Please see NCJ 250371 for complimentary information concerning location-based offender tracking technologies.

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

11100 Johns Hopkins Road · Laurel, Maryland 20723-6099

AOS-15-0360

January 2016

NIJ RT&E Center Project 13-1

MARKET SURVEY OF LOCATION-BASED OFFENDER TRACKING TECHNOLOGIES

Version 1.1

Steven R. Taylor
Subramaniam Kandaswamy (Kanda), Ph.D.
Timothy Evans, Esq., LL.M.
David Mahaffey

Prepared for:
National Institute of Justice

NIJ | National Institute of Justice
STRENGTHEN SCIENCE. ADVANCE JUSTICE.

Prepared by:
The Johns Hopkins University
Applied Physics Laboratory
11100 Johns Hopkins Rd.
Laurel, MD 20723-6099

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

This document is disseminated in the interest of information exchange. JHU/APL assumes no liability for its contents or use thereof. This report does not constitute a standard, specification, or regulation. JHU/APL does not endorse products or manufacturers. Trade and manufacturer's names appear in this report only because they are considered essential to the objective of this document.

DISCLAIMERS
This project was supported by Award No. 2013-MU-CX-K111, awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect those of the Department of Justice.

Commercial products included herein do not constitute an endorsement by NIJ, DOJ, NLECTC, NIJ RT&E Center or the Johns Hopkins University Applied Physics Laboratory. NIJ, DOJ, NLECTC, NIJ RT&E Center, and Johns Hopkins University Applied Physics Laboratory assume no liability for any use of publication content. This publication is a reference for educational purposes only. Please carefully consider the particular needs/requirements of your agency and any applicable laws before developing policies or procedures governing the use of any technology.

All legal aspects regarding expectation of privacy issues, probable cause, warrants and any other operational law enforcement procedures should be researched by agencies and their officers in accordance with local, state and federal laws prior to the implementation of technology described herein.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

CONTENTS

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

FIGURES

TABLES

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

1. INTRODUCTION

In September of 2013, the Johns Hopkins University Applied Physics Laboratory (JHU/APL) was selected by the Department of Justice, National Institute of Justice (NIJ) to establish the National Institute of Justice Technology Research, Test, and Evaluation (NIJ RT&E) Center within the National Law Enforcement and Corrections Technology Center (NLECTC) System. The purpose of the NIJ RT&E Center is to provide in-depth technical reports and support for NIJ's non-forensic research and development efforts. The Center will inform the criminal justice field concerning offender tracking and monitoring technologies, systems, products, services and related issues in a more innovative, sustainable, efficient, and effective manner.

Under NIJ Cooperative Agreement, Award No. 2013-MU-CX-K111, the NIJ RT&E Center was commissioned to conduct a market survey of offender tracking systems (OTS)—hardware and software—to assist public safety and criminal justice practitioners who may be considering the acquisition and implementation of this type of technology in their community.

To collect market survey data on OTS products, a request for information (RFI) was created; data was solicited directly from OTS product vendors and it was posted as a Notice in the Federal Register. This paper provides background context for OTS, the NIJ RT&E Center's methodology for developing the market survey, and results from the market survey.

This market survey presents a view of the technologies available at the time of publication. When considering an acquisition of OTS equipment, additional information should be sought from the specific vendors of interest. Contact information for the manufacturers is provided in Section 5– Market Survey Data Analysis.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

2. OFFENDER TRACKING SYSTEMS BACKGROUND

2.1 Historical Context

Conceptually, electronic offender-tracking systems originated with a 1960s Harvard University study conducted by Ralph Kirkland Gable and William S. Hurd, when they obtained U.S. Patent #3,478, 344 in 1964. In their study, Gable and Hurd described how this type of electronic monitoring device could be used (Schwitzgebel, Schwitzgebel, Pahnke, & Hurd, 1964). Using old military equipment, they demonstrated how radio devices attached to offenders could communicate their coordinates and thereby locate an offender's position on a map (Anderson, 2014).

By 1987, some 900 people were participating in electronic monitoring (EM) programs nationally in more than 21 states (Schmidt, 1988). A little over a decade later, in 1998, that number increased to over 95,000 (Kilgore, 2013), and in 2009, there were more than 200,000 global positioning satellite (GPS) and radio frequency (RF) monitoring devices in use across the United States and the State court system (DeMichele & Payne, 2009).

2.2 How an OTS Works

A notional framework for an offender monitoring system is shown in Figure 1, which illustrates the principal subsystems, their interfaces, and communications flows. This technology, consisting of hardware and software components, reports an individual's location and corresponding time data at programmed intervals. Whether an agency faces a mandate to track domestic violence offenders or sex offenders, whether it has a need to more closely monitor higher risk offenders, or whether it is looking for confinement alternatives for low-risk offenders, this technology can often be a practical tool for supervising and managing select individuals.

A receiver, embedded in a bracelet, is affixed to an offender's leg or arm. The receiver determines the individual's location by using signals from GPS satellites, global navigation satellite system (GLONASS), Wide Area Augmentation System (WAAS), WiFi, or other means. Lastly, this information is transmitted via a wireless signal or traditional wired telephone line to monitoring software located in a monitoring center.
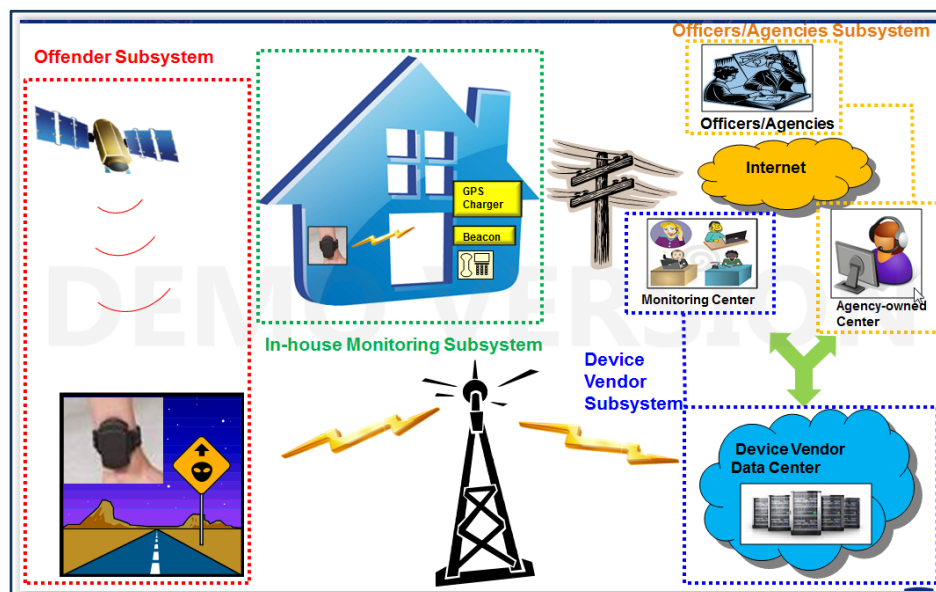
Source: (S. Kandaswamy)

Figure 1. Notional Offender Monitoring System

Within this general framework, an end user can actively or passively monitor offenders or implement a hybrid design (Drake, Telephone Conversation with NIJ RT&E Center, 2014), using either a single or multi-piece architecture:

- Active systems collect offender-location data as frequently as once per minute and transmit it to a monitoring software via wireless communications in near real-time.

- Passive systems collect offender-location data throughout the day at rates similar to active systems; however, the data are typically transmitted once per day to monitoring software.

- Hybrid systems generally operate in passive mode until any of several predetermined triggering events occur (e.g., zone infractions, tamper indications, low power status), at which time they switch to an active reporting mode.

Although each vendor has unique software to process and monitor the location data provided by the bracelet (Drake, Telephone Conversation with NIJ RT&E Center, 2014), most provide end users with access to their software over the Internet. They also typically provide the ability to create inclusion zones, exclusion zones and schedules that can be stored either in the device or in software at a data center. Either the agency or the vendor may perform offender monitoring.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

3. PREVIOUS SURVEYS

Public safety and criminal justice practitioners who may be considering the acquisition and implementation of OTS technology for the first time or re-examining their most recent OTS acquisition may find information collected in one place about the OTS to be useful. In 2001 and again in 2008, *The Journal of Offender Monitoring* published a market survey of offender tracking services. In 2008, 14 companies responded with information about 16 home curfew-monitoring and 15 offender-tracking products. The survey presented information about 64 product components and features. In addition, the Corrections Technology Resource Center, a part of the National Law Enforcement and Corrections Technology Center, maintains a market survey of OTS vendors that is updated approximately once per year (See Table 1 below). From 2007 to 2014, information about three primary features[1] was recorded for between 14 and 19 vendors. The NIJ RT&E Center began its research into OTS by examining this prior work.

The OTS industry can be characterized by two general observations: 1) there have been advances in technology, and 2) the industry has experienced a high degree of fluctuation including new entrants to the market, vendor acquisition, and consolidation. For example, Caiado asserts that, "Upgrades in technology—miniaturization in general, and GPS specifically—have already reinvigorated EM and created new practical possibilities including the potential to tailor services for specific categories of offenders" (Caiado, 2012) while Renzema points out that, "It has kept … some other companies in a nice stable, solidly growing business, but nobody is seeing 20, 30, 40 percent growth" (Renzema, 2012).

---

[1] Features were RF/House Arrest, GPS Active, and GPS Passive.

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Table 1. Vendors Represented in Market Surveys

Vendor	2007 Survey[1]	2008 Survey[2]	2009 Survey[3]	2010 Survey[4]	2012 Survey[5]	2013 Survey[6]	2nd 2013 Survey[7]	2014 Survey[8]	Notes[9]
3M					X	X	X	X	3M has purchased Pro Tech and Elmo Tech. Active GPS offered in 1 or 2 piece options. Passive is 2-piece. Crime scene correlation.
ActSoft, Inc.	X	X	X						
AES Corporation	X		X	X	X	X	X	X	Not offered in US or Canada.
Alert Systems Corporation	X	X	X						
Ascend Systems, LLC				X					
BI Incorporated	X	X	X	X	X	X	X	X	BI is owned by the GEO Group. Remote alcohol. Voice verification. Offers Cell tower trilateration with their one piece unit.
Buddi, Ltd.						X	X	X	
CB Home Detention Equipment and Services, Inc.					X	X	X	X	Developing devices that the company claims will detect alcohol, marijuana, and methamphetamine.
Corrections Services	X	X							
Corrisoft, LLC						X	X	X	Partners with STOP, LLC on higher risk cases; purchased iSecureTrac
Digital Technologies 2000	X	X	X	X	X	X			
Elmo Tech Inc.	X	X	X	X					
G4S Justice Services Inc.	X	X	X	X					
Geosatis, SA								X	Option alcohol detection. Victim monitoring.
Global Security Tracking			X						
Gryphex, LLC					X	X	X	X	Formerly Ascend. Gryphex was acquired by Alcohol Monitoring Services in November 2013. AMS is the manufacturer of the SCRAM bracelet.
Guidance Monitoring Limited		X	X	X	X				
iSECUREtrac	X	X	X	X	X	X	X		
Laipac Technology, Inc.								X	On piece, wrist-worn active tracking device.
Lares Technologies			X	X	X	X	X	X	Offers a tethering device that will work with an off-the-shelf GPS phone.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Vendor	2007 Survey[1]	2008 Survey[2]	2009 Survey[3]	2010 Survey[4]	2012 Survey[5]	2013 Survey[6]	2nd 2013 Survey[7]	2014 Survey[8]	Notes[9]
OmniLink Systems Inc.	X	X	X	X	X	X	X	X	One piece unit with cell tower trilateration. OmniLink has been purchased by Numerix Corp.
On Guard Plus Ltd.	X								
Pro Tech Monitoring	X	X	X	X					
Satellite Tracking of People, LLC	X	X	X	X	X	X	X	X	One piece unit. Crime scene correlation. STOP, LLC is owned by Securus Technologies.
Scandinavian Radio Technology AS								X	One piece unit from Sweden.
SecureAlert	X	X	X	X	X	X	X		
Sentencing Alternatives	X								
Sentinel Offender Services, LLC	X		X	X	X	X	X	X	Remote alcohol. Purchased G4S Court Services; G4S had acquired ActSoft and Guidance.
Serco Geografix Ltd.	X	X	X	X	X	X	X	X	Voice verification.
SumNev Sentinel Systems, LLC	X								
SuperCom, Ltd.								X	They provide a tethering device and home-monitoring unit that communicates with a smart phone with a tracking application.
TetherLink Global	X		X	X	X				
Track Group								X	Formerly Secure Alert. Track Group also purchased Emerge Inc. and G2 Research in 2014.

1 (Corrections Technology Resource Center 2007)
2 (Conway 2009)
3 (Corrections Technology Resource Center 2009)
4 (Corrections Technology Resource Center 2010)
5 (Corrections Technology Resource Center 2012)
6 (Corrections Technology Resource Center 2013)
7 (Corrections Technology Resource Center 2013)
8 (Corrections Technology Resource Center 2014)
9 ibid.

4. METHODOLOGY

4.1 Background

To develop the market survey, it was necessary to develop a thorough understanding of the OTS technology including its purpose, currently deployed concepts of operation, technical capabilities, features that were important to users, and previous research. To accomplish this, a four-pronged approach was taken: 1) conduct a literature review, 2) interview vendors, 3) interview end-users, and 4) conduct a legal review. Beginning with these actions ensured the resulting market survey would take a balanced approach and deliver information that would be beneficial to a prospective acquirer of the OTS technology.

4.1.1 Literature Review

Many open-source materials such as academic and professional journal articles, previous evaluations, a small sample of agency request for proposals (RFPs), vendor web sites, and NIJ-funded research were reviewed and contributed to an enhanced understanding of the OTS technology. For agencies interested in purchasing or leasing OTSs, the following resources provide background material.[2]

- *Draft Selection and Application Guide to Offender Tracking Systems for Criminal Justice Professionals* (National Institute of Justice, 2012). This draft guide is intended to be a general guide for agencies considering procuring OTSs. It provides an overview of the key technical features of OTS devices, and describes operational and managerial considerations.

- *Testing Protocols for Offender Tracking Technologies* (Drake, Testing Protocols for Offender Tracking Technologies, 2008). This report provides an overview of some of the key features that agencies considering procuring OTSs should consider prior making an acquisition decision. In addition, it suggests ways to evaluate these features in a variety of environments and provides sample data collection sheets.

- *Global Positioning System (GPS) Technology for Community Supervision*: *Lessons Learned* (Brown, McCabe, & Wellford, 2007). This report provides an overview of the practices used by agencies using electronic monitoring of offenders. It describes technical elements of the technology as well as best practices used in the field.

- *Offender Supervision with Electronic Technology Community Corrections Resource [second edition]* (DeMichele & Payne, 2009). This book provides an overview of the technology as well as organizational considerations such as legal issues, policies and procedures, and maintenance requirements.

---

[2] This list represents a sample of the existing material and should not be considered complete. For in-depth information about individual products, the vendor should be engaged.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

4.1.2 End User Interviews

To gain a basic understanding of current procurement processes practiced by the public safety and criminal justice communities, the project team interviewed end users from the Security Operations Program and the Police and Correctional Training Commissions of the Maryland Department of Public Safety and Correctional Services, the U.S. Immigration and Customs Enforcement, Washington D.C., and the Montgomery County (Maryland) Department of Correction and Rehabilitation. Due to these interactions, the project team observed differences in implementation, evaluation criteria, and features of greatest importance (Harvey, 2014) (Sachs & Engel, 2014) (Carbonneau, 2014) including:

- It is very important to understand the agency mission and objectives, as this will drive operational requirements of the technology. Monitoring different types of offenders will necessitate prioritization of different features. For example:

  - For a middle age functional alcoholic whose offense was driving under the influence (DUI), it is most important to get that individual back to work and supporting his family. The most important OTS feature is schedule/timing.

  - For a drug dealer, it is more important to know the offender's location and that the offender is not in areas known for drug sales. The most important OTS features are GPS accuracy, exclusion zone alerts, and data analysis.

  - For a sexual offender, it is important to know where the individual is. Important OTS features are GPS accuracy, frequency of location reporting, exclusion zones, victim notification, and data analysis.

  - For an individual attempting to reintegrate into society, it is important to avoid stigmatization. The most important OTS device features in this regard may be size, weight, and comfort.

- Features that enhance a busy corrections officer's ability to do his or her job more efficiently are important; mobile applications on internet-enabled devices, mapping capability, analytics, and a variety of reports are useful tools in this regard. Multiple location technologies and minimal false negatives and false positives are features that provide confidence in the OTS technology.

- Features that alert a corrections officer when an offender is trying to circumvent the OTS device or the rules regarding his or her placement on electronic monitoring are critical. These include tampering with the strap or case, location, schedule, shielding or jamming.

In all cases, it was extremely important to engage in a critical analysis of the agency's mission and objective when considering the acquisition of OTSs.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

4.1.3 Vendor Interviews

To gain background perspective on OTSs, understand the marketplace, and identify potential features for inclusion in the survey, several vendors were contacted. Their observations included:

- Considerable consolidation of the marketplace has occurred within the last few years as a number of vendors have been acquired or combined.

- Many vendors in the market are resellers (distributors?) that package OTS devices from other manufacturers and provide a monitoring service.

- The market seems to be migrating toward a one-piece model.

4.1.4 Legal Review

Lastly, to identify and characterize inter-jurisdictional differences between statutes and regulations in states and localities across the country that might impact the implementation of an OTS, basic legal research was conducted. The results of this work can be found in Appendix A.

4.2 Request for Information

Based upon the information gathered via the process described above, a request for information (RFI) was developed. The purpose of the RFI was to seek input on 61 items from OTS vendors with the types of information clustered into five broad categories:

1. Vendor Information
2. Product Information
3. Usability
4. Features and Functions
5. Performance and Security

The RFI was sent to vendors of OTS as well as posted as a Notice of Request for Information in the Federal Register (see Appendix B for the full text).

The vendor responses were received, compiled, and the data analyzed. The outcome of the survey is presented in three distinct ways in Section 5. First, the data are presented in a table that provides an overview of OTSs across the responses. Secondly, the data are presented on a vendor-by-vendor basis. Finally, the Center included the full-text vendor response as an appendix (refer to Appendix C through Appendix G to review full-text versions of vendor responses) for those who provided an RFI response and gave us permission to do so.

In all, six vendors responded to the RFI; none responded following the publication of the RFI as a Notice in the Federal Register. From the outset, it was anticipated that a low number of vendors would provide information. In some cases, vendors expressed concern about the proprietary nature of the information; others expressed concern about the compilation of data in one location that could allow offenders to understand the technology better and the potential to provide a competitive advantage to other vendors. One noted that providing false positive and false

---

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

negative data could damage their company's reputation. Another noted that their technology was in prototype development and therefore not ready to participate in the market survey. In addition, price is a sensitive item that could vary from RFP to RFP. Lastly, as mentioned earlier, this industry has been marked by a period of rapid company acquisition and consolidation.

To supplement the RFI, a web search for companies providing OTSs was conducted. Each company in previous market surveys was examined. From those vendors web sites with current information about offender tracking systems, data were collected and included in the survey. Data collected via web research rather than response to the RFI is noted.

Data are provided about 16 products manufactured by 13 vendors. Three vendors offered two OTS.

5. MARKET SURVEY DATA ANALYSIS

This section will provide a snapshot of the OTS industry and the respective capabilities this technology possesses at the time of publication. To assist public safety and criminal justice practitioners who may be considering the acquisition and implementation of this type of technology in their community, cross-industry information as well as vendor-by-vendor information is presented.

Readers looking to get a sense of the capabilities and features across the OTS industry can refer to Subsection 5.1 below. Data such as the physical characteristics or the time to install an OTS device are aggregated and presented. In addition, the total number of vendor-offerings with specific desirable features (e.g., location on the body where the OTS device is worn) is also presented.

On the other hand, readers who are looking for information about a specific vendor's offering should refer to Subsections 5.2 through 5.18. For each question posed in the RFI, a response is noted for a vendor's offering[3] (in most cases this is one product; however, several vendors offer two device solutions).

By examining the data in these subsections, a prospective purchaser may compare features across the industry and seek out the vendors who provide the features of most interest.

5.1 OTS Cross-Industry Comparison

For many categories of information there was very little data available. Several questions from the RFI have not been included due to lack of response; see data from individual vendors for specifics about their products (Subsections 5.1 through 5.18, below). For example, questions such as "Additional information not covered above," "Manufacturer's suggested retail price," and "Types of on-demand custom reports" do not lend themselves to aggregation. Where possible, averages are calculated, and maximum and minimum values recorded. For some questions, counts of specific features are provided. In this case, the value provided represents the number of offerings with a particular feature.

Note that the number of responses varies, based upon survey response; they do not necessarily sum to 16. The data collected from online marketing materials is significantly sparser than that collected as a result of the RFI. When a range of numbers was provided in the RFI response, the most conservative value was used. Tables 2 and 3 below should be considered representative of the marketplace but not comprehensive.

---

[3] Questions 5e and 5f from the RFI were eliminated from the survey. Based upon the responses, these two questions were substantially duplicated by questions 4b and 2o (see Appendix B for text of questions).

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Table 2. Cross-Industry Comparison 1

SURVEY ITEMS	DATA SUMMARY (Range and Average)							
Vendor Information								
Years vendors have been in business	Average:	16.0	Maximum:	36	Minimum:	4	Number of Data Points:	6
Product Information								
Device physical dimensions: height (inches)	Average:	3.38	Maximum:	4.72	Minimum:	1.77	Number of Data Points:	12
Device physical dimensions: width (inches)	Average:	2.49	Maximum:	3.68	Minimum:	1.96	Number of Data Points:	10
Device physical dimensions: depth (inches)	Average:	1.17	Maximum:	1.89	Minimum:	0.51	Number of Data Points:	11
Device Weight (in ounces)	Average:	5.60	Maximum:	9.70	Minimum:	1.80	Number of Data Points:	15
Depth to which device is waterproof (in feet)	Average:	35.4	Maximum:	100	Minimum:	3	Number of Respondents:	10
Battery discharge time (in hours) of operation before needing a charge	Average:	41.2	Maximum:	72	Minimum:	20	Number of Data Points:	11
Battery shelf life (in months)	Average:	44.5	Maximum:	120	Minimum:	24	Number of Data Points:	7
Battery recharge time (in hours) to fully charge battery after complete discharge)	Average:	2.25	Maximum:	4	Minimum:	0.75	Number of Data Points:	9
Quantity of data (in days) that can be stored on device	Average:	13.1	Maximum:	30	Minimum:	0.8	Number of Data Points:	8
Duration of warranty (in years)	Average:	1.33	Maximum:	2	Minimum:	1	Number of Data Points:	3
Length of time data is retained in archives (in years)	Average:	3.50	Maximum:	7	Minimum:	0.50	Number of Data Points:	3
Features and Functions								
Data points collected by the device (number/minute)	Average:	9.13	Maximum:	60	Minimum:	1	Number of Data Points:	8
Data points reported to the monitoring software (number/hour)	Average:	51.6	Maximum:	240	Minimum:	1	Number of Data Points:	6
Performance and Security								
Average time to install and activate device (in minutes)	Average:	4.39	Maximum:	20	Minimum:	0.5	Number of Data Points:	9
Range in performance of locational accuracy (in feet)	Average:	15.6	Maximum:	32.8	Minimum:	6	Number of Data Points:	7
Mean length of time from alert to notification (in seconds)	Average:	50	Maximum:	60	Minimum:	30	Number of Data Points:	3

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Table 3. Cross-Industry Comparison 2

SURVEY ITEMS	DATA SUMMARY (Number of Vendors whose Products have the Feature)	
	Feature	*Count*
Product Information		
Condition of equipment provided by vendor	New	7
	Refurbished	4
Owner of equipment	Purchased	5
	Leased	3
Configuration of equipment	One piece	12
	Two piece	4
Type of tracking	Active	11
	Passive	10
	Hybrid	9
Zone and schedule information location (device or monitoring software)	Zone and schedule stored onboard device	5
	Zone and schedule stored in monitoring software	3
	Zone only stored onboard device	3
	Schedule only stored onboard device	1
Location on the body where the device is worn	Ankle	15
	Wrist	1
	Waist[4]	3
Battery replacement location	Factory	6
	Field	2
Supplemental charger for battery charging	Vehicle charger	4
	Removable contact battery	1
	Commercial charger	1
	Other mobile charger	4
Technology used to geolocate the offender	GPS	16
	Cellular-based	11
	RF	9
	Wi-Fi	2
	Other, proprietary	3
Means by which data is transmitted from device to the monitoring software	Cellular	16
	Landline	4
	WiFi	1
Usability		
Processes that ensure usability of hardware and software products	Requirements gathering	2
	Testing	3
	R&D for usability	1
	Customer feedback	1
User community feedback	Training survey	3
	Satisfaction survey	3
	Other customer feedback	4
Types of user-group meetings	Forums with vendor	3
	Customer workshops	3
	Social media	1
Hours of technology support	24/7/365	11
	Other	1

---

[4] These systems are two-piece with an associated ankle bracelet.

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

SURVEY ITEMS	DATA SUMMARY (Number of Vendors whose Products have the Feature)	
	Feature	*Count*
Hours of operation of monitoring center	24/7/365	12
Type of training provided	Initial onsite	9
	As requested	3
	Webinar	5
	Self-directed	5
Type of post-training help and tutorials available	Telephone	4
	Webinar	3
	Software (embedded or online)	6
	User manual	2
Features and Functions		
Types of alerts	Inclusion zone	10
	Exclusion zone	14
	Battery	10
	Strap tamper	14
	Device case tamper	9
	Schedule	6
	Victim proximity	1
	Location signal loss	2
	Communication signal loss	5
	Jamming/shielding	4
Means by which an offender is notified that an alert has been generated	LED/light	8
	Vibration	10
	Audio tone	11
	Two-way voice	5
	One-way voice	3
	Text	5
Means by which an offender can acknowledge and alert	Button	7
	Two-way voice	6
	Text	2
Mechanism for tamper detection of device or strap circumvention	Fiber optic	7
	Tamper plug	2
	Light sensor	3
	Ultrasound detection	1
Ability to notify/alert victims of domestic violence	Text	3
	Notification device	2
	Unspecified	2
Is mobile monitoring software application available?	Yes	15
Analytical capabilities offered	Crime scene correlation	8
	Other	1
Real-time monitoring features	Ping device	12
	App	1
Reports available	Equipment	6
	Offender	10
	Management	5
Performance and Security		
Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing	Motion sensing	4
	Encryption	2
	Sense and alert	4
	Penetration testing	1
Means of protecting data while in transit and during	Encryption	7

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

SURVEY ITEMS	DATA SUMMARY (Number of Vendors whose Products have the Feature)	
	Feature	*Count*
	Firewall	2
	Software access levels	1
	Employee background checks	1
	Intrusion detection	2
	Passwords	1
Types of database change record maintenance practices for historical data	Profiles reviewed logged	1
	Fields that were changed logged	1
	Offender information changed logged	2
	Offender monitoring parameter changed logged	2
	Dates and times of change logged	2
Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored	Awareness training	2
	Background checks	1
	Plan in place	1
	Encryption	1
	Industry standards observed	1
	Role-based access	1
	Data hosted by agency	1

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.2 3M Electronic Monitoring

5.2.1 3M™ One-Piece GPS Offender Tracking Device (WMTD)

3M Electronic Monitoring, Inc., responded to the RFI; information from that response was reviewed for inclusion in this survey (3M Electronic Monitoring, Inc., 2015). The full text of the response is included in Appendix C. Figure 2 shows this vendor's product.

Figure 2. 3M One-Piece GPS Offender Tracking Device

RFI Q.#	Survey Question (abbreviated)	Vendor Response
	Vendor Information	
	Name	3M Electronic Monitoring, Inc.
1b	Years your company has been in business	20
	Website	http://solutions.3m.com/wps/portal/3M/en_US/ElectronicMonitoring/Home/
	Contact Information	1383 Gunn Highway, Odessa, FL 33556
	Product Information	
2b.	Name and Model Number	EM™ One-piece GPS Offender Tracking Device (WMTD), 3M™ HOME CURFEW BEACON UNIT (SB1000-BEACON), EM Manager
2a.	Types of Equipment/Products Offered	New and refurbished. Leased and purchased.
2c.	Configuration	One piece

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (abbreviated)	Vendor Response
2d.	Physical Dimensions (height X width X depth, in inches)	4.38 X 2.92 X 1.89
2e.	Weight of Device, Strap, and Battery (in ounces)	7.8
2f.	Depth to which device is waterproof (in feet)	60
2g.	Type of tracking	Active, passive, or hybrid
2h.	Location of Zone and Schedule Information Storage	Zones and schedules are stored on the device; updates made from software at each contact.
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	30; 48 if used in conjunction with the SB 1000 Beacon.
2k.	Battery shelf life (in months)	24 months; 12 months additional operational life
2l.	Battery recharge time (hours)	2.5
2m.	Battery replacement	Battery replacement notification is provided by device; device must be returned to factory for replacement.
2n.	Availability of supplemental battery charger	A vehicle charger is available for an additional charge.
2o.	Onboard memory storage quantity	On board flash memory can store 30 days of tracking data.
2p.	Frequencies on which device operates (cite FCC part number)	NC3WMTD3418
2q.	Type of technology for geo-location	GPS is the primary tracking technology. Two supplemental technologies are used when GPS is unavailable: Tower-based tracking and three-axis motion sensing.
2r.	Mechanism for data transport to monitoring software	Cellular communications
2s.	Auxiliary equipment	A vehicle charger and the SB1000 Beacon are available for an additional charge.
2t.	Manufacturer suggested retail price	Pricing is calculated based on the costs associated with an agency's needs and contract terms. Items such as: spare inventory levels, training and training locations required, quantity of activated devices, monitoring services, and other services requested all impact the price.
2u.	Type and duration of warranty	**Leased units:** All components are covered for the length of the contract. Battery replacement and other internal components will be repaired through a RMA (Return Merchandise Process). **Purchased units:** A standard, limited one-year warranty for workmanship and components. **Extended warranty:** For purchased units; it takes effect on the anniversary of a unit's original date of shipment to the customer and covers all parts and labor for repairing a device to the manufacturers' specifications, excluding batteries. Batteries are considered to have an effective life expectancy and unless batteries do not meet the standard one-year operational life, customers are charged for replacements.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (abbreviated)	Vendor Response
		Deliberate damage is not covered.
2v.	Monitoring center and monitoring software backup	Data Center: Houses tracking and offender data; full system backups are performed daily. Transaction logs backups are performed every five minutes. In addition, there are a high availability and a disaster recovery environment that serve as backup environments.
2w.	Data retention length	Data is retained, archived, transferred, and disposed of as specified by the customer's contractual requirements.
2x.	Any additional information not covered above	None.
Usability		
3a.	Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)	Requirements and functional needs gathering from the customers and conducting Alpha and Beta testing. Not exhaustive.
3b.	Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected	Training surveys, customer satisfaction surveys about products and services, and market surveys for recommendations for new products and capabilities. Not exhaustive.
3c.	Types of user-group meetings and frequency of their occurrence	User group communities include APPA (American Probation and Parole Association), ACA (American Corrections Association), NSA (National Sheriff's Association), and ICCA (International Community Corrections Association), along with many local associations and user groups. User groups meet twice a year and user group newsletters and other correspondence (social media) continue throughout the year.
3d.	Types of embedded templates supported by software (e.g., new offender, alert types, etc.)	The primary embedded template is a zone template to establish a group of zones based upon the offender type selected.
3e.	Hours of technology support and location (e.g., telephone or at agency)	Via toll-free telephone access to the Monitoring Center; 24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of operation of monitoring center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and type of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)	On-site and Web-based training during business hours Monday through Fridays. Online Help Files and User Manuals are available through the Web-based software interface. Customized training sessions are also available.
3h.	Types of post-training help and tutorials available	Online training Webinars, toll-free telephone support 24 hours per day, 7 days per week, and 365 days per year from the Monitoring Center, and indexed "Help" files and user manuals

