authority of law.”

⁶⁰ 150 Wn.2d at 262, 76 P.3d at 223. See also, *State v. Kelly*, 68 Haw. 213, 708 P.2d 820 (1985), where the Hawaii Supreme Court ruled that the police's warrantless installation of a beeper in a photograph album was both an unreasonable search and seizure under the Hawaiian Constitution.

⁶¹ 3 Misc.3d 1103(A), 787 N.Y.S.2d 680, 2004 WL 1040676 (N.Y.Co.Ct. 2004);

⁶² ___ Misc. ___, 2005 WL 1767655 (N.Y.Co.Ct. 2005)

⁶³ *Hill v. NCAA*, 7 Cal.4th 1, 865 P.2d 633 (1994); California Constitution, Art. 1, §1 states: “All people are by nature free and independent and have inalienable rights. Among these are enjoying and defending life and liberty, acquiring, possessing, and protecting property, and pursuing and obtaining safety, happiness, and privacy.”

including the use of electronic surveillance.⁶⁴ Other states such as Hawaii, Alaska and Florida have similar specific state constitutional provisions protecting the right to privacy.⁶⁵

Nevertheless, it remains unclear how these various state constitutional privacy provisions will be applied to new electronic tracking devices. Unlike Oregon's highest court, the California Supreme Court in *Hill v. NCAA*, ruled that in order to be able to allege a violation of California's constitutional right to privacy, a plaintiff must establish a violation of a reasonable expectation of privacy.⁶⁶ To the extent that this standard is applied, state constitutional privacy language may not form the basis for establishing limits on the use of electronic surveillance to track public activities.

II. The Legal Implications of Human Tracking Implant Technology

The development, marketing and use of human subdermal RFID and GPS implants raise challenging and new legal and ethical issues. As early as 1985, California veterinarian Harris L. Stoddard was working on the development of an implantable identification chip for use with animals.⁶⁷ Implanted RFID tracking devices are used frequently in the identification of animals. The British company Trovan, Ltd. markets various forms of implantable transponders and readers throughout the world for animal and human identification.⁶⁸

The first known experiment regarding the use of a human tracking implant took place at the University of Reading in England in 1998. Professor of Cybernetics Kevin Warwick had an RFID tracking device implant placed in his arm that enabling his movements on campus to be monitored for one week. An expressed purpose for the

⁶⁴ *Will County Grand Jury* 152 Ill.2d 381, 390-392, 604 N.E.2d 929 (1992). Illinois Constitution, Article 1, § 6 provides that: "The people shall have the right to be secure in their persons, houses, papers and other possessions against unreasonable searches, seizures, invasions of privacy or interceptions of communications by eavesdropping devices or other means. No warrant shall issue without probable cause, supported by affidavit particularly describing the place to be searched and the persons or things to be seized."

⁶⁵ See, Hawaii Const. Art. 1, § 6: "The right of the people to privacy is recognized and shall not be infringed without the showing of a compelling state interest. The legislature shall take affirmative steps to implement this right;" Alaska Const. Art. I, § 22: "The right of the people to privacy is recognized and shall not be infringed. The legislature shall implement this section;" Florida Const. Art. 1 § 23: "Every natural person has the right to be let alone and free from governmental intrusion into the person's private life except as otherwise provided herein. This section shall not be construed to limit the public's right of access to public records and meetings as provided by law."

⁶⁶ 7 Cal.4th at 20, 865 P.2d at 846. See also, *State v. Glass*, 583 P.2d 872, 875 (Alaska, 1978) (Alaska Supreme Court's explicit adoption of Justice Harlan's formulation in *Katz* to the Alaska's state constitutional right to privacy.

⁶⁷ www.avidid.com/stoddard.html.

⁶⁸ www.trovan.com/company.htm. One example of the ubiquitous use of Trovan products was observed fortuitously during a 2005 family visit to Namibia where leopards have been implanted with Trovan RFID devices as part of a concerted effort to preserve their endangered population. During the same trip, I observed elephants with GPS devices around their necks as part of a study of their migration patterns in southern Africa.

experiment was to demonstrate the inherent dangers to personal privacy connected with implant technology.⁶⁹

Dr. John D. Halamka, the Chief Information Officer for the Harvard Medical Center, has conducted a more recent and longer experiment in the use of a voluntary human RFID implant containing a 16-digit medical identifier. With the use of a handheld RFID transponder, Dr. Halamka's implanted identifier can be obtained and used to discover his identity and his doctor through an internet site maintained by the manufacturer. Significantly, the implant does not include any medical history or any known disabilities and is not equipped to monitor Dr. Halamka's location. His willingness to participate in the experiment was an outgrowth of Dr. Halamka's experiences as an emergency room resident when he was unable to determine the identification of patients. In his article, Dr. Halamka acknowledges the possibility that the implant can lead to invasion of privacy due to the non-use of encryption technology, the unauthorized use of transponders and hacking. In response to claims by others that human implant chips are Orwellian in nature, Dr. Halamka concedes: "I have not investigated these or other moral, religious, or political implications of having an implanted identifier."⁷⁰

In general, the marketing and publicity surrounding these implant products focus primarily on the purported convenience, security and the ability to alleviate fear. The impact on personal privacy, the products' reliability and the interception of data by third parties has not received similar coverage. The American company Applied Digital Solutions, Inc. markets an RFID VeriChip™ implantable for humans that can be used for identification and security as well a GPS wristband product known as Digital Angel™. In 2003, Applied Digital Solutions, Inc. announced that it had developed a human implant that can function as a GPS personal location device.⁷¹ In 2006, Qustar Ltd. plans on commencing the marketing to parents of two models of implantable GPS devices aimed at responding to American parental fear of child abductions.⁷²

Companies are aggressively promoting human implant products in the United States and abroad utilizing standard advertising techniques. They are being marketed for both security and recreational purposes. RFID implants are being publicized as a mere technological extension to the body-piercing trend that permits bodily integration with computers. A technology entrepreneur who volunteered for an implants in both hands admitted to the New York Times "the symbolism of the tag is much more of a big deal as a social marker."⁷³ A website has been established in an effort to expand this social phenomenon of voluntary technological branding.⁷⁴

⁶⁹ BBC News, *Technology gets under the skin*, April 24, 1998, news.bbc.co.uk/1/hi/sci/tech/158007.stm; www.kevinwarwick.org.

⁷⁰ Halamka, *Straight from the Shoulder*, *The New England Journal of Medicine*, Vol. 353:331-333, No. 4 (2005).

⁷¹ adsx.com/news/2003/051303.html; Edmundson, *Global Positioning System Implants: Must Consumer Privacy Be Lost In Order for People to Be Found*, 38 *Ind. L. Rev.* 207, 210 (2005).

⁷² qustar.com/ver1/news/announces.php.

⁷³ Bahney, *High Tech, Under the Skin*, *New York Times*, February 2, 2006.

⁷⁴ <http://tagged.kaos.gen.nz>.

In Mexico, the Verichip™ has been implanted in government officials for access to a secure government building and non-government volunteers have received implants in response to their fear of being kidnapped.⁷⁵ RFID implants are being marketed for voluntary use by tavern patrons to avoid having to pay with cash or credit cards and for computer users who cannot remember the passwords.⁷⁶ Others, with an economic interest in the technology, have publicly volunteered to receive implants as part of a marketing strategy.⁷⁷

The development, marketing and use of human RFID and GPS implants raise important legal and ethical issues.⁷⁸ At present, the legal ramifications regarding implants, including the legality of government mandated human implants, remains undeveloped.

