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THESIS

HIGHWAY SECURITY: FILLING THE VOID

by

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September 2011

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13. ABSTRACT

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Our open roadway system not only provides us with the freedoms our forefathers intended, but also provides terrorists the ability to travel the highways of this country without government intervention. Unfortunately, this unencumbered freedom of movement also lends itself to exploitation by terrorists. Threat assessments consistently reveal the vulnerability of our highways and their critical infrastructure to terrorist attacks. Yet, the highways remain underprotected.

Law enforcement officers are the foot soldiers of the war on terror in the United States. It is a very small army with tremendous responsibility. Our public looks to the police to protect them against crime and criminals; terrorists are the new criminals and terrorism is the new crime. The strategies and tactics to make the public safe against terrorism on our highways are similar, and they are a natural extension of existing law enforcement highway safety strategies. No paradigm shift is necessary.

This thesis proposes strategies designed to take law enforcement's concept of highway safety and expand this paradigm to mesh with the threat environment of modern-day terrorism.

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HIGHWAY SECURITY: FILLING THE VOID

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Submitted in partial fulfillment of the
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TABLE OF CONTENTS

I. INTRODUCTION....1
A. THE PROBLEM: THE HOMELAND SECURITY VOID ON OUR HIGHWAYS....1
B. RESEARCH QUESTIONS....11
C. ORGANIZATION OF THESIS....14
D. SIGNIFICANCE OF THE RESEARCH....16

II. CURRENT STRATEGIES....17
A. NATIONAL HIGHWAY SECURITY STRATEGY....17
B. STATE AND LOCAL STRATEGIES....24
C. ACADEMIC VIEWS....26
D. IED STRATEGIES....30
E. CONCLUSION....33

III. ENGAGING THE PUBLIC IN TERRORISM PREVENTION....35
A. AMERICA'S WATERWAY WATCH PROGRAM....38
1. Program Implementation....39
2. Soliciting Public Participation....39
3. Achieving Public Involvement....40
4. Cost of Implementation....40
B. SEE SOMETHING, SAY SOMETHING....40
1. Program Implementation....40
2. Soliciting Public Participation....41
3. Achieving Public Involvement....41
4. Cost of Implementation....41
C. FIRST OBSERVER....42
1. Program Implementation....42
2 Soliciting Public Participation....42
3. Achieving Public Involvement....43
4. Cost of Implementation....43
D. PREVENT....43
1. Program Implementation....44
2. Soliciting Public Participation....45
3. Achieving Public Involvement....45
4. Cost of Implementation....46

IV. MOVING FORWARD....47
A. WHERE WE ARE NOW: AN ANALYSIS OF CITIZEN ENGAGEMENT MODELS....47
B. WHERE WE NEED TO BE....50

V. RECOMMENDATIONS AND CONCLUSIONS....53
A. TRAINING LAW ENFORCEMENT PERSONNEL....55
B. ENGAGING THE PUBLIC....58

C. ENGAGING OUR PARTNERS 61
D. STRATEGY 62
E. PRACTICE MAKES PERFECT 63
F. HIGHWAY CONTINGENCY PLANNING 63
G. CONCLUSION 64
LIST OF REFERENCES 67
INITIAL DISTRIBUTION LIST 75

LIST OF FIGURES

Figure 1. NIPP Risk Management Framework 18
Figure 2. Risk Management Framework/Transportation Security Systems Based Risk Management Process 20

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LIST OF ACRONYMS AND ABBREVIATIONS