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (abbreviated)	Vendor Response
		through the Web-based software interface.
Features and Functions		
4a.	Maximum number of tracking devices that can be concurrently monitored by the monitoring/tracking software	100,000 offenders (current usage does not approach this capacity); scalable architecture to expand to meet future increases in demand.
4b.	Number of data points per minute at which data Is collected by the device	1/ minute when in geographic compliance; 4/minute when in geographic alarm mode.
4b.	Number of data points per minute at which data is reported to the monitoring software	The frequency with which the device reports to the monitoring software depends on the supervision level selected: **Active:** 1/60 minutes <u>and</u> immediately upon a rule violation. **Hybrid or Passive:** Adjustable by contract from 1/4 hours to 1/12 hours. In **Hybrid**, an immediate report will occur on two selected alerts (e.g., Exclusion Zone and Strap Tamper).
4c.	Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, data standards with which the output is compliant, etc.)	Proprietary systems are used to avoid interception or duplication of a signal on another vendor's system. Data resides in databases, providing a standard that can be interoperable between different databases.
4d.	Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")	Notifications provide the name of the zone on geographic alarms and time, date, and participant name on all alarms. Alarms: inclusion zone (with name of zone), exclusion zone (with name of zone), device battery (low battery and shutdown), motion no GPS, strap alarm, and unable to connect.
4e.	Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)	Three LED lights, a vibration motor, and a soft-key alert feature.
4f.	Single or multiple mechanisms for tamper detection of device or strap circumvention	**Strap:** A pin tray and tamper plug design for attachment with visual evidence of tamper attempt, interruption or change in the embedded fiber optic light pipe. NOTE: for safety reasons the strap is intended to break when enough pressure is applied (e.g., an EMT can easily cut it free with common shears, however, doing so will generate a Strap Tamper alert). **Housing:** An ultraviolet light sensor to detect any attempt to open the device housing.
4g.	Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)	Press a grey button to acknowledge receipt of violation.
4h.	Ability to notify/alert victims of domestic violence	Using EM Manager, victims can be notified using email or text if the offender breached any exclusion zones that are

RFI Q.#	Survey Question (abbreviated)	Vendor Response
		connected to the victim (e.g., residence, work, or school).
4i.	Types of mobile monitoring software applications to transmit alerts to personnel in the field	Web-based EM Manager software does not need any special mobile applications to work effectively on a tablet or Smartphone. Internet access and login information are required. Most functions are accessible on Internet Explorer, Chrome, Foxfire, or Safari browsers.
4j.	Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc.)	3M™ Crime Scene Correlation tracking software combines GPS tracking technology with the mapped coordinates of crimes, allowing law enforcement agencies to view--in an automated or interactive fashion-- the GPS tracks of offenders at or near crime scenes.
4k.	Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)	Users have the ability to ping the device and download any current or previous GPS points on demand.
4l.	Types of reports that are available (e.g., standard information examples, extent that reports are customizable, inclusion of maps, etc.)	The EM Manager has more than 70 pre-defined reports. Report categories include: violations, rules, equipment, case management, EM Manager usage, and offender reports. All report categories can be sorted on many different fields and viewed/printed/downloaded in multiple common file formats such as excel and PDF formats.
4m.	Types of on-demand custom reports	The EM Manager has more than 70 pre-defined reports; these can be sorted on many different fields.
4n.	Other unique features not covered above	None.
Performance and Security		
5a.	Average time to install and activate device (in minutes)	5 minutes or less
5b.	Range in performance of locational accuracy indoor and outdoor (in feet)	90% accurate to within 10 meters (32.8 feet). Drift is minimized via the "perfect solution" algorithm uses a number of markers to establish a Confidence Level (CL).
5c.	False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates	Customers do not specify an acceptable level of false positives or false negatives. If there is a mechanical or electrical issue with a particular device that generates a false positive or false negative, the device is returned to the factory for testing and repair of the specific unit.
5d.	Mean time to failure	N/A
5g.	Mean length of time from alert to notification	Onboard processing minimizes the length of time from violation to server contact. The time can be as little as 30 seconds though there are may be confounding factors (e.g., level of supervision, cellular coverage, and unobstructed GPS satellite view).
5h.	Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing	Three-Axis motion sensing acts independently of other tracking technologies. Therefore if both the primary and secondary tracking technologies are unavailable, the device knows, records, and stores the information that it is or is not moving.
5i.	Data protection mechanism	**Encryption:** EM Manager uses 128-bit SSL encryption.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (abbreviated)	Vendor Response
	while in transit and during storage (e.g., SSL, encryption, password strength, etc.)	Communication between the device and Data Center is encrypted using private key encryption; during transmission the encryption is encrypted a second time. **Firewalls:** Monitoring Centers and Data Centers operate with multiple security protocols and redundancies, including: ISO standards, security policies and procedures, application security, transmission encryption, and controlled physical access. Systems are protected by external perimeter firewalls; a second layer of firewalls are deployed with an Intrusion Prevention System which includes protections from Application, Transport, and IP layers. Host level based firewalls are deployed on select systems as a third layer to protect host services. All systems are segmented into physical network security zones to segregate the different needs and security levels of systems. **Data Protection:** Web-based software prevents unauthorized individuals from accessing information by transmitting data through an encrypted Internet connection using Secure Socket Layers (SSL). 128-bit SSL encryption is used. Password length can be up to 50 characters and contract specific. Additional data protection protocols include: access levels are controlled, redundancy is built in, logins are recorded, backups are performed, employees undergo background checks, and data is secured off-site monthly, quarterly, and annually.
5j.	Types of database change record maintenance practices for historical data	The EM Manager provides a trail of the activity of customer staff including offender profiles reviewed and information that was changed and by whom. Policies, procedures, and standards for data protection, network/server protection, logical access control, physical security, and awareness training have been established.
5k.	Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored	All company employees of 3M Electronic Monitoring are subjected to drug testing and criminal background investigation. In addition there are controls in place regarding password and logins for the network and key financial systems.

5.2.2 Two-Piece GPS Offender Tracking Device (XT)

3M Electronic Monitoring, Inc. responded to the RFI; information from that response was reviewed for inclusion in this survey (3M Electronic Monitoring, Inc., 2015). The full text of the response is included in Appendix C. Figure 3 shows this vendor's product.

Figure 3. Two-Piece GPS Offender Tracking Device

RFI Q. #	Survey Question	Vendor Response
**Vendor Information**		
	Name	3M Electronic Monitoring, Inc.
1b	Years your company has been in business	20
	Website	http://solutions.3m.com/wps/portal/3M/en_US/ElectronicMonitoring/Home/
	Contact Information	1383 Gunn Highway, Odessa, FL 33556
**Product Information**		
2b.	Name and model number (e.g., device, monitoring software application, home monitoring unit, etc.)	3M™ Two-Piece GPS Offender Tracking Device (XT), 3M™ HOME CURFEW BEACON UNIT (SB1000-BEACON), EM Manager
2a.	Types of equipment or products	New and refurbished. Leased and purchased.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q. #	Survey Question	Vendor Response
	that are offered (e.g., new, used, refurbished, leased, etc.)	
2c.	Multi-piece or one-piece configuration	Two piece
2d.	Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component	Bracelet: 2.875 X 2 X 1 & tracking device 2.875 X 2 X 1
2e.	Weight (in ounces) of device with strap and included battery	Bracelet: 3.3 & tracking device: 6.5
2f.	Depth to which device is waterproof (in feet)	Bracelet: 60 Tracking device: water resistant
2g.	Type of tracking (e.g., active, passive, or hybrid)	Active, passive, or hybrid
2h.	Location where system stores zone and schedule information (e.g., onboard or monitoring software application)	Zones and schedules are stored on the device; updates made from software at each contact.
2i.	Location on the body where the device is worn	Bracelet) worn on ankle; tracking device worn on waist or carried in a pocket.
2j.	Battery discharge time (hours of continuous operation before needing a charge)	20
2k.	Battery shelf life (in months)	24 months; 12 months additional operational life
2l.	Battery recharge time (hours required to fully charge battery after complete discharge)	4
2m.	Battery replacement procedure and where it must be done (e.g., field or factory)	Battery replacement notification is provided by device; device must be returned to factory for replacement.
2n.	Availability of supplemental charger for emergency battery charging (e.g., hand crank, backup battery, solar, etc.)	A vehicle charger is available for an additional charge.
2o.	Onboard memory storage (quantity of data that can be stored on device in number of files/alerts/days activity)	On board flash memory can store 30 days of tracking data.
2p.	Frequencies on which the device components operate (cite FCC part number)	Bracelet: NC3BTR3000 Tracking device: NC3FTDF3418
2q.	Type(s) of technology used to geo-locate the offender (e.g., GPS, WiFi, RF, cellular triangulation, etc.)	GPS is the primary tracking technology. Two supplemental technologies are used when GPS is unavailable: Tower-based tracking and three-axis motion sensing.
2r.	Mechanism by which data is transmitted to the monitoring software (e.g., cellular, WiFi,	Cellular communications; with the use of the BU2000 base station, data can be transmitted by landline.

RFI Q. #	Survey Question	Vendor Response
	landline, etc.)	
2s.	Auxiliary equipment (e.g., car chargers, emergency chargers, beacons, etc.)	A vehicle charger and the SB1000 Beacon are available for an additional charge.
2t.	Manufacturer suggested retail price, without optional features, accessories or service plans	Pricing is calculated based on the costs associated with an agency's needs and contract terms. Items such as: spare inventory levels, training and training locations required, quantity of activated devices, monitoring services, and other services requested all impact the price.
2u.	Type and duration of warranty provided on the device(s) that you offer (e.g., what is covered in a standard warranty vs. what is covered in an optional or extended warranty)	**Leased units:** All components are covered for the length of the contract. Battery replacement and other internal components will be repaired through a RMA (Return Merchandise Process). **Purchased units:** A standard, limited one-year warranty for workmanship and components. **Extended warranty:** For purchased units; it takes effect on the anniversary of a unit's original date of shipment to the customer and covers all parts and labor for repairing a device to the manufacturers' specifications, excluding batteries. Batteries are considered to have an effective life expectancy and unless batteries do not meet the standard one-year operational life, customers are charged for replacements. Deliberate damage is not covered.
2v.	Means and frequency of monitoring center and monitoring software application backup	Data Center: Houses tracking and offender data; full system backups are performed daily. Transaction logs backups are performed every five minutes. In addition, there are a high availability and a disaster recovery environment that serve as backup environments.
2w.	Length of time data is retained in archives (in years)	Data is retained, archived, transferred, and disposed of as specified by the customer's contractual requirements.
2x.	Any additional information not covered above	None.
Usability		
3a.	Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)	Requirements and functional needs gathering from the customers and conducting Alpha and Beta testing. Not exhaustive
3b.	Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected	Training surveys, customer satisfaction surveys about products and services, and market surveys for recommendations for new products and capabilities. Not exhaustive
3c.	Types of user-group meetings and frequency of their occurrence	User group communities include APPA (American Probation and Parole Association), ACA (American

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q. #	Survey Question	Vendor Response
		Corrections Association), NSA (National Sheriff's Association), and ICCA (International Community Corrections Association), along with many local associations and user groups. User groups meet twice a year and user group newsletters and other correspondence (social media) continue throughout the year.
3d.	Types of embedded templates supported by software (e.g., new offender, alert types, etc.)	The primary embedded template is a zone template to establish a group of zones based upon the offender type selected.
3e.	Hours of technology support and location (e.g., telephone or at agency)	Via toll-free telephone access to the Monitoring Center; 24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of operation of monitoring center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and type of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)	On-site and Web-based training during business hours Monday through Fridays. Online Help Files and User Manuals are available through the Web-based software interface. Customized training sessions are also available.
3h.	Types of post-training help and tutorials available	Online training Webinars, toll-free telephone support 24 hours per day, 7 days per week, and 365 days per year from the Monitoring Center, and indexed "Help" files and user manuals through the Web-based software interface.
Features and Functions		
4a.	Maximum number of tracking devices that can be concurrently monitored by the monitoring/tracking software	100,000 offenders (current usage does not approach this capacity); scalable architecture to expand to meet future increases in demand.
4b.	Number of data points per minute at which data is collected by the device	1/ minute when in geographic compliance; 4/minute when in geographic alarm mode.
4b.	Number of data points per minute at which data is reported to the monitoring software	The frequency with which the device reports to the monitoring software depends on the supervision level selected: **Active:** 1/60 minutes <u>and</u> immediately upon a rule violation. **Hybrid or Passive**: Adjustable by contract from 1/4 hours to 1/12 hours. In **Hybrid**, an immediate report will occur on two selected alerts (e.g., Exclusion Zone and Strap Tamper).
4c.	Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, data standards with which the output is compliant, etc.)	Proprietary systems are used to avoid interception or duplication of a signal on another vendor's system. Data resides in databases, providing a standard that can be interoperable between different databases.
4d.	Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low	WMTD (Notifications provide the name of the zone on geographic alarms and time, date, and participant name on all alarms): inclusion zone (with name of zone), exclusion

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q. #	Survey Question	Vendor Response
	battery, loss of signal, communication failure, etc.) and way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")	zone (with name of zone), device battery (low battery and shutdown), motion no GPS, strap alarm, and unable to connect. XT (Notifications provide the name of the zone on geographic alarms and the time, date, and participant name on all alarms: inclusion zone (with name of zone), exclusion zone (with name of zone), device battery (low battery and shutdown), motion no GPS, strap alarm, unable to connect, bracelet gone (RF bracelet too far away from GPS receiver), bracelet battery (provides 7 days' notice of depletion), base station AC power disconnect/reconnect, base unit battery, base unit tamper, base unit unable to connect, caller ID, curfew, must leave, phone line disconnect/reconnect, and base unit untrusted.
4e.	Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)	LED lights, audio tones, a vibration motor, standard format or free-form text messages, and two-way voice communication directly with the participant.
4f.	Single or multiple mechanisms for tamper detection of device or strap circumvention	**Strap:** A pin tray and tamper plug design for attachment with visual evidence of tamper attempt, interruption or change in the embedded fiber optic light pipe. NOTE: for safety reasons the strap is intended to break when enough pressure is applied (e.g., an EMT can easily cut it free with common shears, however, doing so will generate a Strap Tamper alert). **Housing**: An ultraviolet light sensor to detect any attempt to open the device or base station housing.
4g.	Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)	Alert signals and information are delivered to the offender on the device's LED screen in red. The offender is given instructions for acknowledging the alert using the buttons on the face of the unit.
4h.	Ability to notify/alert victims of domestic violence	Using EM Manager, victims can be notified using email or text if the offender breached any exclusion zones that are connected to the victim (e.g., residence, work, or school).
4i.	Types of mobile monitoring software applications to transmit alerts to personnel in the field	Web-based EM Manager software does not need any special mobile applications to work effectively on a tablet or Smartphone. Internet access and login information are required. Most functions are accessible on Internet Explorer, Chrome, Foxfire, or Safari browsers.
4j.	Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc.)	3M™ Crime Scene Correlation tracking software combines GPS tracking technology with the mapped coordinates of crimes, allowing law enforcement agencies to view--in an automated or interactive fashion-- the GPS tracks of offenders at or near crime scenes.
4k.	Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)	Users have the ability to ping the device and download any current or previous GPS points on demand.
4l.	Types of reports that are available (e.g., standard information examples, extent that reports are	The EM Manager has more than 70 pre-defined reports. Report categories include: violations, rules, equipment, case management, EM Manager usage, and offender

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q. #	Survey Question	Vendor Response
	customizable, inclusion of maps, etc.)	reports. All report categories can be sorted on many different fields and viewed/printed/downloaded in multiple common file formats such as excel and PDF formats.
4m.	Types of on-demand custom reports	The EM Manager has more than 70 pre-defined reports; these can be sorted on many different fields.
4n.	Other unique features not covered above	None.
Performance and Security		
5a.	Average time to install and activate device (in minutes)	5 minutes or less
5b.	Range in performance of locational accuracy indoor and outdoor (in feet)	90% accurate to within 10 meters (32.8 feet). Drift is minimized via the "perfect solution" algorithm uses a number of markers to establish a Confidence Level (CL).
5c.	False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates	Customers do not specify an acceptable level of false positives or false negatives. If there is a mechanical or electrical issue with a particular device that generates a false positive or false negative, the device is returned to the factory for testing and repair of the specific unit.
5d.	Mean time to failure	N/A
5g.	Mean length of time from alert to notification	Onboard processing minimizes the length of time from violation to server contact. The time can be as little as 30 seconds though there are may be confounding factors (e.g., level of supervision, cellular coverage, and unobstructed GPS satellite view).
5h.	Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing	Three-Axis motion sensing acts independently of other tracking technologies. Therefore if both the primary and secondary tracking technologies are unavailable, the device knows, records, and stores the information that it is or is not moving.
5i.	Data protection mechanism while in transit and during storage (e.g., SSL, encryption, password strength, etc.)	**Encryption:** EM Manager uses 128-bit SSL encryption. Communication between the device and Data Center is encrypted using private key encryption; during transmission the encryption is encrypted a second time. **Firewalls:** Monitoring Centers and Data Centers operate with multiple security protocols and redundancies, including: ISO standards, security policies and procedures, application security, transmission encryption, and controlled physical access. Systems are protected by external perimeter firewalls; a second layer of firewalls are deployed with an Intrusion Prevention System which includes protections from Application, Transport, and IP layers. Host level based firewalls are deployed on select systems as a third layer to protect host services. All systems are segmented into physical network security zones to segregate the different needs and security levels of systems. **Data Protection:** Web-based software prevents unauthorized individuals from accessing information by

RFI Q. #	Survey Question	Vendor Response
		transmitting data through an encrypted Internet connection using Secure Socket Layers (SSL). 128-bit SSL encryption is used. Password length can be up to 50 characters and contract specific. Additional data protection protocols include: access levels are controlled, redundancy is built in, logins are recorded, backups are performed, employees undergo background checks, and data is secured off-site monthly, quarterly, and annually.
5j.	Types of database change record maintenance practices for historical data	The EM Manager provides a trail of the activity of customer staff including offender profiles reviewed and information that was changed and by whom. Policies, procedures, and standards for data protection, network/server protection, logical access control, physical security, and awareness training have been established.
5k.	Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored	All company employees of 3M Electronic Monitoring are subjected to drug testing and criminal background investigation. In addition there are controls in place regarding password and logins for the network and key financial systems.

5.3 AES Corporation

This vendor does not provide OTS for use in the U.S. or Canada (Corrections Technology Resource Center 2014).

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.4 Alcohol Monitoring Systems, Inc.

Marketing material on the company's Web site was reviewed for inclusion in this survey (Alcohol Monitoring Services, Inc., 2015). Figure 4 shows this vendor's product.

Figure 4. SCRAM

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Alcohol Monitoring Systems, Inc.
1b	Years in Business	
	Website	www.scramsystems.com
	Contact Information	T: 800.557.0861
	Product Information	
2b.	Name and Model Number	Offering is composed of: a SCRAM GPS™ bracelet, SCRAMNET™ monitoring software, RF Base Station
2a.	Types of Equipment/Products Offered	Not available
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	Not available
2e.	Weight of Device, Strap, and Battery (in ounces)	Not available
2f.	Depth to which device is waterproof (in feet)	Waterproof
2g.	Type of tracking	Not available

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2h.	Location of Zone and Schedule Information Storage	Not available
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	40 hr.
2k.	Battery shelf life (in months)	Not available
2l.	Battery recharge time (hours)	Not available
2m.	Battery replacement	Not available
2n.	Availability of supplemental battery charger	Not available
2o.	Onboard memory storage quantity	Not available
2p.	Frequencies on which device operates (cite FCC part number)	Not available
2q.	Type of technology for geo-location	GPS
2r.	Mechanism for data transport to monitoring software	Cellular
2s.	Auxiliary equipment	Not available
2t.	Manufacturer suggested retail price	Not available
2u.	Type and duration of warranty	Not available
2v.	Monitoring center and monitoring software backup	Not available
2w.	Data retention length	Not available
2x.	Any additional information not covered above	Not available
Usability		
3a.	Types of Hardware and Software Usability Processes	Not available
3b.	Types of Data Gathered from End-users for Product Evaluation	Not available
3c.	Types of User-group Meetings	Not available
3d.	Types of Embedded Templates	Not available
3e.	Hours of Technology Support	Not available
3f.	Hours of Operation for Monitoring Center	24/7 customer support
3g.	Hours and Types of Training Provided	Product training
3h.	Types of Post-training Support	Not available

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not available
4b.	Number of data points per minute at which data Is collected by the device	Not available
4b.	Number of data points per minute at which data is reported to the monitoring software	Not available
4c.	Type of Interoperability	Not available
4d.	Types of Alerts	Customizable inclusion and exclusion zones, strap open
4e.	Types of Communication Alerts	Not available
4f.	Types of Device and Strap Tamper Detection Methods	Not available
4g.	Types of Acknowledgement by Offender	Two-way communication via bracelet
4h.	Ability to Notify Victims of Domestic Violence	Not available
4i.	Types of Mobile Monitoring Applications	Secure mobile application
4j.	Types of Analytical Capabilities	Not available
4k.	Types of Real-time Monitoring Features	Not available
4l.	Types of Reports	Not available
4m.	Types of On-demand Custom Reports	Not available
4n.	Other Unique Features	Not available
Performance and Security		
5a.	Average time to install and activate device (in minutes)	0.5 min.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not available
5c.	False Positive and False Negative Rate	Not available
5d.	Mean time to failure	Not available
5g.	Mean length of time from alert to notification	Not available
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Not available

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
5i.	Data Protection Mechanism while in Transit	Not available
5j.	Types of Database Change Record	Not available
5k.	Mechanism for Maintaining Confidentiality	Not available

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.5 BI Incorporated

BI Incorporated responded to the RFI; information from that response was reviewed for inclusion in this survey (BI Incorporated, 2014). The full text of the response is included in Appendix D. Figure 5 shows this vendor's product.

Figure 5. BI ExacuTrack One

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	BI Incorporated
1b	Years in Business	36
	Website	www.bi.com
	Contact Information	6400 Lookout Road Boulder, CO 80301 T: 303.218.1000
	Product Information	
2b.	Name and Model Number	BI ExacuTrack One (EX-600), BI ExacuTrack One Beacon (EX-650), BI ExacuTrack One Downloader (HomeBase 105) (HB-105)
2a.	Types of Equipment/Products Offered	New equipment is offered for purchase or lease
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	2.5 in. X 3.5 in. X 1.5 in.
2e.	Weight of Device, Strap, and Battery (in ounces)	8.7 oz.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2f.	Depth to which device is waterproof (in feet)	15 ft.
2g.	Type of tracking	Active, passive, or hybrid
2h.	Location of Zone and Schedule Information Storage	Zones are stored on the device; schedules are stored in the monitoring software
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	24 hrs.; 120 hrs. if used in conjunction with EX-650 beacon.
2k.	Battery shelf life (in months)	60 mos.
2l.	Battery recharge time (hours)	1.5 hrs.; 1 hr. when in range of beacon EX-650
2m.	Battery replacement	Devices can be ordered with field-replaceable or non-field-replaceable batteries; devices with non-field-replaceable batteries must be sent to the factory
2n.	Availability of supplemental battery charger	N/A
2o.	Onboard memory storage quantity	50,000 events or 2 weeks worth of data; stored in non-volatile memory
2p.	Frequencies on which device operates (cite FCC part number)	TS5-6055M-ET300
2q.	Type of technology for geo-location	Four technologies are used for location. Autonomous GPS, assisted GPS (using CDMA towers to speed acquisition of GPS signals), advanced forward link trilateration (using cellular tower to calculate location), and RF (using EX-650 beacon)
2r.	Mechanism for data transport to monitoring software	Cellular communications; with the use of the HB-105 base station, data can be transmitted by landline.
2s.	Auxiliary equipment	The ExacuTrack One beacon and HomeBase Downloader are available
2t.	Manufacturer suggested retail price	N/A
2u.	Type and duration of warranty	Not asked
2v.	Monitoring center and monitoring software backup	Monitoring computer systems include internal, local, and geographic redundancy. **Internal Redundancy:** Data is stored across a set of hard drives.**Local Redundancy:** Data is replicated in real-time to another onsite server**Geographic Redundancy**: Data is replicated in real-time to another backup server out of state
2w.	Data retention length	Indefinite, unless otherwise specified by customer
2x.	Any additional information not covered above	N/A
Usability		
3a.	Types of Hardware and Software Usability Processes	N/A
3b.	Types of Data Gathered from End-users for Product	Satisfaction surveys, customer interviews, training observations, and statements made to monitoring operations

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Evaluation	center staff
3c.	Types of User-group Meetings	Regular customer training workshops and twice-yearly forums at BI facilities
3d.	Types of Embedded Templates	N/A
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	On-site initial and as requested through the life of the contract; via weekly 2- to 4-hr. webinar, and online self-directed
3h.	Types of Post-training Support	Weekly webinar training session as follow-up to initial training; interactive "help" tutorials available in monitoring software
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Currently tracking 68,500 offenders. However, architecture can grow to a virtually unlimited number of tracking devices without degrading performance, speed, or quality
4b.	Number of data points per minute at which data Is collected by the device	Depending upon the mode of operation, 1/min to 1/30 min.
4b.	Number of data points per minute at which data is reported to the monitoring software	Depending upon the mode of operation, 1/30 min to 1/24 hr.
4c.	Type of Interoperability	N/A
4d.	Types of Alerts	Unique messages are provided about: zone violations, schedule violations, tamper violations, loss of signal, loss of GPS, jamming attempts, and more
4e.	Types of Communication Alerts	Waterproof speaker that plays pre-recorded message, acknowledgement sensor, and LED indicators
4f.	Types of Device and Strap Tamper Detection Methods	**Strap or buckle tamper**: a fiber optic wire **Motion**: motion sensor detects a motionless state **Jamming detection**: unique alerts generated and transmitted
4g.	Types of Acknowledgement by Offender	Touch acknowledgement sensor
4h.	Ability to Notify Victims of Domestic Violence	N/A
4i.	Types of Mobile Monitoring Applications	Web-based TotalAccess software does not need any special mobile applications to work effectively on a PDA or Smartphone. Internet access and login information are required. Alert notifications can also be transmitted via fax, text, PDA, or telephone call
4j.	Types of Analytical Capabilities	Crime scene correlation, stop reports, and data analytics capabilities. **Crime scene correlation:** Crime data is compared against TotalAccess GPS tracking points. **Stop reports**: To identify patterns in client behavior, address and duration information for GPS points in one location during a specified timeframe is reported.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
		Data analytics: Predictive models that create insights about the offender population
4k.	Types of Real-time Monitoring Features	**Pursuit Mode:** Once activated, device records a location every 15 seconds and reports location points once a minute. **On-Demand Location Verification:** Device can be "pinged" manually to request the current GPS point and all stored data that has not been uploaded to the central monitoring computer.
4l.	Types of Reports	Numerous predefined reports are available for export as PDFs, Word documents, or Excel spreadsheets in three general categories. **Monitoring Reports:** Provide information about offender movement, alerts and events, equipment status, and mapping views. **Equipment Reports:** Provide the customer with inventory management information. **Statistical Reports:** Provide statistical summaries and snapshots of program data within specified timeframes.
4m.	Types of On-demand Custom Reports	TotalAccess provides the ability for the customer to create custom ad-hoc reports
4n.	Other Unique Features	N/A
Performance and Security		
5a.	Average time to install and activate device (in minutes)	5 min.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	50% accurate to 6 ft.; 95% accurate to 15 ft.; 98% accurate to 18 ft.
5c.	False Positive and False Negative Rate	N/A
5d.	Mean time to failure	N/A
5g.	Mean length of time from alert to notification	N/A
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Device detects and reports jamming attempts. Each unit has a unique ID and encrypts all program and equipment data transmitted
5i.	Data Protection Mechanism while in Transit	Intrusion detection, firewalls, antivirus protection, and SSL certificates. All users are required to input unique, secure user names and passwords, which are periodically changed to offer an added level of protection.
5j.	Types of Database Change Record	N/A
5k.	Mechanism for Maintaining Confidentiality	Federal Information Security Management Act of 2002 (FISMA) systems certification; BI maintains a detailed security and disaster recovery plan to ensure all personally identifiable information (PII) is securely and reliably maintained; complies with all HIPAA regulations; and all personnel coming in contact with PII must complete an annual HIPAA training

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.6 Buddi Ltd

Buddi Ltd responded to the RFI; information from that response was reviewed for inclusion in this survey (Buddi Ltd 2014). Figure 6 shows this vendor's product.

Figure 6. Buddi Ltd

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Buddi, LTD.
1b	Years in Business	10
	Website	www.buddi.us
	Contact Information	35246 U.S. Highway 19 North Suite 200 Clearwater FL 24684 Talbot House 17 Church Street Rickmansworth Herts WD3 1DE United Kingdom T: 0800 878 8900 sales@buddi.co.uk e: info@buddi.us
	Product Information	
2b.	Name and Model Number	Buddi Smart Tag (multi-function location device), Buddi Beacon (home unit), Buddi Smart Beacon (location-enabled home unit), Buddi Eagle Software (web-services monitoring software application)
2a.	Types of Equipment/Products Offered	Customers receive new products at the start of a contract. Refurbished equipment is only supplied as a replacement

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
		product. Less than 5% of the total inventory is refurbished equipment.
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	2.08 in. X 3.68 in. X 0.86 in.
2e.	Weight of Device, Strap, and Battery (in ounces)	4.08 oz.
2f.	Depth to which device is waterproof (in feet)	16 ft. (IP68 certified)
2g.	Type of tracking	Active, passive, or hybrid
2h.	Location of Zone and Schedule Information Storage	Zones and schedules are stored on the device; zones and schedule are also stored in software
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	72 hr. - 120 hr.
2k.	Battery shelf life (in months)	36 mos.
2l.	Battery recharge time (hours)	1.5 hr.
2m.	Battery replacement	Device is returned to factory for device replacement
2n.	Availability of supplemental battery charger	A mobile battery charger is available; this on-body charger can be used tethered or untethered
2o.	Onboard memory storage quantity	On board memory can store 7 days of tracking data.
2p.	Frequencies on which device operates (cite FCC part number)	Not asked
2q.	Type of technology for geo-location	GPS, GSM cell location, RF and additional Buddi advanced IP location technology.
2r.	Mechanism for data transport to monitoring software	GSM, GPRS, SMS, always on 2G or 3G, multi network SIM and secondary APN available. Landline and text communications are also available via the Smart Beacon.
2s.	Auxiliary equipment	Plug-in RF beacons, dock chargers for probation/other offices, mobile on-body chargers
2t.	Manufacturer suggested retail price	$400, excluding software and services
2u.	Type and duration of warranty	Not asked
2v.	Monitoring center and monitoring software backup	Monitoring center is backed up by multiple alternative monitoring facilities, with full secure online access to Web services interfaces. The monitoring application is backed up by live replication to multiple back-up facilities.
2w.	Data retention length	Data is retained as specified by the customer's contractual requirements; typically 7 yrs.
2x.	Any additional information not covered above	

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Usability		
3a.	Types of Hardware and Software Usability Processes	Requirements gathering, task analysis, research and design for both interaction and usability, testing, root cause analysis, ergonomics, and continuous customer survey and feedback.
3b.	Types of Data Gathered from End-users for Product Evaluation	Account management interviews, customer surveys, customer feedback to the support desk and training feedback
3c.	Types of User-group Meetings	User group meetings are held once a month; a community user event is held once a year.
3d.	Types of Embedded Templates	Various embedded templates, many of which are unique intellectual property (IP), all supporting customer configuration; users may also create their own templates.
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	On-site or using web-based WebEx, or pre-recorded mpv files
3h.	Types of Post-training Support	Post training help and tutorials are provided by virtual manuals, mpv videos, and a 24/7 customer support service: in addition there is 24/7 help desk and account management.
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Systems are virtualized to allow rapid increases of capacity as and when required to handle data flows. Systems can easily handle thousands of simultaneous users and hundreds of thousands of monitored units.
4b.	Number of data points per minute at which data Is collected by the device	4/ min.
4b.	Number of data points per minute at which data is reported to the monitoring software	Configurable; 4/ min. up to 1/ 24 hrs.
4c.	Type of Interoperability	Strong experience of system integration including security policies, authentication, firewall, customization, networking, communications and multiple mapping/geo databases; company has published its API.
4d.	Types of Alerts	Alerts include exclusion zone, schedule violation, strap tamper, bracelet removal, low battery, communication failure; these are individually configured, depending upon customer requirements; alerts are differentiated by configuration according to customer requirements.
4e.	Types of Communication Alerts	Vibration, LEDs, audio tone, and SMS.
4f.	Types of Device and Strap Tamper Detection Methods	**Strap tamper detection**: fiber-optic tamper sensing Smart Straps enable click-to-fit and no-touch removal; hard to cut, secure, provide physical evidence of removal; straps are

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
		hypoallergenic, neutral and ergonomically designed for comfort. **Device tamper detection:** light sensing case tamper detection; power on-off sensing, strap removal detection, device foil/shielding detection, GPS jamming and spoofing detection, off-body motion algorithms, 128 bit encryption communications. Additional Buddi IP available.
4g.	Types of Acknowledgement by Offender	Text acknowledgement and voice communication
4h.	Ability to Notify Victims of Domestic Violence	Using EM Manager, victims can be notified using email or text if the offender breached any exclusion zones that are connected to the victim (e.g., residence, work, or school).
4i.	Types of Mobile Monitoring Applications	Text, email, and a mobile application
4j.	Types of Analytical Capabilities	Company IP features, crime scene correlation, association monitoring, victim monitoring, and places of interest.
4k.	Types of Real-time Monitoring Features	Active location monitoring on demand; various company IP features.
4l.	Types of Reports	Standard template reports (customizable) and customer implementation customized reports; reports include both text and mapping as visual aids.
4m.	Types of On-demand Custom Reports	Various
4n.	Other Unique Features	Ad hoc custom reports are available upon request. Multiple mapping providers are already integrated, including both Google and Bing.
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	1 minute
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	16.4 ft.
5c.	False Positive and False Negative Rate	0
5d.	Mean time to failure	N/A
5g.	Mean length of time from alert to notification	Immediate
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Full automatic tamper sensing: removal, case breach, shielding, spoofing and jamming detection; databases are encrypted and protected without general access to the core database; audit logs are retained of all actions undertaken by users; regular penetration tests are undertaken; communications are encrypted and data held on monitoring equipment are protected until receipt is acknowledged by the server system.
5i.	Data Protection Mechanism while in Transit	Fully encrypted AES128 plus several authentication codes
5j.	Types of Database Change Record	Full audit log for database change records

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
5k.	Mechanism for Maintaining Confidentiality	Records are maintained confidentially according to industry standards regarding data protection

5.7 Corrisoft

This vendor elected not to participate in this RFI. A new product is currently undergoing beta testing (Milner 2014).