It is improbable that a government program requiring human implants for non-criminals would be found to be lawful. Such a mandate would run afoul of Supreme Court due process jurisprudence and precedent establishing a constitutionally protected right to privacy against governmental intrusions into intimate personal affairs.⁷⁹ Mandated government intrusions into the human body implicate substantial liberty interests protected under the Due Process Clause of the 14th Amendment.⁸⁰

In *Rochin v. California*,⁸¹ the Court held that the police violated the due process rights of a drug suspect when they compelled an involuntary pumping of his stomach in order to seize two capsules containing drugs that he had been swallowed. Justice Felix

⁷⁵ McHugh, *A Chip in Your Shoulder*, Slate, November 10, 2004, www.slate.msn.com/id/2109477.

⁷⁶ Purohit, *Technology Gets Under Clubbers' Skin*, CNN, June 9, 2004, www.cnn.com/2004/WORLD/europe/06/09/spain.club; Cramb, *Microchip to allow wallet-free drinking*, Telegraph, January 17, 2005; McGeever, *Computer chips get under skin of enthusiasts*, Reuters, January 6, 2006.

⁷⁷ For example, in 2003, the head of a Louisiana company that distributes the VeriChip™ announced that she had received an implant as part of the commencement of her company's marketing efforts. www.findmellc.com/breaking_news.asp. The owner of a technology company has received implants in both hands and has authored a book setting forth "cool projects" connected with RFID products. Bahney, *High Tech, Under the Skin*, New York Times, February 2, 2006; McGeever, *Computer chips get under skin of enthusiasts*, Reuters, January 6, 2006. Law Professor Patricia J. Williams has questioned whether the announcement by VeriChip board member and former United States Secretary of Health and Human Services Tommy Thompson of his intent to receive a GPS implant was related to a marketing strategy. Williams, *Telly-Tommy*, The Nation, August 15/22, 2005.

⁷⁸ Edmundson, *Global Positioning System Implants: Must Consumer Privacy Be Lost In Order for People to Be Found*, 38 Ind. L. Rev. 207 (2005); Dobson and Fisher, *Geoslavery*.

⁷⁹ See, *Rochin v. California*, 342 U.S. 165 (1952); *Griswold v. Connecticut*, 381 U.S. 479 (1965) (invalidating a state law prohibiting the use of contraceptive devices based on a constitutional right to privacy premised on various provisions of the Bill of Rights); *Lawrence v. Texas*, 539 U.S. 558 (2003) (invalidating a state anti-sodomy law as an unconstitutional abridgement of the right to privacy); See also, *Norman-Bloodsaw v. Lawrence Berkeley Laboratory*, 135 F.3d 1260 (9th Cir. 1998) (recognizing a constitutional right to privacy cause of action against a federally funded research laboratory that conducted unconsented testing for traits of sickle cell anemia, syphilis and pregnancy.)

⁸⁰ See *Washington v. Harpur*, 494 U.S. 210, 222 (1990); *Cruzan v. Director, Mo. Dept. of Health*, 497 U.S. 261, 278 (1990).

⁸¹ *Supra*.

Frankfurter, writing for the majority, emphasized the significance of coerced governmental intrusions into the body:

This is conduct that shocks the conscience. Illegally breaking into the privacy of the petitioner, the struggle to open his mouth and remove what was there, the forcible extraction of his stomach's contents—this course of proceeding by agents of government to obtain evidence is bound to offend even hardened sensibilities. They are methods, to close to the rack and the screw to permit of constitutional differentiation.⁸²

Under Fourth Amendment, the Court treats all physical intrusions by governmental officials into a human body as a search and seizure because it violates an expectation of privacy recognized by our society. This reasonable expectation of privacy against unwanted bodily intrusions is balanced against the articulated legitimate governmental interest to determine whether the search was unreasonable.⁸³ The application of this balancing test is very different when “special needs, beyond the normal need for law enforcement, make the warrant and probable-cause requirement impracticable.”⁸⁴ When the “special needs” concerns are not related to crime detection, courts will make a context-specific inquiry balancing the competing private and public interests.⁸⁵

For example, mandatory drug and alcohol testing programs in employment and public schools have been upheld under the Fourth Amendment based on special safety needs that outweighed the reasonable expectation of privacy against such bodily intrusions.⁸⁶ In contrast, a state hospital policy, established with the aid of the police, under which non-consenting pregnant patients were subjected to urine drug tests and were subject to criminal prosecution if they tested positive for cocaine was struck down as a violation of the Fourth Amendment.⁸⁷ In 1997, the Supreme Court invalidated on Fourth Amendment grounds a state law mandating that state political candidates certify that he or she has taken a drug test and that the result was negative. In striking down the statute, the Supreme Court found that the State lacked any special need based on the lack of evidence demonstrating a drug problem among elected state officials or that they performed safety sensitive job duties.⁸⁸

⁸² 342 U.S. at 172.

⁸³ *Skinner v. Railway Labor Executives Association*, 489 U.S.602 (1989)

⁸⁴ *Griffin v. Wisconsin*, 483 U.S. 868, 873 (1987) quoting *New Jersey v. T.L.O.*, 469 U.S. 325, 351 (1985) (Blackman, J., concurring in judgment).

⁸⁵ *Chandler v. Miller*, 520 U.S. 305, 314 (1997).

⁸⁶ *Skinner v. Railway Labor Executives Association*, *supra*; *National Treasury Employees Union v. Von Raab*, 489 U.S. 656 (1989)(upholding the use of drug testing for government employees as a condition of promotion or transfer to certain positions directly involving drug interdiction or requiring the employee to carry a firearm); *Vernonia School District 47J v. Acton*, 515 U.S. 646 (1995) (upholding random drug testing for high school students participating in interscholastic sports).

⁸⁷ *Ferguson v. City of Charleston*, 532 U.S. 67 (2001).

⁸⁸ *Chandler v. Miller*, 520 U.S. at 321-322.

Based on the sustained nature of an implant's intrusion into the body, it is improbable that the courts, in most situations, would find that a special government interest outweighed the liberty and privacy interests protected under the United States Constitution.

Without new legislation banning the practice, the common law tort of assault and battery, as well as the Thirteenth Amendment, would form the bases for challenging privately mandated human tracking implants. In *Schloendorff v. Society of New York Hospital*⁸⁹, the New York Court of Appeals recognized that “every human being of adult years and sound mind has a right to determine what shall be done with his own body.”⁹⁰ When someone is subjected to unwanted non-emergency surgery, they have the right to sue for damages for assault.⁹¹

Mandated human RFID implants that contain confidential medical information may also violate the confidentiality provisions of the Health Insurance Portability and Accountability Act (HIPAA) and the Americans with Disabilities Act (ADA).⁹² A mandate that medical information protected under HIPAA be made accessible through an RFID implant to anyone with an appropriate reader would violate HIPAA's confidential provisions. To the extent that an employer mandates implants for employees containing confidential medical information would render the employer vulnerable to liability based on the ADA's confidentiality requirements with respect to medical records.⁹³

The population most vulnerable to a potential program of mandated human tracking implants would be criminal convicts especially those convicted of sex crimes. In Ohio, a county official and sheriff have stated their support for the use of implants to monitor ex-convicts.⁹⁴ Various states have already enacted laws mandating lifetime electronic monitoring for certain sex offenders. Based on the current level of public fear connected with sex offense, it is probably only a matter of time before more politicians call for the use of tracking implants on certain criminal convicts.

Whether the Court will deem the use of tracking implants for inmates and other convicts to be violative of due process remains to be seen. Even when prison officials intrude on substantial liberty interests of prisoners, the regulation will be upheld as long as it is reasonably related to a legitimate penological interest.⁹⁵

For at least a decade, electronic wrist and ankle bracelets have been required as a condition of house arrest, probation and parole to enable officials to keep track of the offenders in and outside the home. Individuals under house arrest, along with probationers and parolees, are granted “conditional liberty” subject to special and unique

⁸⁹ 211 N.Y. 125, 105 N.E. 92 (1914).

⁹⁰ 211 N.Y. at 129, 105 N.E. at 93.

⁹¹ 211 N.Y. at 130, 105 N.E. at 93.

⁹² See, 42 U.S.C. §1320d-2; 42 U.S.C. §12101 et. seq.