AASHTO – American Association of State Highway and Transportation Officials

ATA – American Trucking Association

CIKR – Critical Infrastructure Key Resources

DHS – Department of Homeland Security

DOT – Department of Transportation

EMS – Emergency Management Service

FBI – Federal Bureau of Investigation

FEMA – Federal Emergency Management Agency

GCC – Government Coordinating Council

HSIN – Homeland Security Information Network

HSPD – Homeland Security Presidential Directive

IED – Improvised Explosive Device

JIEDDO – Joint Improvised Explosive Device Defeat Organization

MTA – Metropolitan Transit Authority

NIPP – National Infrastructure Protection Plan

PERF – Police Executive Research Forum

PIRA – Provisional Irish Republican Army

SCC – Sector Coordinating Council

TSA – Transportation Security Administration

USCG – United States Coast Guard

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I. INTRODUCTION

A. THE PROBLEM: THE HOMELAND SECURITY VOID ON OUR HIGHWAYS

After attacking the United States Naval Fleet in Pearl Harbor, Hawaii, on December 7, 1941, Admiral Isoroku Yamamoto, Commander in Chief of the Imperial Japanese Navy reportedly stated, "I fear all we have done is awaken a sleeping giant and fill him with a terrible resolve." In many ways, Admiral Yamamoto's statement describes America's resolve—after nineteen men acting on the behalf of a little-known Islamic extremist organization named al Qaeda left us feeling naked and defenseless in the days following September 11, 2001. In essence, the events of that fateful day would forever change our way of life. It was as if we, the United States—the seemingly invincible giant—were suddenly awakened to consider the unimaginable: Our nation is vulnerable to attacks from small, minimally funded groups using methods and targets we previously lacked the imagination to conceive.

In the days and weeks that followed, our government began to see the obvious: weaknesses throughout our nation, including unguarded critical infrastructure and bomb materials readily available. Al Qaeda taught us a hard-learned and immensely costly lesson; as a nation, we needed shoring up against this threat of terrorism on American soil. President Bush appointed Pennsylvania Governor Tom Ridge to head and create what evolved into the Department of Homeland Security, with Mr. Ridge named the inaugural Secretary of Homeland Security. In his book, *The Test of Our Times*, former Secretary Ridge recalls the first days after the attack, when the government began to internalize the sheer volume of vulnerabilities across the country. Ridge stated, "As for the infrastructure itself, the possibilities were endless" (Ridge, 2009, p. 67). According to Ridge, the media enumerated the potential targets, to include bridges, power plants, natural pipelines, coastlines, skyscrapers, the water supply, etc. Our exposures were many and the potential was suddenly imaginable. Thus, the nation began the process of making the United States safe again.

The newfound threat exposed that we had no roadmap to follow in our quest to feel secure in our own country. From the smoldering embers of 9/11 emerged the *2002 National Strategy for Homeland Security*, the first document to envision a plan for renewed security conceived specifically to address our sudden awareness of the asymmetric threat posed by our new aggressor, al Qaeda. The *Strategy* reflects the concerns of our federal government with regard to attacks on critical infrastructure. It states,

> Our critical infrastructures are particularly important because of the functions or services they provide to our country. Our critical infrastructures are also particularly important because they are complex systems: the effects of a terrorist attack can spread far beyond the direct target and reverberate long after the immediate damage. (Office of Homeland Security, 2002, p. 30)

The *Strategy* recognizes transportation assets as critical infrastructure, acknowledging highway structures as part of this declaration.

On the heels of the *2002 National Strategy* emerged *Homeland Security Presidential Directive 7*, establishing a national policy for federal agencies to identify and prioritize critical resources and key infrastructure, and to protect them from a terrorist attack. The *Directive* refers to the *U.S. Patriot Act* for the definition of critical infrastructure,

> systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.

Through the *Strategy* and *HSPD 7*, our federal government has acknowledged the highway system as a potential terrorism target. Additionally, both the *Strategy* and *HSPD 7* illustrate an understanding of America's reliance on the roadways and the impact an attack would have upon our nation (DHS, 2003).

In response to revelations regarding the vulnerability to the highway system and its critical infrastructure, the Federal Highway Administration commissioned a blue ribbon panel of experts convened to explore the vulnerabilities with specific emphasis on

bridge and tunnel security. The study claims that, of the 600,000 bridges in the United States, approximately 1,000, if attacked, would result in substantial casualties and significant economic disruption. Three hundred thirty seven highway tunnels are located beneath bodies of water and, if disabled, the community would be left with limited alternative routes because of the geographical constraints of the area. Because of the elevated risk of these bridges and tunnels, the blue ribbon panel recommended they be given priority in vulnerability reduction (Federal Highway Administration, 2003, p. 8).