5.8   Geosatis Technology S.A.

Geosatis Technology S.A. responded to the RFI; information from that response was reviewed for inclusion in this survey (Geosatis Technology S.A., 2015). The full text of the response is included in Appendix E. Figure 7 shows this vendor's product.

Figure 7. Geosatis Electronic Monitoring Bracelet

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
**Vendor Information**		
1a	Vendor Name	Geosatis Technology S.A.
1b	Years in Business	4
	Website	http://geo-satis.com/intro.php
	Contact Information	Rue Saint-Hubert 7 2340 Le Noirmont Switzerland T: 41 32 513 42 94 e: info@geo-satis.com
**Product Information**		
2b.	Name and Model Number	Offering is composed of: an Electronic Monitoring bracelet, mobile charger, home station, monitoring software (including mobile app); Victim Device can be provided separately
2a.	Types of Equipment/Products Offered	New, leased
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	1.77 in. (height) X 0.51 in. (thick). Internal diameter: small 2.95 - 3.26 in., medium 3.34 - 3.70 in., large 3.89 in.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2e.	Weight of Device, Strap, and Battery (in ounces)	Small: 6.4 oz., large 6.7 oz.
2f.	Depth to which device is waterproof (in feet)	100 ft.
2g.	Type of tracking	Hybrid
2h.	Location of Zone and Schedule Information Storage	Software
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	24 hr. - 48 hr.
2k.	Battery shelf life (in months)	24 mos.
2l.	Battery recharge time (hours)	0.75 hr.
2m.	Battery replacement	Device is returned to manufacturer; replaced after 2 yrs.
2n.	Availability of supplemental battery charger	Mobile charger is equipped with micro USB port; this allows charging by laptop, backup USB battery, solar panel
2o.	Onboard memory storage quantity	20 hrs. (at 12 points/min. collection rate); 480 hrs. (at 1 point/ 2 min. collection rate).
2p.	Frequencies on which device operates (cite FCC part number)	GSM: 80 MHz, 900 MHz, 1800 MHz, 1900 MHz; Bluetooth: 2.45 GHz.
2q.	Type of technology for geo-location	GPS, EGNOS, WAAS, LBS, home station (RF)
2r.	Mechanism for data transport to monitoring software	GSM (GPRS)
2s.	Auxiliary equipment	Optional comfort element
2t.	Manufacturer suggested retail price	Upon request
2u.	Type and duration of warranty	2 yrs.
2v.	Monitoring center and monitoring software backup	External monitoring center
2w.	Data retention length	User configurable
2x.	Any additional information not covered above	GLONASS, Galileo location in development
Usability		
3a.	Types of Hardware and Software Usability Processes	None provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Pilot projects, surveys, brainstorming, trade shows
3c.	Types of User-group	None provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Meetings	
3d.	Types of Embedded Templates	None provided
3e.	Hours of Technology Support	Customer support by phone, email, and local contact
3f.	Hours of Operation for Monitoring Center	External monitoring center
3g.	Hours and Types of Training Provided	On-site; 1/2 day permits basic understanding
3h.	Types of Post-training Support	User manuals, continuous training, online videos
	Features and Functions	
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Potentially unlimited
4b.	Number of data points per minute at which data Is collected by the device	4/ min.
4b.	Number of data points per minute at which data is reported to the monitoring software	1/min.
4c.	Type of Interoperability	API integration possible
4d.	Types of Alerts	Exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, proximity victim, displacement and a power outage of base station
4e.	Types of Communication Alerts	Notifications by SMS, voice, and email. Vibration and beeping of bracelet.
4f.	Types of Device and Strap Tamper Detection Methods	Ultrasounds propagation inside bracelet to detect tamper or breaking; jamming and spoofing radio waves detected.
4g.	Types of Acknowledgement by Offender	Acknowledgement buttons, two-way phone calls with optional headset
4h.	Ability to Notify Victims of Domestic Violence	Victim can be notified by vibration, message, and beeping of Victim Device
4i.	Types of Mobile Monitoring Applications	Mobile application on iPhone
4j.	Types of Analytical Capabilities	Historical data
4k.	Types of Real-time Monitoring Features	Real-time monitoring permits positional knowledge of monitored person at all times
4l.	Types of Reports	Comprehensive list of standard and custom reports
4m.	Types of On-demand Custom Reports	Integration with report engine possible
4n.	Other Unique Features	None provided

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Performance and Security		
5a.	Average time to install and activate device (in minutes)	< 2 min.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	<13.1 ft.
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	not provided
5g.	Mean length of time from alert to notification	< 1 min.
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	**GPS**: If disconnected, bracelet will rely upon inertial sensors and cell tower localization; **GSM, GPRS**: If only one telecom provider, system switches seamlessly to an alternate provider. If no provider is available, information is stored locally until it reconnects. **Indoors**: If location sensing lost, connects to home station using Bluetooth (w/in 100 m range)
5i.	Data Protection Mechanism while in Transit	**Web**: HTTPS communications **IP**: DTLS 1.2, AES 128bit CCM **Bluetooth**: Bluetooth 2.1 security
5j.	Types of Database Change Record	None provided
5k.	Mechanism for Maintaining Confidentiality	Communications are encrypted; data in the database is encrypted; multifactor authentication; only at the chip level is third-party hardware used; data is hosted by the government or authorized agency; fine-grained role-base access control

![Johns Hopkins Applied Physics Laboratory logo]

5.9 Laipac Technology, Inc.

Laipac responded to the RFI; information from that response was reviewed for inclusion in this survey (Laipac Technology Inc., 2015). The full text of the response is included in Appendix F. The full text of the response is included in Appendix F. Figure 8 shows this vendor's product.

Figure 8. S911 Bracelet Locator ST

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Laipac Technology Inc.
1b	Years in Business	16
	Website	http://www.laipac.com/
	Contact Information	20 Mural Street, Unit 5, Richmond Hill, Ontario L4B 1K3- Canada T: (905) 762-1228 e: info@laipac.com
	Product Information	
2b.	Name and Model Number	S911 Bracelet ST
2a.	Types of Equipment/Products Offered	New
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	2.75 in. (height) X 1.97 in. (width) X 0.98 in. (depth)
2e.	Weight of Device, Strap, and Battery (in ounces)	2.4 oz.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2f.	Depth to which device is waterproof (in feet)	3 ft.
2g.	Type of tracking	Active
2h.	Location of Zone and Schedule Information Storage	Zone data is stored on the Bracelet and is mirrored on the monitoring server; schedule information is stored on the monitoring server
2i.	Location on the body where the device is worn	Wrist
2j.	Battery discharge time (hours)	55 hrs.
2k.	Battery shelf life (in months)	24 mos.
2l.	Battery recharge time (hours)	3–4 hrs.
2m.	Battery replacement	Battery can be replaced in the field
2n.	Availability of supplemental battery charger	USB Micro connection (recharged by a computer, wall plug with USB level power output or battery that has a USB connection)
2o.	Onboard memory storage quantity	2250 waypoints equating to 1.5625 days on a 1 minute reporting interval, 7.8125 days on a 5 minute reporting interval, or 23.4375 days on a 15 minute reporting interval, other intervals based on the reporting frequency
2p.	Frequencies on which device operates (cite FCC part number)	15B, 22H, 24E
2q.	Type of technology for geo-location	GPS
2r.	Mechanism for data transport to monitoring software	Cellular 2G 800/850/1800/1900 MHz
2s.	Auxiliary equipment	USB cable, wall adaptor, security screws and security keyway; car charger optional
2t.	Manufacturer suggested retail price	239.00 USD; water-sealed version add $50.00
2u.	Type and duration of warranty	1 year against manufacturing defects; extended warranty of 2 years available at additional cost
2v.	Monitoring center and monitoring software backup	Backups are made once per week with only the most recent week's data maintained. On a monthly basis, a permanent backup is made which includes the operating database and the system log files
2w.	Data retention length	On line, currently 3 months; off line - perpetual
2x.	Any additional information not covered above	Not available

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Usability		
3a.	Types of Hardware and Software Usability Processes	No formal process
3b.	Types of Data Gathered from End-users for Product Evaluation	No formal process
3c.	Types of User-group Meetings	N/A
3d.	Types of Embedded Templates	User definable, we can provide assistance with this
3e.	Hours of Technology Support	09:00-18:00 eastern - phone, email
3f.	Hours of Operation for Monitoring Center	24/7, automated; Laipac does not currently run a staffed monitoring center
3g.	Hours and Types of Training Provided	Customized training is available; the Bracelet and LocationNow can be covered in a day.
3h.	Types of Post-training Support	Manuals, help desk 09:00-18:00 eastern time, video instructions
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Scalable
4b.	Number of data points per minute at which data Is collected by the device	Position is computed at a frequency of once per second internally, collected data to be sent to server follows the user setting up to 4 per minute
4b.	Number of data points per minute at which data is reported to the monitoring software	User selectable, maximum number of points is 4 per minute
4c.	Type of Interoperability	Data is sent as ASCII text in a format similar to NMEA, it is not immediately compatible with other services; data format is available for developers who wish to integrate the Bracelet with other services. Our protocol is implemented by Position Logic, Bold Technology and Axeda among others
4d.	Types of Alerts	SOS (cellular phone call, SMS (text) message, canned email); G Sensor (SMS (text) message, canned email); geo fence (SMS (text) message, canned email); Tamper (SMS (text) message, canned email); overspeed (SMS (text) message, canned email)(with limit of 1 per hour); Low Battery (SMS (text) message, canned email); Power Off (SMS (text) message, canned email);
4e.	Types of Communication Alerts	Audible, SMS (text), email, cellular phone call
4f.	Types of Device and Strap Tamper Detection Methods	Single

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
4g.	Types of Acknowledgement by Offender	Canned SMS (text) message, cellular telephone
4h.	Ability to Notify Victims of Domestic Violence	Yes
4i.	Types of Mobile Monitoring Applications	Monitoring apps are available for Android and iOS. The apps do not generate alerts or send messages to the monitoring server. All alerts originate at the Bracelet , or from the monitoring server in response to an alert from the Bracelet.
4j.	Types of Analytical Capabilities	None at this time
4k.	Types of Real-time Monitoring Features	Yes, using locationnow.com or mobile app
4l.	Types of Reports	Trip Log, Stop Log and Summary reports. Device location history, data ranges are user selectable, map display
4m.	Types of On-demand Custom Reports	None at this time
4n.	Other Unique Features	Cellular phone for incoming calls to device, can call up to 10 reprogrammed phone numbers, can send preprogramed SMS (text) to same 10 phone numbers
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	About 20 minutes, 10 to configure the back office systems to communicate with the Bracelet and 10 to program the Bracelet and install it on its' user.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	outdoor - <16 feet, indoors - varies, but greater distances than outdoors
5c.	False Positive and False Negative Rate	Do not have this analysis
5d.	Mean time to failure	Do not have this analysis
5g.	Mean length of time from alert to notification	Do not have this analysis
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	None
5i.	Data Protection Mechanism while in Transit	Currently, security is limited. We are in the process of implementing a fully encrypted data storage system that will be able to use a variety of current cipher suites. Use of TLS protocols for communications with the monitoring server will also be implemented shortly.
5j.	Types of Database Change Record	The monitoring software has no ability to modify the location data. There is a log that contains the login and logoff times of all users, and changes made to the user and device databases (add, modify, delete user or device profiles).
5k.	Mechanism for Maintaining Confidentiality	Access to data collected is through password protected accounts

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.10 Lares

This vendor does not provide current data on its Web site (Lares Technologies, 2007).

5.11 Omnilink®

5.11.1 OM210™

Marketing material on the company's Web site was reviewed for inclusion in this survey (Omnilink®, 2015). Figure 9 shows this vendor's product.

Figure 9. OM210

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Omnilink®
1b	Years in Business	
	Website	www.omnilink.com
	Contact Information	5900 Windward Parkway, Suite 200 Alpharetta, GA 30005 T: 800.228.1203
	Product Information	
2b.	Name and Model Number	OM210™ ankle bracelet, FocalPoint™ management software
2a.	Types of Equipment/Products Offered	Not available
2c.	Configuration	One piece

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2d.	Physical Dimensions (height X width X depth, in inches)	3.5 in. (height) X 2.4 in. (width) X 1.3 in. (depth)
2e.	Weight of Device, Strap, and Battery (in ounces)	5.3 oz.
2f.	Depth to which device is waterproof (in feet)	Waterproof
2g.	Type of tracking	Active, passive, hybrid
2h.	Location of Zone and Schedule Information Storage	Not available
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	Not available
2k.	Battery shelf life (in months)	Not available
2l.	Battery recharge time (hours)	Not available
2m.	Battery replacement	Not available
2n.	Availability of supplemental battery charger	Not available
2o.	Onboard memory storage quantity	Not available
2p.	Frequencies on which device operates (cite FCC part number)	Sprint certified, FCC compliant
2q.	Type of technology for geo-location	GPS, A-GPS, AFLT
2r.	Mechanism for data transport to monitoring software	9 roaming partners
2s.	Auxiliary equipment	Not available
2t.	Manufacturer suggested retail price	Not available
2u.	Type and duration of warranty	Not available
2v.	Monitoring center and monitoring software backup	Not available
2w.	Data retention length	Not available
2x.	Any additional information not covered above	Not available

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Usability		
3a.	Types of Hardware and Software Usability Processes	Not available
3b.	Types of Data Gathered from End-users for Product Evaluation	Not available
3c.	Types of User-group Meetings	Not available
3d.	Types of Embedded Templates	Not available
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Not available
3h.	Types of Post-training Support	Not available
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not available
4b.	Number of data points per minute at which data Is collected by the device	Not available
4b.	Number of data points per minute at which data is reported to the monitoring software	Not available
4c.	Type of Interoperability	Reports exportable to Exel®
4d.	Types of Alerts	Device, strap tamper, inclusion and exclusion zones with buffer zones, mobile zones, schedules
4e.	Types of Communication Alerts	Vibration and sound
4f.	Types of Device and Strap Tamper Detection Methods	Not available
4g.	Types of Acknowledgement by Offender	Not available
4h.	Ability to Notify Victims of Domestic Violence	Not available
4i.	Types of Mobile Monitoring Applications	Mobile and tablet-friendly apps available with select solutions
4j.	Types of Analytical Capabilities	Crime scene correlation
4k.	Types of Real-time	Location on demand of offender, groups of offenders, or all

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Monitoring Features	offenders
4l.	Types of Reports	Location history, inventory management,
4m.	Types of On-demand Custom Reports	Location on demand
4n.	Other Unique Features	Not available
Performance and Security		
5a.	Average time to install and activate device (in minutes)	0.5 min.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not available
5c.	False Positive and False Negative Rate	Not available
5d.	Mean time to failure	Not available
5g.	Mean length of time from alert to notification	Near instantaneous
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Communication with servers is encrypted
5i.	Data Protection Mechanism while in Transit	Not available
5j.	Types of Database Change Record	Not available
5k.	Mechanism for Maintaining Confidentiality	Not available

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.11.2 OM400™

Marketing material on the company's Web site was reviewed for inclusion in this survey (Omnilink® 2015). Figure 10 shows this vendor's product.

Figure 10. OM400

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Vendor Information		
1a	Vendor Name	Omnilink®
1b	Years in Business	
	Website	www.omnilink.com
	Contact Information	5900 Windward Parkway, Suite 200 Alpharetta, GA 30005 T: 800.228.1203
Product Information		
2b.	Name and Model Number	OM400™ ankle bracelet, OM400 RF Beacon™, FocalPoint™ management software
2a.	Types of Equipment/Products Offered	Not available
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	3.5 in. (height) X 2.4 in. (width) X 1.6 in. (depth)
2e.	Weight of Device, Strap, and Battery (in ounces)	8.4 oz.
2f.	Depth to which device is waterproof (in feet)	Waterproof

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2g.	Type of tracking	Active, passive, hybrid
2h.	Location of Zone and Schedule Information Storage	Not available
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	Not available
2k.	Battery shelf life (in months)	Not available
2l.	Battery recharge time (hours)	Not available
2m.	Battery replacement	Not available
2n.	Availability of supplemental battery charger	Not available
2o.	Onboard memory storage quantity	Not available
2p.	Frequencies on which device operates (cite FCC part number)	Verizon & Sprint certified, FCC compliant
2q.	Type of technology for geo-location	GPS, A-GPS, AFLT, RF
2r.	Mechanism for data transport to monitoring software	9 roaming partners
2s.	Auxiliary equipment	Not available
2t.	Manufacturer suggested retail price	Not available
2u.	Type and duration of warranty	Not available
2v.	Monitoring center and monitoring software backup	Not available
2w.	Data retention length	Not available
2x.	Any additional information not covered above	Not available
Usability		
3a.	Types of Hardware and Software Usability Processes	Not available
3b.	Types of Data Gathered from End-users for Product Evaluation	Not available
3c.	Types of User-group Meetings	Not available
3d.	Types of Embedded Templates	Not available
3e.	Hours of Technology	24 hours per day, 7 days per week, and 365 days per year.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Support	
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Not available
3h.	Types of Post-training Support	Not available
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not available
4b.	Number of data points per minute at which data Is collected by the device	Not available
4b.	Number of data points per minute at which data is reported to the monitoring software	Not available
4c.	Type of Interoperability	Reports exportable to Exel®
4d.	Types of Alerts	Device, strap tamper, inclusion and exclusion zones with buffer zones, mobile zones, schedules
4e.	Types of Communication Alerts	Vibration and sound
4f.	Types of Device and Strap Tamper Detection Methods	Not available
4g.	Types of Acknowledgement by Offender	Not available
4h.	Ability to Notify Victims of Domestic Violence	Not available
4i.	Types of Mobile Monitoring Applications	Mobile and tablet-friendly apps available with select solutions
4j.	Types of Analytical Capabilities	Crime scene correlation
4k.	Types of Real-time Monitoring Features	Location on demand of offender, groups of offenders, or all offenders
4l.	Types of Reports	Location history, inventory management,
4m.	Types of On-demand Custom Reports	Location on demand
4n.	Other Unique Features	Not available
Performance and Security		
5a.	Average time to install and activate device (in minutes)	0.5 min.
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not available
5c.	False Positive and False	Not available

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Negative Rate	
5d.	Mean time to failure	Not available
5g.	Mean length of time from alert to notification	Near instantaneous
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Communication with servers is encrypted
5i.	Data Protection Mechanism while in Transit	Not available
5j.	Types of Database Change Record	Not available
5k.	Mechanism for Maintaining Confidentiality	Not available

5.12 Satellite Tracking of People LLC

Satellite Tracking of People LLC responded to the RFI; information from that response was reviewed for inclusion in this survey (Satellite Tracking of People LLC, 2014). The full text of the response is included in Appendix G. Figure 11 shows this vendor's product.

Figure 11. BluTag

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Vendor Information		
1a	Vendor Name	Satellite Tracking of People LLC
1b	Years in Business	10
	Website	http://www.stopllc.com/
	Contact Information	1212 North Post Oak Road Suite 100 Houston, TX 77055 T: 866-525-8824
Product Information		
2b.	Name and Model Number	BLUtag, BLUhome (home-based receiver unit), VeriTracks (monitoring application), BLUbox (home-based receiver that is paired with BLUtag when the offender lives in an area impairing BLUtag's ability to receive GPS signals)
2a.	Types of Equipment/Products Offered	New and refurbished equipment is leased to government agencies
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	4.33 in. X 2.08 in. X 1.25 in.
2e.	Weight of Device, Strap, and Battery (in ounces)	6 oz.
2f.	Depth to which device is waterproof (in feet)	50 ft.
2g.	Type of tracking	Active, passive, or hybrid
2h.	Location of Zone and Schedule Information Storage	GPS location points and zone information (latitude/longitude location of zones and the schedule for each) stored in built-in non-volatile memory
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	48 - 72 hours depending on conditions (excellent cellular connection and no obstruction of GPS)
2k.	Battery shelf life (in months)	120 mos.
2l.	Battery recharge time (hours)	1 hour per day. The 2 hour recharge is required if the device goes into a low battery condition (approximately 36 hours before full depletion)
2m.	Battery replacement	Device must be returned to the vendor for replacement
2n.	Availability of supplemental battery charger	Charger that plugs into an automobile's cigarette lighter and a mobile charger that fits onto the bottom of the device
2o.	Onboard memory storage quantity	Unlimited number of zones and 10 days of monitoring data stored in built-in non-volatile memory.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2p.	Frequencies on which device operates (cite FCC part number)	1850.2 – 1909.8 and 824.2-848.8
2q.	Type of technology for geo-location	GPS is the primary tracking technology; cell tower-based tracking serves as a secondary tracking technology
2r.	Mechanism for data transport to monitoring software	Cellular communications; landline telephone when paired with BluHome
2s.	Auxiliary equipment	Charging coupler (for a standard 110-volt electrical outlet, an automobile charger, and a mobile charger), BLUhome (optional home-based monitoring unit), BLUbox (optional home-based monitoring for use in a GPS-impaired environment).
2t.	Manufacturer suggested retail price	Pricing is calculated based on the costs associated with an agency's needs and contract terms. Price ranges from $3.50 - $4.50 per device, per day, per offender
2u.	Type and duration of warranty	N/A. Device is leased.
2v.	Monitoring center and monitoring software backup	Monitoring Center and data back-ups are created in real time; an additional data back-up is completed nightly.
2w.	Data retention length	Archived monitoring data from customer supervision programs is not deleted; current archive is 10 years. Only when a customer provides explicit and detailed instructions is data deleted
2x.	Any additional information not covered above	Optional services provided for an additional fee, such as Monitoring Center, offender invoicing and payments, equipment installation and removal and case management.
	Usability	
3a.	Types of Hardware and Software Usability Processes	All hardware is manufactured at the vendor's ISO 9001:2008 certified facility; 100% bench testing is conducted on all products and software services
3b.	Types of Data Gathered from End-users for Product Evaluation	Feedback is collected throughout the year during face-to-face meetings, conference calls, emails, surveys and the annual Training Institute. Data collected includes feedback and input on the development of new functionality, testing new functionality, the performance of the hardware and software, customer service and support, technical support, contract compliance, equipment delivery and returns, billing and customer appreciation.
3c.	Types of User-group Meetings	Account managers conduct conference calls and make in-person visits with each of their customers at least once per month. Members of the executive management team meet with most customers at least once per year and participate on a quarterly basis with the account managers' monthly conference calls. The Satellite Tracking of People LLC Training Institute gathers users of the GPS monitoring system once every year.
3d.	Types of Embedded	VeriTracks contains more than 300 reports available in Word, Excel, PDF

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Templates	and comma delimited; custom reports can be developed by a report writing team and added to the reports database in VeriTracks.
3e.	Hours of Technology Support	Support is available by telephone, fax, and email 24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Live, in-person (8 hrs.); live webinar and pre-recorded webinar (4 hrs.)
3h.	Types of Post-training Support	Following initial training, the training department offers follow up training covering specific topics with which supervising officers are experiencing difficulty; upon request, Proactive Customer Assistance is provided to customers (technical support technicians review every officer's Daily Summary Report to look for recurring violations and unusual events, and then work one-on-one with the supervising officer to help him/her correct the situation or provide a solution). Training department also maintains an online library containing training guides, videos, how-to documents and hints and tips cards.
	Features and Functions	
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Unlimited
4b.	Number of data points per minute at which data Is collected by the device	1/ minute when in geographic compliance; 4/minute at agency request.
4b.	Number of data points per minute at which data is reported to the monitoring software	1/10 min.; immediately upon a rule violation.
4c.	Type of Interoperability	When a customer transitions from one vendor's GPS monitoring system to STOP's system, STOP's software engineers work with the previous vendor to map and migrate the GPS monitoring data collected and stored in the vendor's software into VeriTracks.
4d.	Types of Alerts	**Events:** On charger, low battery, critical battery, dead battery, master tamper, inclusion zone violation, exclusion zone violation, zone start location unknown, message gap, no GPS, GPS signal interference, press button and device unassigned. Supervising officers select how to receive events (email, fax or text message)
4e.	Types of Communication Alerts	**BLUtag:** Vibration, audible tone, lights on the face, and acknowledgement button on the face **BLUhome:** text messages
4f.	Types of Device and Strap Tamper Detection Methods	**BLUtag**: detects, records, and reports case tamper, strap tamper, GPS signal jamming, and GPS signal shielding. **BLUbox:** detects, records, and reports unauthorized movement and interruptions to the electrical service in the offender's home. **BLUhome**: detects, records, and reports unauthorized

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
		movement and interruptions to the electrical and landline phone service in the offender's home.
4g.	Types of Acknowledgement by Offender	Press acknowledge button
4h.	Ability to Notify Victims of Domestic Violence	Offer Agencies Stalker Alert, a victim notification device that works in conjunction with BLUtag to alert victims when an offender is in close proximity of the victim's location.
4i.	Types of Mobile Monitoring Applications	VeriTracks is a secure web-based monitoring application; accessible 24 hours a day, 365 days per year by authorized users through any computer, laptop, smart phone or tablet with a high-speed Internet connection. Also a specific mobile application that can be used on any cellular phone.
4j.	Types of Analytical Capabilities	VeriTracks can create global zones around geographic areas known to have illegal activity and/or a meeting place for offenders; Automated Crime Scene Correlation functionality within VeriTracks to compare the locations and movements of offenders with the location of reported crimes and incidents from a local law enforcement's records management system.
4k.	Types of Real-time Monitoring Features	Initiate a Location Request (once per minute) to immediately report BLUtag current location to VeriTracks; Rapid Reporting instructs BLUtag to report its location to VeriTracks 1/ 2 min. for 1 hr.
4l.	Types of Reports	More than 300 reports cover a wide variety of topics including inventory, violations and open events, offender enrollments and un-enrollments, supervising officers logging in and knowing what actions they took while logged into VeriTracks, device assignment and assignment history, agent caseload, offender profile, etc.
4m.	Types of On-demand Custom Reports	None; normal filters and settings for established reports may be applied
4n.	Other Unique Features	VeriTracks streamlines the display of GPS location points by clustering them under a red bull's eye when an offender(s) were in a single location for at least five minutes. All GPS location points are visible by simply clicking the "Track Points" option on the screen. Mapping and mapping functionality is provided through Google Maps™. Supervising officers may select the date and block of time to display the movements of one or more offenders at one time on a map.
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	5 minutes or less
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	95% accurate to within 10 meters (32.8 feet).
5c.	False Positive and False Negative Rate	< 1%
5d.	Mean time to failure	Designed to operate for at least 24 months of continuous use
5g.	Mean length of time from alert to	1 min.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	notification	
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	BLUtag has the capability to detect, record, and report if an offender jams the GPS signal with an inexpensive and illegal device; is also capable of detecting, recording, and reporting if an offender shields BLUtag from receiving GPS signals.
5i.	Data Protection Mechanism while in Transit	Hypertext Transfer Protocol Secure (HTTPS) connection; HTTPS is a combination of HTTP and the Secure Socket Layer/Transport Layer Security (SSL/TLS) protocols, which protect network traffic through 128-bit encryption.
5j.	Types of Database Change Record	Changes in an offender's information (i.e., name, phone number, address, risk level, etc.) and monitoring parameters (i.e., zone size, location and/or schedule, etc.) are recorded
5k.	Mechanism for Maintaining Confidentiality	Data in VeriTracks is confidential; high levels of security deployed to protect monitoring data, prevent hacking into monitoring system, and fast fault recovery.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

5.13 Scandinavian Radio Technology

Marketing material on the company's Web site was reviewed for inclusion in this survey (Scandinavian Radio Technology, 2013). Figure 12 shows this vendor's product.

Figure 12. SRT Electronic Monitoring Unit

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Scandinavian Radio Technology
1b	Years in Business	
	Website	http://www.srt.se/?lang=en
	Contact Information	Krossgatan 28 162 50 Vallingby Sweden T: +46 (0) 8 620 29 60
	Product Information	
2b.	Name and Model Number	Offering is composed of: SRT332 electronic monitoring bracelet, SRT Track monitoring software
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	4.7 in. X 2.0 in. X 1.2 in.
2e.	Weight of Device, Strap, and Battery (in ounces)	6.3 oz.
2f.	Depth to which device is waterproof (in feet)	0.5 ft. - 3.3 ft.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2g.	Type of tracking	Not provided
2h.	Location of Zone and Schedule Information Storage	20 predefined zones onboard
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	64 hrs.
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	Not provided
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	One on board battery plus one removable battery to recharge on board battery
2o.	Onboard memory storage quantity	Not provided
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS/GLONASS receiver, optional RF, optional WiFi
2r.	Mechanism for data transport to monitoring software	GSM/GPRS cellular
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	6 mos. Or as requested
2x.	Any additional information not covered above	Not provided
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology	Not provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Support	
3f.	Hours of Operation for Monitoring Center	Not provided
3g.	Hours and Types of Training Provided	Not provided
3h.	Types of Post-training Support	Not provided
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	1/min.
4b.	Number of data points per minute at which data is reported to the monitoring software	Not provided
4c.	Type of Interoperability	Not provided
4d.	Types of Alerts	Strap tamper, zone violation
4e.	Types of Communication Alerts	Vibration, status LED
4f.	Types of Device and Strap Tamper Detection Methods	Fiber optic
4g.	Types of Acknowledgement by Offender	Not provided
4h.	Ability to Notify Victims of Domestic Violence	Not provided
4i.	Types of Mobile Monitoring Applications	Not provided
4j.	Types of Analytical Capabilities	Not provided
4k.	Types of Real-time Monitoring Features	Position request via SMS to unit; unit reply with text message of current position plus link to Google Map link
4l.	Types of Reports	Alarms, routes, battery
4m.	Types of On-demand Custom Reports	Not provided
4n.	Other Unique Features	Not provided

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Performance and Security		
5a.	Average time to install and activate device (in minutes)	Not provided
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not provided
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Not provided
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

5.14 Sentinel Offender Services, LLC

Marketing material on the company's Web site was reviewed for inclusion in this survey (Sentinel Offender Services, LLC, 2007). Figure 13 shows this vendor's product.

Figure 13. DualTrak

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Vendor Information		
1a	Vendor Name	Sentinel Offender Services LLC
1b	Years in Business	
	Website	http://www.sentrak.com/
	Contact Information	405 S. Main Street, Suite 700 Salt Lake City, UT 84111 866.451.6141
Product Information		
2b.	Name and Model Number	Offering is composed of: DualTrak electonic monitoring bracelet, TrakMate GPS unit, DualTrak Home Monitoring Unit, and SenTrack software
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	Two piece
2d.	Physical Dimensions (height X width X depth, in inches)	Not provided
2e.	Weight of Device, Strap, and Battery (in ounces)	1.8 oz. (bracelet)
2f.	Depth to which device is waterproof (in feet)	Not provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2g.	Type of tracking	Active, passive, intermediate (ability to view recent tracking data)
2h.	Location of Zone and Schedule Information Storage	Not provided
2i.	Location on the body where the device is worn	Worn on ankle, phone at waist
2j.	Battery discharge time (hours)	Not provided
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	Not provided
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	Not provided
2o.	Onboard memory storage quantity	Not provided
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS, RF
2r.	Mechanism for data transport to monitoring software	Cellular telephone
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	Not provided
2x.	Any additional information not covered above	Cellular telephone provides GPS
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology	24 hours per day, 7 days per week, and 365 days per year.

