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## **Vermont Legislative Research Shop**

### **GPS Tracking Applications**

Global Positioning Systems (GPS) technology has become increasingly popular in the past decade to monitor individuals on probation and parole. GPS technology monitors the movements of individuals using a transmitter tracked by satellites. GPS technology is preferred by law enforcement agencies because it provides comprehensive tracking of the subject compared to Radio Frequency technology whose tracking capabilities are limited by the range of the transmission device. GPS tracking of individuals can be used in the pre-trial, probation, and parole components of the criminal justice system. GPS-based monitoring can also be employed as an alternative to incarceration of non-violent and first time offenders, and has been found by The American Probation and Parole Association to reduce rates of recidivism.<sup>1</sup> Following the recommendation of the Governor's Commission on Prison Overcrowding, Governor Douglas is establishing a pilot GPS program to track a group of felony DUI offenders.<sup>2</sup> The success or failure of this program should provide valuable evidence as to the viability of GPS offender tracking in Vermont.

### **Inclusive and Exclusive Zones**

Using GPS and computer technology, exclusion and inclusion zones are mapped for each client. Exclusion zones are areas into which the client is prohibited from entering. For example, sex offenders can be excluded from the workplace of their victim, or pedophiles can be excluded from school zone. If the perimeter is violated, then the individuals within the exclusion zone can be notified by telephone or fax. Inclusion zones can also be created using both Active and Passive GPS technology utilizing locations where the

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<sup>1</sup> American Probation and Parole Association. "Offender Supervision with Electronic Technology." [http://www.appa-net.org/publications%20and%20resources/pubs/electronic\\_monitoring.pdf](http://www.appa-net.org/publications%20and%20resources/pubs/electronic_monitoring.pdf) pg. 56 viewed 02/01/05

<sup>2</sup> Gibbs, Jason. State of Vermont Website. "Douglas Administration Announces First Phase of Overcrowding Reforms" <http://www.vermont.gov/tools/whatsnew2/index.php?topic=GovPressReleases&id=1056&v=Article> viewed 01/25/05

client is expected to be, including their home, place of employment, or school. In the case of inclusion zones, an alert can be issued if the client is not in the expected territory.<sup>3</sup>

### **Active and Passive Monitoring**

Active and passive systems of GPS tracking have the same features, but differ in their speed of communication between the client and their supervisor. Active GPS monitoring utilizes a wireless modem to monitor the client's zoning adherence. If a violation of an inclusion or exclusion zone occurs, the supervisor is alerted instantaneously. Under passive supervision, a land based telephone line instead of a wireless modem is employed, which results in decreased response time if the client has not adhered to his/her designated zones.<sup>4</sup>

## **GPS in Action**

### **GPS Community Monitoring in Florida**

Florida has used GPS monitoring in their correction system longer than any other state. The Florida Department of Corrections (FDC) monitors approximately 400 probationers found guilty of violent crimes with active GPS and another 150 non-violent offenders with Passive GPS.<sup>5</sup> Florida, utilizing ProTech GPS devices, experienced a drop in recidivism from 12% to 3% in the first 18 months of release.<sup>6</sup> *A Report on Community Control, Radio Frequency (RF) Monitoring and Global Positioning Satellite (GPS) Monitoring* published by the Florida Department of Corrections in October of 2003, for the period from July 1, 1993 to June 30, 2003 provides comprehensive statistics regarding the results of the use of GPS in that ten-year period. According to the report, after a two-year period, the most common outcome regarding offenders on GPS was a reduced sentence (36.3%). The most common outcome for offenders placed under community monitoring was revocation (32.7%).<sup>7</sup>

### **GPS Monitoring in Other Localities**

Currently, more than 30 states use GPS tracking technology as a component of their corrections program.

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<sup>3</sup>American Probation and Parole Association. "Offender Supervision with Electronic Technology." [http://www.appa-net.org/publications%20and%20resources/pubs/electronic\\_monitoring.pdf](http://www.appa-net.org/publications%20and%20resources/pubs/electronic_monitoring.pdf) p.79 viewed 02/01/05

<sup>4</sup> Florida Department of Corrections. "Global Positioning and Radio Frequency" October 2003 <http://www.dc.state.fl.us/pub/gpsrf/2003/prootypes.html> viewed 02/01/05.

<sup>5</sup> Royse, David. The Miami Herald. "Bill Would Let Bail Bondsmen Use GPS to Track People on Bail." [http://www.miami.com/mld/miamiherald/news/breaking\\_news/7940030.htm?1c](http://www.miami.com/mld/miamiherald/news/breaking_news/7940030.htm?1c) viewed 02/01/05

<sup>6</sup> Sharp, Tom. *Associated Press*. "State to Try GPS Tracking of Paroled Sex Offenders." [http://www.ptm.com/dailytimes\\_053104.shtml](http://www.ptm.com/dailytimes_053104.shtml) viewed 02/01/05.

