

Satellite Tracking of Probationers and Parolees: Eye in the Sky or Pie in the Sky?

Gregory A. Frost

Abstract

Residents of our nation have a reasonable expectation that criminals who are under court-ordered probation or parole will in fact be under control and not out in neighborhoods leaving a trail of victims. Crimes committed by the growing number of offenders under the criminal justice system's supervision is well documented through a series of studies sponsored by the U.S. Department of Justice. A critical challenge facing criminal justice practitioners and criminologists is how to improve accountability of offenders sentenced to probation or parole. One promising solution underway in Florida is using advanced Global Positioning Satellite (GPS) technology to track probationers and match their movements with crime scene locations.

Introduction

The use of community supervision¹ as a sanction for convicted criminal offenders is a core practice of the criminal justice system. Sentencing an offender to community service allows the criminal justice system to place the offender back in a community while still maintaining supervision and control. The time period of supervision is intended to give the offender the opportunity to become a productive member of society under the watchful monitoring of a probation or parole officer. This is the text book version of what is supposed to happen through the use of community supervision. In reality, what happens is many of these offenders continue to commit a disproportionate number of crimes even though they are on community supervision.

Residents of our nation have a reasonable expectation that convicted criminals who are under court-ordered control will in fact be under control and not out in neighborhoods leaving a continuing trail of victims. Crimes committed by the growing number of offenders on community supervision is well documented through studies sponsored by the U.S. Department of Justice. Because probationers and parolees are already known to criminal justice agencies, recidivism studies can accurately document convictions that occur for individual offenders who commit additional crimes while sentenced to community supervision.

A critical challenge facing criminal justice practitioners and criminologists is how to improve our country's probation and parole systems so that this group of offenders is effectively brought under control. In her article, "Probation in the United States: Practices and Challenges," Joan Petersilia (1997) states the issue very clearly.

"The public has come to understand that not all criminals can be locked up, and so renewed attention is being focused on probation. Policymakers are asking whether probation departments can implement credible and

¹ The term community supervision as used in this paper means probation and parole.

effective community-based sentencing options. No one advocates the abolition of probation, but many call for its reform. But how should that be done?"

One promising solution underway in Florida is the use of advanced global positioning satellite (GPS) technology to track convicted offenders who are sentenced to community supervision and correlate their locations with the location of crimes reported to local law enforcement agencies. The availability of a system to integrate and compare reported crime incident data with probationer location data, based upon time and location, could prove a very strong deterrent to criminal activity by removing offender anonymity.

The information in this paper will review the practice of community supervision within the criminal justice system and introduce readers to the emerging use of GPS to track criminal offenders. It will also provide some basic expectations as to how this technology might impact crime control and lead to the more effective use of community supervision as a sentencing alternative.

Methods

The data presented in this paper describe the practice of probation within the United States' court system and the extent of probationer and parolee recidivism. Because the technological system being proposed in Florida is just emerging, the benefits to the criminal justice system and the impact on crime control, as discussed later in the paper, are based upon the anticipated consequences of using technology to remove offender anonymity.

Statistical data was obtained through recent U.S. Department of Justice studies of parole and probation populations including the use of probation as a sentencing practice, criminal behavior while on community supervision, and the use of additional sanctions for offenders sentenced to community supervision. Drug treatment is used by courts throughout the country as an additional sanction with the intent to reduce future criminal behavior. The extent of this practice and the contributions GPS tracking may have on influencing positive outcomes were also considered as part of this paper.

Results

Judges within the United States' criminal justice system have used probation as an alternative to incarceration since the practice first began in the mid 1800's. Prison costs over the last 20 years and the increasing use of mandatory minimum sentences have made probation and community supervision an attractive alternative. However, as the number of convicted offenders has grown the resources available to those responsible for monitoring the offenders has not kept pace. Petersilia (1997) cited evidence of this. According to her data, there are over 2,000 probation agencies in the United States. These agencies employed approximately 50,000 personnel during 1994. Of these 50,000 employees, 23% had direct supervisory responsibilities for probationers. With 2.9 million probationers nationwide in 1994, this translates into an average caseload per

probation officer of approximately 258 adult offenders. This compares to the ideal caseload of around 30.

A survey of probation and parole agency directors found that caseload management is the number one problem facing probation and parole agencies (National Institute of Justice, 1995). According to additional research cited by Petersilia (1997: 3-4), about 20% of adult felony offenders nationwide are assigned to supervision requiring no personal contact with a probation officer. A primary factor for this assignment seems to be the officer's workload and not because of offender classification.