⁹³ See, 29 C.F.R. § 1630.14 (2005).

⁹⁴ Lolli, *Official: Implant Chips Into Offenders*, Cincinnati Post, March 29, 2005

⁹⁵ *Washington v. Harpur*, 494 U.S. at 223-224.

restrictions including a significantly reduced expectation of privacy.⁹⁶ Due to the limitations connected with the radial scope of RFID technology, electronic bracelets utilizing GPS technology are increasingly being utilized throughout the country. In 2005, the Indiana Court of Appeals ruled that a GPS device that was able to track a probationer's movement outside the home violated the statutory definition of a monitoring device permissible for home detention.⁹⁷

As a practical matter, most people convicted of a crime would prefer electronic location monitoring to incarceration. This alternative to prison serves various societal interests because it is less expensive and grants the offender a greater opportunity to engage in rehabilitative activities.

Although electronic bracelets have been utilized successfully, the fact that they are less intrusive than electronic implants does not preclude the possibility that human electronic implants will be found to be reasonable under the Fourth Amendment when applied to criminal offenders. In a series of Fourth Amendment decisions, the Supreme Court has been dismissive of arguments premised on the mere existence of less intrusive means.⁹⁸ Under the Fourth Amendment special needs and general balancing tests, federal courts have sustained state laws mandating the extraction of DNA samples from the bodies of various classes of convicted offenders to be utilized in a computerized DNA database.⁹⁹ In any challenge to possible future use of human implants on criminal offenders, strong national evidence will have to be presented to a court demonstrating the success of the less intrusive electronic bracelets along with evidence establishing that implanted GPS technology is not more accurate or reliable than data stemming from a bracelet.

III. Federal Legislative Responses to Human Tracking and Cellular Technology

In response to the development of electronic technology, Congress has enacted legislation placing certain restrictions on the use tracking technologies by federal law enforcement. The protection of privacy against the use of tracking technologies, however, has not been a major congressional priority.

In 1986, Congress passed the Electronic Communications Privacy Act of 1986 ("ECPA"). The ECPA includes a specific provision regarding federal law enforcement use of mobile tracking devices to monitor the movement of an individual or object.¹⁰⁰ The purpose of the law was jurisdictional in nature. It did not place any expressed

⁹⁶ *Griffin v. Wisconsin*, 483 U.S. at 874; *United States v. Knights*, 534 U.S. 112, 120 (2001).

⁹⁷ *See, Chism v. State*, 824 N.E. 2d 334 (Ind. 2005)(*State v. Murphy*, 2000 WL 272074 (Minn. 2000)(affirming the revocation of probation based on probationer's tampering with a GPS device and leaving his inclusion zone);

⁹⁸ *See, Illinois v. Lafayette*, 462 U.S. 640, 647 (1983); *United States v. Martinez-Fuerte* 428 U.S. 543, 556-557, n. 12 (1976).

⁹⁹ *See, Nicholas v. Goord*, __ F.3d __, 2005 WL 3150611 (2d Cir. 2005); *United States v. Kincaide*, 379 F.3d 813 (9th Cir. 2004) (en banc), cert. den. __ U.S. __, 125 S.Ct. 1638 (2005); *Green v. Berge*, 354 F.3d 675 (7th Cir. 2004)

¹⁰⁰ 18 U.S.C. § 3117.

substantive limits on the use of tracking devices, require the suppression of evidence for statutory violations or provide for any privacy protections beyond those recognized under the Fourth Amendment.¹⁰¹

The ECPA does include statutory mandates requiring federal law enforcement to apply before a federal judge for issuance of a search warrant based on probable cause or a court order based on a lesser standard when it seeks the release of certain forms of subscriber information from a wireless company.¹⁰² Title III of ECPA establishes procedures relating to the use of pen registers and trap/trace devices, commonly referred to as a caller identification system, by federal law enforcement to capture the phone numbers of outgoing and incoming calls.¹⁰³ In 1994, Congress enacted the Communications Assistance for Law Enforcement Act prohibiting wireless providers from disclosing “any information that may disclose the physical location of the subscriber” based on call-identification information acquired through the government’s use of a pen register or trap/trace device.¹⁰⁴

In 1999, Congress enacted the Wireless Communications and Public Safety Act that contains an express limitation on the use or disclosure by telecommunication companies of call location information regarding mobile service customers.¹⁰⁵ Litigation challenging the FCC regulations with respect to the nature of consumer authorization required for the disclosure of location information has substantially muddled the enforceability of this location privacy provision.¹⁰⁶ Despite this continued lack of clarity related to consumer consent, United States District Court Magistrate Stephen William Smith has concluded that the statute places location information into “a special class of consumer information, which can only be used or disclosed in an emergency situation, absent express prior consent by the customer. Based on the statute, a cell phone user may very well have an objectively reasonable expectation of privacy in his call location information.”¹⁰⁷

Congress has been resistant to passing legislation aimed at placing limitations on the ability of employers to impose electronic workplace tracking. In 1993, the Privacy for Consumers and Workers Act, was introduced in Congress that sought to set limitations on the use tracking technology in the workplace including mandating written notification to employees regarding the surveillance. The bill died in committee. One year later, in 2000, the Notice of Electronic Monitoring Act was introduced. The proposed legislation sought

¹⁰¹ See, *United States v. Forest*, 355 F.3d 942, 950 (6th Cir. 2004), cert. den, 125 S.Ct. 174 (2004); *United States v. Gbemisola*, 225 F.3d 753 (D.C. Cir. 2000), cert. den, 531 U.S. 1026 (2000); *In Re Application for Pen Register and Trap/Trace Device with Cell Site Location Authority*, *supra*; Otterberg,, 46 B.C. L. Rev. at 679.

¹⁰² 18 U.S.C. §§ 2703(a)-(d).

¹⁰³ 18 U.S.C. §§3121-27

¹⁰⁴ 18 U.S.C. §3122(b)(2); *In re Application of the United States for an Order Authorizing the Installation and Use of a Pen Register and a Caller Identification System on Telephone Numbers (Sealed) and the Production of Real Time Cell Site Information*, 2005 WL 3160860 (D.Ct. Md. 2005).

¹⁰⁵ 47 U.S.C. §222(f).

¹⁰⁶ See, Edmundson, 38 Ind.L.Rev. at 219-224; Koerner, *Your Cellphone Is A Homing Device* Legal Affairs, July/August 2003.

¹⁰⁷ *In Re Application for Pen Register and Trap/Trace Device with Cell Site Location Authority*, *supra*;

to amend the ECPA to mandate employers to provide written notice to employees regarding employer use of tracking technology. Congress never acted upon the bill.¹⁰⁸

IV. State Common and Statutory Law Response To Electronic Human Tracking

A. The Application of State Tort Law

Since the 19th Century, various state courts have recognized common law invasion of privacy torts that may be applicable to the use of electronic tracking devices. There are four distinct privacy torts recognized today in many states: (a) unreasonable intrusion upon the seclusion of another; (b) appropriation of another's name or likeness; (c) unreasonable publicity given to another's private life; (d) publicity that unreasonably places the other in a false light before the public.¹⁰⁹ Privacy torts grant individuals the right to bring a lawsuit for damages usually in state court against the person who invaded the individual's privacy.

The privacy tort with the strongest relevance to the use of location tracking devices is the intrusion on seclusion tort.¹¹⁰ The Restatement (Second) of Torts §652B defines the tort of intrusion on seclusion in the following manner:

One who intentionally intrudes, physically or otherwise, upon the solitude or seclusion of another or his private affairs or concerns, is subject to liability to the other for invasion of his privacy, if the intrusion would be highly offensive to a reasonable person.

This privacy tort is not limited to the physical trespass into another person's home or other physical space. It has been found applicable to attempted eavesdropping on private conversations with or without the use of technological devices.¹¹¹

The viability of this type of lawsuit challenging the *per se* use of electronic tracking devices to follow another person outside the home remains dubious.¹¹² Comment (c) to the Restatement (Second) of Torts § 652B states that there can not be liability for observing or photographing another person while he or she is walking on a public street because the person is not in seclusion.