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Support	
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Not provided
3h.	Types of Post-training Support	Not provided
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	Not provided
4b.	Number of data points per minute at which data is reported to the monitoring software	Not provided
4c.	Type of Interoperability	Not provided
4d.	Types of Alerts	Inclusion and exclusion zones
4e.	Types of Communication Alerts	Voice-capable
4f.	Types of Device and Strap Tamper Detection Methods	Not provided
4g.	Types of Acknowledgement by Offender	Voice-capable
4h.	Ability to Notify Victims of Domestic Violence	Yes
4i.	Types of Mobile Monitoring Applications	Remote field verification unit, mobile application for PDA
4j.	Types of Analytical Capabilities	Not provided
4k.	Types of Real-time Monitoring Features	Offender current location
4l.	Types of Reports	Historical tracking points, violations
4m.	Types of On-demand Custom Reports	Not provided
4n.	Other Unique Features	Not provided
Performance and Security		
5a.	Average time to install and activate device (in minutes)	Seconds
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not provided
5c.	False Positive and False Negative Rate	Not provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Not provided
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

5.15 Serco Geografix, Ltd.

This company's domain (www.sercogeografix.com) expired. No current data available.

5.16 SuperCom

Marketing material on the company's Web site was reviewed for inclusion in this survey
(SuperCom 2013). Figure 14 shows this vendor's product.

Figure 14. Pure Tag RF Bracelet

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
		Vendor Information
1a	Vendor Name	SuperCom
1b	Years in Business	
	Website	http://www.supercom.com/
	Contact Information	1 Arie Shenkar Street Herzliya 4672501, Israel 200 Park Avenue South 9th Floor New York, NY 10003 212.675.4606

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Product Information		
2b.	Name and Model Number	Offering is composed of: PureTagRF™ electronic monitoring bracelet, PureTrack, PureBeacon, PureMonitor
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	Two piece
2d.	Physical Dimensions (height X width X depth, in inches)	Not provided
2e.	Weight of Device, Strap, and Battery (in ounces)	1.8 oz. (bracelet)
2f.	Depth to which device is waterproof (in feet)	Not provided
2g.	Type of tracking	Not provided
2h.	Location of Zone and Schedule Information Storage	Schedule on PureTrack device
2i.	Location on the body where the device is worn	Ankle (bracelet), other
2j.	Battery discharge time (hours)	Not provided
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	Not provided
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	Not provided
2o.	Onboard memory storage quantity	Not provided
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS, cell tower, WiFi, RF
2r.	Mechanism for data transport to monitoring software	GSM, CDMA, WiFi
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	Not provided
2x.	Any additional information not covered above	Not provided

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology Support	Not provided
3f.	Hours of Operation for Monitoring Center	Not provided
3g.	Hours and Types of Training Provided	Not provided
3h.	Types of Post-training Support	Not provided
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	Not provided
4b.	Number of data points per minute at which data is reported to the monitoring software	Not provided
4c.	Type of Interoperability	Not provided
4d.	Types of Alerts	Strap and case tamper, motion
4e.	Types of Communication Alerts	Voice, text, email, video on PureTrack device; sound and vibration on bracelet
4f.	Types of Device and Strap Tamper Detection Methods	Not provided
4g.	Types of Acknowledgement by Offender	Not provided
4h.	Ability to Notify Victims of Domestic Violence	Not provided
4i.	Types of Mobile Monitoring Applications	Tablet, smartphone, MDT access
4j.	Types of Analytical Capabilities	Not provided
4k.	Types of Real-time Monitoring Features	Not provided

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
4l.	Types of Reports	Not provided
4m.	Types of On-demand Custom Reports	On-demand reports available
4n.	Other Unique Features	Not provided
Performance and Security		
5a.	Average time to install and activate device (in minutes)	Not provided
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not provided
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Not provided
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

5.17 TAMATRAC, INC.

Marketing material on the company's Web site was reviewed for inclusion in this survey (TAMATRAC INC. n.d.). Figure 15 shows this vendor's product.

Figure 15. Generation III Ankle Bracelet

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	TAMATRAC, INC.
1b	Years in Business	
	Website	http://www.tamatrac.com/
	Contact Information	PO Box 29307 Cleveland, OH 44129 440.882.6223
	Product Information	
2b.	Name and Model Number	Offering is composed of: Generation III electronic monitoring bracelet and monitoring software
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	Two piece
2d.	Physical Dimensions (height X width X depth, in inches)	Not provided

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2e.	Weight of Device, Strap, and Battery (in ounces)	6.5 oz.
2f.	Depth to which device is waterproof (in feet)	Not provided
2g.	Type of tracking	Not provided
2h.	Location of Zone and Schedule Information Storage	Not provided
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	Not provided
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	Not provided
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	Not provided
2o.	Onboard memory storage quantity	Not provided
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS
2r.	Mechanism for data transport to monitoring software	Cellular
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	3 yrs.
2x.	Any additional information not covered above	Not provided
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	Not provided
3g.	Hours and Types of Training Provided	At vendor location, on site; internet training also available
3h.	Types of Post-training Support	Not provided
	Features and Functions	
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	Not provided
4b.	Number of data points per minute at which data is reported to the monitoring software	Not provided
4c.	Type of Interoperability	Not provided
4d.	Types of Alerts	Low battery, strap tamper, presence of alcohol or marijuana
4e.	Types of Communication Alerts	Voice, audio tone
4f.	Types of Device and Strap Tamper Detection Methods	Not provided
4g.	Types of Acknowledgement by Offender	Not provided
4h.	Ability to Notify Victims of Domestic Violence	Not provided
4i.	Types of Mobile Monitoring Applications	Smart phone compatible
4j.	Types of Analytical Capabilities	Not provided
4k.	Types of Real-time Monitoring Features	Offender current location
4l.	Types of Reports	Historical tracking points, violations
4m.	Types of On-demand Custom Reports	Not provided
4n.	Other Unique Features	Not provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	Not provided
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	Not provided
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Not provided
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

5.18 Track Group

5.18.1 RELIALERT™XC

Marketing material on the company's Web site was reviewed for inclusion in this survey (Track Group). Figure 16 shows this vendor's product.

Figure 16. ReliAlert XC3

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Vendor Information		
1a	Vendor Name	Track Group
1b	Years in Business	
	Website	http://www.trackgrp.com/
	Contact Information	405 S. Main Street, Suite 700 Salt Lake City, UT 84111 866.451.6141

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Product Information		
2b.	Name and Model Number	Offering is composed of: RELIALERT™XC electronic monitoring bracelet, TrackerPAL™, HomeAware Beacon
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	One piece
2d.	Physical Dimensions (height X width X depth, in inches)	4.72 in. (height)
2e.	Weight of Device, Strap, and Battery (in ounces)	9.7 oz.
2f.	Depth to which device is waterproof (in feet)	15 ft.
2g.	Type of tracking	Active and passive
2h.	Location of Zone and Schedule Information Storage	On-board
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	36 - 45 hr.
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	2 hr.
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	
2o.	Onboard memory storage quantity	12 days at 1 min. tracking and reporting intervals
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS, RF, cellular triangulation
2r.	Mechanism for data transport to monitoring software	GPRS and SMS
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	Not provided

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2x.	Any additional information not covered above	Not provided
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Not provided
3h.	Types of Post-training Support	Not provided
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	1/ min. to 0.2/ min
4b.	Number of data points per minute at which data is reported to the monitoring software	1/ min. to 0.2/ min
4c.	Type of Interoperability	Not provided
4d.	Types of Alerts	Strap tamper, case open, low battery, cellular jamming, inclusion or exclusion zone
4e.	Types of Communication Alerts	Voice, siren, LED, vibration, audio tones
4f.	Types of Device and Strap Tamper Detection Methods	Fiber optic
4g.	Types of Acknowledgement by Offender	Acknowledgement button
4h.	Ability to Notify Victims of Domestic Violence	Not provided
4i.	Types of Mobile Monitoring Applications	Mobile application for tablet or cell phone
4j.	Types of Analytical	Crime scene correlation, diagnostic

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Capabilities	
4k.	Types of Real-time Monitoring Features	Offender current location
4l.	Types of Reports	Historical tracking points, violations,
4m.	Types of On-demand Custom Reports	Not provided
4n.	Other Unique Features	95 decibel siren, two/three-way voice communications, Securecuff™ hardened steel cuff
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	Not provided
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	6 ft.
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Adaptive digital filtering to prevent GPS jamming
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

5.18.2 Shadow

Marketing material on the company's Web site was reviewed for inclusion in this survey (Track Group). Figure 17 shows this vendor's product.

Figure 17. Shadow

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Vendor Information	
1a	Vendor Name	Track Group
1b	Years in Business	
	Website	http://www.trackgrp.com/
	Contact Information	405 S. Main Street, Suite 700 Salt Lake City, UT 84111 866.451.6141
	Product Information	
2b.	Name and Model Number	Offering is composed of: Shadow electronic monitoring bracelet, TrackerPAL™
2a.	Types of Equipment/Products Offered	Not provided
2c.	Configuration	One piece

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
2d.	Physical Dimensions (height X width X depth, in inches)	3.45 in. (height) X 1.96 in. (width) X 0.78 in. (thick).
2e.	Weight of Device, Strap, and Battery (in ounces)	5.28 oz.
2f.	Depth to which device is waterproof (in feet)	32 ft.
2g.	Type of tracking	Active and passive
2h.	Location of Zone and Schedule Information Storage	Not provided
2i.	Location on the body where the device is worn	Worn on ankle
2j.	Battery discharge time (hours)	32 hr. (GPS mode); 6 mo. (RF mode)
2k.	Battery shelf life (in months)	Not provided
2l.	Battery recharge time (hours)	2 hr.
2m.	Battery replacement	Not provided
2n.	Availability of supplemental battery charger	Mini USB; off-the-shelf battery charger
2o.	Onboard memory storage quantity	Not provided
2p.	Frequencies on which device operates (cite FCC part number)	Not provided
2q.	Type of technology for geo-location	GPS, A-GPS, RF, cellular
2r.	Mechanism for data transport to monitoring software	GPRS and SMS
2s.	Auxiliary equipment	Not provided
2t.	Manufacturer suggested retail price	Not provided
2u.	Type and duration of warranty	Not provided
2v.	Monitoring center and monitoring software backup	Not provided
2w.	Data retention length	Not provided
2x.	Any additional information not covered above	Can pair with up to 3 indoor units

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
Usability		
3a.	Types of Hardware and Software Usability Processes	Not provided
3b.	Types of Data Gathered from End-users for Product Evaluation	Not provided
3c.	Types of User-group Meetings	Not provided
3d.	Types of Embedded Templates	Not provided
3e.	Hours of Technology Support	24 hours per day, 7 days per week, and 365 days per year.
3f.	Hours of Operation for Monitoring Center	24 hours per day, 7 days per week, and 365 days per year.
3g.	Hours and Types of Training Provided	Not provided
3h.	Types of Post-training Support	Not provided
Features and Functions		
4a.	Maximum Number of Tracking Devices for Concurrent Monitoring	Not provided
4b.	Number of data points per minute at which data Is collected by the device	Not provided
4b.	Number of data points per minute at which data is reported to the monitoring software	Not provided
4c.	Type of Interoperability	API integration possible
4d.	Types of Alerts	Strap tamper, case open, low battery, cellular jamming, inclusion or exclusion zone
4e.	Types of Communication Alerts	LED, sound, vibration
4f.	Types of Device and Strap Tamper Detection Methods	Fiber optic
4g.	Types of Acknowledgement by Offender	Acknowledgement button
4h.	Ability to Notify Victims of Domestic Violence	Not provided
4i.	Types of Mobile Monitoring Applications	Mobile application for tablet or cell phone
4j.	Types of Analytical Capabilities	Crime scene correlation, diagnostic
4k.	Types of Real-time	Offender current location

RFI Q.#	Survey Question (Abbreviated)	Vendor Response
	Monitoring Features	
4l.	Types of Reports	Historical tracking points, violations,
4m.	Types of On-demand Custom Reports	Not provided
4n.	Other Unique Features	Offender panic button
	Performance and Security	
5a.	Average time to install and activate device (in minutes)	Not provided
5b.	Locational Accuracy (Indoor and Outdoor), (in feet)	8.2 ft.
5c.	False Positive and False Negative Rate	Not provided
5d.	Mean time to failure	Not provided
5g.	Mean length of time from alert to notification	Not provided
5h.	Security against GPS or Communication Jamming, Shielding, Interception, or Spoofing	Cellular jamming detection
5i.	Data Protection Mechanism while in Transit	Not provided
5j.	Types of Database Change Record	Not provided
5k.	Mechanism for Maintaining Confidentiality	Not provided

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

6. NEXT STEPS

6.1 Future Trends

Procurers of this technology should be aware of future trends in the OTS field and consider replacing their OTS as additional desirable features begin to mature. The following list provides a non-comprehensive selection of such features (Brown, McCabe, & Wellford, 2007), (National Law Enforcement And Corrections Technology Advisory Council, 2011), (Harvey, 2014), (Carbonneau, 2014):

- Hardware
  - Movement toward smaller and lighter units,
  - More durable plastics and metal alloys that are both lightweight and extremely durable,
  - More efficient and cost effective types of batteries,
  - Field-replaceable battery solutions that allow the agency to replace the batteries as needed,
  - Continuing evolution of a one-piece unit,
  - Omni-directional antennas that facilitate better reception and transmission of cellular signals,
  - Use of small LCD displays, capable of displaying extra information,
  - Two-way wireless capabilities,
  - OTS receivers that include additional channels to facilitate reception of satellite data on a wider variety of transmission bands,
  - Ability to locate on x, y, and z coordinates,
  - Higher data-collection rates,
  - More accuracy,
  - WIFI backup,
  - Better ability to track offenders indoors, underground, and out of direct-line-of-sight of the satellite system,
  - Detect intentional signal blocking/jamming, and
  - Alternative tethering technologies than a device strapped to the ankle.
- Software
  - Improved mapping capabilities including:
    › Movement trails displaying speed and direction,

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

> » Overlays showing important public areas such as schools and parks, as well as locations known to be associated with criminal elements that are automatically correlated with movement points,
>
> » Archived satellite imagery will provide both correlation of movement with points of interest, as well as "advance reconnaissance" information to officers in situations where apprehension may be necessary,
>
> – Better analysis of client movement including tendencies, and
>
> – Correlation analyses between data provided by the GPS system and data provided by other law enforcement agencies.

6.2 Future OTS Standard

The National Institute of Justice is currently creating a voluntary standard entitled: *Criminal Justice Offender Tracking System Standard [NIJ Standard-1004.00]*. Currently in draft format, this standard will define performance requirements as well as methods for testing the compliance with the performance requirements. In conjunction with two additional draft documents, *Criminal Justice Offender Tracking System Certification Program Requirements [NIJ CR-1004.00]* and *Criminal Justice Offender Tracking System Refurbishment Service Program Requirements [NIJ RP-1004.00]*, this standard will ensure independent verification of vendor-reported product performance.   Procurers of this technology may want to include adherence to this standard in future RFPs.

7. CONCLUSION

Under NIJ Cooperative Agreement, Award No. 2013-MU-CX-K111, the NIJ RT&E Center was commissioned to conduct a market survey of offender tracking systems (OTS)—hardware and software—to assist public safety and criminal justice practitioners who may be considering the acquisition and implementation of this type of technology in their community. This report presents survey findings about OTS offerings from product vendors. The survey framework enables a comparative analysis of 16 of tracking devices. It also provides background context for OTS, the NIJ RT&E Center's methodology for developing the market survey, and future considerations for OTS procurement.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

8. REFERENCES

3M Electronic Monitoring, Inc. . (2015, December 15). *Market Survey of 3M Electronic Monitoring, Inc.*

Alcohol Monitoring Services, Inc. (2015). *SCRAM Systems Products*. Retrieved March 16, 2015, from Alcohol Monitoring Services, Inc.: http://www.scramsystems.com/index/scram/products

Anderson, E. (2014, May 24). *The Evolution of Electronic Monitoring Devices*. Retrieved March 2, 2015, from National Public Radio: http://www.npr.org/2014/05/22/314874232/the-history-of-electronic-monitoring-devices

Bandor, M. S. (2006). *Quantitative Methods for Software Selection and Evaluation, Technical Note, CMU/SEI-2006-TN-026.* Software Engineering Institute; Carnegie Mellon University.

BI Incorporated. (2014, November 25). *National Criminal Justice Technology Research, Test, and Evaluation Center Market Research Survey (BI Incorporated Response)*, 13.

Brown, T. M., McCabe, S. A., & Wellford, C. (2007). *Global Positioning System (GPS) Technology for Community Supervision: Lessons Learned.* Noblis. U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Buddi Ltd. (2014, November 3). *Buddi Response to Market Survey*, 19.

Caiado, N. (2012). The Third Way: An Agenda for Electronic Monitoring in the Next Decade. *The Journal of Offender Monitoring*, 5-10, 14, 22.

Carbonneau, E. (2014, October 22). U.S. Immigration and Customs Enforcement. (S. Taylor, S. Kandaswamy, & T. Evans, Interviewers) Washington, DC.

Coyle, G. (n.d.). Retrieved from www.booksites.net/download/coyle/student_files/AHP_Technique.pdf.

DeMichele, M., & Payne, B. (2009). *Offender Supervision with Electronic Technology: Community Corrections Resource [second edition].* U.S. Department of Justice, Bureau of Justice Assistance.

Drake, G. (2008). *Testing Protocols for Offender Tracking Technologies.* National Law Enforcement & Corrections Technology Center - Rocky Mountain. U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Drake, G. (2014, June 9). Telephone Conversation with NIJ RT&E Center. (S. Kandaswamy, & S. Taylor, Interviewers)

Elanchezhian, C. (2010, Volume 5– No.9, August 2010). Vendor Evaluation Using Multi Criteria Decision Making. *International Journal of Computer Applications (0975 – 8887).*

Geosatis Technology S.A. (2015, March 10). *Request for Information (Geosatis Technology S.A. Response)*, 6.

Harvey, C. (2014, October 21). Department of Correction and Rehabilitation, Montgomery County Maryland. (S. Taylor, & S. Kandaswamy, Interviewers)

Jadhav A.S., S. R. (2009). Evaluating and selecting software packages: A Review. *Information and Software Technology*, 555-563.

(June 2012). *Selection and Application Guide to OffenderTracking Systems for Criminal Justice Professionals NIJ Guide 1004.00.* Washington DC 20531: National Institute of Justice Office of Science and Technology .

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Kandaswamy, S. (2015). *Offender Tracking: System Selection Methodologies and a Decision Support Example.* Johns Hopkins University Applied Physics Laboratory. Department of Justice, Office of Justice Programs, National Institute of Justice.

Kilgore, J. (2013, March). Progress or More of the Same? Electronic Monitoring and Parole in the Age of Mass Incarceration? *Critical Criminology, 21*(1), 123 - 139.

Laipac Technology Inc. (2015, March 23). *NIJ Info (Laipac Technology Inc., RFI Response)*, 2.

Lares Technologies. (2007). *Practical and Affordable GPS Offender Tracking Systems*. Retrieved March 16, 2015, from Lares Technologies: http://www.larestechnologies.com/index.html

Miller, G. A. (1956, vol. 63). The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information. *The Psychological Review*, 81-97.

Milner, J. (2014, December 8). Corrisoft representative. (S. Taylor, Interviewer)

National Institute of Justice. (2012). *Selection and Application Guide to Offender Tracking Systems for Criminal Justice Professionals, Draft for Public Comment.* U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

National Law Enforcement And Corrections Technology Advisory Council. (2011). *Law Enforcement and Corrections Technology Advisory Council 2010 Annual Report.* Department of Justice, Office of Justice Programs, National Institute of Justice.

Omnilink®. (2015). *Electronic Monitoring*. Retrieved March 16, 2015, from Omnilink®: http://www.omnilink.com/electronic-monitoring/

Renzema, M. (2012). 30 Years and What Have We Learned? *The Journal of Offender Monitoring*, 5-14, 26.

Sachs, J., & Engel, M. (2014, October 8). Department of Correction and Rehabilitation, Montgomery County Maryland. (S. Taylor, S. Kandaswamy, T. Evans, & D. Mahaffey, Interviewers) Laurel, MD.

Satellite Tracking of People LLC. (2014, December 1). *Satellite Tracking of People LLC (RFI Response)*, 11.

Scandinavian Radio Technology. (2013). *Products*. Retrieved March 19, 2015, from Scandanavian Radio Technology: http://www.srt.se/products/?lang=en

Schmidt, A. K. (1988). *The Use of Electronic Monitoring by Criminal Justice Agencies, 1988.* U.S. Department of Justice, Office of Justice Programs, National Institute of Justice.

Schwitzgebel, R., Schwitzgebel, R., Pahnke, W. N., & Hurd, W. S. (1964). A Program of Research in Behavioral Electronics. *Behavioral Science, 9*(3), 233 - 238.

Sentinel Offender Services, LLC. (2007). *Products & Services*. Retrieved March 18, 2015, from Sentinel Offender Services: http://www.sentrak.com/products_and_services/

SuperCom. (2013). *PureRF Tags*. Retrieved March 19, 2015, from SuperCom: http://www.supercom.com/?module=catalog&item_id=4

TAMATRAC INC. (n.d.). *Generation lll Ankle Bracelet*. Retrieved March 18, 2015, from TAMATRAC: http://www.tamatrac.com/

Track Group. (n.d.). *Devices*. Retrieved March 16, 2015, from Track Group: http://www.trackgrp.com/products-services/devices/

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX A. LEGISLATIVE HISTORY OF OFFENDER ELECTRONIC TRACKING SYSTEMS

Tim Evans, Esq., LL.M.

A.1   Background

Electronic offender-tracking systems originated from a 1960s Harvard University study. Ralph Kirkland Gable and William S. Hurd, obtained Patent #3,478, 344 in 1964 while studying under American behavioral psychologists Timothy Leary and B.F. Skinner. Gable and Hurd described how an electronic monitoring device could be used in their initial concept paper.[1] Originally, they used old military equipment to demonstrate that radio devices could be attached to offenders and how it would communicate their location via map coordinates.[2]

In 1984, New Mexico Judge Jack Love[3], inspired by a 1977 Spiderman comic book that used an electronic bracelet as a tracking device, asked a friend of his, Michael Goss, to a model system with similar components to the comic book. After the device was created, Judge Love ordered five prisoners to wear the radio frequency device for purposes of monitoring their location. The radio frequency device was connected to the Publicly Switched Telephone Network (PSTN) or landline telephone system.[4] Thomas Moody, based in Key Largo, Florida, developed a similar system in 1984. The National Institute of Justice (NIJ) evaluated both systems and was satisfied that the tests were successful to help monitor offenders without incarceration.[5]

By 1987, electronic monitoring (EM) programs had about 900 participants nationally in more than 21 states[6]. A little over a decade later, that number had increased to over 95,000 participants (National Law Enforcement Corrections Technology Center [NLECTC] 1999).[7] By 2009, there were more than 200,000 GPS and Radio Frequency (RF) monitoring devices in use in the U.S. and State court system [8] Unfortunately, the number of offenders

---

[1] Schwitzgebel, R. K., Schwitzgebel, R. L., Pahnke, W. N., & Hurd, W. S. (1964). A program of research in behavioral electronics. Behavioral Science, 9, 233-238. (We shortened our name to "Gable" in 1982.)

[2] Anderson, Emma, "The Evolution of Electronic Monitoring Devices," National Public Radio (May 2014). chttp://www.npr.org/2014/05/22/314874232/the-history-of-electronic-monitoring-devices

[3] Klein-Saffran, Jody, "Electronic Monitoring vs. Halfway Houses: A Study of Federal Offenders," Alternatives to Incarceration (Fall 1995).

[4] DiMichele, Matthew, Payne, Brian, Button, Deeanna, "A Call for Evidenced-based Policy" (January 2007).

[5] Klein-Saffran, Jody, "Electronic Monitoring vs. Halfway Houses: A Study of Federal Offenders, (Fall 1995).

[6] Schmidt, A. K. (1988). *The Use of Electronic Monitoring by Criminal Justice Agencies.* Washington, DC: National Institute of Justice [22 page report]

[7] Kilgore, James, Progress or More of the Same? Electronic Monitoring and Parole in the Age of Mass Incarceration. (November 2012)

[8] "Offender Supervision with Electronic Technology Community Corrections Resource" Bureau of Justice Assistance, U.S. Department of Justice (2005).

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

monitored nationwide in 2014 does not seem to be well documented or if it is, the information is not publicly available.

A.2   Use of Electronic Monitoring in U.S. Federal and State Court Systems

State courts initially used EM as part of their parole and prisoner release programs. After Florida passed the Jessica Lunsford Law in 2005, federal offender monitoring requirements mandated EM for some sex offenses against minors (Adam Walsh Act of 2006). These laws were eventually passed in multiple state laws emulating the federal sex offender monitoring requirements. In 2011, there were approximately 120 federal, state, county, and local law enforcement organizations using GPS EM systems to track offenders in pre-trial supervision, on probation, parole, or as an alternate to detention.[9]

Courts most often use EM in offense-specific cases that include drug possession, driving under the influence (DUI), domestic assault and battery, child molestation and child pornography cases. Probably the single largest factor that increased federal and state EM use was to monitor those individuals that commit sexual crimes against minors. The Adam Walsh Child Protection and Safety Act of 2006 (Public Law 109-248)[10] required electronic monitoring as a condition of release in any crime that involves a minor victim when specific criminal facts were present.

Forty-one states and the District of Columbia incorporate some form of EM for sex offenders. 19 out of 27 States that require EM for some offenses also require GPS for sex offenders to ensure the offender does not re-offend.[11]

Florida, California, and Massachusetts provide the main legislative models for how a state can use EM through court order, discretion, and mandatory policies.[12] Nuances among some individual states exist, however, most states fall within the three statutory models. There are about nine states that still only monitor sex offenders through a state sex offender registry.[13]

---

[9] Thomson, Peter M., "A Comprehensive Strategy Targeting Recidivist Criminals with Continuous Real-Time GPS Monitoring: Is Reverse Engineering Crime Control Possible?", (November 2011)

[10] 18 USC Section 3142, Release or detention of a defending pending trial , See Paragraph (C) Condition of release. In any case that involves a minor victim under section 1201, 1591, 2241, 2242, 2244 (a)(1), 2245, 2251, 2251A, 2252 (a)(1), 2252 (a)(2), 2252 (a)(3), 2252A (a)(1), 2252A (a)(2), 2252A (a)(3), 2252A (a)(4), 2260, 2421, 2422, 2423, or 2425 of this title, or a failure to register offense under section 2250 of this title, any release order shall contain, at a minimum, a condition of electronic monitoring and each of the conditions specified at subparagraphs (iv), (v), (vi), (vii), and (viii).

[11] Button, D., DeMichele, M., and Payne, B. (2009). Supervision with Technology, not supervision as technology: Legislative patterns and implications for community corrections' sex offender supervision? Journal of Criminal Justice Policy Review, 20(4): 375-390.

[12] Dante, Eric, "Tracking the Constitution – The Proliferation and Legality of Sex-Offender GPS –Tracking Statutes, Vol. 42, Iss. 3, Article 6 (July 2012). This law review is the basis for most of the information in this legislative history. It is an excellent legal review of the tracking system models used within the United States.

[13] ibid.

This paper focuses primarily on those three state models since these models represent most U.S. state systems. Most states have not published or completed studies on their EM offender tracking systems.

A.3   State Court Use of Electronic Monitoring

A.3.1   Florida[14]

Florida was one of the first states to adopt electronic monitoring in 1984. The Florida Department of Corrections used EM as part of their community supervision requirements and to enhance security by monitoring its highest risk sex offenders.

Sentencing courts in Florida are statutorily authorized to order electronic monitoring for any convicted offender who is placed on probation or community control. Some sexual offenses against minors in Florida require EM, including lewd and lascivious battery/molestation against a child under the age of 12 years.   From 1983, Florida used a statewide house arrest program that requires its offenders placed on community control to live in a specific State owned residence when not on supervised work release. That program was amended in 1987 to allow some residents to move from the State location to a private residence if they agreed to EM.

The most significant legislation that Florida passed related to electronic monitoring was the Jessica Lunsford Act of 2005 that required electronic monitoring for life for a sexual battery of an individual under age 12.[15] In other crimes, Florida Courts and the Parole Commission have discretionary authority to require electronic monitoring as a condition of parole and/or sentencing. The court has discretion in requiring EM during pretrial release. The Jessica Lunsford Act requires offenders where an EM system that actively identifies their location and alerts authorities if the offender travels to a prohibited location.

On June 30, 2011, Florida actively supervised 113,622 offenders with some form of community supervision. Of those offenders, 2,781 were being electronically monitored; GPS EM accounted 2,714 and Radio Frequency was used for about 67 offenders. Approximately 1,783 (almost 66%) were sex offenders.[16]

As of 2012, fourteen states have adopted the Florida Model[17] that requires EM when an offender committed a crime covered by the Jessica Lunsford Act, and is on probation after

---

14 See Florida Senate Interim Report 2012-117, Examine Technological Advances and Other Issues in Electronic Monitoring of Probations (September 2011).

15 Florida Statute, FL Statute 800.04, and FL Statute 947.1405.

16 See Florida Senate Interim Report 2012-117, Examine Technological Advances and Other Issues in Electronic Monitoring of Probations (September 2011).

17 Supra n. 13.

APL | JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

incarceration.[18] The 2006 Federal Adam Walsh Child Protection and Safety Act was modeled after Florida's law and provides grants to states that meet its minimum EM requirements.[19]

A.3.1.1   Factors to Consider

Current Statutes Related to Monitoring[20]

- "s. 948.30(2)(e), F.S. A similar amendment to s. 947.1405, F.S., specifically allowed the Parole Commission to order electronic monitoring as a condition of conditional release supervision for offenders who had committed one of the enumerated crimes on or after October 1, 1997."[21]
- "Section 948.12, F.S., was created in 1997 to require intensive supervision of violent offenders who were released from prison with probation to follow. The new statute allowed probation officer caseloads to be restricted to 40 offenders per officer in order to enhance public safety as well as to effectively supervise an offender using electronic monitoring if the court ordered it."[22]
- "Section. 800.04(5)(b), F.S. In some cases, the court is required to order electronic monitoring because of the offender's current or past offenses. The most stringent requirement is found in s. 948.012, F.S., which requires a minimum 25-year prison sentence followed by lifetime supervision with electronic monitoring for any adult offender who commits lewd or lascivious molestation against a child under 12 years of age."[23]

Discretionary Authority to Monitor[24]

Jessica Lunsford Act of 2005. In some cases, a Florida court is required to order electronic monitoring due to a criminal defendants criminal conviction. For example, any offender placed on probation for a violation of:

- "Chapter 794, F.S. (sexual battery);
- Section 800.04(4), (5), or (6), F.S. (lewd or lascivious battery, lewd or lascivious molestation, or lewd or lascivious conduct committed upon or in the presence of persons less than 16 years of age);
- Section 827.071, F.S. (sexual performance by a child); or

---

[18] See Burrell v. State, 993 So. 2d 998, 999 (Fla. Dist. Ct. App. 2007) ("However, in this case, the trial court was under the mistaken impression that it was required to impose the electronic monitoring under the Act. The court stated at the hearing that the proposed reinstatement of probation 'is a GPS mandatory.'").

[19] Supra n. 10.

[20] Supra n. 12

[21] See Florida Senate Interim Report 2012-117, Examine Technological Advances and Other Issues in Electronic Monitoring of Probations (September 2011).

[22] ibid.

[23] ibid.

[24] ibid

This document is a research report submitted to the U.S. Department of Justice. This report has not
been published by the Department. Opinions or points of view expressed are those of the author(s)
and do not necessarily reflect the official position or policies of the U.S. Department of Justice.

• Section 847.0145, F.S. (selling or buying of minors) if the victim was less than 16 years old and the offender was at least 18 years old at the time of the offense, and the offense was committed on or after September 1, 2005"[25]

In other instances where EM is not mandatory, sentencing courts and the Parole Commission have discretion to order electronic monitoring as a condition of supervision for any offense.[26]

A.3.1.2   *Type of Device*

The Florida Jessica Lunsford Act requires an EM "system that actively monitors and identifies the offender's location and timely reports or records the offender's presence near or within a crime scene or in a prohibited area or the offender's departure from specified geographic limitations" [27] for a violation that meets the sexual battery elements in the act. Active GPS EM systems are the only currently available systems that meet these criteria.

A.3.2   **California**

2014 California statistics describe that about 8,000 parolees and felons on currently on EM.[28] Sex offenders and gang members make up a majority of those offenders being tracked by EM in California.

In 2005, The California Department of Corrections and Rehabilitation (CDCR) instituted a two-year pilot program to monitor high-risk sex offenders with GPS technology. Passage of Proposition 83 ("Sexual Predator's Punishment & Control Law: Jessica's Law (SPPCA)") accelerated that Pilot program because Proposition 83 mandated that all sex offenders be placed on GPS EM supervision for life[29] for sex crimes. Additionally the law prohibited sex offenders from residing within 2,000 fee of any school or park where children congregate, and made the CDCR responsible for enforcing the terms and conditions of Jessica's law while an offender is in a parole status after release.[30] "As of August 2011, there were 9,912

---

[25] See Florida Senate Interim Report 2012-117, Examine Technological Advances and Other Issues in Electronic Monitoring of Probations (September 2011).