At the end of 1996, state and local probation agencies supervised over three million adults under some form of probation. And with an annual increase of 3%, there are now more offenders sentenced to probation than the combined total number of adults incarcerated in prisons or jails and on parole (Bonczar, 1997). Using data collected as part of the 1995 Survey of Adults on Probation, conducted by the Bureau of Justice Statistics, Bonczar (1997) reported how courts nationwide use probation as a singular sanction or in combination with jail or prison terms.

Table 1. Type of sentence for adult probationers and severity of offense - 1995

Type of Sentence	Total	Felony	Misdemeanor
Probation Only	49.8%	45.7	54.8
Probation and Incarceration	50.2%	54.3	45.2
Jail	37.3	36.5	38.3
Prison	15.3	20.6	9.0

A more detailed analysis of sentencing practices was conducted for felony offenders convicted in state courts during 1996. The Bureau of Justice Statistics study conducted by Brown, Langan, and Levin (1999) compares incarceration and probation for the length of sentence by offense. The following table reflects a synopsis of the data presented in the study.

Table 2. Average maximum length of felony sentences (in months) imposed by state courts 1996:

<u>Offense Type</u>	<u>Prison</u>	<u>Jail</u>	<u>Probation</u>
All offenses	62 mo	6 mo	41 mo
Violent offenses	105	7	48
Property offenses	49	6	40
Drug offenses	51	6	42
Weapons offenses	45	5	35
Other offenses	42	6	40

It is easy when looking at numbers to forget that each of these statistics relate to individual people. Bonczar (1997) provided a profile of the approximate 2.5 million offenders on probation during 1995.

Table 3. National demographic profile of probationers:

<i>Sex</i>	Male	79.1
	Female	20.9
<i>Race</i>	White	58.3
	Black	27.9
	Hispanic	11.3
	Other	2.4
<i>Age</i>	17-24	26.9
	25-34	36.8
	35-44	24.7
	45 or older	11.6
<i>Education</i>	8 th grade or less	7.5
	Some high school	34.9
	High school	39.9
	High school/GED	17.7
	College	

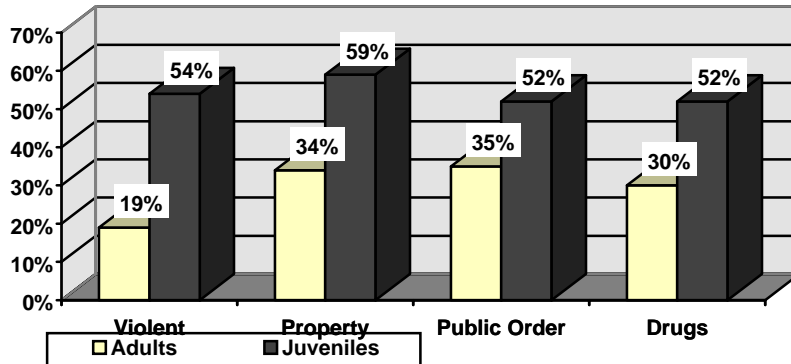
The demographic profile of the probation population in Florida, as reported by the Florida Department of Corrections is very similar to the national profile.

Florida probation population - 1998

- 79% male
- 61.9% white
- 50.4% 29 or younger

Probation, as a judicial sanction, is even more widely used within the juvenile justice system than within adult courts. In a study of juvenile probation caseloads, Sickmund (1997), reported that in 1992, 30% of adult felony convictions in state courts resulted in a sentence of probation. For the same year, 56% of juveniles adjudicated delinquent were sentenced to probation. The following graph reflects the use of probation for adults and juveniles based upon offense category.

Table 4. Court-ordered probation for adults compared to juveniles - 1992



Even though offenders are under court-ordered supervision, they continue to commit crimes leaving a long trail of victims in their wake. Nationwide, 43% of adult felons sentenced in state courts to supervised probation in the community were arrested within 36 months for a new felony offense, and almost 50% of those arrested were arrested more than once (Langan and Cuniff, 1992). A second study found that 35% of all state prisoners who were incarcerated in 1991, were either on probation or parole at the time they committed the offense for which they were subsequently incarcerated. In addition, those on probation or parole at the time of the offense comprised 30% of the state prisoners convicted of a violent crime (Bureau of Justice Statistics, 1995). This data reflects only those crimes for which the offender was identified, arrested, and convicted.