In 2005, the Connecticut Appellate Court issued the first appellate decision considering an intrusion upon seclusion claim based on the use of a GPS device.¹¹³ In

¹⁰⁸ Yung, *Big Brother Is Watching: How Employee Monitoring In 2004 Brought Orwell's 1984 To Life and What the Law Should Do About It*, 36 Seton Hall L.Rev. 163, 205-209 (2005).

¹⁰⁹ Restatement (Second) of Torts. §§ 652A, 652B, 652C, 652D and 652E; *Johnson v. Stewart*, 854 So.2d 544 (Ala. 2003); *Hamberger v. Eastman*, 106 N.H. 107, 206 A.2d 239 (N.H.1965)

¹¹⁰ See, Karim, *The Privacy Implications of Personal Locators: Why You should Think Twice Before Voluntarily Availing Yourself to GPS Monitoring*, 14 Wash. U.J.L. & Policy 485, 496-497 (2004); Renenger, *Satellite Tracking and the Right to Privacy*, 53 Hastings L.J. 549, 558 (2002).

¹¹¹ Restatement (Second) of Torts. §652B; *Hamberger v. Eastman*, *supra*.

¹¹² Karim, 14 Wash. U.J.L. & Policy at 496-497.

¹¹³ *Turner v. American Car Rental, Inc.*, 92 Conn. App. 123, 884 A. 2d 7 (2005)

Turner v. American Car Rental, Inc., a rental company had installed a global positioning system in its vehicles as a means of controlling and punishing drivers for exceeding a set speed limit. Under the company's policy and practice, the vehicle's GPS receiver transmitted the speed and location of the vehicle to a monitoring company that in turn faxed the results to the rental company. In its form lease, the company stated that each rental vehicle contained a GPS receiver and set as a contractual condition that each time the rented vehicle exceeded 79 miles per hour for two minutes or longer, the leaser would be fined \$150.00.¹¹⁴ In dismissing the invasion of privacy tort action, the Connecticut appellate court concluded that it was unaware of any legal precedent establishing that the installation of a GPS device in a car violates the privacy rights of the driver or that that driver has an expectation of privacy on a public highway.¹¹⁵

The Supreme Court's conclusion in *United States v. Knotts*¹¹⁶ that there is no reasonable expectation of privacy with respect to one's location while driving led a United States District Court judge to dismiss an employee's intrusion upon seclusion claim against his employer for monitoring him through the installation of a GPS device in the company van that the employee used during work and during non-work hours.¹¹⁷

In Ohio, an appellate court affirmed the dismissal of a class action lawsuit brought by cell phone users against a large cellular phone service company for intrusion upon seclusion based on the company providing to a research firm specific information regarding its cell phone customers including their names, telephone numbers, addresses and social security numbers. The Ohio appellate court emphasized that in order to state a claim for intrusion upon seclusion, plaintiffs must allege private facts and that none of the information provided to the research company constituted private information.¹¹⁸ Similarly, an intrusion upon seclusion action against an employer for videotape surveillance of an employee was dismissed because the videotaping was limited to the employee's public activities.¹¹⁹

In 2003, the New Hampshire Supreme Court affirmed the dismissal of an intrusion upon seclusion lawsuit against an internet-based investigation and information service company that had obtained employment information about the plaintiff's daughter

¹¹⁴ *American Car Rental, Inc. v. Commissioner of Consumer Protection*, 273 Conn. 296, 869 A.2d 1198 (2005) (Connecticut Supreme Court affirming state administrative sanctions against the same company for the unlawful liquidated damages provision contained in the rental agreement)

¹¹⁵ 273 Conn. App. 129-130, 884 A.2d at 11.

¹¹⁶ *Id.*

¹¹⁷ *Elgin v. St. Louis Coca-Cola Bottling Co.*, ___ F.Supp. ___, 2005 WL 3050633 (E.D. Mo. 2005)

¹¹⁸ *Busse v. Motorola, Inc.*, 351 Ill.App.3d 67, 813 N.E.2d 1013 (Ill.App.1 Dist. 2004), app.den. 213 Ill.2d 555, 829 N.E.2d 786 (2005). See also, *Nader v. General Motors Corp.* 25 N.Y.2d 560, 652-653, 255 N.E.2d 765, 769 (1970) "It should be emphasized that the mere gathering of information about a particular individual does not give rise to a cause of action under this theory. Privacy is invaded only if the information sought is of a confidential nature and the defendant's conduct was unreasonably intrusive. Just as a common-law copyright is lost when material is published, so, too, there can be no invasion of privacy where the information sought is open to public view or has been voluntarily revealed to others."

¹¹⁹ *York v. General Electric Co.*, 144 Ohio App 3d 191, 759 N.E.2d 865 (2001), lv.den. 93 Ohio St.3d 1452, 756 N.E.2d 116 (2001); See also, *Johnson v. Corporate Special Services*, 602 So.2d 385 (Ala. 1992); *Jackson v. Playboy Enterprises, Inc.* 574 F.Supp.10, 13 (S.D.Ohio 1983).

Amy Boyer by making a pre-textual call to Ms. Boyer. After obtaining the information, the company provided it to a New Hampshire man named Liam Youens who had ordered it over the internet for \$109. After receiving the employment information from the company, Youens went to Ms. Boyer's workplace and shot her dead before he committed suicide.¹²⁰ In dismissing the mother's intrusion upon seclusion claim in *Remsburg v. Docusearch, Inc.*, the New Hampshire Supreme Court specifically relied upon the public exposure exception to the right to privacy:

A person's employment, where he lives, and where he works are exposures which we all must suffer. We have no reasonable expectation of privacy as to our identity or as to where we live or work. Our commuting to and from where we live and work is not done clandestinely and each place provides a facet of our total identity.¹²¹

Nevertheless, based on societal concerns regarding the dangers of stalking and identity theft in the new technological age, the New Hampshire court ruled that if criminal misconduct against a third person is sufficiently foreseeable, an investigator has a legal obligation to exercise reasonable care when disclosing that person's personal information to a client.¹²²

B. State Statutory Limitations on Electronic Tracking Devices

Many states have enacted legislation aimed at restricting the use of electronic devices by members of the public and the police. Other states are considering similar limitations on the use of such devices in vehicles.¹²³ Most of these measures are aimed at creating new criminal prohibitions or procedures and expanding consumer protections with respect to rental companies. Due to the speed of technological change, the pace of legislative deliberations and the intricacy of the technology, these legislative measures have not included responses to human implants and cellular technology. Furthermore, state initiatives aimed at regulating location surveillance in the workplace have been unsuccessful.¹²⁴

In response to court decisions upholding the constitutionality of the warrantless use of tracking devices by police, various states have enacted laws requiring law enforcement officials to apply to a court for a judicial warrant before installing such devices. Many of these statutes place specific time limits on the period of

¹²⁰ *Remsburg v. Docusearch, Inc.* 149 N.H. 148, 816 A.2d 1001 (2003).

¹²¹ 149 N.H. at 157, 816 A.2d at 1009.

¹²² 149 N.H. at 154 816 A.2d at 1007.

¹²³ See, *States Focus on 'Black Boxes' in Vehicles*, New York Times, March 27, 2005.