<sup>7</sup> Florida Department of Corrections. "A report on Community Control, Radio Frequency (RF) Monitoring and Global Positioning Satellite (GPS) Monitoring" <http://www.dc.state.fl.us/pub/gpsrf/2003/execsum.html> viewed 02/01/05.

Massachusetts began a pilot program monitoring individuals on work release with GPS in March of 2004. In September 2004, GPS monitoring was expanded to all 219 of the state's level three sex offenders currently on parole, in a 1 million dollar pilot program. This four-month endeavor is expected to cost approximately \$10 per person per day. Governor Romney intends to request funding for a year-long pilot program as a part of the 2006 budget.<sup>8</sup>

Tennessee has budgeted \$2.5 million dollars for a GPS pilot project to track the state's paroled violent sex offenders, a program which will monitor approximately 600 individuals.<sup>9</sup>

Oklahoma began a GPS monitoring program in May of 2004, following a successful pilot program. The expanded GPS tracking program will be used to monitor approximately 1,000 individuals. The Deputy Commission of Community Corrections in Oklahoma estimates the use of GPS will save the State approximately \$9 million dollars per year.<sup>10</sup>

## **Potential Benefits of GPS Tracking in Vermont**

### **GPS as a Cost-Effective Technology**

GPS monitoring of persons on probation, parole, or released on bail appears to be cost effective in comparison to alternative technologies and methods. In Seminole County, Florida authorities use GPS to monitor persons out on bond at a cost of six dollars per person per day. As a condition of their release, participants incur the cost of monitoring. Seminole County Sheriff Don Eslinger estimates that the county saves between 45 and 55 dollars per person/per day using GPS in this fashion.<sup>11</sup> Other estimates place the cost of GPS monitoring between 4 and 10 dollars per inmate per day, depending upon the level of supervision.<sup>12</sup> Figure 1.1 shows the cost of various types of electronic supervision and incarceration.

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<sup>8</sup> Castelli, Elise "Global Positioning to Track Sex Offenders"  
[http://www.boston.com/news/local/articles/2004/09/21/global\\_positioning\\_to\\_track\\_sex\\_offenders?pg=2](http://www.boston.com/news/local/articles/2004/09/21/global_positioning_to_track_sex_offenders?pg=2)  
viewed 02/03/05.

<sup>9</sup> Wired News "State to Shadow Parolees With GPS."  
<http://www.wired.com/news/politics/0,1283,64202,00.html> viewed 02/03/05.

<sup>10</sup> Pro Tech Inc. "Pro Tech Monitoring, Inc. and Oklahoma Department of Corrections sign GPS Satellite Tracking Agreement."  
[http://www.ptm.com/oklahoma\\_051304.shtml](http://www.ptm.com/oklahoma_051304.shtml) viewed 02/04/05.

<sup>11</sup> Scheeres, Julia. Wired News. "GPS: Keeping Cons out of Jail"  
<http://www.wired.com/news/privacy/0,1848,55740,00.html> viewed 1/25/05.

<sup>12</sup> Sharp, Tom. "State to Try GPS Tracking of Paroled Sex Offenders."  
[http://www.ptm.com/dailytimes\\_053104.shtml](http://www.ptm.com/dailytimes_053104.shtml) viewed 01/27/05.

**Figure 1.1**  
**COMPARISON OF COSTS FOR INCARCERATION VERSUS ELECTRONIC SUPERVISION**<sup>13</sup>

**General Costs of Electronic Supervision**

<b><u>Type of Equipment</u></b>	<b><u>Daily Cost Range</u></b>
Continuously Signaling (RF)	\$3.00-\$4.50
Breath Alcohol Testing	\$6.00-\$7.50
Voice Verification	\$2.00-\$4.00
Global Positioning	\$15.00-\$25.00
Intermittent Global Positioning using cell phone and Voice Verification	\$4.00-\$6.00

**GPS and Prison Crowding**

GPS tracking, when used as an alternative to incarcerating first-time and/or non-violent offenders, has the potential to ease the stress on Vermont's overcrowded prison system. Approximately forty percent of Vermont's prison population is incarcerated for a non-violent crime.<sup>14</sup> While Vermont's overall rate of incarceration, 226 per 100,000, is sixth lowest in the country, the number of inmates increased by 4.3 percent, 25 percent more than the national average.<sup>15</sup> Vermont's incarceration rate doubled in the last 10 years, and the cost of housing and supervising inmates quadrupled during the same period. Vermont has 412 inmates serving sentences in Kentucky prisons. The cost of running Vermont's overcrowded prisons has driven the Department of Corrections' latest budget over \$100 million.<sup>16</sup> John Perry, Director of Planning for the Vermont Department of Corrections, links this explosive growth to heroin use.<sup>17</sup> In 2002, there were 900 adults in Vermont involved in probation, and 9,266 involved in parole (See Figure 1.2 for a breakdown of Vermont Prison Growth).<sup>18</sup>

<sup>13</sup> American Probation and Parole Association *Offender Supervision with Electronic Technology* [http://www.appa-net.org/publications%20and%20resources/pubs/electronic\\_monitoring.pdf](http://www.appa-net.org/publications%20and%20resources/pubs/electronic_monitoring.pdf) pg. 48 viewed 01/27/05.