One of the primary findings revealed since adoption of the National Crime Survey in the 1960's is that only a small proportion of crime is reported to law enforcement agencies. Numerous studies have shown varying rates of reporting for different offenses. For some categories less than half of the crimes committed are reported to a law enforcement agency (Ringel, 1997). With such low numbers of reported crimes, and only 1 in 5 reported offenses being cleared by arrest (Zimring & Hawkins, 1997), it is clear that many offenders commit multiple offenses before being caught and prosecuted.

The fact that many criminals commit multiple offenses before being caught is especially relevant when attempting to assess the number of actual crimes committed by offenders who are on probation. Analysts for the Florida Department of Law Enforcement estimate that probationers commit over 300,000 crime annually in Florida alone. This number represents approximately one fourth of the state's 1.2 million index crimes reported during 1997 as part of the department's Uniform Crime Reporting program.

The number of inmates in prison who were incarcerated or re-incarcerated while on community supervision has grown steadily since 1974 (Cohen, 1995). In 1974 those inmates who were on community supervision and re-offended made up 17% of the total state prison population. By 1991, the percentage increased to 45%. When viewed nationwide, the number and types of crimes probationers and parolees commit is shocking. In a study sponsored by the U.S. Department of Justice, Cohen (1995) analyzed recidivism for over 300,000 state prisoner who were on probation or parole at the time they committed the offense for which they were subsequently convicted and

incarcerated. He studied the criminal histories of 162,000 probation violators and 156,000 parole violators who were incarcerated in state prisons during 1991.

When the aggregate number of offenses is compiled for both groups in Cohen's 1995 study - probationers and parolees - the level of victimization is astonishing. The following data represent only those crimes for which the offenders were caught and convicted during an average 13-17 month period while under community supervision:

- Murdered 13,200 people (50% strangers);
- Raped or sexually assaulted 11,600 women and 1,300 men (25% of their victims were under the age of 12 and 50% were under the age of 18);
- Robbed 39,500 people (86% strangers);
- Assaulted 19,200 people (50% strangers);
- Burglarized 39,600 homes and businesses; and
- Stole 7,900 motor vehicles.

Doris Layton MacKenzie (1997:1) points out concisely why offense and recidivism data is important for crime control and crime prevention:

“Past behavior is the best predictor of future behavior. From this perspective, it is reasonable to attempt to prevent crime by preventing know offenders from continuing their criminal behavior.”

The first national survey to determine the characteristics of adults on probation was conducted in 1995. It confirmed the link between drugs, alcohol and crime with the findings that almost 70% of probationers reported past drug use and approximately 50% reported being under the influence of drugs or alcohol at the time they committed the crime for which they were subsequently convicted (Mumola and Bonczar, 1998). During 1995, courts ordered 37% of felony probationers and 45% of misdemeanor probationers to enroll in substance abuse treatment. This equates to 41% of all 2.5 million offenders on probation during 1995 (Bonczar, 1997). As described by Petersilia (1997: 6) the criminal justice system plays a significant role, and one that should be improved, in the process of drug rehabilitation:

“Because the largest single group of serious drug users in any locality comes through the justice system every day, IOM (Institute of Medicine of the National Academy of Sciences - parenthesis added) concludes that the justice system is one of the most important gateways to treatment delivery and should be used more effectively. Research has shown that those under corrections supervision stay in treatment longer, thereby increasing positive treatment outcomes.”

Petersilia (1997: 5) further suggested that with the strong base of research showing reduced recidivism for offenders who are court ordered into treatment programs, “...the first order of business must be to allocate sufficient resources so that the designed programs (incorporating both *surveillance* and treatment [italics added]) can be implemented.”

With such well documented research of how offenders on community supervision continue to commit crimes it becomes clear that the criminal justice system must take steps to bring real control to this group of offenders.