¹²⁴ Yung, 36 Seton Hall L.Rev. at 209-210(citing proposed laws in California, Massachusetts, Pennsylvania and other states that would have obligated employers to provide employees with written notice regarding the use of tracking devices.)

authorization.¹²⁵ Other states have enacted laws regulating the use of tracking devices for criminal offenders subject to house arrest, probation or parole.¹²⁶

In 1998, California Legislature enacted a criminal statute prohibiting the use of “an electronic tracking device to determine the location or movement of a person.” The statute defines the phrase “electronic tracking device” as a device “attached to a vehicle or other movable thing that reveals its location or movement.” The legislation contains two consent exceptions: when the owner, leasor, or lessee of a vehicle has consented to the use of the device; and lawful use by law enforcement.¹²⁷ In addition, California has enacted consumer legislation limiting the use of GPS technology by rental companies. Under this law, rental companies are permitted to install GPS technology in their vehicles but are prohibited from using the electronic data to impose surcharges or fines.¹²⁸ Similar consumer legislation regarding rental companies has been enacted in other states.¹²⁹

Texas, in 1999, enacted a criminal law prohibiting the installation of an “electronic or mechanical tracking device on a motor vehicle owned or leased by another person.” The Texas statute establishes a defense against criminal prosecutions for owner or lessee who has consented to the installation as well as law enforcement purposes. A defense was also carved into the law for private investigators, who after obtaining written consent from the owner or lessee, can install the device in a vehicle or in a private residential property. The private investigator defense permits distrustful employers, spouses or friends to utilize private detectives and GPS technology to track a third party.¹³⁰

Montana’s statutory limitation on electronic tracking devices was not made applicable to the tracking vehicles or humans. In 1999, the Montana legislature, acting based on the perceived needs of that state, enacted a law that prohibits hunters from utilizing electronic devices “to track the motion of a game animal and relay information on the animal’s movement to the hunter.”¹³¹

The enactment of these laws has led to at least three criminal prosecutions against individuals who have unlawfully used an electronic device. In 2000, Robert Sullivan’s wife commenced legal proceedings to end their marriage and she obtained a restraining order against him. In response, Sullivan installed a GPS device in her car to keep track of her activities. For over a month, the device was installed and removed by Sullivan to enable him to download the information.¹³² Sullivan was successfully prosecuted and his conviction affirmed under Colorado’s harassment by stalking statute that outlaws placing

¹²⁵Ut.Code §77-23a-19.5; Pa. St. §5761; S. Ca. Code §17-30-140.

¹²⁶ W. Va. Code §22-6-23; Okl. St. §510.10, Ohio Rev. Code §2971.05; Cal. Penal Code §§, 1210.7, 3010.

¹²⁷ Cal. Penal Code §637.7.

¹²⁸ Cal. Code §1936(o).

¹²⁹ Yen, *Rent A Car, Rent A Spy*, 14 Aug Bus. L. Today 59 (2005)

¹³⁰ Texas Pen. Code §16.06. Other states that have enacted specific criminal statutes limiting the use of electronic tracking devices in vehicles include Minnesota, Tennessee and Hawaii. Minn. Stat. §626A.35; Tenn. Code §39-13-606; Haw. Rev. Stat. §803-4.7

¹³¹ *Mt. St. §87-3-134.*

¹³² *People v. Sullivan*, 53 P. 3d 1181, 1184-1185 (Col. 2002).

another person under surveillance in a manner that would cause serious emotional distress.¹³³

In Wisconsin in 2002, a man pled no contest to stalking his former girlfriend by placing a GPS device under the hood of her car. The plea resulted from the police obtaining the electronic records of his use of the technology.¹³⁴

In Delaware, Nancy Biddle was prosecuted in 2005 for attaching a GPS tracking device to the frame of another woman's car for tracking purposes. Ms. Biddle was convicted under Delaware's invasion of privacy criminal statute that prohibits the nonconsensual installation "in any private place" of a device for "observing, photographing, recording, amplifying or broadcasting sounds or events in that place."¹³⁵ After reviewing the conflicting federal and state case law on the question of whether an individual has reasonable expectation of privacy while driving a vehicle, a Delaware judge convicted Ms. Biddle noting that that increased use of electronic devices is eroding personal liberty.¹³⁶

V. The Use of Tracking Devices In Employment

Increasingly, throughout the United States, private and public sector employers are utilizing RFID, GPS and cellular technology as a means of monitoring work performance.¹³⁷ In 2004, employers spent approximately \$9 billion in technological monitoring devices for the workplace.¹³⁸ At least one United States employer, an Ohio surveillance company, has announced that two of its employees have received RFID implants for identification purposes.¹³⁹ In a survey of 24, major federal agencies, the United States Government Accountability Office (GAO) found that 13 agencies had implemented or had plans to implement RFID technology.¹⁴⁰ Employers justify the implementation of such technology in the name of safety, security, efficiency and productivity.¹⁴¹ However, employer use of this new technology does not usually stem from empirical data or anecdotal evidence demonstrating an increase in workplace fatalities and injuries or a decrease in efficiency and productivity.

¹³³ Col. Rev. S. §18-9-111(4)(b)(III); see also, *O'Brien v. O'Brien*, 899 So.2d 1133 (Fla.App.5 Dist.,2005)(husband's email unlawfully obtained by wife in violation of Florida's electronic communications statute excluded from evidence during divorce trial). *Evans v. Evans*, 169 N.C.App. 358, 610 S.E.2d 264 (N.C. 2005)(wife's sexually explicit e-mail found admissible in divorce trial because they were not illegally intercepted by the husband)

¹³⁴ Schumann, *Tracking Evidence With GPS Technology*, Wis. Law (May 2004)

¹³⁵ 11 Del. C. §1335(a)(2).

¹³⁶ *State v. Biddle*, 2005 WL 3073593 (Del. Com. Pl. 2005).

¹³⁷ Forelle, *On the Road Again, But Now the Boss Is Sitting Beside You*, The Wall Street Journal, May 14, 2004

¹³⁸ Swaya and Eisenstein, *Emerging Technology In the Workplace*, 21 Lab.Law. 1, 8 (2005).

¹³⁹ Waters, *US Group Implants Electronic Tags In Workers*, Financial Times, February 12, 2006.

¹⁴⁰ GAO-05-551: Information Security: Radio Frequency Identification Technology in the Federal Government, May 2005. The 13 agencies that utilized or intended to utilize the technology were focused on tracking both objects and people. GAO Report, p. 13.

¹⁴¹ Yung, 36 Seton Hall L.Rev. at 175-178.

As a practical matter, employers already have at their disposal many other effective and less intrusive managerial tools to deal with safety concerns, security and productivity: employee training; tachometers and odometers to measure speed, distance and mileage; intercom, two-way radios and cell phones; and supervisor and co-worker visual observations to ferret out employee misconduct. Electronic location monitoring enables employers to learn non-work related information including personal habits, tastes and interests of employees. In addition, this information can become vulnerable to third party access.¹⁴²

Based on the lack of empirical or anecdotal evidence, there appears to be one central explanation for the growing use of human tracking technology in employment: an effort by employers to expand their power and domination over their workforce. Twenty years ago, Gary T. Marx and Sanford Sherizen recognized that employer use of electronic technology for employee monitoring is a modern means of implementing the management ideas of Frederick Taylor that are aimed at increasing productivity and maximizing employer profit.¹⁴³

In order to avoid the stigma of being perceived as engaging in excessive surveillance, some employers will rely on pretexts to justify the use of tracking technology. Pretexts and secrecy are used to avoid a perception that the employer is using totalitarian tools or mistreating its employees.

Prior to the purchase and implementation of workplace tracking technology, it is rare for an employer to discuss with its employees the purpose and nature of the new form of surveillance. Without a union representing the employees, the employer has no legal obligation to discuss or negotiate changes in terms and conditions in employment including the implementation of tracking technology. Nevertheless, advocates for the expansive use of the new technology encourage employers to be open and honest with their employees.¹⁴⁴

An unusual public debate regarding the proposed implementation of tracking technology in employment took place in the City of Boston in 2004. On November 8, 2004, the Boston City Council conducted a legislative hearing to consider a proposed order to encourage the installation of GPS devices on Boston's 720 public school buses. Councillor John M. Tobin Jr., as chair of the Boston City Council's Education Committee, scheduled the public hearing to examine the use of GPS technology as a means of keeping track of the location of students thereby enhancing their safety.¹⁴⁵ During the hearing, representatives from the school district, the bus company and the bus drivers union debated the need and rationale for the implementation of GPS

¹⁴² GAO Report, p. 18.