The United States Department of Homeland Security's Transportation Security Administration (TSA) was created in the wake of 9/11, has the lead role in transportation security, and is responsible for providing threat assessments for the nation's transportation infrastructure. With respect to the threats on our highways, TSA's assessment indicates the most likely culprit in an attack on the highway system will be al Qaeda. This conclusion was drawn after TSA conducted an historical analysis of prior terrorist plots, attempts and successes. The report states, "Militants associated with al Qaeda have been linked to actual and suspected terrorist plots aimed at tunnels and bridges inside the United States and abroad" (TSA, 2006, p 2). TSA also considers an attack on the highway system by many potential threats: insiders (disgruntled employees), lone wolves, right-wing and left-wing extremists, and religious extremists. Al Qaeda has emerged as the most likely threat because of past interest they have displayed towards critical highway infrastructure.

According to the Bureau of Transportation Statistics (2008), 255,917,664 vehicles are registered in the United States, with 9,779 annual vehicles miles traveled per capita. People living in the United States are far more dependent upon the highways than populations in most developed nations. The lack of a robust rail system means, as a nation, we are dependent upon our highways as a primary method of travel and commerce. Outside of the death toll and replacement of the infrastructure, a significant interruption on the highway system has huge economic implications. For example, according to the Minnesota Department of Transportation (2009), the collapse of the Interstate 35 Bridge in Minneapolis, Minnesota, on August 1, 2007, resulted in a net loss

of $400,000 per day to the local economy. When the new bridge was finally opened, on September 18, 2008, the loss to Minnesota's economy had reached $60 million.

As a society dependent upon our highways, protecting them from the destructive tactics of terrorists is critical. If successfully attacked and destroyed, these critical highway infrastructures could isolate a community, severely hamper the transportation of vital goods and services, and potentially kill motorists along the structure when the attack occurs. An explosive device detonated in heavy traffic during rush hour could cause deaths, significant injuries and create a psychological impact reverberating around the entire country. Additionally, terrorists who choose to use explosives must transport them from the point of manufacture to the target destination. Transportation of these volatile substances will likely occur on the roadway, creating the potential for premature detonation, being involved in an accident along the route, or having mechanical difficulty and becoming disabled en route.

The vastness of our nation, coupled with the insufficient railway network, places many dangerous products on our roadways as they are often distributed by large trucks. Therefore, legitimate truckloads of highly flammable fuel or other hazardous chemicals could be hijacked and suddenly become ready-made explosives or chemical weapon attack vessels—much like the hijacked planes became improvised explosive devices. An analysis conducted by Jenkins, Butterworth, Poe, Reeves, Shrum and Trella of the Mineta Transportation Institute entitled *Potential Terrorist Uses of Highway Borne Hazardous Materials* (2010), concludes al Qaeda in particular has remained committed to utilizing vehicle-born improvised explosive devices (VBIEDs) due to the potential body count and massive damage inflicted by such a device. The researchers note that terrorists prefer truckloads of stolen or fabricated explosives, but add that trucks carrying flammable liquids, gases or toxic inhalants can be ready-made weapons. Jenkins et al. state that the appeal of hazardous material-laden trucks is because they are ubiquitous and less guarded (pp. 1–2).

The ability to use these devices has been less problematic for al Qaeda in Iraq and Afghanistan, where it has access to the materials needed to create an explosive. However, in the United States, acquisition of explosives is more difficult because of

increased security and monitoring. The theft of a vehicle loaded with flammable liquids, solids or gases fills this void. Additionally, the release of hazardous chemicals, such as toxic inhalants in a congested area, could create the effect sought by a terrorist organization. Thefts of these vehicles and their hazardous cargo are not uncommon.