Discussion

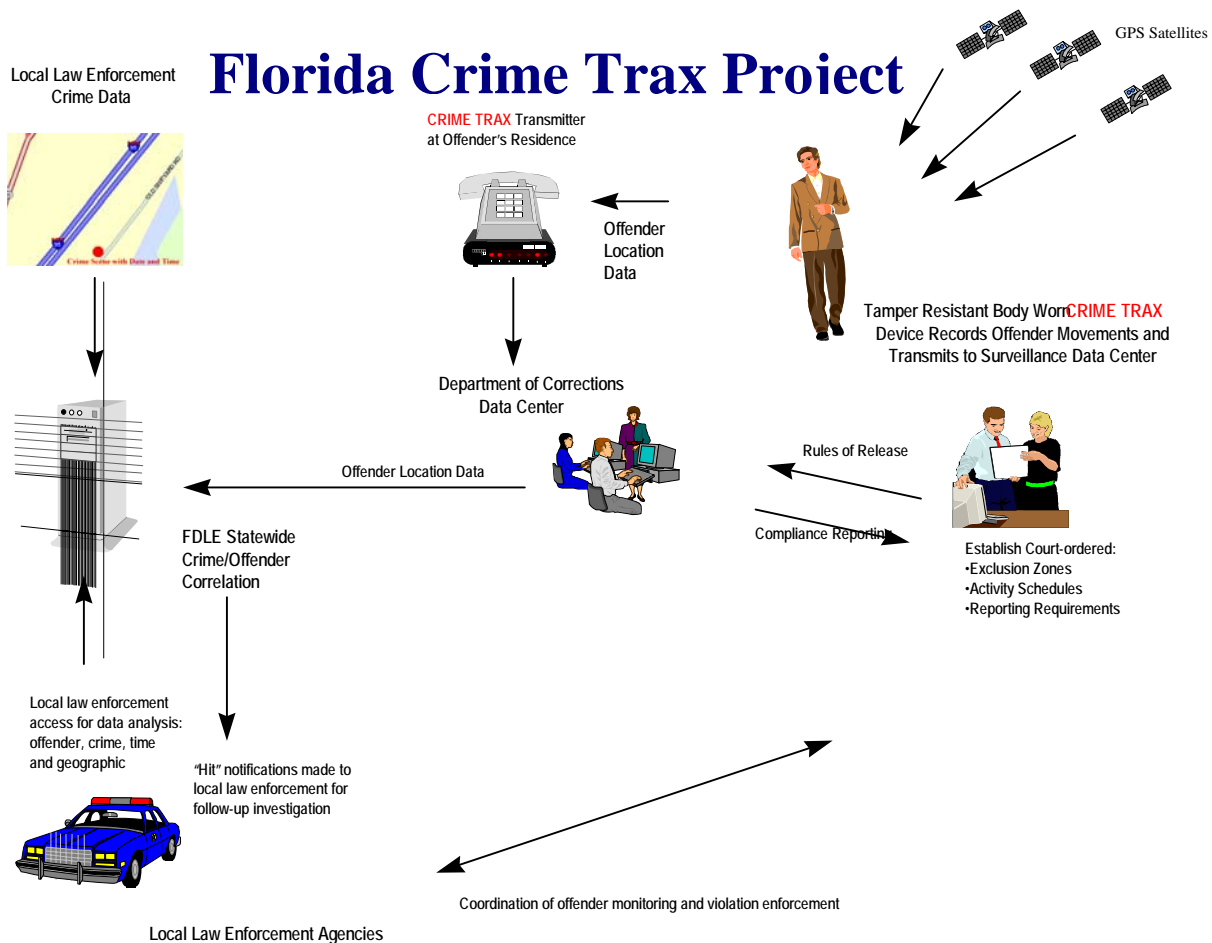
One of the ultimate tests for technology is how it can be applied to improve the quality of life within the nation's towns and cities. In an effort to respond to one of our leading quality of life issues - crime - the criminal justice system is turning to advanced technology for crime control and crime prevention initiatives.

Electronic monitoring of offenders sentenced to house-arrest has been used as a tool for many years by corrections agencies nationwide. Electronic monitoring provides computerized surveillance through an electronic ankle device worn by offenders which sends a continuous signal to a receiver connected to the offenders home telephone. The receiver is set with a predetermined perimeter, approximately 150 feet, and if the offender moves beyond the perimeter an alert is sent from the offender's telephone to the supervising probation agency. While this type of surveillance helps monitor offenders while they are at home, it does not provide any location information when the offender is away from home during authorized absences, e.g., work or trips to the grocery store.