[26] Section 948.101(1)(d), F.S., specifically states that a court may order electronic monitoring as a condition of community control for any offender. Also, s. 948.03(2), F.S., permits a sentencing court to order special conditions of probation that are not specifically set forth in statute. The Parole Commission's discretionary authority is authorized by s. 947.18, F.S. (parole), s. 947.1405, F.S. (conditional release), and s. 947.149, F.S. (conditional medical release).

[27] Supra n. 12.

[28] Carls, Keith, "Bill Would Expand GPS Electronic Monitoring," KCOY News Reporter (July 2014). http://www.keyt.com/news/bill-would-expand-gps-electronic-monitoring/26758002

[29] CAL. PENAL CODE § 3004 (Deering 2010) (effective Nov. 8, 2006).

[30] Geis, Stephen et al., Monitoring High-Risk Sex Offenders with GPS Technology: An Evaluation of the California Supervision Program, Final Report, (April 2012). This report was funded by the U.S. Department of Justice by Award Number 2007-IJ-CS-0048. See also, The commission of the following offenses requires post-incarceration GPS tracking: murder "committed in the perpetration, or an attempt to perpetrate, rape,"
CAL. PENAL CODE § 290(c) (Deering 2010), sodomy, Id. § 286, lewd or lascivious acts, Id. § 288, oral copulation involving children, Id. § 288(a), penetration by a foreign object involving children, Id. § 289, kidnapping, Id. § 207, "kidnapping for gain or to commit robbery or rape," Id. § 209, if the intent was to violate any of the previously listed sections plus "[r]ape, duress, or menace," Id. § 261, voluntarily aiding or abetting a person in committing these acts, Id. § 264.1, "[a]ssault with intent to commit

---

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

sex offenders on parole in California (9 percent of all parolees under the jurisdiction of the CDCR). Roughly 7,022 of these sex offenders were living in the community, and 6,968 (99.2 percent) were monitored by GPS technology.**"31**

Maryland has a sex-offender-tracking statute that is similar to California, but EM requirements only apply to sex crimes committed after 1 October 2010.[32] The California Model for sex-offender-tracking is the second most popular U.S. model.

A.3.2.1 *Factors to Consider*

Current Statutes Related to Monitoring

- SB 1128 and Proposition 83 mandate EM for registered sex offenders. Proposition 83 mandated additional security requirements by limiting where sex offenders were prohibited from living.[33]

Discretionary Authority to Monitor

The Chief Probation Officers and Court System have discretion to use monitoring only when California law does not mandate EM.

A.3.2.2 *Type of Device*

California uses a two-way GPS EM device that allows a probation officer to contact the offender if an alert is sent from the EM device.

Additional Factors (2014 Data)

California adopted EM as a way to ease the burden on the penal system and reduce the cost to the California taxpayer. California targeted its highest risk prisoners for EM as both a method to protect California citizens and reduce re-offenses.

Field tests in 2011 revealed that approximately 55 percent of the time, 50% of the parolees being monitoring did not register a signal of any kind. The GPS manufacturer originally credited the failure to register a signal due to interference from buildings, cars, and trees. The system's failure to identify false positives, and register signals was compounded by a county policy requiring that all signals be sent to every probation officer supervising a

---

mayhem or specified sex offenses, Id. § 220, [a]ssault of a person under 18 years of age with intent to commit specified sex offenses," Id., excluding "assault to commit mayhem," Id. § 243.3, various aforementioned offenses involving the use of force or violence, Id. § 290(c), "any offense involving lewd or lascivious conduct," Id., while "contributing to delinquency of [a] minor," or "[l]uring [a] minor under 14 away from home," Id. § 272, or any felony violation involving the sending of "harmful matter to [a] minor by telephone messages, electronic mail, Internet, or commercial online service," Id. § 288.2. In addition, the statute covers "any statutory predecessor that includes all elements" of any of the enumerated penal code sections, or conspiracy to commit any of the listed offenses. Id. § 290(c).

[31] Ibid.

[32] MD. CODE ANN., CRIM. PROC. § 11-723(c)(1)(i), (d)(3)(i) (LexisNexis 2011).

[33] Sex Offenders and Sexually Violent Predators: Punishment, Residence Restrictions, and Monitoring, Chief Probation Officers of California (2007).

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

parolee.[34] Like other jurisdictions, California experienced high alert volumes that inundated its correction officers with false alerts.

In 2013, LA County Sheriffs solicited bids to monitor more than 3,000 offenders released from jail under California's early release program. California currently tracks more than 8,000 state parolees.[35] Some reports in 2014 revealed that some corrections monitoring staff received as many as 1000 messages daily, many of them were false positive signals due to lost signals, reports of boundaries being exceeded, and other extraneous data.[36]

A.3.3   *Massachusetts*

A tertiary model of sex-offender-tracking is the Massachusetts Model. The Massachusetts model gives courts judicial discretion when determining the length of probation, but requires GPS tracking for the entire probation for specific sex crimes.[37]   The key difference in implementing the Massachusetts law was that the law applied based on the date that probation was ordered not the date the crime was committed. For example, if a Statutory crime that requires EM currently was committed in 1993, and probation wasn't ordered until 2008, the statute would require GPS EM if the crime fell within the specified types under Massachusetts law.[38] Other states might say, EM only applies to crimes committed after 2008 when the EM statute went into effect.

A.3.3.1   *Factors to Consider*

Current Statutes Related to Monitoring

MASS. ANN. LAWS ch. 265, § 47 (2011) GPS tracking is required for the entire probationary period for crimes that have mandatory probation or community service. The Probationary Board is given discretion to determine which areas a criminal is prohibited from entering based on the crime committed. If an offender enters a prohibited zone, Massachusetts's law requires the offender's arrest. California and Florida law do not specify how the exclusionary zones will be used, nor what happens if they are violated. Massachusetts, unlike California, gives the court discretion to determine the probationary period for all crimes. California mandates probation for life.

---

[34] ibid.

[35] ibid.

[36] PAIGE ST. JOHN, GPS MONITORING ALERTS OVERWHELM PROBATION OFFICERS, LOS ANGELES TIMES (FEB 2014)

[37] MASS. ANN. LAWS ch. 265, § 47 (2011) (effective Dec. 20, 2006).

[38] ibid.

Discretionary Authority to Monitor

Of all three statutory models, Massachusetts gives the court system the most discretion since the judiciary determines the length of probation and that in turn determines how long monitoring must take place.

A.3.3.2 *Type of Device*

The EM device in Massachusetts is a two-piece system that contains an ankle bracelet, and a GPS-enabled cell phone that communicates with the bracelet to transmit the probationer's geo-location to the monitoring department. The EM device used in Massachusetts is not waterproof, thus the probationer cannot swim, bath, Jacuzzi, or otherwise submerge the device for as long as the person is on probation.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

2009 State Level Legislation Regarding Sex Offenders and Electronic Monitoring (DeMichele and Payne 2009)												
State	Has EM	Mention Sex	Sex - Use EM	Sex – Required EM	EM Time Limit	Credit for EM	GPS Provision	GPS Time Limit	Offender Pays	EM Defined	GPS w/ Sentence	Active & Passive	Active Monitor
AL	X	X	X	X		X			X			X	
AK	X								X			X	
AZ	X												
AR	X								X			X	
CA	X						X		X	X			X
CO	X												
CT	X								X				
DE	X												
FL	X	X	X	X			X	X	X	X	X	X	
GA	X	X	X	X	X		X		X		X		
HI	X												
ID	X									X			
IL	X	X	X	X					X	X			X
IN	X	X	X	X			X	X	X	X	X		
IA	X	X	X	X	X								
KS	X	X	X	X	X								
KY													
LA	X	X	X	X	X	X			X				X
ME	X	X	X	X					X				
MD	X								X				
MA	X	X	X										
MI	X	X	X	X	X		X		X	X			
MN													
MS	X	X	X	X					X	X			
MO	X	X	X	X			X	X		X	X	X	
MT	X	X	X	X			X		X	X		X	

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

2009 State Level Legislation Regarding Sex Offenders and Electronic Monitoring (DeMichele and Payne 2009)													
State	Has EM	Mention Sex	Sex - Use EM	Sex – Required EM	EM Time Limit	Credit for EM	GPS Provision	GPS Time Limit	Offender Pays	EM Defined	GPS w/ Sentence	Active & Passive	Active Monitor
NE	X								X				
NV													
NH	X	X	X		X								
NJ	X	X	X							X			X
NM	X					X							
NY	X	X											
NC	X								X	X			
ND	X	X	X						X	X		X	
OH	X	X	X	X			X	X			X	X	
OK	X	X	X	X			X		X	X	X		X
OR	X												
PA	X								X	X			
RI	X	X	X		X		X	X	X		X		
SC	X	X	X	X	X				X	X	X		X
SD	X						X		X				
TN	X	X	X	X					X				
TX	X								X	X			
UT	X												
VT	X												
VA	X	X	X	X			X	X					
WA	X	X	X						X				
WV	X	X	X	X			X		X	X			
WI	X	X	X				X	X	X			X	
WY	X												

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX B. REQUEST FOR INFORMATION IN THE FEDERAL REGISTER

Federal Register / Vol. 80, No. 16 / Monday, January 26, 2015 / Notices   **3989**

Therefore, pursuant to 21 U.S.C. 823(a), and in accordance with 21 CFR 1301.33, the above-named company is granted registration as a bulk manufacturer of the basic classes of controlled substances listed:

Controlled substance	Schedule
Marihuana (7360)	I
Tetrahydrocannabinols (7370)	I
Cocaine (9041)	II

The company will manufacture marihuana and cocaine derivatives for use by their customers in analytical kits, reagents, and reference standards as directed by the National Institute on Drug Abuse.

Dated: January 9, 2015.

Joseph T. Rannazzisi,
Deputy Assistant Administrator.
[FR Doc. 2015–01301 Filed 1–23–15; 8:45 am]
BILLING CODE P

DEPARTMENT OF JUSTICE

Drug Enforcement Administration

[Docket No. DEA–392]

Manufacturer of Controlled Substances Registration: Noramco, Inc.

ACTION: Notice of registration.

SUMMARY: Noramco, Inc. applied to be registered as a manufacturer of certain basic classes of controlled substances. The DEA grants Noramco, Inc. registration as a manufacturer of those controlled substances.

SUPPLEMENTARY INFORMATION:
By notice dated January 14, 2014, and published in the **Federal Register** on January 22, 2014, 79 FR 3627, Noramco, Inc., 500 Swedes Landing Road, Wilmington, Delaware 19801–4417, applied to be registered as a manufacturer of certain basic classes of controlled substances. No comments or objections were submitted to this notice. The Drug Enforcement Administration (DEA) has considered the factors in 21 U.S.C. 823(a) and determined that the registration of Noramco, Inc. to manufacture the basic classes of controlled substances is consistent with the public interest and with United States obligations under international treaties, conventions, or protocols in effect on May 1, 1971. The DEA investigated the company's maintenance of effective controls against diversion by inspecting and testing the company's physical security systems, verifying the company's compliance with state and local laws, and reviewing the company's background and history.

Therefore, pursuant to 21 U.S.C. 823(a), and in accordance with 21 CFR 1301.33, the above-named company is granted registration as a bulk manufacturer of the basic classes of controlled substances listed:

Controlled substance	Schedule
Codeine-N-oxide (9053)	I
I=≥01≥≤Dihydromorphine (9145)	I
Morphine-N-oxide (9307)	I
Amphetamine (1100)	II
Methylphenidate (1724)	II
Phenylacetone (8501)	II
Codeine (9050)	II
Dihydrocodeine (9120)	II
Oxycodone (9143)	II
Hydromorphone (9150)	II
Hydrocodone (9193)	II
Morphine (9300)	II
Oripavine (9330)	II
Thebaine (9333)	II
Opium extracts (9610)	II
Opium fluid extract (9620)	II
Opium tincture (9630)	II
Opium, powdered (9639)	II
Opium, granulated (9640)	II
Oxymorphone (9652)	II
Noroxymorphone (9668)	II
Tapentadol (9780)	II

The company plans to manufacture the listed controlled substances in bulk for distribution to its customers.

Dated: January 9, 2015.

Joseph T. Rannazzisi,
Deputy Assistant Administrator.
[FR Doc. 2015–01303 Filed 1–23–15; 8:45 am]
BILLING CODE P

DEPARTMENT OF JUSTICE

Office of Justice Programs

[OJP (NIJ) Docket No. 1680]

Offender Tracking Systems Market Survey

AGENCY: National Institute of Justice, DOJ.

ACTION: Notice of Request for Information.

SUMMARY: The National Institute of Justice (NIJ) is soliciting information in relation to the upcoming National Criminal Justice Research, Test, and Evaluation Center (NIJ RT&E Center) "Market Survey of Location-based Offender Tracking Technologies." This market survey will be published by NIJ to assist prospective agencies in their assessment of relevant information on commercially available offender tracking systems (OTS) marketed for use by the criminal justice community, prior to making purchasing decisions. The NIJ RT&E Center invites comments with regard to the market survey, including which categories of information are appropriate for comparison. Vendors of such technology are also invited to provide promotional material (*e.g.*, slick sheet) and images of the technology (*e.g.*, a print-quality photograph).

DATES: Responses to this request will be accepted through 11:59 p.m. Eastern Time on February 25, 2015.

ADDRESSES: Responses to this request may be submitted electronically in the body of or as an attachment to an email sent to *administrator@nijrtecenter.org* with the recommended subject line "OTS Federal Register Response". Questions and responses may also be sent by mail (please allow additional time for processing) to the address: National Criminal Justice Research, Test and Evaluation Center, ATTN: OTS Federal Register Response, Johns Hopkins University Applied Physics Laboratory, 11100 Johns Hopkins Road, Mail Stop 17N444, Laurel, MD 20723–6099.

FOR FURTHER INFORMATION CONTACT: For more information on this request for information contact Steven Taylor (NIJ RT&E Center) at (443) 778–9348 or *administrator@nijrtecenter.org*. For more information on the NIJ RT&E Center, visit *http://nij.gov/funding/awards/Pages/award-detail.aspx?award=2013-MU-CX-K111* and view the description or contact Jack Harne, by telephone at 202–616–2911 or by email at *Jack.Harne@usdoj.gov*. Please note that these are not toll-free telephone numbers.

SUPPLEMENTARY INFORMATION:
Information Sought: The NIJ RT&E Center seeks input to its upcoming "Market Survey of Location-based Offender Tracking Technologies." This technology, consisting of hardware and software component, is designed to determine and report at programmed intervals the geographic location at a particular time of an individual who is subject to criminal justice system supervision. Whether an agency faces a mandate to track domestic violence or sex offenders, has a need to more closely monitor higher risk offenders, or is looking for confinement alternatives for low-risk offenders, this technology can often be a practical tool for supervising and managing select individuals.

This market survey will be published by NIJ to assist prospective agencies in their assessment of relevant information on commercially available OTS marketed for use by the criminal justice community, prior to making purchasing decisions. Vendors who respond to this

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

request for information are invited to provide general comments with regard to the market survey for the NIJ RT&E Center to consider, including which categories of information are appropriate for comparison, as well as promotional material (*e.g.*, slick sheet) and images of the technology (*e.g.*, a print-quality photograph).

The NIJ RT&E Center intends to include, at a minimum, the following categories of information for each vendor and OTS model, service, or product:

1. Vendor Information
   a. Name
   b. Years your company has been in business
2. Product Information
   a. Types of equipment or products that are offered (*e.g.*, new, used, refurbished, leased, etc.)
   b. Name and model number (*e.g.*, device, monitoring software application, home monitoring unit, etc.)
   c. Multi-piece or one-piece configuration
   d. Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component
   e. Weight (in ounces) of device with strap and included battery
   f. Depth to which device is waterproof (in feet)
   g. Type of tracking (*e.g.*, active, passive, or hybrid)
   h. Location where system stores zone and schedule information (*e.g.*, onboard or monitoring software application)
   i. Location on the body where the device is worn
   j. Battery discharge time (hours of continuous operation before needing a charge)
   k. Battery shelf life (in months)
   l. Battery recharge time (hours required to fully charge battery after complete discharge)
   m. Battery replacement procedure and where it must be done (*e.g.*, field or factory)
   n. Availability of supplemental charger for emergency battery charging (*e.g.*, hand crank, backup battery, solar, etc.)
   o. Onboard memory storage (quantity of data that can be stored on device in number of files/alerts/days activity)
   p. Frequencies on which the device components operate (cite FCC part number)
   q. Type(s) of technology used to geo-locate the offender (*e.g.*, GPS, WiFi, RF, cellular triangulation, etc.)

r. Mechanism by which data is transmitted to the monitoring software (*e.g.*, cellular, WiFi, landline, etc.)
s. Auxiliary equipment (*e.g.*, car chargers, emergency chargers, beacons, etc.)
t. Manufacturer suggested retail price, without optional features, accessories or service plans
u. Type and duration of warranty provided on the device(s) that you offer (*e.g.*, what is covered in a standard warranty vs. what is covered in an optional or extended warranty)
v. Means and frequency of monitoring center and monitoring software application backup
w. Length of time data is retained in archives (in years)
x. Any additional information not covered above
3. Usability
   a. Types of processes used to ensure usability of hardware and software products (*e.g.*, requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)
   b. Types of data gathered from the user community (*e.g.*, interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected
   c. Types of user-group meetings and frequency of their occurrence
   d. Types of embedded templates supported by software (*e.g.*, new offender, alert types, etc.)
   e. Hours of technology support and location (*e.g.*, telephone or at agency)
   f. Hours of operation of monitoring center
   g. Hours and type of training provided (*e.g.*, on-site, web-based, pre-recorded, play environment etc.)
   h. Types of post-training help and tutorials available
4. Features and Functions
   a. Maximum number of tracking devices that can be concurrently monitored by the monitoring/tracking software
   b. Number of data points per minute at which data:
   i. Is collected by the device
   ii. Is reported to the monitoring software
   c. Type of interoperability embedded in the design of the data and device output (*e.g.*, other vendor software, other vendor devices, data standards with which the output is compliant, etc.)
   d. Types of alerts (*e.g.*, exclusion zone

or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and way they are differentiated (*e.g.*, do all alerts come up "Alert" or "Cause + Alert")
e. Types of communication alerts to offenders (*e.g.*, light, vibration, two-way communication, etc.)
f. Single or multiple mechanisms for tamper detection of device or strap circumvention
g. Types of acknowledgement by offender of an alert (*e.g.*, one-way/two-way communications for offender, telephone, etc.)
h. Ability to notify/alert victims of domestic violence
i. Types of mobile monitoring software applications to transmit alerts to personnel in the field
j. Types of analytical capabilities to check tracking (*e.g.*, crime-scene correlation, offender congregation, time and duration differentiators, etc.)
k. Types of real-time monitoring features (*e.g.*, monitored offender's location can be ascertained on demand)
l. Types of reports that are available (*e.g.*, standard information examples, extent that reports are customizable, inclusion of maps, etc.)
m. Types of on-demand custom reports
n. Other unique features not covered above
5. Performance and Security
   a. Average time to install and activate device (in minutes)
   b. Range in performance of locational accuracy indoor and outdoor (in feet)
   c. False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates
   d. Mean time to failure
   e. Minimum data collection rate (*e.g.*, once/minute)
   f. Minimum number of data storage, in days, (*e.g.*, seven, ten, or fourteen days)
   g. Mean length of time from alert to notification
   h. Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing
   i. Data protection mechanism while in transit and during storage (*e.g.*, SSL, encryption, password strength, etc.)
   j. Types of database change record maintenance practices for historical data
   k. Mechanism for maintaining

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

confidentiality of personally identifiable information about the individual being monitored

William J. Sabol,
Acting Director, Bureau of Justice Statistics and National Institute of Justice.
[FR Doc. 2015–01235 Filed 1–23–15; 8:45 am]
BILLING CODE 4410–18–P

DEPARTMENT OF LABOR

Occupational Safety and Health Administration

[Docket No. OSHA–2011–0125]

On-site Consultation Programs; Extension of the Office of Management and Budget's (OMB) Approval of Information Collection (Paperwork) Requirements

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Request for public comments.

SUMMARY: OSHA solicits public comments concerning its proposal to extend OMB approval of the information collection requirements contained in the Standard addressing On-site Consultation Programs (29 CFR part 1908).

DATES: Comments must be submitted (postmarked, sent, or received) by March 27, 2015.

ADDRESSES:
Electronically: You may submit comments and attachments electronically at *http://www.regulations.gov*, which is the Federal eRulemaking Portal. Follow the instructions online for submitting comments.
Facsimile: If your comments, including attachments, are not longer than 10 pages you may fax them to the OSHA Docket Office at (202) 693–1648.
Mail, hand delivery, express mail, messenger, or courier service: When using this method, you must submit your comments and attachments to the OSHA Docket Office, Docket No. OSHA–2011–0125, Occupational Safety and Health Administration, U.S. Department of Labor, Room N–2625, 200 Constitution Avenue NW., Washington, DC 20210. Deliveries (hand, express mail, messenger, and courier service) are accepted during the Department of Labor's and Docket Office's normal business hours, 8:15 a.m. to 4:45 p.m., e.t.
Instructions: All submissions must include the Agency name and the OSHA docket number (OSHA–2011–0125) for the Information Collection Request (ICR). All comments, including any

personal information you provide, are placed in the public docket without change, and may be made available online at *http://www.regulations.gov.* For further information on submitting comments see the "Public Participation" heading in the section of this notice titled **SUPPLEMENTARY INFORMATION.**

Docket: To read or download comments or other material in the docket, go to *http://www.regulations.gov* or the OSHA Docket Office at the address above. All documents in the docket (including this **Federal Register** notice) are listed in the *http://www.regulations.gov* index; however, some information (*e.g.,* copyrighted material) is not publicly available to read or download from the Web site. All submissions, including copyrighted material, are available for inspection and copying at the OSHA Docket Office. You may also contact Patrick Showalter at the address below to obtain a copy of the ICR.

FOR FURTHER INFORMATION CONTACT:
Patrick Showalter, Director, Office of Small Business Assistance, Directorate of Cooperative and State Programs, OSHA, U.S. Department of Labor, Room N–3660, 200 Constitution Avenue NW., Washington, DC 20210; telephone (202) 693–2220.

SUPPLEMENTARY INFORMATION:

I. Background

The Department of Labor, as part of its continuing effort to reduce paperwork and respondent (*i.e.,* employer) burden, conducts a preclearance process to provide the public with an opportunity to comment on proposed and continuing information collection requirements in accord with the Paperwork Reduction Act of 1995 (PRA–95) (44 U.S.C. 3506(c)(2)(A)). This program ensures that information is in the desired format, reporting burden (time and costs) is minimal, collection instruments are clearly understood, and OSHA's estimate of the information collection burden is accurate. The Occupational Safety and Health Act of 1970 (the OSH Act) (29 U.S.C. 651 *et seq.*) authorizes information collection by employers as necessary or appropriate for enforcement of the OSH Act or for developing information regarding the causes and prevention of occupational injuries, illnesses, and accidents (29 U.S.C. 657). The OSH Act also requires that OSHA obtain such information with minimum burden upon employers, especially those operating small businesses, and to reduce to the maximum extent feasible

unnecessary duplication of efforts in obtaining information (29 U.S.C. 657).
Section 7(c)(1) of the OSH Act authorizes the Secretary of Labor to, "with the consent of any State or political subdivision thereof, accept and use the services, facilities, and personnel of any agency of such State or subdivision with reimbursement." Section 21(c) of the OSH Act authorizes the Secretary of Labor (Secretary) to, "consult with and advise employers and employees . . . as to effective means of preventing occupational illnesses and injuries."
Additionally, Section 21(d) of the OSH Act instructs the Secretary to "establish and support cooperative agreements with the States under which employers subject to the Act may consult with State personnel with respect to the application of occupational safety and health requirements under the Act or under State plans approved under section 18 of the Act." This gives the Secretary authority to enter into agreements with the States to provide on-site consultation services, and establish rules under which employers may qualify for an inspection exemption. To satisfy the intent of these and other sections of the OSH Act, OSHA codified the terms that govern cooperative agreements between OSHA and State governments whereby State agencies provide on-site consultation services to private employers to assist them in complying with the requirements of the OSH Act. The terms were codified as the Consultation Program regulations (29 CFR part 1908).
The On-site Consultation Program regulations specify services to be provided, and practices and procedures to be followed by the State On-site Consultation Programs. Information collection requirements set forth in the On-site Consultation Program regulations are in two categories: State Responsibilities and Employer Responsibilities. Eight regulatory provisions require information collection activities by the State. The Federal government provides 90 percent of the funds for on-site consultation services delivered by the States, which result in the information collection. Four requirements apply to employers and specify conditions for receiving the free consultation services.

II. Special Issues for Comment

OSHA has a particular interest in comments on the following issues:
• Whether the proposed information collection requirements are necessary for the proper performance of the

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX C. 3M ELECTRONIC MONITORING

Market Survey of 3M Electronic Monitoring, Inc.

1. Vendor Information

a. *Name*

3M Electronic Monitoring, Inc.

b. *Years your company has been in business*

3M Electronic Monitoring Inc. has been in business since 1995 and has been providing electronic monitoring services to customers since 1997.

2. Product Information

a. *Types of equipment or products that are offered (e.g., new, used, refurbished, leased, etc.)*

3M Electronic Monitoring offers new or like-new products to customers, based upon customer-specific requirements. New products from the manufacturing facility have not been used in the field, while like-new products are defined as those products that are returned to our facility and are tested, repaired (which includes any housing or internal part), and returned to original manufacturer specifications. We provide both leased and purchased products to our customers.

b. *Name and model number (e.g., device, monitoring software application, home monitoring unit, etc.)*

Please see the tables below that describe the GPS tracking devices that we use in GPS offender monitoring solutions. The weight of the device does not include the strap but does include the battery. 3M's EM Manager Web-based Software is the user interface that customers use to configure the devices for supervising participants. This includes enrolling participants in the system, designating supervising officers, assigning devices, selecting alert notifications and methods, creating and editing rules of supervision (zones, schedules, and grace periods), viewing maps, and reviewing GPS points. The EM Manager Software has a very robust reporting capability with more than 70 reports predefined for reporting offender tracking and monitoring information, such as profile data, tracking data, alerts and notifications, and tampers. It also includes reports that are useful in managing programs, such as incomplete offender information, officer login history, equipment inventory, and RMA history.

3M™ ONE-PIECE GPS OFFENDER TRACKING DEVICE (WMTD)	
Dimensions:	2.92W × 4.38H × 1.89D inches
Weight:	7.0 ounces
FCC ID:	NC3WMTD3418
Battery Life:	>30 hours of operation on a full charge
Memory:	67,000 Events = >1 month of tracking data

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

Page 1

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

3M

3M™ HOME CURFEW BEACON UNIT (SB1000- BEACON)

Dimensions:	10.25H x 7.25W x 3.5D inches
Weight:	2 pounds
FCC ID:	LSQ-IDEU-830-4
Battery Life:	24-hour backup battery

c. *Multi-piece or one-piece configuration*

3M offers both one- and two-piece GPS tracking devices. Both device types serve the function of tracking and monitoring offender behavior, but each type has unique advantages. 3M has customers that prefer each solution and we continue to support both configurations.

3M™ TWO-PIECE GPS OFFENDER TRACKING DEVICE (XT)

3M™ Bracelet	
Dimensions:	2.875L × 2W ×1H inches
Weight:	2.5 ounces
FCC ID:	NC3BTR3000
Battery Life:	1 year in operation; 2 years on shelf
3M™ Two-Piece GPS Offender Tracking Device	
Dimensions:	2.875L × 2W ×1H inches
Weight:	6.5 ounces
FCC ID:	NC3FTDF3418
Battery Life:	>20 hours of operation on a full charge; 600 charge cycles
Memory:	67,000 points = >30 days storage

One-Piece GPS Offender Tracking Device (WMTD) – This solution is a single body-worn device that uses GPS, RF, and cellular technologies to provide Active, Hybrid, and Passive supervision levels. It is a safe, lightweight device that is affixed to the ankle. Customizable through our EM Manager Web-based software, customers can use conventional GPS or pair this device with our optional RF Beacon in the residence to avoid GPS drift points, constrain the curfew zone to a smaller area for multi-unit residences, and maximize battery life between charges.

Two-Piece GPS Offender Tracking Device (XT) – This solution is comprised of a hand-held GPS device and an ankle-worn transmitter bracelet. The device uses GPS, RF, and cellular technologies to provide Active, Hybrid, and Passive supervision levels. It works

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

Page 2

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

3M

in conjunction with the ankle-worn transmitter bracelet that tethers the hand-held GPS device to the participant by the signal range of the RF transmitter. If the bracelet strays beyond the allowable distance from the GPS receiver a Bracelet Gone alert is generated by the device. Many customers prefer the 2 Piece (XT) because of the higher level of supervision it provides. The 2 Piece (XT) can also be used with an optional base station that is installed in the residence, which provides a charging station for the device and is configured for landline communications. In addition to LEDs and vibration, the Two-Piece (XT) devices provide greater communication with the participant via audio tones, text messages, and two-way cellular communication.

d. *Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component*

Please see the diagrams above for dimensions.

e. *Weight (in ounces) of device with strap and included battery*

Please see the diagrams above for weight. The strap weighs an additional 0.8 oz.

f. *Depth to which device is waterproof (in feet)*

The one-piece GPS (WMTD) and the two-piece GPS RF bracelet are both waterproof up to 60 feet. The two-piece GPS device is water resistant.

g. *Type of tracking (e.g., active, passive, or hybrid)*

Active Supervision parameters:

- The device continuously samples GPS.

- The device stores one GPS point every 60 seconds when the device is compliant.

- The device stores one GPS point every 15 seconds when the device is in zone alarm.

- The device downloads all tracking information to our Data Center every 60 minutes (adjustable).

- The device downloads all tracking data the instant it goes into alarm status.

- The device provides immediate notification of alarms to the Data Center.

- The device provides immediate notification of alarms to the participant (if selected)

- The device provides immediate notification of alarm clear (if selected).

Hybrid Supervision parameters

The parameters for point collection are identical to those for Active Supervision. The only differences are as follows:

- The device downloads all tracking information to our Data Center every 4-12 hours (adjustable).

- The device immediately notifies the Data Center on two agency-specified alarms and also notifies the offender on alarms as specified by the officer in the software selections.

- All alarm notifications are emailed to specified customer personnel via the Daily Event Summary Report at the specified time daily.

Passive Supervision parameters

The parameters for point collection are identical to those for Active Supervision. The only differences are as follows:

- The device downloads all tracking information to our Data Center every 4-12 hours (adjustable).

- All alarm notifications are emailed to specified customer personnel via the Daily Event Summary Report at the specified time daily.

h. *Location where system stores zone and schedule information (e.g., onboard and/or monitoring software application)*

All offender rules (zones, schedules, grace periods, etc.) are also stored right in the device and updated by the server at each contact. There are many advantages of this capability. It enables our devices to track independently of the availability of a wireless signal, eliminating the need for frequent server contact, and extending battery life. With this onboard intelligence, devices are less dependent on server contact for tracking in the way that many other devices are. Upon detecting noncompliant behavior, our devices go into alarm and rather than waiting for the next scheduled call interval, instantly initiate contact with our server and download all tracking data.

Not only do the devices collect one GPS point per minute in compliance and every 15 seconds in noncompliance, they also sample GPS continuously, running proprietary algorithms against a number of values extracted from the GPS solution to estimate CL (Confidence Level) in order to minimize thrown points and ensure accuracy.

The benefit to customer agencies is timelier, more accurate GPS data and less dependence on cellular connectivity. Our devices do not wait the scheduled interval to notify the system of noncompliant behavior and do not have to be constantly or frequently connected to the server in order to compare their locations to offender rules. Both detection and reporting are immediate because the rules, the schedules, and the ability to evaluate them against current position is right onboard the device.

i. *Location on the body where the device is worn*

The One-Piece GPS Offender Tracking device is installed and worn on the ankle.

The Two-Piece GPS Offender Tracking device is worn on the waist or carried in a pocket for best performance. The RF ankle transmitter is affixed to the ankle.

j. *Battery discharge time (hours of continuous operation before needing a charge)*

The One-Piece GPS Offender Tracking device will provide 30+ hours of continuous service between charges. It will typically provide at least 48 hours of battery life on a single charge when used with the SB1000 RF Base Station (Beacon) using an eight hour curfew restriction.