On June 2, 2004, two propane tankers filled with a total of 5,500 gallons of propane were stolen from a gas distribution company in San Antonio, Texas. The San Antonio Police immediately contacted the Federal Bureau of Investigation and the Department of Homeland Security. In the subsequent news release, an FBI agent stated that terrorists are trained to use propane, and that the agency was very concerned about the theft (LaMartina, 2004).

On February 8, 2008, two tanker trucks loaded with diesel fuel were stolen from a construction site in Prince William County, Virginia. The trucks carried a total of 3,000 gallons of diesel fuel. The local police contacted the Federal Bureau of Investigation because of the potential nexus to terrorism. Both trucks were located several days later (www.wtop.com).

On April 30, 2009, a truck was stolen from a landscape company in Tuscumbia, Alabama. The thieves loaded the truck with 1,000 pounds of high-grade nitrate fertilizer before leaving the business. The news report noted the theft was alarming because the fertilizer can be used to build a bomb. Although the truck was later discovered, the fertilizer was not recovered (Stephens, 2009).

Our open roadway system not only provides us with the freedoms our forefathers intended, but also provides terrorists the ability to travel the highways of this country without government intervention. Unfortunately, this unencumbered freedom of movement also lends itself to exploitation by terrorists.

Despite the threat assessments and the devastating consequences of an attack on our highway infrastructure, much of the emphasis in transportation security in the United States is on airport security. This overarching interest in aviation security has its foundations in the terrorist attacks of September 11, 2001, which exposed gaping vulnerabilities at our airports. This gap in homeland security attention on our highways

illustrates the lack of imagination and inability to understand the gravity of the threat as the 9/11 Commissioners detailed in *The 9/11 Commission Report*. Roadside bombs and attacks on critical highway infrastructure in the United States are currently conceptual. Because such attacks have either not occurred or have had only minimal impact, much less emphasis has been placed in addressing these vulnerabilities, despite assessments to support the risk. This is further evidenced by the 2011 fiscal year Transportation Security Administration budget, in which over $5.5 billion was allocated for aviation security; only $137,558,000 was allocated for surface transportation security (DHS, 2010, p. 72). In its definition of surface transportation, the Department of Homeland Security includes buses, mass transit, hazardous material transportation, railroads, and 3.8 million miles of roadways that include 582,000 bridges that span more than 20 feet, and 54 tunnels over 19,685 feet in length (DHS, 2010, p. 70).

In terms of potential tactics used on our highways or on highway infrastructure, the roadside bomb, also known as an IED, is a prominent terrorism tool across the globe. The use of such a tactic has been minimal in the United States; however, this method is expected to gain prominence. According to Cordesman and Lemieux (2010), the United States military is reporting an upsurge in roadside bombs in Afghanistan as the Taliban insurgency has increased their use of this tactic. The Pentagon's Joint Improvised Explosive Device Defeat Organization (JIEDDO) reported over 1,100 IED attacks in May 2010, more than doubling the quantity reported just one year earlier.

Lieutenant General Michael Oates, director of the JIEDDO, in a statement at the Foreign Press Center said, "We track about three to four hundred incidents a month occurring outside of Iraq and Afghanistan, where people are using improvised explosive devices against law enforcement or against military security forces" (Mora, 2010).

The Homeland Security Newswire reports intelligence community concerns that Mexican drug cartels will escalate the use of car bombs as weapons in the ongoing drug wars. The report cites several IED incidents in Mexico. On July 15 2010, the Juarez cartel killed four law enforcement agents and injured nine other first responders after the cartel remotely detonated an IED inside a car in Juarez. The cartel had lured the agents to the vehicle by reporting it contained a dead body. In the wake of this IED attack, other

cartels followed suit. The Gulf cartel launched six IED attacks from August to December 2010. On January 22, 2011, an IED was detonated in a car in Tula, Hidalgo. Once again, the police officers responded to a tip that the vehicle had a body inside it. When agents opened the car door, the bomb exploded, injuring four officers.