The sophisticated use of the advanced GPS system holds promise for providing the 24 hour per day surveillance needed to effectively remove offender anonymity no matter where they go. The current state-of-the-art technology used by the Florida Department of Corrections for tracking movement of serious sex offenders is a two piece system that includes a body worn transmitter which sends a continuous signal to a hand carried GPS tracking device that provides automated computing capability and cellular communications with a central monitoring computer to transfer location data. This type of active tracking provides the real-time ability, through the cellular phone network, to generate alert notifications if an offender fails to comply with court-ordered geographic restrictions or schedules. Real-time tracking capability increases the size and power requirements, as well as cost of the system

A newly emerging GPS tracking system (CrimeTrax) will enable Florida's criminal justice system to expand the number of convicted offenders being tracked. Program expansion is anticipated through the development of a low cost "passive" location recording device. The result of integrating this new GPS technology and geographic information system (GIS) technology is the ability to map the movements of tracked offenders and compare their locations with the locations of reported crime. This information will enable law enforcement investigators and probation officers to determine if a tracked offenders was at the scene of a crime when it occurred.

The following flowchart shows the overall CrimeTrax system design:



The offender under community supervision is fitted with a non-removable body worn location recording device the size of a wristwatch. The device, which is not currently developed, will have tamper detection circuitry to prevent offender removal/replacement. The location recording device determines the location of the offender using GPS signals and stores time-stamped spatial coordinates at a pre defined sampling rate - anticipated to be every 60 seconds. When the offender returns home, the device downloads the stored offender location data over a wireless link to a home receiver attached to the residence phone. The home receiver then downloads the offender location data to a Department of Corrections data center where tracking data will be initially compiled. The center then uploads offender location data to the central CrimeTrax server at the Florida Department of Law Enforcement.

To complete the data collection process, local law enforcement agencies will transfer on a daily basis crime incident location data to the statewide CrimeTrax server via Florida's secure Criminal Justice Network (CJNET). By comparing this crime location data with offender movement data received from the Department of Corrections, the CrimeTrax computer will be able to determine if a tracked offender was at the scene of a crime when it occurred. This "hit" information will then be returned to the appropriate law

enforcement and probation agencies. In addition, criminal justice agencies will access the statewide crime incident and offender correlation database for custom analysis and comparison from their desktop computers.

The CrimeTrax project has four primary goals:

- Reduce crime;
- Increase offender accountability;
- Provide a workforce multiplier for law enforcement and corrections; and
- Improve crime analysis capability.

By integrating GPS and GIS technology, the CrimeTrax project hopes to offer a tool that will have a strong positive influence in curbing the ability of probationers and parolees to continue their previous patterns of criminal behavior. The positive results of monitoring offenders, even for a limited number of hours each day while on community supervision, was documented in a Florida Department of Corrections study. Their evaluation found a 7.3% higher rate of positive outcomes for offenders who were electronically monitored while on house-arrest as compared to outcomes for offenders sentenced to house arrest without electronic monitoring. Reliably monitoring offender movements 24 hours per day and accurately comparing their location data with criminal incident data removes the cloak of anonymity and virtually assures arrest should they commit a crime that is reported to a law enforcement agency. This increased level of monitoring and accountability could have a powerful deterrent effect on this group of repeat offenders and significantly reduce crime in our communities.

Collaboration between law enforcement and probation is a critical factor for successful use of offender tracking. CrimeTrax reflects an evolving era of community policing and new forms of problem-solving. Writers on community policing claim that in order to be effective in reducing community problems it is necessary to concentrate attention on the individuals who are responsible for a disproportionate share of the problem (Peak and Glensor, 1996). Furthermore, new forms of agency partnerships are also a mark of advanced problem solving (Eck, 1990).

The CrimeTrax project is an example of innovative problem-solving through technology combined with an effective partnership between law enforcement and probation. Use of satellite tracking will greatly enhance the ability of police and probation partnerships to effectively supervise both juvenile and adult offenders. Each partner will have a key component - probation agencies will have the offender location data and law enforcement will have the appropriate crime data for comparison and analysis. Improved collaboration between law enforcement and probation is an anticipated byproduct of successful implementation of the proposed technology.

As mentioned previously, another anticipated result of CrimeTrax is improved offender accountability. If successfully implemented, GPS tracking will provide part of the surveillance component described by Petersilia (1997: 5). A reason for this is that one of the planned capabilities of the tracking system is the ability to designate geographic "exclusion zones" that will be programmed into the automated analysis software. Courts and probation officers will be able to establish exclusion zones that could include

known drug market areas, bars, and liquor stores. When location data is downloaded for a specific tracked offender, the computerized mapping function will immediately detect if the offender entered an exclusion zone thus violating a condition of community supervision. While use of exclusion zones will not prevent access to drugs or alcohol it will make obtaining them more difficult, which ultimately makes a contribution toward a more positive outcome for treatment. The use of exclusion zones could also be applied to any offender on community supervision who is ordered by the court to stay away from any geographic area, e.g. prostitution area, stalking victim's home, etc.