![Johns Hopkins Applied Physics Laboratory logo]

3M

The Two-Piece GPS Offender Tracking device will provide 20+ hours of continuous service between charges.

k. *Battery shelf life (in months)*

The batteries in both devices are meant to have a shelf life of 24 months and will have a standard operational life of at least a year. Many devices even last for two years in the field.

l. *Battery recharge time (hours required to fully charge battery after complete discharge)*

- The One-Piece GPS Offender Tracking Device requires 2.5 hours for a full charge

- Two-Piece GPS Offender Tracking Device requires 4.0 hours to complete a full charge.

m. *Battery replacement procedure and where it must be done (e.g., field or factory)*

We don't think officers should have to service devices in the field and we do think devices should be serviced at regular intervals to keep them performing to manufacturer specifications. Battery change intervals are an opportunity for us to perform testing to affirm that all components of the device are meeting manufacturer specifications and correct any deficiencies. Additionally, our devices are designed to be tamper resistant, robust, and difficult to compromise. For these reasons, they do not have field-replaceable batteries.

Our system provides notice when the battery needs to be replaced in order to allow time for the device to be replaced at a routine visit with the offender. All the officer has to do is deactivate the device, replace it with a new one from spare inventory, and return the depleted one to 3M. Batteries are replaced at our Florida facility: 1838 Gunn Highway, Odessa, Florida.

n. *Availability of supplemental charger for emergency battery charging (e.g., hand crank, backup battery, solar, etc.)*

The optional base units that work with the One-Piece (WMTD) and the Two-Piece (XT) have internal battery back-ups that provide 24 and 48 hours of battery power respectively and will automatically recharge the backup battery as soon as AC power is restored. However, the GPS devices need to be recharged from AC power. Each device kit includes an AC power charger for the device and we also offer vehicle chargers for an additional charge.

o. *Onboard memory storage (quantity of data that can be stored on device in number of files/alerts/days activity)*

Our GPS devices store tracking data in nonvolatile memory, which is computer memory that is stable and not prone to change; that is, it persists even when not powered. The devices incorporate a type of non-volatile memory known as *flash memory* - computer chips that can be electronically erased and reprogrammed very fast, even faster than hard drive storage. It is extremely durable; able to withstand intense pressure, extremes of temperature, and even immersion in water. Even if our device's battery becomes completely depleted, once recharged, its data can be recovered.

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

Page 5

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Our One-Piece (WMTD) device and Two-Piece (XT) device both have enough nonvolatile memory to store at least 30 days of tracking data.

p. *Frequencies on which device components operate (cite FCC part number)*

3M utilizes several frequency bands for RF and for cellular. The bands that we use are commercial cellular frequencies in the range of 850-900 MHz and 1800-1900 MHz. The RF products use frequencies within the UHF range. These are the FCC ID numbers:

- 1 Piece (WMTD) = NC3WMTD3418
- 2 Piece (XT) bracelet = NC3BTR3000
- 2 Piece (XT) hand-held GPS tracking device = NC3FTDF3418

q. *Type(s) of technology used to geo-locate the offender (e.g., GPS, WiFi, RF, cellular triangulation*

While GPS is still the best offender tracking technology by far, it is occasionally unavailable—especially indoors—and there have been accounts of attempted GPS spoofing. For these reasons, Pro Tech builds three tracking technologies into our devices; GPS as the primary, along with the following two supplemental technologies:

Tower-Based Tracking

Tower-Based Tracking (TBT) is illustrated at right. This capability supplements the primary tracking capability by providing an alternate and automatic means of location tracking when the GPS signal is masked or obscured. Using TBT, the device calculates its geographic position from the signal provided by one or more cell towers in its proximity. While not as exact as GPS, TBT provides valuable location information about the whereabouts and behavior of an offender even in the absence of GPS. Unlike the Trilateration capability offered by some vendors, our TBT is always available and requires no manual intervention or configuration on the software. It is provided with no limitations and there is never an additional charge for it.

Three-Axis Motion Sensor

In addition to primary and secondary tracking capabilities, our devices feature another supplemental tracking technology to provide corrections officers with information pertaining to the behavior of offenders. Often called anti-spoofing, our device contains a built in three-axis accelerometer that operates independently of any other infrastructure and, therefore, is always on and working. Coded into the device is our proprietary logic which provides an accurate alert of any attempts to spoof the device and move around undetected. Even if both the primary and secondary tracking technologies are masked (GPS & TBT), our device knows records and stores the information that it is or is not changing location.

With this movement determination capability, we go one step further than the competition in providing correctional agencies with data about the movement and behavior of offenders under community supervision. Often ridiculing it as generating

3M

"nuisance alarms," other vendors like to mock this patented tracking capability; however, it is a useful technology.

While not a tracking technology, we also employ a further means of locating the offender using our Base Unit. The Base works in tandem with the XT and is secured in the home using tamper detection to ensure the unit is not moved or disconnected from power or the optional phone line. By utilizing the "In Charger" rule, a schedule can be set to mandate when the XT must be placed in the Base Unit, verifying the offender's presence in the residence.

r. *Mechanism by which data is transmitted to the monitoring software (e.g., cellular, WiFi, landline, etc.)*

The 3M One and Two-Piece GPS solutions utilize cellular communications to transmit data to the monitoring software. Our 2 Piece (XT) also offers the option of a base station (BU2000) that has a landline component. It can transmit data through a landline to our monitoring system when the device is in range of or docked in the base station. Auxiliary equipment (e.g., car chargers, emergency chargers, beacons, etc.)

Our GPS devices are supported with auxiliary equipment, such as car chargers, replacement wall chargers, and base units.

s. *Manufacturer suggested retail price, without optional features, accessories or service plans*

Pricing is very complex. Our prices are calculated based on our costs associated with the program's needs and contract terms, such as:

- Specified spare inventory levels

- Number of staff to be trained

- Number of training locations

- Quantity of currently activated devices

- Number and extent of training visits requested per year

- Monitoring services to be provided

- Other services requested - such as customized reports, system integration, offender fee collections, and installation and retrieval services

t. *Type and duration of warranty provided on the device(s) that you offer(e.g., what is covered in a standard warranty vs. what is covered in an optional or extended warranty)*

3M offers customers the option to purchase or lease our devices. Both have a warranty but they differ in their standard length and coverage. Neither option provides coverage for deliberate damage:

- Lease units – All components are covered under warranty for the length of the contract. Battery replacement and other internal components will be repaired through our RMA (Return Merchandise Process) and 3M will continue to return units to the manufacturer's original specifications as part of the negotiated daily rate for devices.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

- Purchased units – For purchased devices, we provide a standard, limited one-year warranty for workmanship and components; deliberate damage is excluded. We also offer an extended warranty for purchase that takes effect on the anniversary of a unit's original date of shipment to the customer. This covers all parts and labor for repairing a device to the manufacturers' specifications, excluding batteries. Batteries are considered to have an effective life expectancy and unless batteries do not meet the standard one-year operational life, customers are charged for replacements.

u. *Means and frequency of monitoring center and monitoring software application backup*

We distinguish between our Monitoring Center and our Data Center because they are physically separate, serving separate and distinct purposes; both are located within our headquarters in Odessa, Florida. In both centers, all systems operate around the clock 365 days per year with hardware, software, communications, backup systems and building support services, such as electrical power.

The 3M Data Center is where all tracking and offender data is downloaded, housed, and stored on our servers. The Monitoring Center accesses the data in the Data Center in its standard operations. By keeping the two centers separate from each other, we can better control access and maintain security.

Our primary Data Center is composed of multiple redundant enterprise-class servers and infrastructure, with our primary database featuring redundant 72-disk high-speed serial-attached SCSI (SAS) hard drive arrays. These are all high speed, high capacity SCSI (SAS) drives, representing terabytes of data storage. Full system backups are performed every day. We also have two backup environments: high availability (HA) and disaster recovery (DR). A cluster of 27 primary and 27 HA backup servers provide the processing power for our system. Switchover from a primary server to HA backup server after a failure is automatic and immediate, with automatic notification(s) sent to the Monitoring Center and to the IT manager.

Transaction log backups are performed every five minutes; full system backups are maintained continuously as described above at both facilities and saved to disk. All backups are then further copied to a tape, for additional redundancy. Every year prior to hurricane season, we switch all operations to our backup facility to ensure readiness. Multiple copies of offender data exist on our "hot" redundant database servers and multiple disk RAID arrays. The data is also backed up to LTO Ultrium tapes on a daily basis.

v. *Length of time data is retained in archives (in years)*

Our position on offender data is that it belongs to our offender agencies: We house it with backups, archiving, and security protection as a service to our clients. 3M Electronic Monitoring will provide a customer its data at any time in non-proprietary formats via exported data file, hard copy, magnetic tape, CD, or XML files. Additionally, we are able to provide the data weekly, monthly, quarterly, or annually upon request.

3M retains data as agreed upon by contracts with customer agencies. We will retain, archive, transfer, and dispose of data to meet the contractual requirements of our customers.

w. *Any additional information not covered above*

None

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

---

3. Usability

a. *Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)*

3M has devoted years to product development and it has not occurred in an isolated environment. We depend upon our customers communicating their needs in order to improve the usability of our hardware and software designs. These are some of the processes that we employ:

1. Requirements gathering – Sales and Account managers have direct interface with the customers and often represent the voice of our customers to our research and development teams. They gather requirements and functional needs from the customers to generate an MRD (Marketing Requirements Document). If a new product is created, an NPI (New Product Introduction) is generated.

2. Alpha and Beta testing – The processes above generate new functionality for an existing product or an entirely new product. The product is first tested by 3M staff in a controlled environment and evaluated in real life situations to obtain approval at an Alpha stage. It then moves to a Beta test, in which it is provided to customers to use in their environments and a process to measure outcomes is implemented. Software and hardware are evaluated for desired results and customers are surveyed for suggested improvements. Improvements then go through feasibility review to consider the associated costs and benefits.

b. *Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected.*

3M also provides many support services for the devices that it designs, manufactures, supplies, and monitors. We gather data from various sources in evaluating our solutions (not just the products). Some of our sources for feedback are:

1. Training surveys – One of our valuable feedback tools is the Customer Survey provided to the staff members upon completion of a training session on our products and services. Participants are encouraged to complete a short survey across multiple criteria of our training sessions, including the instructor's performance. This information is used to evaluate our training content, delivery, trainer, and relevance.

2. Satisfaction surveys – Customers are regularly surveyed in regard to what they like and dislike about our products and services. Surveys often include suggested areas of improvement and new products that 3M should consider developing.

3. Market surveys – The market provides us with abundant recommendations for new products. End users often provide ideas for new and innovative ways to add functionality, reporting, and other functionality to expand the capabilities of electronic monitoring.

![APL JOHNS HOPKINS APPLIED PHYSICS LABORATORY]

3M

c. Types of user-group meetings and frequency of their occurrence

Our customers comprise many of the user group communities that we are associated with. These include APPA (American Probation and Parole Association), ACA (American Corrections Association), NSA (National Sheriff's Association), and ICCA (International Community Corrections Association), along with many local associations and user groups.

User groups are important for sharing the trends and best practices that agencies are experiencing. Best practices are vital because they provide tools for success. We often find that specific agency protocols are best practices that have been verified by cost savings, recidivism statistics, and other data.

User groups meet twice a year and user group newsletters and other correspondence (social media) continues throughout the year.

d. Types of embedded templates supported by software (e.g., new offender, alert types, etc.)

3M's software has many features that provide ease of use for our customer base. The primary embedded template that we provide for customers is our zone template. It provides our users with the ability to establish a group of zones based upon the offender type selected. Customers can build these templates to accommodate some or all offender types and save the zone templates. Going forward, zones will be added to an offender's profile based on the offender type selection made by the officer.

We have another feature that provides time savings. After completing the demographic information unique to each offender being enrolled, users can set up zones and alerts, replicating the notification contacts and grace periods for each alert. This is another time-saving feature of our user-friendly software.

e. Hours of technology support and location (e.g., telephone or at agency)

Via toll-free telephone access to our Monitoring Center, 3M provides technical support to customers 24 hours per day, 7 days per week, and 365 days per year. During regular weekday work hours, our Help Desk, Customer Support Department, and Monitoring Center are fully staffed at our headquarters in Odessa, Florida.

f. Hours of operation of monitoring center

3M has Monitoring Centers operating 24x7 in two locations: Odessa Florida and Jacksonville Florida.

g. Hours and types of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)

3M provides on-site and Web-based training during business hours Monday through Fridays, as well as online Help Files and User Manuals that are always available through our Web-based software interface. Our account managers schedule and customize training sessions to meet the customer's schedule needs and preferences.

3M

    h. Types of post-training help and tutorials available

We provide the following post-training and ongoing support to our customers:

- Online training Webinars scheduled upon request

- Toll-free telephone support 24/7/365 from the Monitoring Center

- Indexed Help files and user manuals available to view, print, or download via our Web-based software.

4. Features and Functions

    a. Number of tracking devices that can be concurrently monitored

The system is designed to handle an unlimited number of users and transactions. 3M Electronic Monitoring has a very scalable architecture for expandability to support demand. The current Web-based system has the capacity to monitor 100,000 offenders and current usage does not approach that capacity. Today, the Data Center utilizes four Dell PowerEdge servers, 2 × 8 core Intel® Xeon® L7555 1.86 GHz processers that are hyper-threaded with 128 G RAM. All servers write tracking data to four Raid 10 arrays, providing four levels of high availability redundancy. The hardware framework is network-based and provides almost unlimited scalability. The server supports all hardware, software and peripheral requirements, with sufficient ports for full functionality. We have two backup environments—"high availability" (HA) and "disaster recovery" (DR) for a total cluster of 27 primary and 27 HA backup servers that provide the processing power for our system. In this environment, our capacity is virtually unlimited.

We are committed to continuous improvement and we have the resources necessary to expand our bandwidth and infrastructure to support demand.

    b. Number of data points per minute at which data:

      i. Is collected by the device

Our GPS devices sample and evaluate GPS points continuously, recording one accurate GPS point every 60 seconds in compliance, and one GPS point every 15 seconds in geographic alarm.

      ii. Is reported to the monitoring software

The frequency with which the device reports to the monitoring software depends on the supervision level selected:

        i. Active – The call interval for reporting data in Active Supervision is every 60 minutes and immediately upon an event with actions. Remember that our onboard processing enables the device to detect that it is out of compliance with its rules. This triggers the device to go into alarm and initiate contact with our system to download its data.

        ii. Hybrid or Passive – The call in rate for both Hybrid and Passive Supervision is adjustable by contract to call in every 4-12 hours. Again this is completely at the choice of the customer. The only difference

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

between these supervision levels is that Hybrid will call immediately on two selected alerts (for example, Exclusion Zone and Strap Tamper).

c. *Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, standards with which the output is compliant, etc.)*

In the electronic monitoring industry the devices collect data that our customers use for supervising offenders in the community. Manufacturers of the devices use proprietary systems to avoid interception or duplication of a signal on another vendor's system. The common thread is the data and how it can be used for customer purposes. Since all data resides in databases, these provide for a standard that can be interoperable between different databases. The web-based software that we use does come with standard that provides for the transfer of data from our system to customers' case management systems via data transfer protocols. 3M uses FTP (File Transfer Protocol) to transfer offender and GPS data to customer IT systems. However, the more current way to connect to customers systems is Web services which require a script that defines the data and the format to be transferred from our EM Manager. This is the interoperability between our system/device output and the customer's software.

d. *Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")*

3M's Two-Piece GPS Device (XT) reports on a few more events than the One-Piece GPS Device (WMTD). The alarms that are common to both are listed below. Notifications provide the name of the zone on geographic alarms and time, date, and participant name on all alarms:

- Inclusion zone (with name of zone)
- Exclusion zone (with name of zone)
- Device Battery (low battery and shutdown)
- Motion no GPS
- Strap Alarm
- Unable to Connect

The Two-Piece GPS Device (XT) generates additional alarms and notifications, including functions relating to the use of home curfew with a base station. Notifications provide the name of the zone on geographic alarms and the time, date, and participant name on all alarms:

- Bracelet Gone (RF bracelet too far away from GPS receiver)
- Bracelet Battery (provides 7 days' notice of depletion)
- Base Station AC Power Disconnect/Reconnect
- Base Unit Battery
- Base Unit Tamper
- Base Unit Unable to Connect
- Caller ID
- Curfew
- Must Leave
- Phone Line Disconnect/Reconnect
- Base Unit Untrusted

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

Page 12

e. *Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)*

The 3M™ One-Piece GPS Offender Tracking Device (WMTD)

Communication with the offender is provided by three LED lights, a vibration motor, and a soft-key alert feature. If the alarm is Motion no GPS, Battery Low, or Zone Alarm, the related LED light will turn from green to blinking red and remain so until the alarm is cleared. For all alarms, the vibration motor will send three bursts every ten minutes until the alarm is cleared.

LED INDICATING BATTERY POWER. When in normal status, this LED is green. When the battery is low and needs to be charged, the LED is red. When the LED turns red, the device also sends a notification to the offender with three short bursts from the vibration motor.

LED INDICATING GPS SIGNAL. When the device is receiving GPS, this LED is green. When the device is not receiving GPS points, this LED is red.

LED INDICATING ALARM STATUS. When the device is compliant, this LED is green. When the device is in alert status (noncompliant), this LED is red. When LED turns red, the vibration motor also sends a notification to the offender with three short bursts. When the alarm clears (behavior corrected), the light returns to green.

ALERT SIGNAL. Using the soft-key feature, officers can send the offender a signal that requires a response as pre-arranged with the offender at the time of device activation; for example, "call me within the hour." The alert signal is one 10-second long vibration that the offender must acknowledge by pressing the button on the outside center of the device. This signal is customizable by each supervising officer for each offender.

The 3M™ Two-Piece GPS Offender Tracking Device (XT)

The 3M™ Two-Piece GPS Offender Tracking device communicates with the offender via LED lights, audio tones, and a vibration motor. It allows officers to send standard format or free-form text messages to the participant and also offers the capability for two-way voice communication directly with the participant.

f. *Single or multiple mechanisms for tamper detection of device or strap circumvention*

3M utilizes multiple mechanisms for detecting tamper attempts.

<u>Strap</u> – Both the 1 Piece (WMTD) and the bracelet of the 2 Piece (XT) utilize the same hypoallergenic strap to affix the device to the offenders ankle. The strap employs multiple anti-tampering technologies:

- A pin tray and tamper plug design for attachment. Any attempt to pry the pin tray or tamper plugs loose will provide visual evidence of a tamper attempt.

- The strap contains an embedded fiber optic light pipe through which an encrypted IR signal is continuously transmitted. Any interruption or change in the signal—for instance, from the strap being cut, stretched, or pulled out of the connectors—results in a strap tamper alarm. Our fiber optic pipe cannot be fooled, which is why we do not auto-reset or clear strap tamper alarms. If our equipment generates a Strap Tamper, the device needs to be inspected and swapped.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

- Our straps are not intended to be like handcuffs and for safety reasons the strap is intended to break when enough pressure is applied and an EMT can easily cut it free with common shears, however, doing so will generate a Strap Tamper alert.

Housing - 3M's GPS devices and base station also incorporate an ultraviolet light sensor, which will detect any attempt to open the device housing. Even a sliver of light will trigger a Tamper alarm.

g. *Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)*

3M™ One-Piece GPS Offender tracking device has an acknowledgement mechanism. If an alert or violation is received by the device, the offender will receive a tandem of vibrations and LED lights. This will continue to every 10 minutes if the offender continues to be in violation. It is the offender's responsibility to correct behavior to become compliant but the offender can press the center grey button to acknowledge receipt of violation. This does not reset of cancel violation but it does assist in the officer in determining that the offender has acknowledged the alert/violation.

The 3M™ Two-Piece GPS Offender Tracking device delivers alert signals and information to the offender on the device's LED screen in red. The offender is given instructions for acknowledging the alert using the buttons on the face of the unit.

The alert delivery and its acknowledgement are time stamped and recorded in the system.

h. *Ability to notify/alert victims of domestic violence*

3M provides customers/agencies to alert victims using EM Manager. Notifications are provided to officers and customer staff by entering in their email or text number into the "contact" area of the software. The victim can be notified by having their email or text number inserted in the same contact location. This would provide notification to the victim if the offender were to breach any exclusion zones that are connected to the victim for victims' residence, work or school location.

i. *Types of mobile monitoring software applications to transmit alerts to personnel in the field*

3M's EM Manager web-based software does not need any special mobile applications to work effectively on a mobile device. EM Manager will work effectively on a tablet or Smartphone. What is needed is Internet access and the officers login information. Most of our popular functions are accessible on IE, Chrome, Foxfire, or Safari browsers.

j. *Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc*

3M™ Crime Scene Correlation tracking software combines GPS tracking technology with the mapped coordinates of crimes, allowing law enforcement agencies to view the GPS tracks of offenders at or near crime scenes.

Harnessing the power of 3M's database of tens of thousands of tracked offenders, 3M™ Crime Tracking has proven to be an effective crime solving tool that saves officers countless investigation hours. Agencies under contract with 3M Electronic Monitoring can transmit their daily crime location data to us electronically and our powerful system

3M

has the capability to correlate the crime times and locations with GPS points in our system. The resulting daily report identifies any people we are tracking, that could be a match with the crime scene.

The system is very flexible. Using selectable fields, law enforcement can narrow the parameters for hits in order to reduce the volume of data they receive; for example, by selecting a smaller radius from GPS point to crime location. Adjustable parameters include crime type, radius distance to crime scene, time frame, seconds at rest, and travel speed.

Two Major Uses of Crime Tracking

Automated Crime Scene and Zone Correlation –

1. 3M Electronic Monitoring processes and generates automated daily reports correlating known crime scene locations with all of our tracked offenders. Our system does all the work and there is no hands-on at all for the officers. Daily reports are sent electronically and include crime related information, such as crime type, address, time, and tracked offenders who correlate.

2. Officers can create an unlimited number of zones around schools, drug areas, etc. Then on a daily basis, a zone report can be received with the correlating hits sorted by zone names. The report will include all tracked offenders who correlate with the entered parameters.

Interactive use – On an ad hoc basis, officers can use the system at any time to—

1. Query the System for GPS Points
   For example, if a child is abducted from a location, a box can be drawn around that location on the map—or the address or GPS coordinates keyed in – along with a date/time range. GPS points within those parameters will be displayed on the map. It can also be utilized as a tool to identify offenders who are congregating together or offenders who are frequently visiting the same areas repeatedly.

2. Enter Crime Data Manually
   Law enforcement can enter a list of crimes, including time, UCR code, location, officer, etc., and obtain a report of all tracked offenders that meet the parameters entered for that crime. Parameter thresholds can be set; for example, specific UCR codes that relate to murder, or travel speed = X miles per hour or less, so as to eliminate someone driving on a nearby highway overpass.

k. *Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)*

All GPS tracking occurs in near real-time, by virtue of the fact that an event occurs even seconds before the GPS point is collected and recorded. Ours is no different. Near real-time monitoring allows us to provide users with the capability to download any current or previous GPS points on demand for any offender at any time, rather than waiting for the device's next scheduled call in. Officers utilize this feature through the web-based software to obtain up-to-date tracking and location data. In response to the *Download Points* command, our system contacts the device, forcing an immediate download of the most recent GPS points and tracking information. This is known as pinging the device and some vendors charge for each ping. With 3M Electronic Monitoring, there is never an additional charge to ping the device, which we consider to be an essential monitoring service.

3M

I. Types of reports that are available (e.g., standard information examples, extent that reports are customizable, inclusion of maps, etc.)

The EM Manager (GPS web-based system) includes a powerful report generator designed to provide our offender agencies with many reports across multiple criteria. Already more than 70 reports have been defined. Some of these reports were designed to report data that is pivotal to monitoring offender behavior and some focus on the parameters key to successful program management. The reports are populated directly from the Data Center servers in real time - we never do batched updates. Through our secure Internet connection, EM Manager's report function makes it possible for the Department to view reports online, as well as download data and reports right to desktops and printers. Reports can be generated for any time period simply by entering date/time ranges for the reported data and the system can be configured to allow for different levels of user access for specific reports.

Report Categories

Our system offers reports under the following categories:

VIOLATIONS. Violations reports manipulate the fields of information related to violations, presenting the data in many different ways - how often, how many, by caseload, by offender, etc. The Daily Event Summary Report (DESR) is both comprehensive and flexible. Most agencies like to have it emailed to selected officers daily; however, it can also be accessed at any time via EM Manager. The report is populated with offenders who had violations within the selected date and time range. It provides a summary list of offenders' violations, violation durations, and current status information. If the DESR is sent to a supervisor, it will provide information on all of the offenders under supervision. Violations and schedules from the previous day are also provided, sorted by officer or by offender. This report is highly customizable; the data can be sorted by: caseload, offender, or equipment.

RULES. Rules reports are administrative reports that are beneficial for in-house supervision of officers and for officers who want to make sure they have properly and completely enrolled an offender.

Notifications. Notifications reports are good for troubleshooting why things aren't working as expected for notifications; for example, if the officer is not receiving expected notifications, this report would identify why.

EQUIPMENT. One of the many report categories in EM Manager Reports is Equipment Reports. These reports provide information needed for every type of inventory management; for example, our Equipment Summary Report allows users to view, download, or print all inventoried equipment—both assigned and unassigned—with serial number, equipment type, offender name and number, officer name, and office. The report data can also sort by serial number, offender, officer, or office. Following is a complete list of the equipment reports available to our client agencies:

- 1 Piece Battery Violations
- Device Call History
- Enrollments and Discharges
- Equipment Shipped
- Equipment Summary
- Hardware Tracking

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

NIJ RT&E Center
MARKET SURVEY OF LOCATION-BASED OFFENDER TRACKING

3M

- Incomplete Offender Hardware Assignment
- Offender Hardware Assignment History
- Pending Activation/Deactivation
- Recall Report
- Returns Report
- Spare Equipment
- System Usage
- 1 Piece Equipment Detail

CASE MANAGEMENT. Case Management reports detail each violation event and show the status of what has been done to address the violation—not to resolve the violation itself, but to address it with the offender.

EM MANAGER USAGE. These are management reports, used to manage the officers and resources of the agency's monitoring program. For example:

- Home Address not Geo-Coded
- Offender's Points View Dates
- Offender Type
- Officer and Contact Comparison
- Offender's Points Not Reviewed
- Usage by User
- Users
- Sentencing Report

OFFENDER REPORTS. All of the above-listed events (Late to Enter, Late to Test, Failed to Enter, Early Leave, Tamper, and AC Disconnect) are recorded and reported by our system, as well as a multitude of other GPS tracking and event information. Reports include the date and time of the report and all monitoring information generated since the last report. Automatic reports selected by users are provided daily by email or they may be accessed at any time through EM Manager.

Additional Information and Reports

We would be very surprised if a customer finds a need for any information or report not currently available through our EM Manager Reports. However, we have two ways to meet the need if it arises.

- All internal reports can be run by the account manager and sent via email upon request or at specific intervals, such as the first of every month.

- All of our report categories can be sorted on many different fields and viewed/printed/downloaded in multiple common file formats such as excel and PDF formats. 3M believes that the file forma should already be part of the software platform and not force a customer to create and ad hic report (on demand) and have immediate accessibility to reports.

m. *Types of on-demand custom reports*

3M provides standard reports that can be deliver to customers staff daily. 3M considers these standard reports. With over 70 report templates to choose from customers can go to our report

n. *Other unique features not covered above*

3M Electronic Monitoring, Inc.
1838 Gunn Highway, Odessa, FL 33556

Page 17

---

5. Performance and Security

a. *Average time to install and activate device (in minutes)*

One of the design considerations for our devices is ease of installation by officers in the field. 3M devices can be installed in less than five (5) minutes.

b. *Range in performance of locational accuracy indoor and outdoor (in feet)*

GPS Accuracy

According to the U.S. Government, the GPS Standard Positioning Service performance standard is 95% accurate to within 7.8 meters. This is a function of the technology and not the vendor; any vendor that claims to exceed this accuracy standard is mistaken. However, the government also stipulates that the actual accuracy GPS users attain also depends upon factors outside the government's control, including atmospheric effects and trees. For this reason, 3M Electronic Monitoring typically makes the more conservative claim that our GPS is 90% accurate to within 10 meters. However, within the GPS Standard Positioning Service's performance standard, 3M Electronic Monitoring certainly strives to maintain the highest degree of GPS accuracy available in the industry. The point-by-point accuracy of our GPS solutions is reflected in our software interface right on the dashboard.

Minimize Drift

Our devices are equipped with the latest GPS technology, including firmware that can detect and filter "multipath" satellite signals—the cause of nearly all thrown points. The way this works is that devices accept and processes only "perfect" GPS solutions. Our "perfect solution" algorithm uses a number of values extracted from a GPS solution to establish a Confidence Level (CL). Only the highest CL is acceptable and basically requires the GPS solution to contain a number of markers. A solution indicating estimation, dead reckoning or any unknown may indicate a thrown point and will fail the CL test.

c. *False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates*

3M Electronic Monitoring designs its products to meet stringent requirements. The customer never specifies an acceptable level of false positives or false negatives. Therefore, it more the exception than the rule and if and when it occurs it can be traced back to a mechanical or electrical issue with that particular device. The devices are designed to not collect and transmit false alerts. If there is an incident, we isolate the device, return it to Odessa for testing and find the root cause of the trouble and repair the specific unit.

d. *Mean time to failure*

N/A

e. *Minimum data collection rate (e.g., once/minute)*

The device continually samples GPS to identify its location, and because it can store the offender's rules onboard, it can compare its position to the rules defined for the offender wearing the device. All of our devices record and collect a GPS location point

once per minute when the offender is in compliance and every 15 seconds when the offender is in zone violation.

f. *Minimum number of data storage, in days, (e.g., seven, ten, or fourteen days)*

This to remain consistent with the answer given in "Product information" item o. Minimum number of data storage in days is 30 days.

g. *Mean length of time from alert to notification*

3M devices have onboard processing, meaning all rules and schedules for a participant are uploaded to the device and updated with each server contact. Although the limitations to GPS tracking still apply (including the need for unobstructed satellite views and the need for cellular coverage to deliver alarms to the system promptly), this enables much faster alarms and notifications than would be possible without onboard processing. In ideal conditions, notifications often make to our system in less than 30 seconds, but since this depends upon many variables and we have customers that provide all levels of supervision, mean length of time from alert to notification cannot be calculated accurately.

h. *Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing*

Three-Axis Motion Sensor

In addition to the primary and secondary tracking capabilities required by the customers, our one- and two-Piece GPS solutions offer a third supplemental tracking technology to provide corrections officers with information pertaining to the behavior of offenders. Often called anti-spoofing, our device contains a built-in motion sensor that acts completely independent of any other infrastructure and therefore, is always on and working. It has specific coded instructions to prevent an offender from fooling the device while it is powered. Even if both the primary and secondary tracking technologies are masked (GPS & TBT), our device knows, records, and stores the information that it is or is not moving. Furthermore, the motion sensor is discerning enough to distinguish between movements from place to place and incidental motion, such as rolling over in sleep, walking from bedroom to bathroom, etc. This can be invaluable information for officers in situations when there is no GPS or cellular tracking from an offender's device for a period of time.

For example, take the situation where Offender A wraps his device in foil to prevent the device from calling-in GPS points or cell tower locations while he leaves his home for a few hours. While he is out, Offender A robs a store, then returns home and unwraps his device. At the scheduled call-in time, our system will record and generate an Unable-to-Connect notification and when the offender unwraps his device, allowing it to call-in again, we will receive and send notification on all violations that occurred while the device was spoofed - in this scenario, probably Unable-to-Connect and Motion-No-GPS (our motion sensor reporting). Since our motion sensor was recording time and movement during the incident, the officer has more information about what happened during that time period than he would have with another vendor. If Offender A claims to have been asleep the whole time, the officer has information to the contrary, suggesting he may want to investigate further.

With our motion sensing capability, 3M goes one step further in providing correctional agencies with data about the movement and behavior of offenders under community

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

3M

supervision. Often ridiculed as generating "nuisance alarms," other vendors like to mock this patented capability.

i. Data protection mechanism while in transit and during storage (e.g., SSL, encryption, password strength, etc.)

Encryption

EM Manager uses 128-bit SSL encryption and to date we have had no data intrusions. Communication between all monitoring devices and the Data Center is encrypted using private key encryption and then our encryption is encrypted a second time during transmission. The encryption scheme used is common to all 3M Electronic Monitoring proprietary communications.

EM Manager uses 128-bit SSL encryption. Communication between all monitoring devices and the Data Center is encrypted using private key encryption; then our encryption is encrypted a second time during transmission. The encryption scheme used is common to all 3M Electronic Monitoring proprietary communications.