The sudden upsurge of IEDs in Mexico, according to the Homeland Security Newswire article, is because,

> In Mexico IEDs are easy to construct thanks to easy access to powerful commercial explosives that are widely used in the country's mining and petroleum industry. Due to strict gun laws, it is actually cheaper and easier to obtain explosives than guns. (HSNW, April 28, 2011)

This article illustrates an important point about a potential emerging threat—far outside the scope of what we have experienced in terms of traditional terrorism—by adding the use of IEDs by Mexican drug cartels into the threat matrix. Although the use of IEDs by Mexican drug cartels has thus far been confined to Mexico and appears to be directed at law enforcement, this tactic could cross the border into the United States and potentially target police in the United States who frequently disrupt shipments of illegal drugs transported out of Mexico.

On a domestic level, recognizing the improvised explosive device (IED) threat in the United States has only recently come to the forefront. For example, the Department of Homeland Security issued the first presidential directive dedicated to IEDs as recently as 2007. Homeland Security Presidential Directive 19 (HSPD-19) entitled *Combating Terrorist Use of Explosives in the United States,* notes,

> Terrorists have repeatedly shown their willingness and ability to use explosives as weapons worldwide, and there is ample intelligence to support the conclusion that they will continue to use such devices to inflict harm. The threat of explosive attacks in the United States is of great concern considering terrorists' ability to make, obtain, and use explosives, the ready availability of components used in IED construction, the relative technological ease with which an IED can be fashioned, and the nature of our free society.

The National Intelligence Estimate (2007) indicated the U.S. homeland will continue to see persistent and evolving terror threats to include Islamic terrorist groups,

especially al Qaeda, who remains undiminished and continues to adapt and improve their capabilities. The report concluded that al Qaeda is proficient with improvised explosives and will target infrastructure, and prominent political and economic targets within the United States.

In his testimony before the Senate Select Committee on Intelligence on February 16, 2011, Director of National Intelligence James R. Clapper stated,

> Participants in the global jihad have relied on improvised and scavenged military explosives as well as other improvised and conventional weapons. The reliability and availability of these materials make it likely that they will remain a major part of the terrorist's inventory. (Office of the Director of National Intelligence, 2011, p. 3)

IEDs are an effective weapon because of their ability to induce widespread fear and intimidation. With regard to the use of such a tactic on the highways within the United States, the Department of Homeland Security's *Terror Threat to U.S. Highway System* (2006) states, "Because powerful and effective IEDs can be easily made from readily available components, these devices pose the primary threat to the U.S. highway system." The report provides ample illustrations of the IED threat to highways and critical highway infrastructure. In 1993, the Federal Bureau of Investigation uncovered the "Day of Terror" plot in which militants were planning to use improvised explosives to blow up the Lincoln Tunnel, the Holland Tunnel and the George Washington Bridge. In 2005, an arrest of an al Qaeda network consisting of 41 people in Spain revealed evidence of terrorist interest in U.S. bridges, to include the Brooklyn Bridge and the Golden Gate Bridge (DHS, 2006). More recently, Faisal Shahzad attempted to detonate an IED secreted in a vehicle parked along a crowded street in New York City's Times Square on May 1, 2010.

IED construction instructions are easily attainable, as illustrated in the winter 2010 edition of al Qaeda's *Inspire Magazine* (2010), which contained directions on how to make a simple IED. The simplicity of design, in conjunction with the profound physical and psychological effects, are its appeal to terrorist seeking to make a big impact with little funding.

Law enforcement plays a vital role in securing our highways from both terror and criminal threats. A report produced by United States General Accounting Office entitled *Transportation Security: Federal Action Needed to Help Address Security Challenges* (2003) states,

> As we have previously reported, state and local governments are critical stakeholders in the nation's homeland security efforts. This is equally true in securing the nation's transportation system. State and local governments play a critical role, in part, because they own a significant portion of the transportation infrastructure, such as airports, transit systems, highways and ports. For example, state and local governments own over 90 percent of total mileage of the highway system. Even when the state and local governments are not the local owner operators, they nonetheless are directly affected by the transportation modes that run through their jurisdictions. Consequently, the responsibility for protecting this infrastructure and responding to emergencies involving the transportation infrastructure often falls to state and local governments.