¹⁴³ Marx and Sherizen, *Monitoring On the Job: How to Protect Privacy As Well As Property*, Technology Review, Nov.-Dec. 1986.

¹⁴⁴ Roberti, *RFID and the Worker*, RFID Journal <http://www.rfidjournal.com/article/view/1259>.

¹⁴⁵ www.votejohntobin.com/blog/PressRoom/archives/2004/9/21/159566.html; Allen, *School bus drivers protest GPS plan*, Boston Globe, November 9, 2004.

technology.¹⁴⁶ At the time, the school district utilized a two-day radio system along with an electronic system that kept track of each bus's mileage and the time when it left and returned. Supervisory road audits were used to monitor bus driver work performance. The school bus company representative present at the hearing articulated various reasons to justify the use of a GPS system: provide back-up information in emergency situations; keep tabs on bus arrivals and departures; monitor bus speeds; insure bus drivers' adherence to set bus routes and provide guidance in following those routes.

In response, union officials and rank and file bus drivers refuted these alleged purposes. The union president stated that the primary purpose for the bus company wanting the new technology was to be able to challenge the wage of each bus driver that is based on the specific amount of time they worked each day. He explained that the surveillance system would not enable the company to know the reason for a bus delay or the modification of a bus route. With respect to student safety, the primary reason given by City Councillors for supporting the resolution, various drivers told the Councillors that GPS technology could not provide data regarding which bus a student may be on or identify the specific location where a student exited. They emphasized that the best means of insuring that students get on the correct bus and off at the correct stop would be through personal supervision by a bus monitor. Finally, the bus drivers explained that a GPS device, like a two-way radio system, is subject to interference and mechanical breakdown.

Although locating students was the articulated central rationale behind the Boston GPS legislation, no one at the three hour City Council hearing mentioned using RFID technology as a means of keeping track of students like other school districts.¹⁴⁷ A detached look at the articulated municipal need and the available technology should have led Boston officials to discuss the possible use of smart cards and RFID badges for students. The failure to consider the use of an RFID system for students suggests that student safety was the pretext for the proposed location scrutiny of Boston bus drivers. Alternatively, the lack of a discussion regarding the use of the alternative technology may be reflective of an uninformed and reactive approach to incorporating new technology in the workplace.

Another example of the use of a pretext to justify the installation of tracking technology was presented during a 2005 disciplinary arbitration when a small marketing company offered GPS data to justify an employee's termination.¹⁴⁸ In December 2003, the company secretly installed GPS devices in all of its company's vehicles. During the arbitration, the company contended that the reason for installing the tracking technology

¹⁴⁶ At the hearing, the bus drivers' union vehemently questioned the motivation and legality of the City Council initiative. The hearing was held following the conclusion of private sector negotiations between the bus drivers' union and the bus company with respect to a new contract. During those negotiations, the bus company had placed on the table a proposal for the installation of GPS devices. Based on the union's strong opposition to the proposal, the company withdrew that proposal which enabled the parties to reach a tentative agreement for a new contract.

¹⁴⁷ Richtel, *A Student ID That Can Also Take Roll*, The New York Times, November 17, 2004; Guernsey, *Where's Johnny? Smart Cards and Satellites Help Keep Track*, New York Times, August 3, 2005.

¹⁴⁸ *Beverage Marketing, Inc.* 120 LA 1388 (2005, Fagan).

was to enable supervisors to know where to contact employees by telephone. The company claimed that the secret tracking technology would increase productivity over the prior practice of using cell phones or calling work locations.¹⁴⁹ The illogic of the company's rationale is self-evident. The secrecy connected with the installation showed that the GPS device was never intended to be a means of communication between supervisors and employees. Even with the availability of the device, supervisors still had to call employees on their cell phones or at the worksites.

A far more colorable explanation for the company's decision to begin using the tracking technology was an incident six months earlier when the company's owner discovered that a twenty-year employee, who was the subject of the arbitration, was missing at a worksite. Subsequent GPS data along with visual verification demonstrated to the company that the same employee was at home when he was supposed to be working in the field.

The breadth and secrecy of the company's implementation of tracking technology backfired. Although the arbitrator concluded that the employee was guilty of serious misconduct, the arbitrator vacated the termination and imposed a sixty-day suspension based on the company's failure to disclose to its workforce the installation and purpose of the GPS system.¹⁵⁰

A much more targeted approach to the use of GPS technology was utilized by a Missouri bottling company seeking to investigate cash shortages from vending machines in a particular service area.¹⁵¹ Rather than over reacting by installing GPS devices in all company vehicles, the employer placed monitoring devices only in vehicles used by employees with access to the specific machines with reported shortfalls. After the employee was cleared of wrongdoing, he received notification that during the investigation he had been tracked with GPS technology.¹⁵²

The use of pretext and secrecy regarding the use of tracking technology is aimed at avoiding employee opposition. Based on the power of the tracking devices, it is not surprising that it has resulted in employee protests and demonstrations against what is perceived to be a substantial intrusion into employee privacy. In Massachusetts, both snowplow operators and bus drivers have engaged in collective action at legislative hearings to challenge the use of human tracking.¹⁵³ Employees are not the only people protesting against the implementation of tracking devices. Parent protests in a school

¹⁴⁹ 120 LA at 1389.

¹⁵⁰ 120 LA 1391-1392.

¹⁵¹ *Elgin v. St. Louis Coca-Cola Bottling Co.*, *supra*.

¹⁵² *Supra*.

¹⁵³ Forelle, *supra*. Yung, 36 Seton Hall L.Rev. at 178. In addition to organized protests, the installation of tracking technology can lead to employees engaging in self-help. In 2003, employees of a New Jersey company rebelled by disabling GPS devices recently installed. *Otis Elevator Company v. Local 1*, __F. Supp. __, 2005 WL 2385849 (S.D.N.Y. 2005). In 2001, three days after a distribution company announced that it had installed GPS devices in all of its trucks, an employee deliberately disconnected the device. *Superior Products, Inc.*, 116 LA 1623 (Hockenberry, 2002).

district in Sutter County, California, resulted in the district withdrawing its plan to implement RFID monitoring for its students.¹⁵⁴

In addition to overt protests, human tracking can lead directly to demoralization, hostility and lower productivity among the most dedicated and motivated of employees.¹⁵⁵ Under real-time scrutiny, employees feel dehumanized and fear being disciplined based on inaccurate electronic data or employers misconstruing the data.¹⁵⁶ For example, after an ABC television station affiliate installed GPS tracking devices on the station's mobile trucks, an unnamed on-air reporter was quoted by New York Magazine as stating: "Let's just say people are pretty pissed off... We were never really consulted, and the whole Big Brother aspect has us uncomfortable."¹⁵⁷ The sense of anger and fear articulated by this television reporter underscores the demoralizing impact caused by electronic tracking in the workplace.

At present, employees have few legal rights against the implementation or use of tracking technology by their employers while performing work duties.¹⁵⁸ The scope of recognized employee freedoms while at work in the United States is quite limited. As the United States Supreme Court has observed "[o]rordinarily, an employee consents to significant restrictions in his freedom of movement where necessary for his employment, and few are free to come and go as they please during working hours."¹⁵⁹

The Oregon Supreme Court's 2004 decision in *State v. Meredith*¹⁶⁰ is indicative of the narrow judicial treatment of location privacy for employees. Sixteen years before, the same court had broadly interpreted the Oregon Constitution to prohibit the warrantless use by the police of a tracking transmitter attached to a car.¹⁶¹ In contrast, in *State v. Meredith*, the same court held that the use of the same type of electronic tracking device placed on the employer's vehicle used by an employee to perform her job duties in a national forest did not require a warrant. In reaching its decision, the court found that the employee "did not have a protected privacy interest in keeping her location and work-related activities concealed from the type of observation by her employer that the transmitter revealed."¹⁶²

In *O'Connor v. Ortega*, the Supreme Court ruled that public employees have constitutional protections against unreasonable searches and seizures in the workplace.