<sup>14</sup> Harrison, Paige, Beck, Allen J. Bureau of Justice Statistics Bulletin "Prisoners in 2003" <http://www.ojp.usdoj.gov/bjs/pub/pdf/p03.pdf> viewed 02/01/05.

<sup>15</sup> Harrison, Paige, Beck, Allen J. Bureau of Justice Statistics Bulletin "Prisoners in 2003" <http://www.ojp.usdoj.gov/bjs/pub/pdf/p03.pdf> viewed 02/01/05.

<sup>16</sup> Allen, Darren. *Rutland Herald* "Sears: State Can't Afford Corrections Questions Jump in Budget." <http://rutlandherald.com/apps/pbcs.dll/article?AID=/20050119/NEWS/501190328/1004/NEWS03> viewed 02/01/05.

<sup>17</sup> Roche, B.J. *Boston Globe* "Inmate Population in Vermont." [http://www.boston.com/news/local/articles/2004/08/01/inmate\\_population\\_balloonning\\_in\\_vermont/?rss\\_id=Boston+Globe+--+City+Region+News](http://www.boston.com/news/local/articles/2004/08/01/inmate_population_balloonning_in_vermont/?rss_id=Boston+Globe+--+City+Region+News) viewed 01/27/05.

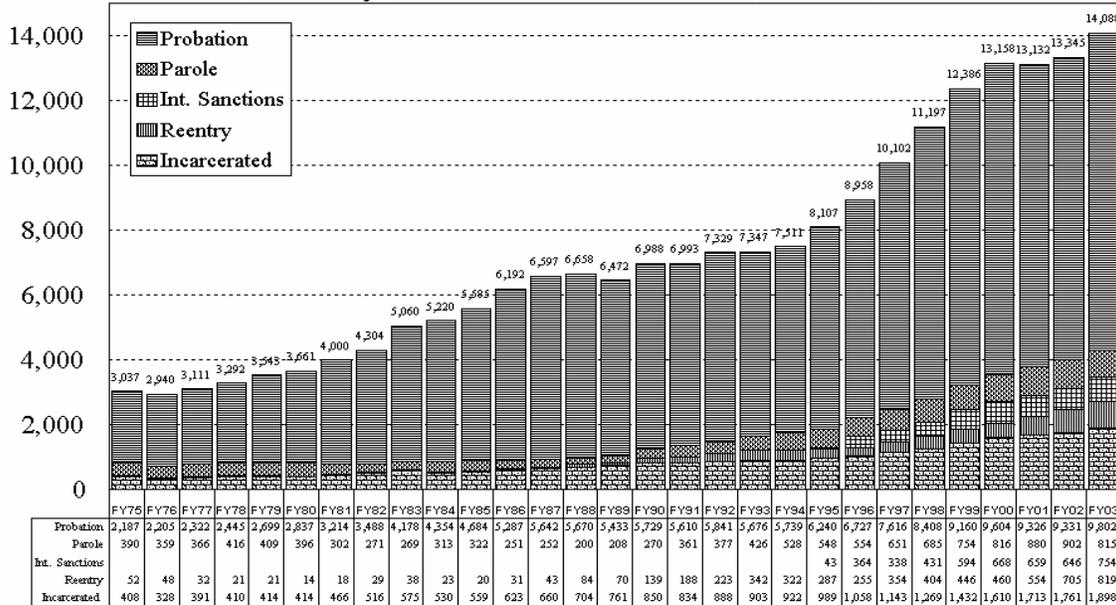
<sup>18</sup> Bureau of Justice Statistics "Source Book of Criminal Justice Statistics Online" <http://www.albany.edu/sourcebook/pdf/section6.pdf> viewed 02/01/05.

**Figure 1.2**

**Vermont Department of Corrections: FACTS & FIGURES FY 2003**

Part One: Population Numbers Section I: Population Growth: The Overriding Corrections Issue<sup>19</sup>

**Total Corrections Population**  
**Incarcerated, Reentry, Intermediate Sanctions, Parole, & Probation**



Source: Vermont Dept of Corrections (VTDOC) Database- FY Averages from PopStats/Snapshots. Includes inmates housed out-of-state. Note: Fiscal Year Averages for Incarcerated, Reentry & IS; Point-In-Time numbers for Probation & Parole prior to FY2001 (thereafter FY - daily average).