The terrorist attacks of 9/11 forever changed our nation. Law enforcement practitioners were suddenly thrust into a new role well outside the general confines of crime. Morreale and Lambert (2009) argue that state, local, and tribal police are now on the forefront of homeland security, where traditional counterterrorism organizations are no longer effective. The researchers contend police agencies are under-trained, under-funded, understaffed, and under-equipped to deal with the new realities of homeland security.

According to Moghaddam (2008), globalization will continue to spur terrorism:

> The global shifts we are experiencing, and particularly the decline of traditional moral orders, are giving rise to counter movements and reactions, some of them radical and even violent. Terrorism is just one example of these counter movements, as violent extremists react to enormous changes they sense, changes that seriously threaten the continuation of lifestyles they support. (p. 1)

Our military personnel, who are actively engaged abroad in the fight against terrorism, have witnessed significant increases in IEDs in the form of roadside bombs use by insurgents in Afghanistan against U.S. military and civilian targets. Our national leaders agree that al Qaeda and like-minded extremist groups remain committed to

attacking the United States, and will likely utilize IEDs as a means of attack. Threat assessments indicate our highways are critical infrastructures, have been the target of unsuccessful attacks in the past, and will continue to be vulnerable to terrorist attacks. IEDs, whether destined for highway critical infrastructure or another target, must be transported to the intended target; our roadways will be utilized for transporting IEDs. The federal government indicates the responsibility for securing our transportation systems lies in the hands of state and local governments who own the highways. The effects of globalization will continue to threaten group identities. The collision of cultures and struggle to maintain cultural identity will inevitably lead to clashes between societies in the form of terrorism. Terrorism has endured the test of time and will continue to do so.

As a nation, we are ill prepared for terrorism on our highways. Law enforcement organizations are uniquely situated among public safety organizations within the homeland security enterprise with regard to terrorism. Terrorism, in its most basic form, is a crime. Law enforcement agencies are the sole organization within the homeland security enterprise charged with investigating crimes and making arrests. Terrorism prevention is a natural extension of crime prevention, and rests squarely upon the shoulders of our men and women in law enforcement.

This is especially true of our street officers, who are often the most visible law enforcement element on our roadways as they go about their daily duties enforcing traffic laws. These police officers in particular are in prime positions in our fight against terrorism on the roadways. Many are oblivious of their changing role regarding this constantly evolving threat. Despite the fact that our police are the front line of defense, some police agencies have not come to terms with their new role in the homeland security enterprise. Failing to realize that their role has evolved to include terrorism has left many police agencies unprepared strategically, psychologically and physically to respond to an attack on our highways or elsewhere.

This does not have to be the case. Law enforcement agencies are public safety centric, generally accomplished through education and enforcement of the law. Highway safety is a natural extension of this public safety mission; however, law enforcement

agencies must adopt strategies to fit this new, uniquely law enforcement mission. Jose Docobo noted this in his article published in *Homeland Security Affairs* (2005),

> Traditionally, local law enforcement has concerned itself primarily with preventing and solving crimes such as burglary, theft, and robbery—crimes that have an immediate and visible impact on the local community and affect citizen quality of life. In the face of unknown future terrorist threats, however, local law enforcement organizations will have to adapt existing policing strategies to fulfill the requirement of homeland security.

The problem this research investigates is how to take law enforcement's concept of highway safety and expand this paradigm to mesh with the threat environment that modern-day terrorism has thrust upon us. The goal is to emerge with a restructured law enforcement paradigm reflecting a shift away from a myopic focus of traditional highway safety and resulting in more dynamic, adaptive highway security strategies.

B. RESEARCH QUESTIONS

Terrorism expert Bruce Hoffman cautions us to avoid impatience and the temptation to declare war on terrorism, stating, "Winning the war on terrorism will take decades, not years to accomplish. If we are to succeed, our efforts must be as tireless, innovative and dynamic as those of our opponents" (Hoffman, 2006, p. 295). Hoffman's statement illustrates that the threat of terrorism is an enduring theme and will remain in our nation's foreseeable future.