Attempting to hold probationers and parolees accountable has over stretched criminal justice resources. Because community supervision officers will have access to computerized maps showing the movement of tracked offenders they will be able to provide more intensive supervision without increasing their time in the field. As a workforce multiplier, the CrimeTrax project will provide detailed information to community supervision officers that is not currently available. By viewing CrimeTrax maps they will be able to determine if offenders were at home when they were supposed to be; whether the offender followed appropriate travel routes to work; or if they deviated from any required scheduled activity. In addition, through automated "hit" reports, officers responsible for tracked offenders who are identified as being at the location of a reported crime, or for committing an exclusion zone violation, will be notified for immediate follow-up and coordination with law enforcement.

As an investigative tool, CrimeTrax will also act as a workforce multiplier for criminal investigators. In addition to receiving "hit" reports for specific crimes and offenders, investigators will be able to reduce the amount of investigative time required to identify suspects. When an offense is being investigated, and there is not a know suspect, it is a common for investigators to target offenders on community supervision for inclusion on their initial suspect list. Each of these potential suspects must then be contacted to determine their location at the time the crime was committed. Through CrimeTrax data, investigators will be able to reduce the number of suspects on the list by "excluding" those offenders who, through their automated location data, were know to be in a different area and could not have been involved in the offense. Being able to exclude offenders potentially saves a significant number of investigative hours which in turn allows investigators to conduct a more focused investigation.

The availability of automated crime data and offender location data will also improve the ability of many law enforcement agencies to conduct computerized crime mapping and analysis. Law enforcement agencies are beginning to realize the benefit of using GIS technology to perform crime mapping and analysis. The National Institute of Justice's Crime Mapping Research Center conducted a nationwide survey of law enforcement agencies to determine how many agencies have implemented a computerized crime mapping system. Their preliminary results reflect that computerized crime mapping is well on its way to becoming a standard law enforcement tool. The survey found that of the 543 local law enforcement agencies with more than 100 officers responding to the survey, approximately 36% reported using computerized crime mapping. As the size of the agency decreased so did the use of automated crime mapping. For all responding agencies the rate of use for computerized crime mapping was 13.5% (Groff, Jefferis, La Vigne, Nahabedian, O'Connell, Szakas, Wartell, 1998). For those responding agencies

who use automated crime mapping it is a relatively new technology. The average length of time since implementation averaged approximately 3.3 years.

Conclusions

The results of recidivism studies for offenders on community supervision provide a compelling argument that the criminal justice system must improve how this group of offenders is monitored and supervised. Several emerging technologies - including Florida's CrimeTrax project - appear to hold great potential in accomplishing this goal. Initial analysis shows that the foundation is in place with the criminal justice system's rapid adoption of GIS technology for computerized mapping and the requisite network interconnectivity needed to implement a project like CrimeTrax on a large scale. In addition, technology developments needed to create miniaturized tracking devices are becoming available at a commercial level which means the ability to produce a device to track criminal offenders is now a reality.

As with any new application of technology the true results will not be seen until it has been fully developed, operationally deployed, and evaluated. The positive impact of CrimeTrax can and will be anticipated as well as debated. However, with extensive developmental work still ahead of the project it may be several years before researchers can accurately determine its real impact. The challenge ahead is to apply technology in ways that reduce crime and help control criminals. Innovation and creativity are essential. As technology advances, leaders throughout the criminal justice system must be able to integrate the advancements to improve the effectiveness of the entire system.

Mr. Gregory A. Frost is currently the Executive Assistant to the Chief of Police for the Tallahassee Police Department. He directs the activities of the department's Executive Services Unit with responsibilities for policy development, national accreditation compliance, research and planning, and strategic program development. His experience in law enforcement over the last 16 years includes security and law enforcement administration for the stealth fighter program as a security police officer with the United States Air Force; development of statewide law enforcement programs and research initiatives while employed as a planning manager with the Florida Department of Law Enforcement. Mr. Frost has published articles that reflect his interest in criminology and organizational management.

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