Firewalls

Both our Monitoring Centers and Data Centers operate with multiple security protocols and redundancies, including: ISO standards, security policies and procedures, application security, transmission encryption, and controlled physical access. Systems are protected by multiple layers of firewalls. External perimeter firewalls are deployed as a first layer defense to block unwanted traffic. A second layer of firewalls are deployed with an Intrusion Prevention System which includes protections from Application, Transport, and IP layers. Host level based firewalls are deployed on select systems as a third layer to protect host services. All systems are segmented into physical network security zones to segregate the different needs and security levels of systems.

Data Protection

Our Web-based software is completely secure at all times, preventing unauthorized individuals from accessing any information. EM Manager transmits data through an encrypted Internet connection using Secure Socket Layers (SSL)—the de-facto standard for data protection. We use 128-bit SSL encryption and as an additional security feature, a login times-out after thirty minutes of idle time. Once a valid login is re-entered, the user is immediately returned right back to his/her last location. Password length can be up to 50 characters and contract specific. Additional data protection protocols include:

- Access levels
- Redundancy
- Logins recorded
- Backups
- Employee background checks
- Data secured off-site monthly, quarterly, and annually

j. Types of database change record maintenance practices for historical data

Our software provides a trail of the activity of customer staff that has logged onto the EM Manager platform. This activity includes determining what offender profiles were reviewed, what GPS data and how long a timeframe was being reviewed. It will record

3M Electronic Monitoring, Inc.   Page 20
1838 Gunn Highway, Odessa, FL 33556

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

---

what information was changed (fields) and by whom. It will identify if and what reports were accessed and on what times and dates. This information is all available in EM Manager Report generator and can be accessed in the "Usage by User" report. Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored

Part of our commitment to customers and to the industry is that all GPS data is saved in our secure Data Center permanently. EM Manager retains the GPS points recorded by our Data Center and we archive them with protocols in place to respect the privacy of offenders and customers alike. Only authorized agency personnel will have near real-time access to stored/archived c data during the contract and afterward.

We are aware of the confidential nature of all offender information and we have a multi-faceted approach to enterprise security for our operations, including a comprehensive *Information Security Policy* that is reviewed and updated on a periodic basis. This includes policies, procedures, and standards for data protection, network/server protection, logical access control, physical security, and awareness training as summarized here:

Data Protection

Internal data protection protocols include:

- Access levels
- Redundancy
- Logins recorded
- Backups
- Employee background checks
- Data secured off-site monthly, quarterly, and annually

Network/Server Protection

Communication within 3M Electronic Monitoring is strictly governed by policy. All access is through Login ID and passwords and employees are only provided with access to the data they need to do their jobs. Offender data is accessible by a very few with additional security measures in place and access to offender data is not only extremely limited, but login information, time, and date are captured and recorded. 3M uses multiple levels of IT security to protect our system, including:

- IT security policies

- Two levels of firewalls, where the second level firewall has multiple network segments isolated from each other.

- Transaction servers

- N-Tier architecture

- Password protection

- Automated mechanisms

- Real-time intrusion detections

- All company laptop hard drives are encrypted

- Systems with different access needs are put on different segments. For example, externally accessed systems, internal databases, corporate systems, and development systems, are all isolated from each other on different network segments off the firewall.

- Intrusion detection system in place between firewalls to help detect anomalous network behavior that is monitored daily. The firewalls and intrusion detection systems are managed internally.

Access Control

Both the Monitoring Center and Surveillance Data Center operate with multiple security protocols and redundancies, including: ISO standards, security policies and procedures, application security, transmission encryption, and controlled physical access.

Access control and modification forms are used for outside client access to Offender Enrollment. Internal employees have their access reviewed at least annually, and access is immediately revoked upon termination. This process is initiated by Human Resources at the anniversary of each employee

Internal staff is required to have domain-level authentication as well as application-level authentication to access applications. Remote internal users must connect through a secure VPN client authenticated via hardware token, as well as domain-level and application-level authentication. End users access through an encrypted SSL services proxy in conjunction with application-level authentication to access Offender Enrollment. Administrative access is restricted to our vice president of Software Development and Technical Services staff of three engineers who maintain the system.

Physical Security

The 3M Electronic Monitoring physical facility, equipment, data transmissions, and data storage are on a secure site with limited access. The facility itself is equipped with an alarm and is monitored by a security company. It is also equipped with an operational fire protection system that has a tamper-proof dedicated circuit with no exposure to any person or thing that could alter or damage the line.

The building entrance has an 800-pound magnetic lock and RFID card reader. The Data Center door is fireproof with a steel door and smash-proof mesh glass window. Individual server racks are physically locked front and rear. Server front bezels are physically locked. Backup tape media is stored in locking safe. The Data Center window contains 1.5" bullet-proof glass. All facility doors require RFID plus 4+ digit access code. Our security procedures and protocols are certified by a third-party source.

A final step of security is provided by the 24 X 7 security personnel that are on-site at 3M's facility. This service is provided by Securitas, who provides security solutions to thousands of businesses across the country.

Awareness Training

We employ a full-time security officer specializing in IT-related security and this officer provides quarterly reports to management. Our IT department meets on a regular basis to cover all outstanding issues and projects and provide status reports. Plus, Annual and Quarterly Planning & Strategic Meetings review of Projects. There are regular general staff meetings for all employees that include a review of our security policies and procedures, along with changes and updates.

3M

Confidentiality of Data

The confidentiality of offender data and controlling access to it is a valid concern of correctional justice agencies. All employees of 3M Electronic Monitoring are subjected to drug testing and criminal background investigations before hiring. Background checks are completed through a partnership with the Florida DOC and are updated annually. The policies and procedures regarding passwords used in application system logons, for the network and key financial systems include the following:

- Minimum password length of 9 characters, containing a mix of at least 3 out of 4 character types.
- Blank password are not permitted
- Password changes occur every 6 months
- The last 10 Password versions are maintained and disallowed for use
- User account is locked after 10 unsuccessful login attempts. Account can only be unlocked by contacting 3M Electronic Monitoring.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX D. BI INCORPORATED

Table of Contents

Tables

i

Section 1.0—Vendor Information

a. Years your company has been in business

BI Incorporated was established in 1978, and has been providing electronic monitoring equipment and services since 1985.

b. Acquisition history

N/A

c. Number and types of customers (e.g., state, local, federal, corrections, courts, etc.)

BI currently provides electronic monitoring equipment and services to approximately 1,600 federal, state, and local government agencies.

d. Location where technology is manufactured, assembled, or refurbished

BI's central manufacturing operation is located at our corporate headquarters in Boulder, Colorado.

e. Percent of inventory that is refurbished equipment

N/A

f. Hours of technology support and location (e.g., telephone or at agency)

All of BI's equipment is supported through our Monitoring Operations center, which is available 24/7/365 via a toll-free telephone number. In addition, BI's technical personnel are available on-call 24/7/365 for escalation of advanced technical issues.

g. Hours of operation of monitoring center

BI's Monitoring Operations center is continuously staffed around the clock, with live operators available 24/7/365.

h. Hours and types of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)

BI provides flexible and customized training sessions tailored to each specific client through multiple training sessions, including:

- ***On-Site Training.*** BI provides on-site training during initial implementation and as requested throughout the life of the contract. These consist of equipment and software trainings necessary to familiarize officers and program administrators with the proposed equipment (RF, GPS, Alcohol) and TotalAccess software. On-site trainings are provided by BI's Training Department in conjunction with Business Development personnel. On-Site trainings for agencies utilizing the ExacuTrack One and TotalAccess are detailed in *Table 1. Training Curricula* below. Trainings are tailored to agency need and familiarity with the software and solution, and therefore vary in the hours allocated to each training.
- ***Webinar Trainings.*** BI provides weekly webinar trainings consisting of sessions specific to each type of technology and the TotalAccess software. These sessions are staffed by online, in-person instructors. These trainings last approximately 2-4 hours depending on topic.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

- *Online, Officer-Directed Sessions through TotalAccess.* TotalAccess includes interactive help menus with self-directed trainings and walkthroughs of the software's functionality, available 24/7/365.

Table 1. Training Curricula	
Topic	**Training Details**
ExacuTrack One Training	- Location-acquisition and reporting rates - Tamper and motion detection - Status indicators, alerts, and the internal speaker - Troubleshooting - Tamper detection - Autonomous GPS, Assisted GPS, and AFLT - Offender location ("pinging") - Memory buffer and battery life - Beacon use - Alert generation
TotalAccess Training	**TotalAccess Enrollment and Scheduling** covers: offender enrollment; offender inactivation and reactivation; RF, alcohol, and GPS scheduling; caseload snapshot overviews; and TotalAccess help system. **TotalAccess Mapping Features** covers: Enhanced Mapping Summary; playback; points in time; zooming; and map views. **TotalAccess Alerts, Events, and Reports** covers: alert processing; reports; event history overviews; unit configurations; user profile; and offender menus.

i. Length of time data is retained in archives (in years)

BI maintains all data indefinitely unless otherwise requested by the agency.

j. Means and frequency of monitoring center and monitoring software application backup

Triplicate Redundant Server Architecture. All of BI's monitoring computer systems include internal, local, and geographic redundancy as described below. Any monitoring system malfunction causes a redundant component to come online immediately in order to prevent complete failure of the monitoring system. This acts as a continuous real-time backup of all monitoring center and TotalAccess data.

- **Internal Redundancy.** Each monitoring computer system server includes an important safety measure: a RAID disk subsystem that provides reliability and fault tolerance by storing data across a set of hard drives. If one drive fails, the server will continue to function while the faulted drive is repaired or replaced.

- **Local Redundancy.** The central monitoring computer system is set up in a cluster configuration with a primary server and an identical hot standby server. Data is also replicated in real-time to another onsite server, which is used for reporting and as a potential backup if the need arises.

- **Geographic Redundancy.** In addition to real-time replication to the local backup server, all data is replicated in real-time to another backup server in Anderson, Indiana. If the Boulder computer systems become unavailable, the Anderson standby servers and processors will function as the primary computer system while repairs are made in Boulder—without any loss of data.

k. Factors most often provided as discriminators from purchasers of your products (e.g., price, specific features, vendor reputation, ease of use, etc.)

Vendor Experience and Reputation. BI is currently the largest provider of GPS monitoring equipment in the United States, with a strong reputation as a reliable, effective provider of the equipment, services, and

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

support necessary to operate a fully realized electronic monitoring program. As of 11/25/2014, this includes:

- More than 27,300 active ExacuTrack One units in the United States
- More than 62,000 offenders monitored daily on BI equipment
- 36 years of experience in the electronic monitoring industry.

Stability. BI is an industry veteran and is financially backed by The GEO Group, Inc. The GEO Group's enterprise value is approximately $4.1 billion.

Original Equipment Manufacturer. BI is the Original Equipment Manufacturer of all equipment, allowing us to provide technical support directly from the design engineers and eliminating the need for third party involvement. All equipment is manufactured in an ISO 9001:2008 certified facility.

Continuum Solution. BI offers a full continuum of electronic monitoring equipment and services, all of which are interoperable through the TotalAccess software platform.

Monitoring Operations and Account Executive Support. BI is recognized throughout the industry as a comprehensive partner to agencies, rather than merely a provider. Our partner agencies have access to live operators on a 24/7/365 basis through our ISO-certified Monitoring Operations center, as well as access to on-site support from more than 30 Business Development personnel throughout the United States.

Section 2.0—Product Information

a. Name and model number (e.g., device, monitoring software application, home monitoring unit, etc.)

The name and model number of the ExacuTrack One and all add-on equipment is provided in *Table 2. Name and Model Number* below.

Table 2. Name and Model Number	
Equipment Name	**Equipment Model Number**
BI ExacuTrack One	EX-600
BI ExacuTrack One Beacon	EX-650
BI ExacuTrack One Downloader (HomeBase 105)	HB-105

b. Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component

The ExacuTrack One's dimensions are 2.5" x 3.5" x 1.5" (6.4 x 9.25 x 3.8 cm).

c. Weight (in ounces) of device with strap and included battery

The ExacuTrack One weighs approximately 8.7oz when fully assembled (with battery and strap).

d. Depth to which device is waterproof (in feet)

The ExacuTrack One is fully waterproof up to 15 feet.

e. Type of tracking (e.g., active, passive, or hybrid)

BI Incorporated • 6400 Lookout Road • Boulder, CO 80301
Tel: 303.218.1000 • Fax: 303.218.1250 • www.bi.com

3

BI has more than 40 tracking and service plans available, with data collection rates ranging from one point every minute to one point every 30 minutes and reporting/data upload rates ranging from once every 30 minutes to once every 24 hours. This allows the unit to provide active, passive, and hybrid GPS tracking. Data collection and transmission rates can be changed at any time through the TotalAccess software.

f. Multi-piece or one-piece configuration

The ExacuTrack One is a one-piece GPS tracking device.

g. Location where system stores zone and schedule information (e.g., onboard and/or monitoring software application)

The ExacuTrack One stores up to 150 zones onboard, and all schedules are stored in the TotalAccess monitoring software.

h. Location on the body where the device is worn

The ExacuTrack One is attached to the offender's ankle by a fiber-optic strap.

i. Battery discharge time (hours of continuous operation before needing a charge)

Without a beacon, the ExacuTrack battery can power the unit for a minimum of 24 hours on an active tracking mode (collecting a GPS point every 30 seconds and reporting to the central monitoring computer every 30 minutes) before requiring a charge. With a beacon, the battery lasts five to six days before it needs recharging.

j. Battery shelf life (in months)

The ExacuTrack One battery has a shelf life of approximately 60 months, or five years.

k. Battery recharge time (hours required to fully charge battery after complete discharge)

Without a beacon, the ExacuTrack One requires approximately one and a half to two hours to recharge from a fully depleted state. When in range of a beacon, the unit requires approximately an hour to recharge from a fully depleted state.

l. Battery replacement procedure and where it must be done (e.g., field or factory)

The ExacuTrack One can be ordered with field-replaceable and non-field-replaceable batteries. Field-replaceable batteries can be replaced in the field using the following steps:

1. Removing the tracking unit from the offender's ankle.
2. Unscrewing and removing the backplate.
3. Removing and replacing the battery.
4. Replacing the backplate.
5. Reinstalling the unit on the offender.

Units with non-field-replaceable batteries must be sent back to BI for battery replacement in BI's manufacturing center.

m. Availability of supplemental charger for emergency battery charging (e.g., hand crank, backup battery, solar, etc.)

N/A

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

---

n. Onboard memory storage (quantity of data that can be stored on device in number of files/alerts/days activity)

The ExacuTrack One can store up to 50,000 events, or approximately two weeks' worth of monitoring data, in its non-volatile memory. This data is stored indefinitely, regardless of battery depletion state.

o. Equipment that is FCC approved

The ExacuTrack One, ExacuTrack One beacon, and HomeBase Downloader are registered and certified with the FCC. Registration numbers are as follows:

- ExacuTrack One: TS5-6055M-ET300
- ExacuTrack One beacon: TS5-EB300
- HomeBase downloader: GNU7MM00B01-EX-520

p. Auxiliary equipment (e.g., car chargers, emergency chargers, beacons, etc.)

The ExacuTrack One can be equipped with an optional beacon and a HomeBase downloader.

ExacuTrack One Beacon. The ExacuTrack One comes equipped with an optional RF beacon, which can be used in the offender's residence or place of work to provide RF curfew monitoring.

HomeBase Downloader. The ExacuTrack One can be equipped with a landline downloader, allowing all program and equipment information to be transmitted to the central monitoring computer via a standard landline connection.

q. Extent, expressed as a percentage, that products comply with the draft NIJ Standard 1004.00 Criminal Justice Offender Tracking System Standard that was published in December 2013 (e.g., safety, technical operation, circumvention, software, robustness)

N/A

r. Manufacturer suggested retail price, without optional features, accessories or service plans

N/A

s. Other

N/A

Section 3.0—Versatility

a. Rate at which data can be collected by the monitoring software application (e.g., number of data points/minute)

BI has more than 40 tracking and service plans available, with data collection rates ranging from one point every minute to one point every 30 minutes and reporting/data upload rates ranging from once every 30 minutes to once every 24 hours. In addition, the ExacuTrack One provides:

- **Zone Crossing.** Zone crossing allows the ExacuTrack One to provide immediate notification of zone violations, immediately increasing the GPS collection rate to one point every 15 seconds and the reporting rate to once per minute in the event the client commits a critical zone violation. This collection and reporting rate is maintained until the violation is corrected.

BI Incorporated • 6400 Lookout Road • Boulder, CO 80301
Tel: 303.218.1000 • Fax: 303.218.1250 • www.bi.com

5

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

- **Pursuit Mode.** Once *Pursuit Mode* is enabled, the ExacuTrack One will begin recording a location every 15 seconds and will report location points once a minute to enable continuous, real-time tracking.

- **On-Demand Location Verification.** The ExacuTrack One allows agency personnel to locate ("ping") an offender manually, at no additional charge, by sending a request from TotalAccess to the tracker. This requests both a current GPS point as well as all stored data that has not been uploaded to the central monitoring computer.

b. Location technology or technologies supported (e.g., GPS, RF, cellular triangulation, etc.)

The ExacuTrack One is equipped with four location acquisition technologies—Autonomous GPS, Assisted GPS, RF tracking, and Advanced Forward Link Trilateration (AFLT). Details of these technologies include:

- **AFLT** tracks clients when there is no GPS coverage, such as indoors. AFLT uses three or more cellular towers to calculate a location within 50 feet of the tracker's actual location.

- **Autonomous GPS** uses the GPS satellite system to track location. The ExacuTrack One continues to track client movement regardless of cellular coverage until the battery is exhausted, and it can store up to one month of data in the non-volatile memory. GPS trackers without Autonomous GPS cannot track clients in areas without cellular coverage.

- **Assisted GPS** uses nearby CDMA network cellular towers to speed up the acquisition of GPS signals. Using Assisted GPS, the tracking unit can acquire GPS within 10 seconds. When devices do not offer this service, it can take an extended period of time to acquire GPS and begin tracking.

- **RF Monitoring** is accomplished by an RF receiver in the ExacuTrack One that detects signals emitted by the beacon. The beacon contains an RF transmitter, and when the client comes within range of the beacon the client is monitored via RF technology.

c. Types of data communications supported (e.g., cellular, landline, etc.)

The ExacuTrack One communicates all program and equipment data over the CDMA cellular network, and can be equipped with a landline downloader to support clients in areas with limited cellular network connectivity.

Section 4.0—Usability

a. Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)

N/A

b. Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected

BI routinely gathers feedback through customer satisfaction surveys, customer interviews, hands-on training observations, and customer statements received by the Monitoring Operations center.

c. Types of user-group meetings and frequency of their occurrence

BI regularly conducts customer training forums at each of our primary facilities in Anderson, Indiana, and in Boulder, Colorado. These forums are open to all BI customers and are the result of collaboration with several industry experts and partners, as well as our own experienced staff. The topics covered in the

workshops are relevant to issues in today's community corrections industry, in addition to the everyday challenges faced by officers. These informative, timely sessions are designed based on technology advancements and officer needs.

Examples of past workshop topics include the following:

- How to Run an Exceptional Location Monitoring Program
- Tips and Tricks for Monitoring Optimization
- Testimony: How to Prepare for Court
- Games Criminals Play: Technology as an Advantage
- BI TotalAccess: Recent and Future Enhancements
- BI Analytics – Making Data Work for You
- Refresher Hardware and Software Training

Typically twice a year, officers have the opportunity to visit BI's corporate headquarters and Monitoring Operations facilities to see our daily operations firsthand and meet the BI employees they work with every day. In addition to BI-sponsored technology workshops, these forums feature customer roundtables and guest panels to give officers the opportunity to share best practices and knowledge with their peers.

d. Types of embedded templates supported by software (e.g., new offender, alert types, etc.)

N/A

e. Types of post-training help and tutorials available

As a follow-up to initial hands-on training, BI provides weekly webinar training sessions and interactive help tutorials available through the TotalAccess software.

Section 5.0—Features and Functions

a. Number of tracking devices that can be concurrently monitored

BI's technical architecture is 100% extensible: the system can grow indefinitely to accommodate additional offenders as needed. Our team of more than 55 software developers, information systems personnel, and product managers constantly upgrade and enhance our systems based on collective collaboration from customer feedback. Our infrastructure currently supports more than 68,500 offenders located throughout the nation that are supervised by approximately 1,600 agencies. This can be expanded to monitor a virtually unlimited number of tracking devices without degradation of performance, speed, or quality.

b. Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, standards with which the output is compliant, etc.)

N/A

c. Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")

The ExacuTrack One monitors several alert types, including zone violations, schedule violations, tamper violations, loss of signal, loss of GPS, jamming attempts, and many more. During initial set-up, the agency determines which events will be considered alerts. The tracking unit differentiates all alerts based on the specific circumstances surrounding the alert, and has unique messages for all alert types.

d. Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)

Communication with offenders using the ExacuTrack One is accomplished through the unit's built-in waterproof speaker that automatically plays pre-recorded messages in response to certain key events. In addition, specific voice prompts can be sent to the ExacuTrack One through TotalAccess at any time.

By calling the Monitoring Operations center or by directly accessing TotalAccess, officers can enable or disable automatic voice messages and also specify which events will trigger an automatic voice message. For example, officers can specify that if the client leaves the beacon's range during a scheduled curfew period, the unit will automatically play a message that says, "You should be in range of the beacon." The unit emits a tone to notify the client when a message is incoming, requiring the offender to acknowledge the tone by touching the acknowledgement sensor on the outside of the unit prior to playing the recorded message, allowing for two-way communication. All communication activities are recorded in TotalAccess. Examples of audio prompts include:

- **"Entering an Exclusion Zone. Leave now"** the client has entered a predefined exclusion zone where entering is prohibited. The client is prompted to leave immediately.

- **"Leaving an Exclusion Zone"** the client has left a predefined Exclusion Zone.

- **"Low battery, recharge unit"** indicates the tracking unit's battery has 25% or less charge remaining.

In addition, the ExacuTrack One is equipped with LED indicators that may be enabled or disabled through TotalAccess. These indicators illustrate the battery status of the unit, and help notify offenders when the unit is below 25% battery and requires recharging.

e. Types of device and strap tamper detection methods

The ExacuTrack One is equipped with multiple device and strap tamper detection methods, as detailed in *Table 3. ExacuTrack One Tamper Detection*.

Table 3. ExacuTrack One Tamper Detection	
Tamper Type	**Tamper Description**
Strap Removal Detection.	A fiber-optic wire in the ExacuTrack One strap secures the unit to the client's ankle. If the fiber-optic circuitry is interrupted (e.g., if the client cuts, removes, or disassembles the strap), the unit sends a "Strap Tamper" message to the central monitoring computer.
Buckle Removal Detection.	A buckle secures the ExacuTrack One's fiber-optic strap to the client. If the buckle is removed, the unit will send a "Strap Tamper" message to the central monitoring computer.
Motion Detection.	The ExacuTrack One uses a motion sensor to detect if the unit has been removed from a client's leg. When the tracking unit enters a motionless state, the ExacuTrack One reports the last valid location point to the central monitoring computer and generates a "No Motion" event.
Jamming Detection	BI's ExacuTrack One is detects and transmits unique alerts for jamming attempts. When a client attempts to jam the device's signals, a "GPS Jam Detect" alert is generated.

f. Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)

Agency personnel can require clients to acknowledge audio messages by touching the acknowledgment sensor on the ExacuTrack One. This verifies receipt of messages, providing a direct contact between officers and offenders during alert and critical violation circumstances.

g. Ability to notify/alert victims of domestic violence

BI Incorporated • 6400 Lookout Road • Boulder, CO 80301
Tel: 303.218.1000 • Fax: 303.218.1250 • www.bi.com

8

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

N/A

h. Types of mobile monitoring software applications to transmit alerts to personnel in the field

BI's Monitoring Software, TotalAccess is available from any web-enabled PDA or mobile device 24/7/365. In addition, TotalAccess can be configured to transmit alert notifications to officers via fax, text, PDA, or manual phone call.

i. Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc.)

BI offers Crime Scene Correlation, Data Interchange, Stop Reports, and Data Analytics capabilities. These functionalities provide advanced location-based analytics and data interfaces with agency systems, and provide the following capabilities:

Crime Scene Correlation. Fully automated crime scene correlation is available through the BI TotalAccess monitoring platform, and is being continually updated to implement features such as crime scene mapping. Our correlation offering enables the following capabilities:

- Enhanced offender accountability by giving supervision officers a tool to supplement periodic checks
- Increased ability to rule out potential crime suspects
- Build solid relationships with local law enforcement by sharing appropriate crime information to help them develop and investigate viable suspects.

Crime data from law enforcement agencies or crime data aggregators is secured and mapped to the following broad categories:

- Crimes against Persons
- Sex Crimes
- Property/Financial Crimes
- Drug/Alcohol

- Weapons Crimes
- Traffic Crimes/Incidents
- Miscellaneous

The crime data is then compared against TotalAccess GPS tracking points to determine whether a monitored offender was in proximity (temporal and geospatial) to a reported crime location. Both the distance from the crime location and the time-span for the event (e.g., 10 minutes before and after the crime) is configurable at the agency level in TotalAccess.

If a data intersection, or "hit," occurs, based on the agency's parameters, an event is triggered and placed into TotalAccess as a notification. The notification includes both the receive time and the time the event was processed by TotalAccess. This event is configurable as an alert with escalation procedures. The following additional information is included in TotalAccess with each alert:

- Reporting Law Enforcement Agency
- Crime Type
- Crime Location

- Number of points in the matched area
- An enhanced map to provide a view of detailed crime "hit" data
- Radius of the match

A planned future enhancement includes the ability to launch a map pre-populated with the matched points and the location of the crime. The officer will be able to hover over any GPS point in the map to open a

BI Incorporated • 6400 Lookout Road • Boulder, CO 80301
Tel: 303.218.1000 • Fax: 303.218.1250 • www.bi.com

9

---

window that will provide detailed data, a link to find the closest address, and a link to display the crime data. Officers are able to run and schedule offender, officer, and agency level reports showing crime scene correlation data. Officers can also set up future scheduled reports.

Manual and Automated Data Interchange. BI has multiple options designed to allow existing crime scene data to be integrated and correlated with TotalAccess monitoring data. Once loaded into TotalAccess, all crime scene data will be available for viewing in TotalAccess' enhanced mapping screens. BI establishes data interchanges using the following two systems:

- Establishing a File Transfer Protocol (FTP) data exchange system
- Establishing a *Web Services*-based exchange system

Stop Reports. To aid supervisory and law enforcement personnel with identifying patterns in client behavior, BI has developed a Client Stops Report. This report displays address and duration information for GPS points in one location during a specified timeframe. The area and time when a client stops is configurable—users determine a distance, or radius of a circle around the location, and a time threshold for running the report. For example, if users select 150 feet distance and a 15 minute time threshold, the report displays the date and time a client was within 150 feet of the location for a period of time that exceeded the threshold of 15 minutes.

BI Data Analytics. BI Data Analytics greatly enhance TotalAccess by turning volumes of tabular data into actionable information. Data analytics helps uncover hidden elements in the enormous amounts of data captured in TotalAccess, and then uses this data to formulate trends, construct profiles and analytic reports, and build predictive models that create insights about the offender population.

j. Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)

BI provides two distinct types of real time monitoring through *Pursuit Mode* and pinging.

- **Pursuit Mode.** Once *Pursuit Mode* is enabled, the ExacuTrack One will begin recording a location every 15 seconds and will report location points once a minute to enable continuous, real-time tracking.
- **On-Demand Location Verification.** The ExacuTrack One allows agency personnel to locate ("ping") an offender manually, at no additional charge, by sending a request from TotalAccess to the tracker. This requests both a current GPS point as well as all stored data that has not been uploaded to the central monitoring computer.

k. Types of reports that are available (e.g., standard information examples, extent that reports are customizable, inclusion of maps, etc.)

TotalAccess includes numerous predefined, automatically generated standardized reports that provide frequently needed information. Users can run reports at any time and schedule reports for automatic delivery by email or fax at specified intervals. All reports can be exported as PDFs, Word documents, or Excel spreadsheets. Most reports take less than a minute to run, and users can save reports to a hard drive or email them with the click of a button. TotalAccess predefined reports cover three general areas:

- **Monitoring Reports** provide information about offender movement, alerts and events, and equipment status such as battery charge. These include mapping views.
- **Equipment Reports** provide the Department with inventory management information.
- **Statistical Reports** provide statistical summaries and snapshots of program data within specified timeframes.

Once exported, TotalAccess' reports can be sorted by any field.

l. Types of on-demand custom reports

Through TotalAccess, agency personnel can create their own customized reports by using the TotalAccess ad-hoc reporting capability. Users can customize reports by:

- Selecting the information fields to be included
- Grouping data, sort, and filter data
- Applying specific formatting
- Adding a visual representation of data, such as pie, bar, or line graphs.

m. Other unique features not covered above

N/A

Section 6.0—Performance and Security

a. Average time to install and activate device (in minutes)

The ExacuTrack One is easily installed and activated by an officer in the field in an average of five minutes.

b. Locational accuracy indoor and outdoor (in feet)

BI measured the Circular Error Probability (CEP) of ExacuTrack One. CEP is the radius of a circle within which a GPS point will land. Per the E911 FCC requirement, an emergency call should have a CEP of 95% of fixes within 450 feet. The ExacuTrack One tracking unit has a degree of accuracy that far exceeds the US government's requirements for CEP:

- 50% of GPS point fixes are within 6 feet of the actual location.
- 95% of GPS point fixes are within 15 feet of the actual location.
- 98% of GPS point fixes are within 18 feet of the actual location.

c. False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates

N/A

d. Mean time to failure

N/A

e. Percent availability versus downtime of the device

N/A

f. Mean length of time from alert to notification

N/A

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

g. Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing

The ExacuTrack One is designed to detect and report jamming attempts to the central monitoring computer. Each unit is equipped with a unique ID and encrypts all program and equipment data transmitted.

h. Data protection mechanism while in transit and during storage (e.g., SSL, encryption, password strength, etc.)

TotalAccess is protected from unauthorized security threats through various security protocols, including intrusion detection, firewalls, antivirus protection, and SSL certificates. All users are required to input unique, secure user names and passwords, which are periodically changed to offer an added level of protection.

i. Types of database change record maintenance practices for historical data

N/A

j. Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored

BI currently adheres to all applicable security laws and possesses a current Federal Information Security Management Act of 2002 (FISMA) systems certification. BI employs security protocols with the understanding that keeping Personally Identifiable Information (PII) confidential is critical to program success and mitigating risk, and maintains a detailed security and disaster recovery plan to ensure all PII is securely and reliably maintained. In addition, BI complies with all HIPAA regulations, and all personnel coming in contact with PII must complete an annual HIPAA training to further mitigate the likelihood of PII disclosure to unauthorized persons.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX E. GEOSATIS TECHNOLOGY

GEOSATIS TECHNOLOGY

Request for Information   Date : 10/03/2015

1. Vendor Information	
a. Name	a. Geosatis Technology S.A.
b. Years your company has been in business	b. For 4 years, the company was created in 2011.
2. Product Information	
a. Types of equipment or products that are offered (e.g., new, used, refurbished, leased, etc.)	a. New, leased
b. Name and model number (e.g., device monitoring software application, home monitoring unit, etc.)	b. Our product offering is composed of an Electronic Monitoring bracelet, a mobile charger, a home station and monitoring software (including a mobile app). A Victim Device can also be provided separately.
c. Multi piece or one-piece configuration	c. One piece.
d. Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component	d. In inches: Bracelet: Internal Diameter (elliptic): Small: 2.95/3.26, Medium: 3.34/3.70, Large: 3.89. Height: 1.77. Thickness: 0.51 Mobile charger: L, W, H: 4.33 X 1.96 X 2.16 Home station: L, W, H: 6.88 X 6.85 X 1.96 Victim Device: L, W, H: 2.75 X 3.54 X 0.78
e. Weight (in ounces) of device with strap and included battery	e. In ounces: Bracelet: Small: 180, Large: 190 Mobile charger: 120 Home station: 1200 Victim Device: 150
f. Depth to which device is waterproof (in feet)	f. 100 feet.
g. Type of tracking (e.g., active, passive, or hybrid)	g. Hybrid. The tracking can be set based on the offender.
h. Location where system stores zone and schedule information (e.g., onboard or monitoring software application)	h. Monitoring software application
i. Location on the body where the device is worn	i. The device is worn on the ankle
j. Battery discharge time(hours of continuous operation before needing a charge)	j. 24h (rate 1/min) – 48h (every 2 min), The bracelet will operate for 1-2 days depending on reporting frequency and other configuration parameters
k. Battery shelf life (in months)	k. 24 months

Geosatis SA / Tel : +41 32 513 42 94 / Fax : +41 31 513 42 51 / info@geo-satis.com / www.geo-satis.com   1 / 6
Siège social / Rue Saint-Hubert 7 / 2300 le Noirmont / Suisse
Laboratoire / EPFL – PSE D / 1015 Lausanne / Suisse

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

GEOSATIS TECHNOLOGY

Request for Information   *Date : 10/03/2015*

l.	Battery recharge time (hours required to fully charge battery after complete discharge)	l.	45 minutes
m.	Battery replacement procedure and where it must be done (e.g., field or factory)	m.	Back to the manufacturer and battery replacement after 2 years.
n.	Availability of supplemental charger for emergency battery charging (e.g., hand crank, backup battery, solar, etc.)	n.	Mobile charger is equipped with a micro USB port, allowing charging using laptop, backup USB battery, solar panel
o.	Onboard memory storage (quantity of data that can be stored on device in number of files/ alerts/ days activity)	o.	Depending on the number of position measurement per minute, the memory of the field devices is: - Position every five seconds: 20 hours can be stored - Position every 2 minutes: 480 hours can be stored
p.	Frequencies on which the device components operate (cite FCC part number)	p.	GSM : 800 MHz, 900MHz, 1800MHz and 1900MHz Bluetooth : 2.45 GHz
q.	Type(s) of technology used to geo-locate the offender (E.g., GPS, WiFi, RF, cellular triangulation, etc.)	q.	GPS, EGNOS, WAAS, GLONASS*, Galileo*, LBS, home station (RF) *later
r.	Mechanism by which data is transmitted to the monitoring software (e.g., cellular, WiFi, landline, etc.)	r.	GSM Transmission (GPRS)
s.	Auxiliary equipment (e.g., car chargers, emergency chargers, beacons, etc.)	s.	Optional comfort element.
t.	Manufacturer suggested retail price, without optional features, accessories or service plans	t.	Only upon request
u.	Type and duration of warranty provided on the device(s) that you offer (e.g., what is covered in a standard warranty vs. what is covered in an optional or extended warranty)	u.	2 years
v.	Means and frequency of monitoring center and monitoring software application backup	v.	External monitoring center
w.	Length of time data is retained in archives (in years)	w.	User configurable
x.	Any additional information not covered above	x.	