¹⁵⁴ Lucas, *Students kept under surveillance at school*, San Francisco Chronicle, February 10, 2005.

¹⁵⁵ Colker, *Go Ahead, Just Try to Disappear*, Los Angeles Times, December 27, 2004 (quoting management professor Lucas Introna regarding the discontent caused by employer location tracking.)

¹⁵⁶ Yung, 36 Seton Hall L.Rev. at 177-178; Rosen, *The Naked Crowd: Reclaiming Security and Freedom In An Anxious Age*, p. 51 (Random House 2004).

¹⁵⁷ Algar, *Spywitness News*, New York Magazine, October 24, 2005.

¹⁵⁸ Kaupins and Minch, *Legal and Ethical Implications of Employee Location Monitoring*, 38th Hawaii International Conference on System Science (2005), p.2 (noting the lack of any laws in the United States limiting employee location monitoring)

¹⁵⁹ *Skinner v. Railway Labor Executives Association*, *supra*; see also, *INS v. Delgado*, 466 U.S. 210, 218 (1984).

¹⁶⁰ 337 Or. 299, 96 P.3d 342 (2004).

¹⁶¹ *State v. Campbell*, 30 Ore. at 170, 172, 759 P.2d at 27, 30.

¹⁶² 337 Or. 299 at 307 96 P.3d at 346.

The Fourth Amendment is implicated only when workplace realities establish that the employee had a reasonable expectation of privacy through the use of doors, locks and personal passwords. The openness of an office to the public and other employees may result in an expectation of privacy being deemed unreasonable.¹⁶³

In 2001, a federal appellate court ruled that a state employee had a reasonable expectation of privacy in the content contained in his workplace computer.¹⁶⁴ In concluding that the employee had a reasonable expectation of privacy with regard to the office computer, the appellate court noted that that the employee occupied a private office and maintained exclusive use of the computer, desk and filing cabinet. Even with the establishment of a reasonable expectation of privacy, the appeals court found that the search of the employee's computer was reasonable because it was based on the employer's reasonable suspicion that it would uncover evidence of employee misconduct.¹⁶⁵

The *O'Connor v. Ortega* legal standards will result in interesting future legal challenges to the use of human tracking devices in public employment. For example, the Supreme Court's *Karo* decision may form the basis for a successful challenge to a public employer utilizing certain RFID and other internal tracking technology that allows for location surveillance in private areas, such as employee bathrooms and break rooms, where employees have a reasonable expectation of privacy. Another important unresolved issue is whether the application of *Knotts*, *Karo* and *O'Connor* analyses will lead to Fourth Amendment or state constitutional limitations on government employers using GPS technology in laptops, cell phones and other devices that would permit monitoring of employee location and movement while in the home.

In the private sector, the primary national law granting employees certain limited statutory workplace freedom, especially the right to organize, is the National Labor Relations Act.¹⁶⁶ Under that law, employers are prohibited from engaging in surveillance of protected concerted conduct and are obligated to negotiate mandatory subjects of bargaining with a certified or recognized union regarding certain forms of employee surveillance.¹⁶⁷

The information provided by human tracking devices can be a very powerful tool in an employer's effort to defeat a union organizing campaign. By having electronic access to the location of employees at all times, the employer can determine which employees have been meeting together during lunch hours and break time and/or which

¹⁶³ 480 U.S. 709 (1987).

¹⁶⁴ *Leventhal v. Knapek*, 266 F.3d 64 (2d Cir. 2001); *See also, United States v. Slanina*, 283 F.3d 670, 676 (5th Cir.) *remanded on other grounds*, 537 U.S. 802 (2002) (use of passwords and locking office doors to deny access to computer files can create reasonable expectation of privacy); *United States v. Simons*, 206 F.3d 392 (4th Cir.2000) (public employer's internet policy eliminated any reasonable expectation of privacy); *United States v. Bailey*, 272 F.Supp.2d 822 (D.Neb.2003) (employee had no reasonable basis to believe activities on work computer were private based on screen notification).

¹⁶⁵ 266 F.3d at 75.

¹⁶⁶ 29 U.S.C 151, et seq.

¹⁶⁷ *Chester County Hospital*, 320 NLRB 604 (1995); *Colgate-Palmolive Co.* 323 NLRB 515 (1997).

employees have visited the union's office.¹⁶⁸ As a practical matter, however, it may be very difficult for a union or employee to establish that an employer's alleged discriminatory conduct toward an employee was based on electronic tracking.

In September 2005, a New York federal judge rejected a union's effort to vacate an arbitrator's decision that had found that the employer had a right, under the union contract, to install GPS technology in company owned vehicles. The contract contained language granting the employer the right to continually upgrade technology it uses and specified certain electronic devices being utilized by employees. In 2002, the company decided to install the GPS technology in company vehicles driven by employees. Employees reacted strongly to the installation of the GPS devices and their union challenged the employer's action through the contractual grievance procedure. The arbitrator concluded that the contract language granted the employer the right to upgrade the technology it utilized. In rejecting the union's effort to set aside the arbitrator's decision, the federal court noted that the contract granted the employer expansive authority to update the technology it utilizes.¹⁶⁹

The National Labor Relation Board's General Counsel has issued an advice memorandum on the question of whether a trucking company was legally obligated to negotiate with the Teamsters' union prior to installing GPS technology in company vehicles.¹⁷⁰ The memorandum concluded that the company did not have to negotiate with the union because it constituted a replacement of a prior communications system. Before the installation of the electronic system, the truck dispatcher utilized a two-way radio to communicate with drivers. Throughout the day, at specific set times, the drivers were required to use the radio to communicate with the dispatcher. In addition, log sheets had to be submitted by drivers at the end of their shift. Although the new GPS technology provided the employer with substantially greater surveillance power and information than the prior two-way radio, including the ability to monitor break times, the General Counsel reached the conclusion that the GPS technology was equivalent to the radio system and did not constitute a significant change in employment.

The six-year negotiated contract between the United Parcel Service and the Teamsters contains a clause limiting the ability of the employer to discipline employees based on data collected through the GPS device carried by its employees. The contract states:

"No employee shall be disciplined for exceeding personnel time based on data received from the DIAD/IVIS or other information technology."¹⁷¹

¹⁶⁸ Kaupins and Minch, at p. 3 (electronic tracking would enable employers to more effectively monitor distribution of union materials in the workplace). Employer electronic tracking also has the potential of running afoul of state laws that prohibit employers from discriminating against employees for their off-duty activities. Yung, 36 Seton Hall L.Rev. at 192-194.

¹⁶⁹ *Otis Elevator Company v. Local 1*, *supra*.

¹⁷⁰ *Roadway Express, Inc*, Case 13-CA-39940-1 (April 15, 2002)

¹⁷¹ National Master United Parcel Service Agreement for the Period of August 1, 2002 through July 31, 2008, Article 37(d); www.browncafe.net/public/upsnma/#NATIONAL

Negotiated contractual provisions depriving employers of the ability to utilize location tracking information in discipline fits into what Jeffrey Rosen has labeled the “control-use model” of regulating new forms of technology surveillance.¹⁷² In light of the employer’s power over its employees during work time, a contractual provision limiting the use of human tracking in disciplinary cases is a regulatory victory for employees. It also undercuts a primary articulated purpose for using such technology, namely discovering and disciplining employees for misconduct. Nevertheless, this type of negotiated language has inherent weaknesses. It accepts employer electronic tracking during an employee’s personnel time and does not prohibit electronic surveillance after hours. The provision does not address the employer’s use of inaccurate information stemming from improper settings or malfunction and does not set any boundaries relating to the employer obtaining personal information about the employees’ non-work activities.¹⁷³

VI. Potential Legal Solutions

Prior to the establishment of potential legal solutions to human tracking technology, our society needs to conduct a measured and meaningful debate to reach a national or local consensus regarding the acceptable contours of privacy in the new technological age. Such discussions should be aimed at drawing a proper balance between liberty and security and individual rights and property rights. A reexamination of the reasonable expectation test should be explored during such a dialogue along with the issue of whether there is a societal consensus that exterior exposure should constitute the end of protected privacy.