<http://www.doc.state.vt.us/pageflip/pageflip/pl/picture?book=FF2003&2segno=1003>

**Possible Problems with GPS Tracking Systems**

**GPS as an Invasive Technology**

The monitoring of individuals by the government raises concerns related to civil liberties. As a technology, GPS has the capability to track an individual's position within a few feet. Despite this intrusive property, GPS tracking has been endorsed by the ACLU as an alternative to the incarceration of non-violent and first-time offenders.<sup>20</sup>

GPS technology can also be used to monitor the movements of a criminal suspect. This form of surveillance was challenged in a Washington State Supreme Court Case, where the Justices ruled that such technology requires a warrant. Since electronic monitoring

<sup>19</sup> <http://www.doc.state.vt.us/pageflip/pageflip/pl/picture?book=FF2003&2segno=1003>

<sup>20</sup> Scheeres, Julia. *Wired News*. Protech, Inc. "GPS: Keeping Cons out of Jail."

[http://www.ptm.com/wirednews\\_101502.shtml](http://www.ptm.com/wirednews_101502.shtml)

viewed 02/01/05.

and GPS monitoring in particular are relatively new advancements in corrections, there are significant legal issues which are at this point unsettled.<sup>21</sup>

### **GPS Reliability**

Several issues regarding the reliability of GPS are worth mentioning. GPS monitoring is subject to potential equipment failure that does not exist with traditional methods of incarceration. GPS accuracy decreases when there are obstructions such as tall buildings between the receiver and the tracking satellite, a problem rendered moot in Vermont by Act 250.<sup>22</sup> Finally, non-military GPS signals can be jammed, as evidenced by an accidental jamming off the coast of California using a standard UHF/VHF television antenna.<sup>23</sup>

### **Liability Issues with GPS**

GPS tracking systems require specially trained and competent personnel. Failure to properly monitor a subject could result in liability issues on the part of the state and any company who might be subcontracted to conduct GPS monitoring.<sup>24</sup>

### **GPS Technology Providers**

There are numerous companies that currently offer a variety of GPS community tracking systems. Currently, no providers of GPS technology for the purpose of community monitoring exist in the state of Vermont.

The following are mainstream providers of GPS community monitoring technology:

1. ProTech<sup>25</sup>
2. BI ExacuTrack<sup>26</sup>
3. Elmo Tech<sup>27</sup>
4. ISECURE TRAK<sup>28</sup>

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<sup>21</sup> American Probation and Parole Association *Offender Supervision with Electronic Technology* [http://www.appa-net.org/publications%20and%20resources/pubs/electronic\\_monitoring.pdf](http://www.appa-net.org/publications%20and%20resources/pubs/electronic_monitoring.pdf) pg. 48 viewed 01/27/05.

<sup>22</sup> Sovocool, Daniel. "GPS: Charting New Terrain: Legal Issues Related to GPS-Based Navigation and Location Systems." [http://library.lp.findlaw.com/articles/file/00053/005882/title/Subject/topic/Products%20Liability\\_Misuse%20of%20Product/filename/productsliability\\_1\\_907#liability\\_based](http://library.lp.findlaw.com/articles/file/00053/005882/title/Subject/topic/Products%20Liability_Misuse%20of%20Product/filename/productsliability_1_907#liability_based) viewed 01/25/05

<sup>23</sup> Clynch, James. "The Hunt for RFI." <http://www.gpsworld.com/gpsworld/article/articleDetail.jsp?id=43404&pageID=2> viewed 01/25/05

<sup>24</sup> American Probation and Parole Association. "Offender Supervision with Electronic Technology." [http://www.appa-net.org/publications%20and%20resources/pubs/electronic\\_monitoring.pdf](http://www.appa-net.org/publications%20and%20resources/pubs/electronic_monitoring.pdf) pg. 41 viewed 01/27/05

<sup>25</sup> Pro-Tech Monitoring <http://www.ptm.com> viewed 02/01/05

<sup>26</sup> On-Guard Plus Limited <http://www.onguard-plus.com/english/02EM.html> viewed 02/01/05

<sup>27</sup> Elmo Tech <http://www.elmotech.com/> viewed 2/03/05

<sup>28</sup> iSECUREtrac <http://www.isecuretrac.com/> viewed 2/01/05

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This report has been prepared by undergraduate students at the University of Vermont under the supervision of Professor Anthony Gierzynski. The material contained in the reports does not reflect official policy of the University of Vermont.