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

GEOSATIS
TECHNOLOGY

Request for Information   *Date : 10/03/2015*

3. Usability	
a. Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis interaction design, usability testing ergonomics, etc.)	a.
b. Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected	b. Pilot projects, surveys, brainstorming, trade shows
c. Types of user-group meetings and frequency of their occurrence	c. -
d. Types of embedded templates supported by software (e.g., new offender, alert types, etc.)	d. -
e. Hours of technology support and location (e.g., telephone or at agency)	e. Customer support by phone, email and local contact.
f. Hours of operation of monitoring center	f. External monitoring center
g. Hours and type of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)	g. On-site, only requires minimal training (half a day allows basic understanding)
h. Types of post-training help and tutorials available	h. User manuals, continuous training , online videos
4. Features and Functions	
a. Maximum number of tracking devices that can be concurrently monitored by the monitoring/tracking software	a. Potentially unlimited

b. Number of data points per minute at which data:
  i. Is collected by the device
  ii. Is reported to the monitoring software
	b. Configurable according to the type of monitoring, typical: location measurement 4x per minute and reporting 1x per minute.

c. Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, data standards with which the output is compliant, etc.)	c. API integration possible
d. Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and	d. Exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, proximity victim, displacement and a power

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

GEOSATIS
TECHNOLOGY

Request for Information   *Date : 10/03/2015*

way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")	outage of the base station
e. Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)	e. Notifications can be sent via SMS, voice and e-mail. It is possible to alert an offender via vibration and beeping of the bracelet.
f. Single or multiple mechanisms for tamper detection of device or strap circumvention	f. Ultrasounds are propagated inside the structure of the bracelet and detect any tampering or breaking attempt by the wearer. Tampering with radio signals (jamming, spoofing) is also detected
g. Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)	g. Acknowledgment buttons*, two-ways phone calls with optional headset
h. Ability to notify/alert victims of domestic violence	h. The light and compact victim device secures the victim of violence by preventing the aggressor to approach him/her, it is possible to alert the victim via vibration, message and beeping of the victim device.
i. Types of mobile monitoring software applications to transmit alerts to personnel in the field	i. Mobile application currently only on iphone
j. Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc.)	j. Historical data only
k. Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)	k. The real-time monitoring allows to know all the position of the monitored person at all time.
l. Types of reports that are available (e.g., standard information examples, extent that reports are customizable, inclusion of maps, etc.)	l. Comprehensive list of standard and custom reports.
m. Types of on-demand custom reports	m. Integration with report engine possible
n. Other unique features not covered above	n.

4 / 6

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

GEOSATIS TECHNOLOGY   *Request for Information*   *Date : 10/03/2015*

5. Performance and Security		
a.	Average time to install and activate device (in minutes)	a. <2 minutes
b.	Range in performance of locational accuracy indoor and outdoor (in feet)	b. <4m RMS
c.	False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates	c. Not provided
d.	Mean time to failure	d. Not provided
e.	Minimum data collection rate (e.g., once/minute)	e. Once per minute
f.	Minimum number of data storage, in days, (e.g., seven, ten, or fourteen days)	f. 10 days
g.	Mean length of time from alert to notification	g. <1 minute
h.	Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing	h. GPS – if disconnected (war, failure), the bracelet will still rely on less accurate inertial sensors and cell tower localization (LBS). GSM, GPRS – if only one telecom provider is disconnected, the system will seamlessly switch to an alternate provider. In the very unlikely event where all providers are unavailable, the system will store information locally until it can reconnect. In case the GPRS system fails but the GSM network remains operational, the communication can fall back to SMS When GPS is not available outdoors, the system automatically switches to cell tower localization. When indoors, the bracelet automatically detects the presence of a home station, and connects to it using Bluetooth short-range communications (up to 100m).
i.	Data protection mechanism while in transit and during storage (e.g., SSL, encryption, password strength, etc.)Show citation box	i. Web platform: HTTP**S** Communications IP: DTLS 1.2, AES 128bit CCM Bluetooth: Bluetooth2.1 security
j.	Types of database change record maintenance practices for historical data	j. -
k.	Mechanism for maintaining	k. Security, confidentiality and privacy is

Geosatis SA / Tel : +41 32 513 42 94 / Fax : +41 31 513 42 51 / info@geo-satis.com / www.geo-satis.com   5 / 6
Siège social / Rue Saint-Hubert 7 / 2300 le Noirmont / Suisse
Laboratoire / EPFL – PSE D / 1015 Lausanne / Suisse

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

GEOSATIS TECHNOLOGY   *Request for Information*   *Date : 10/03/2015*

confidentiality of personally identifiable information about the individual being monitored	done at various levels: ALL communications are encrypted The data is encrypted in the database (bcrypt for passwords) The web platform will only accept client-authenticated HTTPS sessions We support multi-factor authentication We do not rely on third-party hardware (except at the chip level) ALL the data is hosted by the government or authorized agencies (no cloud requirement) The system provides fine-grained role-based access control

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX F. LAIPAC TECHNOLOGY, INC.

1	
a	Laipac Technology Inc.
b	16, Established 1999
2	
a	New
b	S911 Bracelet ST
c	one piece
d	7.0x5.0x2.5 cm (not including the wrist strap)
e	68 grams
f	water block version has been tested to 3 feet of water for 30 minutes
g	active
h	Zone data is stored on the Bracelet and is mirrored on the monitoring server; schedule information is stored on the monitoring server
i	wrist
j	55 hours, lab test
k	24
l	3-4 hours
m	battery can be replaced in the field
n	uses USB Micro connection, can be recharged by a computer, wall plug with USB level power output or battery that has a USB connection
o	2250 waypoints equating to 1.5625 days on a 1 minute reporting interval, 7.8125 days on a 5 minute reporting interval, or 23.4375 days on a 15 minute reporting interval, other intervals based on the reporting frequency
p	15B, 22H, 24E
q	GPS
r	cellular 2G 800/850/1800/1900 MHz
s	comes with USB cable, wall adaptor, security screws and security keyway; (car charger optional)
t	239.00 USD; Water Sealed version add $50.00
u	1 year against manufacturing defects; extended warrantee 2 years available at additional cost
v	Backups are made once per week with only the most recent weeks data maintained. On a monthly basis, a permanent backup is made which includes the operating database and the system log files
w	on line, currently 3 months; off line - perpetual
x	
3	

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

a	no formal process
b	no formal process
c	n/a
d	user definable, we can provide assistance with this
e	09:00-18:00 eastern - phone, email
f	24/7, automated; Laipac does not currently run a staffed monitoring center
g	Customized training is available; the Bracelet and LocationNow can be covered in a day.
h	manuals, help desk 09:00-18:00 eastern time, video instructions
4	
a	scalable
b i	position is computed at a frequency of once per second internally, collected data to be sent to server follows the user setting up to 4 per minute
b ii	user selectable, maximum number of points is 4 per minute
c	data is sent as ASCII text in a format similar to NMEA, it is not immediately compatible with other services; data format is available for developers who wish to integrate the Bracelet with other services. Our protocol is implemented by Position Logic, Bold Technology and Axeda among others
d	SOS (cellular phone call, SMS (text) message, canned email); G Sensor (SMS (text) message, canned email); geo fence (SMS (text) message, canned email); Tamper (SMS (text) message, canned email); overspeed (SMS (text) message, canned email)(with limit of 1 per hour); Low Battery (SMS (text) message, canned email); Power Off (SMS (text) message, canned email);
e	audible, SMS (text), email, cellular phone call
f	single
g	canned SMS (text) message, cellular telephone
h	yes
i	Monitoring apps are available for Android and iOS. The apps do not generate alerts or send messages to the monitoring server. All alerts originate at the Bracelet , or from the monitoring server in response to an alert from the Bracelet.
j	none at this time
k	yes, using locationnow.com or mobile app
l	Trip Log, Stop Log and Summary reports. Device location history, data ranges are user selectable, map display
m	none at this time
n	cellular phone for incoming calls to device, can call up to 10 reprogrammed phone numbers, can send preprogrammed SMS (text) to same 10 phone numbers
5	

a	About 20 minutes, 10 to configure the back office systems to communicate with the Bracelet and 10 to program the Bracelet and install it on its' user.
b	outdoor - <16 feet, indoors - varies, but greater distances than outdoors
c	do not have this analysis
d	do not have this analysis
e	Most Frequent period, 15 second intervals; least frequent intervals, 24 hours
f	Depends on rate of waypoint generation, see 2o
g	do not have this analysis
h	none
i	Currently, security is limited. We are in the process of implementing a fully encrypted data storage system that will be able to use a variety of current cipher suites. Use of TLS protocols for communications with the monitoring server will also be implemented shortly.
j	The monitoring software has no ability to modify the location data. There is a log that contains the login an logoff times of all users, and changes made to the user and device databases (add, modify, delete user or device profiles).
k	Access to data collected is through password protected accounts

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

APPENDIX G. SATELLITE TRACKING OF PEOPLE LLC

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

The NIJ RT&E Center seeks input to its "Market Survey of Location-based Offender Tracking Technologies." Vendors who respond to this request for information are invited to provide general comments with regard to the Survey for the NIJ RT&E Center to consider, including which categories of information are appropriate for comparison, as well as promotional material (e.g., slick sheet) and a print-quality photograph. The NIJ RT&E Center intends to include, at a minimum, the following categories of information for each vendor and OTS model, service, or product (Note that "Not Applicable" is a valid answer):

1. Vendor Information

   a. Years your company has been in business

Satellite Tracking of People LLC (STOP) has been in business for 10 years.

   b. Acquisition history

STOP was acquired by Securus Technologies, Inc. on December 20, 2013. It operates as a wholly-owned subsidiary of Securus.

   c. Number and types of customers (e.g., state, local, federal, corrections, courts, etc.)

STOP has 456 contracts with federal, state, county and local government agencies that supervise adult and juvenile offenders. STOP also contracts with private for-profit and not-for-profit companies that provide supervision services to local courts and government agencies.

   d. Location where technology is manufactured, assembled, or refurbished

All equipment assembly and refurbishment takes place in our corporate office in Houston, Texas.

   e. Percent of inventory that is refurbished equipment

Approximately 50 percent of STOP's inventory is refurbished, which means it is in like-new condition. Because of the like-new condition, the number of refurbished devices is irrelevant to their operations. When a device is returned to STOP's office, if the battery is more than six months old, it is automatically replaced.

   f. Hours of technology support and location (e.g., telephone or at agency)

STOP's technical support is staffed and operational 24 hours a day, 365 days per year with live technicians who respond to inbound phone calls, faxes and emails.

   g. Hours of operation of monitoring center

STOP's technical support center is staffed and operational 24 hours a day, 365 days per year.

   h. Hours and types of training provided (e.g., on-site, web-based, pre-recorded, play environment etc.)

STOP offers several types of training: live, in-person; live webinar and pre-recorded webinar. Live, in-person training usually takes a full business day, which is equivalent to approximately eight hours. Live and pre-recorded webinars usually take one half of a business day, which is equivalent to approximately four hours.

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

i. *Length of time data is retained in archives (in years) –*

STOP does not delete archived monitoring data from customer supervision programs, so our current archive is 10 years. Since the start of the Company, STOP has securely stored all data associated with any given customer's supervision program. The only time STOP deletes or removes data from its servers is if the customer provides explicit and detailed instructions for deleting the data.

j. *Means and frequency of monitoring center and monitoring software application backup*

The architecture for STOP's secure web-based monitoring application is such that the data back-ups are created in real time. The same is true of STOP's Monitoring Center. An additional data back-up is completed nightly.

k. *Factors most often provided as discriminators from purchasers of your products (e.g., price, specific features, vendor reputation, ease of use, etc.)*

Customers most often site the following reasons for choosing STOP's GPS monitoring system over others. Ease of using STOP's system. The rate of receipt and frequency of reporting GPS location points. STOP's reputation as a customer focused. Price of equipment and services, and the value-added services offered. The length of time the GPS monitoring device operates on a single charge.

2. Product Information

a. *Name and model number (e.g., device, monitoring software application, home monitoring unit, etc.)*

- BLUtag is the name of the one-piece GPS monitoring device offered by Satellite Tracking of People LLC. Only one model of BLUtag is offered to customers.
- VeriTracks is the name of STOP's secure web-based monitoring application. Only one version of VeriTracks is offered to customers.
- BLUhome is the name of the optional home-based receiver unit. It reports monitoring data received from BLUtag to VeriTracks using the landline phone service in the offender's home. Only one model is offered to customers.
- BLUbox is the optional home-based receiver that is paired with BLUtag when the offender lives in an area impairing BLUtag's ability to receive GPS signals. Only one version of BLUbox is offered to customers.

b. *Physical dimensions (height X width X depth, in inches) of device (with strap, and included battery) or component*

- BLUtag is 4.33" tall x 2.08" wide x 1.25" deep. The battery is permanently sealed in the case. BLUtag is installed around the offender's ankle and the strap inserts into the device's two wings. Any additional depth the strap adds depends on the circumference of the offender's ankle.
- BLUhome is 2.5" tall x 8" wide x 7" deep. Its backup battery is permanently sealed in the case. BLUhome installs in the offender's home and does not require straps.
- BLUbox is 3" tall x 4.25" wide x 2.25" deep. Its backup battery is permanently sealed in the case. BLUbox installs in the offender's home and does not require straps.

2

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

c. *Weight (in ounces) of device with strap and included battery*

- BLUtag weighs approximately 6 ounces, which includes the battery and strap.
- BLUhome weighs approximately 10 ounces, which includes its backup battery.
- BLUbox weights approximately 7 ounces, which includes its backup battery.

d. *Depth to which device is waterproof (in feet)*

- Independent laboratory tests confirm BLUtag is water proof up to 50 feet, but has been tested to 100 feet.

e. *Type of tracking (e.g., active, passive, or hybrid)*

- BLUtag can track the locations and movements of offenders in active, passive and hybrid GPS monitoring modes without changing equipment. BLUhome and BLUbox do not have GPS monitoring capability.

f. *Multi-piece or one-piece configuration*

- BLUtag is a one-piece GPS monitoring device.

g. *Location where system stores zone and schedule information (e.g., onboard and/or monitoring software application)*

- BLUtag stores all GPS location points and zone information (latitude/longitude location of zones and the schedule for each) in its built-in non-volatile memory. This allows the device to immediately detect, record and report violations of an exclusion or inclusion zone.

h. *Location on the body where the device is worn*

- BLUtag is installed around an offender's ankle.

i. *Battery discharge time (hours of continuous operation before needing a charge)*

- If BLUtag's battery charge is depleted, it reaches full charge within two hours after attaching the charging coupler to the bottom of the device and plugging the other end into a standard 110-volt electrical outlet[1]

j. *Battery shelf life (in months)*

- The shelf life of BLUtag's battery is 5 years.
- The shelf life of the backup battery for BLUhome and BLUbox is 5 years.

k. *Battery recharge time (hours required to fully charge battery after complete discharge)*

- If BLUtag's battery charge is depleted, it reaches full charge within one hour after attaching the charging coupler to the bottom of the device and plugging the other end into a standard 110-volt electrical outlet. [2]

---

[1] 48 - 72 hours depending on conditions (excellent cellular connection and no obstruction of GPS). (JHU/APL as a result of an email exchange with Mr. Greg Utterback, Chief Development Officer. Satellite Tracking of People LLC (3/27/15).)

3

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

l. *Battery replacement procedure and where it must be done (e.g., field or factory)*

- If the battery in a BLUtag device needs replacing the supervising officer returns the device to STOP's Houston, Texas, headquarters.

m. *Availability of supplemental charger for emergency battery charging (e.g., hand crank, backup battery, solar, etc.)*

- In addition to the standard charging coupler to charge BLUtag's battery, STOP offers its customers two additional charging tools: a charger that plugs into an automobile's cigarette lighter and a mobile charger that fits onto the bottom of the device.

n. *Onboard memory storage (quantity of data that can be stored on device in number of files/alerts/days activity)*

- BLUtag's built-in non-volatile memory stores an unlimited number of zones and it can store up to 10 days of monitoring data.

o. *Equipment that is FCC approved*

- BLUtag, BLUhome and BLUbox are all FCC approved monitoring equipment.[3]

p. *Auxiliary equipment (e.g., car chargers, emergency chargers, beacons, etc.)*

- Charging BLUtag's battery is completed through one of three ways: charging coupler, which attaches to the bottom of the device and plugs into a standard 110-volt electrical outlet; charging coupler designed to attach to the bottom of the device and plug into an automobile's cigarette outlet; a mobile monitoring unit that attaches to the bottom of the device.
- BLUhome is an optional home-based monitoring unit that installs into the offender's home. It reports monitoring data it receives from BLUtag to VeriTracks using the landline phone service in the offender's home.
- BLUbox is an optional home-based monitoring unit that installs into the offender's home. It is paired with BLUtag when the offender lives in an area impairing BLUtag's ability to receive GPS signals.

q. *Extent, expressed as a percentage, that products comply with the draft NIJ Standard 1004.00 Criminal Justice Offender Tracking System Standard that was published in December 2013 (e.g., safety, technical operation, circumvention, software, robustness)*

- BLUtag complies with 100 percent of the NIJ Standard 1004.00 Criminal Justice Offender Tracking System Standard.

r. *Manufacturer suggested retail price, without optional features, accessories or service plans*

---

[2] – 1 hour per day. The 2 hour recharge is required if the device goes into a low battery condition (approximately 36 hours before full depletion). (JHU/APL as a result of an email exchange with Mr. Greg Utterback, Chief Development Officer. Satellite Tracking of People LLC (3/27/15).)

[3] Frequencies on which the device operates (Cite FCC part number): 1850.2 – 1909.8 and 824.2-848.8. (JHU/APL as a result of an email exchange with Mr. Greg Utterback, Chief Development Officer. Satellite Tracking of People LLC (3/27/15).)

4

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

- BLUtag is not sold outright to government agencies. It is leased to them based on a per device, per day, per offender price. The price an agency pays is determined by its volume and it ranges from $3.50 to $4.50.
- There is normally no additional charge for using BLUhome or BLUbox with BLUtag.

s. *Other[4]*

- STOP offers optional services for an additional fee, such as Monitoring Center, offender invoicing and payments, equipment installation and removal and case management.

3. Versatility

a. *Rate at which data can be collected by the monitoring software application (e.g., number of data points/minute)*

- BLUtag receives one GPS location point per minute regardless of violation status, but can be adjusted to every 15 seconds at agency request.
  - When offenders violate the terms of their supervision, BLUtag immediately reports the violation to VeriTracks using nationwide cellular phone service.
  - When offenders comply with the terms of their supervision, BLUtag reports monitoring data to VeriTracks at least once every 10 minutes using nationwide cellular phone service.

b. *Location technology or technologies supported (e.g., GPS, RF, cellular triangulation, etc.)*

- BLUtag has secondary location technology based on the cellular phone towers with which it uses to report monitoring data to VeriTracks. Among the tower data BLUtag uses to determine the offender's location is the strength of the signal.

c. *Types of data communications supported (e.g., cellular, landline, etc.)*

- BLUtag reports monitoring data to VeriTracks using nationwide cellular phone service. It can report monitoring data to VeriTracks using landline phone service in the offender's home when paired with BLUhome, a home-based receiver unit.
- BLUbox does not have communication/reporting capability.

4. Usability

a. *Types of processes used to ensure usability of hardware and software products (e.g., requirements gathering, observation, task analysis, interaction design, usability testing, ergonomics, etc.)*

- STOP manufactures its hardware in its Houston, Texas, headquarters, which is ISO 9001:2008 certified.
- STOP does 100 percent bench testing on all products and software services.

b. *Types of data gathered from the user community (e.g., interviews, observations during hands-on training, survey, satisfaction surveys, repeat customers, etc.) to evaluate your products, and how often it is collected*

---

[4] RFI question 2u: Type and duration of warranty: Since it is a lease, it is covered while under lease. (JHU/APL as a result of an email exchange with Mr. Greg Utterback, Chief Development Officer. Satellite Tracking of People LLC (3/27/15).)

5

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

- STOP receives feedback and input from its customers through face-to-face meetings, conference calls, emails, surveys and the annual Training Institute. Feedback is collected throughout the year.
- Data collected includes feedback and input on the development of new functionality, testing new functionality, the performance of the hardware and software, customer service and support, technical support, contract compliance, equipment delivery and returns, billing and customer appreciation.

c. *Types of user-group meetings and frequency of their occurrence*

- Account managers have conference calls with each of their customers at least once per month and make in-person visits at least once per month.
- Members of the executive management team meet with most customers at least once per year and participate on a quarterly basis with the account managers' monthly conference calls.
- The Satellite Tracking of People LLC Training Institute gathers users of the GPS monitoring system once every year.

d. *Categories of major problems and percentage of user community that experienced them within the last three (3) years*

- During the last three years, the categories of major problems encountered by Satellite Tracking of People LLC's customers were software related due to the launch of a new version.
- The majority of the issues were a result of customers not remembering how to navigate to certain functionality with the new version.

i. *Resolution(s) to the problems identified above*

- STOP's Training Department developed hints and tips cards and made recordings of the live webinar training for the new version of the software available through the online library.

e. *Types of embedded templates supported by software (e.g., new offender, alert types, etc.)*

- VeriTracks provides robust reporting and contains more than 300 reports. These reports are downloadable in several common formats -- Word, Excel, PDF and comma delimited.
- If an Agency needs a custom report not currently available in VeriTracks, STOP's report writing team develops it.
- Once the Agency approves the content and layout of the data, it is added to the reports database in VeriTracks.

f. *Types of post-training help and tutorials available*

- STOP provides technical support 24 hours a day, 365 days per year for all customers.
- After the completion of initial training, STOP's Training Department offers follow up training, which usually covers specific topics with which supervising officers are experiencing difficulty.

6

APL JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by S E C U R U S   T E C H N O L O G I E S ™

- Proactive Customer Assistance is provided to customers when requested, which has STOP's higher-level technical support technicians reviewing every officer's Daily Summary Report. They look for recurring violations and unusual events, and then work one-on-one with the supervising officer to help him/her correct the situation. Many times the solution is simply -- adjust the size or location of a zone or edit a zone's schedule.
- STOP's Training Department also maintains an online library containing training guides, videos, how-to documents and hints and tips cards.

5. Features and Functions

a. *Number of tracking devices that can be concurrently monitored*

- VeriTracks can receive data from an unlimited number of monitoring devices at one time.

b. *Type of interoperability embedded in the design of the data and device output (e.g., other vendor software, other vendor devices, standards with which the output is compliant, etc.)*

- When a customer transitions from one vendor's GPS monitoring system to STOP's system, STOP's software engineers work with the previous vendor to migrate the GPS monitoring data collected and stored in the vendor's software to STOP's.
- Once fields are correctly mapped, the data is downloaded into VeriTracks.

c. *Types of alerts (e.g., exclusion zone or schedule violations, strap tamper or bracelet removal, low battery, loss of signal, communication failure, etc.) and way they are differentiated (e.g., do all alerts come up "Alert" or "Cause + Alert")*

- Events recorded and reported to VeriTracks by BLUtag are: On Charger, Low Battery, Critical Battery, Dead Battery, Master Tamper, Inclusion Zone Violation, Exclusion Zone Violation, Zone Start Location Unknown, Message Gap, No GPS, GPS Signal Interference, Press Button and Device Unassigned.
- Supervising officers select how to receive events based on the Agency's protocols. They can receive event notifications through email, fax or text message.

d. *Types of communication alerts to offenders (e.g., light, vibration, two-way communication, etc.)*

- When BLUtag's battery power is low, it vibrates to notify the offender. BLUtag can also be programmed to emit an audible tone and/or vibrate based on the Agency's needs. Offenders can acknowledge either audible tones or vibrations by pressing the acknowledgement button the face of the device. BLUtag has lights on its face that change color as the battery power level of the device decreases and increases.
- BLUhome provides test messages to the offender.

e. *Types of device and strap tamper detection methods*

- BLUtag detects, records and reports four types of tampering to VeriTracks: case, strap, GPS signal jamming and GPS signal shielding.
- BLUbox detects, records and reports unauthorized movement and interruptions to the electrical service in the offender's home.

7

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

- BLUhome detects, records and reports unauthorized movement and interruptions to the electrical and landline phone service in the offender's home

f. Types of acknowledgement by offender of an alert (e.g., one-way/two-way communications for offender, telephone, etc.)

- Offenders can acknowledge events or communication from the supervising officer by pressing the acknowledgement button on the front of BLUtag.

g. Ability to notify/alert victims of domestic violence

- STOP offers Agencies Stalker Alert, a victim notification device. It works in conjunction with BLUtag to alert victims when an offender is in close proximity of the victim's location.

h. Types of mobile monitoring software applications to transmit alerts to personnel in the field

- VeriTracks is a secure web-based monitoring application that is accessible 24 hours a day, 365 days per year by authorized users through any computer, laptop, smart phone or tablet with a high-speed Internet connection. STOP also has a specific mobile application that can be used on any cellular phone.

i. Types of analytical capabilities to check tracking (e.g., crime-scene correlation, offender congregation, time and duration differentiators, etc.)

- VeriTracks offers supervising officers multiple ways to analyze and evaluate the locations and movements of offenders. They can create global zones around geographic areas known to have illegal activity and/or a meeting place for offenders. They can also use the Automated Crime Scene Correlation functionality within VeriTracks to compare the locations and movements of offenders with the location of reported crimes and incidents from the local law enforcement's records management system.

j. Types of real-time monitoring features (e.g., monitored offender's location can be ascertained on demand)

- Supervising officers login to VeriTracks to initiate a Location Request, which instructs BLUtag to immediately report its current location to VeriTracks regardless of the last time it reported monitoring data. They can initiate a Location Request as often as once a minute. Supervising officers can also initiate Rapid Reporting when logged into VeriTracks. This function instructs BLUtag to report its location to VeriTracks once every two minutes for one hour.

k. Types of reports that are available (e.g., standard information examples, extent that reports are customizable, inclusion of maps, etc.)

- VeriTracks offers robust reporting capability and its reports database contains more than 300 reports that meet the reporting needs of Agencies. The types of reports cover a wide variety of topics including inventory, violations and open events, offender enrollments and un-enrollments, supervising officers logging in and knowing what actions they took while logged into VeriTracks, device assignment and assignment history, agent caseload, offender profile, etc. If an Agency needs a custom report,

8

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

Satellite Tracking of People LLC's report writing team creates it. Once the Agency approves the content and layout of the data, it is added to the report database in VeriTracks.

l.   *Types of on-demand custom reports*

- VeriTracks does not offer on-demand custom reports outside of normal filters and settings of established reports.

m. *Other unique features not covered above*

- VeriTracks streamlines the display of GPS location points by clustering them under a red bull's eye when an offender(s) were in a single location for at least five minutes. All GPS location points are visible by simply clicking the "Track Points" option on the screen.
- VeriTracks offers robust mapping, which is provided through Google Maps™. The maps have the same functionality as the commercial version – multiple map views, zoom into and out of the map and pan across the map.
- Supervising officers select the date and block of time to display the movements of one or more offenders at one time on a map.

6. Performance and Security

a.   *Average time to install and activate device (in minutes)*

- With minimal training supervising officers can install BLUtag around an offender's ankle in less than five minutes.
- Installing BLUhome or BLUbox into an offender's home also takes less than five minutes with minimal training.

b.   *Locational accuracy indoor and outdoor (in feet)*

- BLUtag receives GPS signals from the U.S. Department of Defense satellites that orbit the earth.
- The GPS location points are 95 percent accurate within a range of 10 meters.

c.   *False positive (alert generated when it should not have been) and false negative (alert was not generated when it should have been) rates*

- BLUtag receive GPS signals from the U.S. Department of Defense satellites that orbit the earth. The GPS location points are 95 percent accurate within a range of 10 meters. Because of this high level of accuracy, the events BLUtag reports are neither a false positive or a false negative less than 1 percent of time.

d.   *Mean time to failure*

- BLUtag is designed to operate for at least 24 months of continuous use.

e.   *Percent availability versus downtime of the device*

- BLUtag operates as expected 99 percent of time when offenders maintain the battery charging regimen.

9

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

f. *Mean length of time from alert to notification*

- From the time BLUtag detects, records and reports an event to VeriTracks and VeriTracks sends a notification to the designated recipient(s), approximately one minute has passed.

g. *Security mechanisms against GPS or communication channel jamming, shielding, interception, or spoofing*

- BLUtag is the first GPS monitoring device with the capability of detect, record and report when the offender jams the GPS signal with an inexpensive and illegal device. BLUtag is also the first GPS monitoring device capable of detecting, recording and reporting when the offender shields BLUtag from receiving GPS signals. BLUtag immediately reports these events and is able to identify the cause of not receiving GPS signals.

h. *Data protection mechanism while in transit and during storage (e.g., SSL, encryption, password strength, etc.)*

- VeriTracks is accessible only to authorized users through a Hypertext Transfer Protocol Secure (HTTPS) connection. HTTPS is a combination of HTTP and the Secure Socket Layer/Transport Layer Security (SSL/TLS) protocols, which protect network traffic through 128-bit encryption.

i. *Types of database change record maintenance practices for historical data*

- VeriTracks records all changes in an offender's information (i.e., name, phone number, address, risk level, etc.) and monitoring parameters (i.e., zone size, location and/or schedule, etc.).

j. *Mechanism for maintaining confidentiality of personally identifiable information about the individual being monitored*

- STOP believes all of the data in VeriTracks is confidential and as such provides the highest levels of security to protect monitoring data, prevent hacking into our monitoring system and implement fast fault recovery. VeriTracks is accessible only to authorized users through a Hypertext Transfer Protocol Secure (HTTPS) connection. HTTPS is a combination of HTTP and the Secure Socket Layer/Transport Layer Security (SSL/TLS) protocols, which protect network traffic through 128-bit encryption.

DATES:
Responses to this request will be accepted through 11:59 p.m. Eastern Time on November 30, 2014.

ADDRESSES:
Responses to this request may be submitted electronically in the body of or as an attachment to an email sent to administrator@nijrtecenter.org with the recommended subject line "OTS Federal Register Response". Questions and responses may also be sent by mail (please allow additional time for processing) to the address: National Criminal Justice Research, Test and Evaluation Center, ATTN: OTS Federal Register Response, Johns Hopkins University Applied Physics Laboratory, 11100 Johns Hopkins Road, Mail Stop 17 N444, Laurel, MD 20723-6099.

10

Satellite Tracking of People LLC
by SECURUS TECHNOLOGIES™

FOR FURTHER INFORMATION CONTACT:
For more information on this request for information contact Steven Taylor (NIJ RT&E Center) at (443) 778-9348 or administrator@nijrtecenter.org. For more information on the NIJ RT&E Center, visit http://nij.gov/funding/awards/Pages/award-detail.aspx?award=2013-MU-CX-K111 and view the description.

11

JOHNS HOPKINS
APPLIED PHYSICS LABORATORY