Reliance on public fears perpetuated by the mass media and marketing schemes aimed at responding to such fears is not a formula for the development of reasoned public policy. Similarly, horrific acts perpetuated by the use of tracking devices should not be the only catalyst for modification of public policy regarding new technologies.

Gary T. Marx’s suggestion that the use of new powerful surveillance tools may decrease or be modified if managers and corporate executives were equally subject to such surveillance remains untested.¹⁷⁴ Jeffrey Rosen has rejected the notion that ubiquitous technological transparency constitutes an adequate or appropriate means of balancing liberty with security.¹⁷⁵ Nevertheless, those advocating for the implementation of human tracking technology on others do not necessarily want to be subject to the same level of scrutiny. During the rare public debate in the Boston City Council regarding GPS technology in employment, the chief shop steward for the union representing the school bus drivers asked Councillor Tobin how he would react if his manager or boss monitored his every move through GPS surveillance. Rather than providing a reflective answer

¹⁷² Rosen, *The Naked Crowd*, p.199

¹⁷³ Kaupins and Minch, p.5 (citing unenforceable ethical considerations relating to an employer’s intrusion into an employee’s personal business as well as the inaccuracies that can stem from electronic data.).

¹⁷⁴ Marx, *Let’s Eavesdrop On Managers*, *Computerworld*, April 20, 1992.

¹⁷⁵ Rosen, *The Naked Crowd*, pp.194-199.

regarding his own subjective sense of personal autonomy, the Councillor responded angrily asserting that his constituents would be able to vote for or against him in the next election.

The question of location transparency for public officials remains unexplored. In developing and considering remedial legislation, it may be beneficial for a public official to agree to subject him or herself to location tracking for a day or week. A well-publicized experiment involving a public figure wearing a GPS device would lead to a greater understanding regarding the power of the technology as well as potential legal changes needed to protect individual privacy. There is precedent for such an experiment. Companies are promoting tracking implants through publicity surrounding individuals who have consented to human implant. Public exposure to the results of technological tracking would enhance the debate regarding the use of the technology.

Based on the slow congressional response to the development of new technologies and the current political climate, it is unlikely that federal remedial legislation limiting human tracking technology will be enacted in the near future. It is possible that a well-publicized event caused by the abuse or misuse of tracking technology may result in rapid and reactive federal legislation. An alternative to emotive legislative responses to important privacy issues would be the establishment of a federal privacy commissioner or privacy commission, similar to governmental offices established in Canada and Australia, to study and analyze new technologies and provide Congress with suggested remedies. However, it is far more probable that a majority in the current Congress would want to defer to the marketplace for potential corrective action aimed at avoiding privacy intrusions. Such deferral would be based on the erroneous assumption that there is more profit to be made in protecting privacy than in collecting, using and distributing location information.

Reliance on the federal judiciary to find constitutional protections against human tracking would be similarly misplaced. Based on the reasonable expectation of privacy test, along with precedents such as *Knotts*, it is doubtful that the Supreme Court will find that the use of newer and more powerful technologies to track public location and movement is subject to the Fourth Amendment. To the extent that new tracking technologies involve monitoring within the home, *Karo* and *Kyllo* suggest that Fourth Amendment standards would be applicable. However, law enforcement and public employers deserve more than post-hoc federal guidance relating to the constitutional dangers connected with the use of portable tracking devices in cell phones and laptops that can lead to unlawful location monitoring within a home. The computerized nature of GPS and cellular technology may result in the transition from constitutional public monitoring to unconstitutional surveillance within a home without real-time human supervision.

Since the development of human tracking devices, state legislatures and courts have been far more responsive to the privacy implications of such technology. State legislative initiatives have been aimed at criminalizing certain use of tracking technology,

establishing judicial oversight over the police use of tracking devices and extending consumer protections against the use of such technology in rented vehicles.

Based on the speed of technological change, states should consider legislative commissions or committees with the authority to study technological developments and to provide guidance regarding potential legislative responses to a particular technology. Such guidance is needed to determine whether current state laws restricting the use of electronic tracking devices should be amended to regulate human implants as well as tracking devices attached to personal objects other than vehicles. States also need to reexamine their common law or statutory privacy causes of action to determine whether and to what extent lawsuits for damages and injunctive relief should be permitted for unwanted electronic location surveillance in public or in the home. In addition, consideration needs to be given to amending current state law to include sanctions for the sale of location information to third parties. Finally, another means of checking the potential abuse of tracking technology would be subjecting tracking devices to state licensing regulation.

The need for careful legislative deliberation is particularly urgent in the area of human implants where the adverse social consequences of such devices have not been examined. The use of human implants is ripe for abuse and constitutes the most likely technological means for imposing geoslavery. State regulatory schemes already exist regarding what are arguably more benign intrusions into the human body such as tattooing and body piercing. A prohibition or regulation regarding human implants should be carefully examined to properly weigh the varying interests associated with the technology. In determining whether to ban human implants an examination should take place regarding whether the availability of bracelets, cards and badges with encoded information meet the same identification needs as implants. In addition, the substantive distinction between information obtainable from identification-based RFID implants and location-based GPS implants needs to be explored in developing state public policy in this area. Finally, any state regulatory scheme permitting the use of human implants should require informed consent with respect to the nature of the implant, the risk of privacy intrusions associated with the implant and the means of removing the implant.

In the area of employment, state legislative initiatives may include a complete ban on human implants, a mandate for informed employee consent prior to the implementation of human tracking, written notice to employees regarding the surveillance, limitations on the daily period when surveillance would be permissible, specific legal sanctions for employers who utilize the technology for unlawful discriminatory purposes or to intrude on personal privacy and/or a prohibition against employers sharing the electronic data with third parties. The need for state legislative action is particularly important based on the growing portability of tracking devices that enables an employer to monitor an employee while working or not working and within the employee's own dwelling. Such initiatives should be considered after careful legislative examination of the technology and a determination regarding the scope of protected employee personal privacy during and after working hours.

To the extent that fear justifies imposing electronic tracking on children and infirm elderly parents, a state requirement for judicial intervention or licensing may be an appropriate response. Courts already have been granted the power and jurisdiction to deal with children in need of supervision and mentally infirm individuals needing guardians. Placing a judicial or regulatory check on electronic tracking of children and the ill may provide a balanced means of permitting a technological response to rational or irrational fears while protecting personal privacy.

In the absence or as an alternative to remedial legislation, some have advocated for “self-regulation” through industry-wide standards to protect against inappropriate intrusions into individual privacy. For example, in the United Kingdom, an Industry Code of Practice was established in 2004 for location service providers utilizing cellular technology. Although self-regulatory industry standards have some benefits, they lack necessary enforcement tools. Nevertheless, experiences connected with the development, implementation and application of industry standards may assist in the formulation of remedial legislation. Finally, another non-governmental means of protecting privacy against human tracking would be modifications to the actual technology that would include an ability to turn the tracking device off and/or a signal, image or sound indicating that a tracking device.

In conclusion, the explosive growth of human tracking technology in the past two decades calls for a deliberative reexamination of our society’s concepts of individual autonomy and the scope of protected privacy. The best means of reaching a societal consensus is through sober examination, deliberations and debate with respect to the nature of new and developing technologies and the impact it has on our concepts of privacy. Through such a dialogue, an appropriate legal framework can be established to insure a reasonable balance between conflicting interests associated with the technology.