Law enforcement officers are the infantrymen against crime and, in today's environment, this includes the crime of terrorism. Hoffman observes, "More and more, the measure of success in the war on terrorism is defined as the ability of intelligence agencies and law enforcement organizations to prevent, preempt, and deter acts" (Hoffman, 2006, p. 295).

Despite the enduring nature of terrorism and the expectations placed on law enforcement agencies to address the threat, there are no universal models for securing our highways. The overarching goal of this research is to resolve this dilemma through addressing the central question of what strategies law enforcement agencies can

implement to protect the roadways and the public by preventing a terrorist attack on this open, extremely critical infrastructure—our highways.

Pelfrey, a University of Wisconsin researcher (2007), analyzed data collected pursuant to the South Carolina Law Enforcement Census. Pelfrey's analysis reveals less than half of all agencies responding to the survey had developed a policy toward handling terrorism threats or events, with only a minority of agencies having conducted any type of terrorism prevention training or response exercises. Pelfrey concluded that terrorism preparedness among police agencies was a product of agency size, having a SWAT team, orientation toward technology, and accreditation status. Although confined to one state, Pelfrey's research illustrates how many law enforcement organizations have failed to recognize this new and unique niche that only law enforcement can fill in the homeland security enterprise.

The face of law enforcement is often the highway cop, enforcing speeding laws and licensing violations. Highway safety is a basic element of law enforcement services, and is often a gateway to solving much more heinous crimes. For example, Timothy McVeigh, Ted Bundy and David Berkowitz are some of the few high-profile criminals apprehended by police officers during routine traffic enforcement situations. Traffic police officers are in prime position to intercept a terrorist en route to his or her target destination. Before law enforcement can engage in this new role, they must first understand and then embrace it.

- How can we get police officers to accept their role in the homeland security enterprise?
- How can law enforcement become more engaged in the prevention of terrorism on our highways?
- Law enforcement is not alone in this quest to secure our highways against terrorism. What other agencies can law enforcement employ in their efforts to prevent terrorism on our highways?
- What is law enforcement's role in educating the public with regard to terrorism prevention?
- Is a multi-discipline approach possible?

According to the 2010 census, the population of the United States is 308,745,538 (U.S. Census Bureau). If left to the police, with just over 880,000 law enforcement officers in the United States, preventing terrorism would be impossible (Bureau of Labor Statistics, 2010). Preventing terrorism on our highways cannot be accomplished without engaging the public in the prevention process. We need the strength of our population and the help of the public to keep our highways safe. However, capitalizing on the strength of the masses, especially in the United States, remains an elusive goal as terrorism on our home turf is a faint memory and prevention is pushed aside by the issue du jour.

- How can law enforcement better harness the power of the public in the role of preventing terrorism on the highways?
- Can social media be of benefit to preventing terrorism on our roadways?

IEDs are not a new tactic. Their prominence in Afghanistan and Iraq, the ease in which they are made, and their profound physical and psychological effects makes them the weapon of choice for al Qaeda and other extremist groups. Other nations have extensive experience dealing with IEDs, such as the United Kingdom whose "troubles" with the Provisional Irish Republic Army (PIRA) was fraught with IED attacks from the 1970s through 1998. However, the United States has by contrast has little experience in this arena. The experience of others is worthy of exploration to determine whether prevention strategies employed elsewhere in the world would be applicable in the United States.

- What strategies have been employed by other nations with experience in terrorists' use of IEDs on roadways and highway infrastructure?
- Can these strategies be employed to prevent IED attacks on roadways in the United States?

There is a substantial void between the vulnerabilities on our roadways, and the critical highway infrastructure, and the pervasive threat posed by al Qaeda, like-minded terrorists, and the future of terrorism on American soil in the wake of expanding globalism. As law enforcement managers and homeland security leaders, we can no longer ignore this threat; to do so would put us in the September 10, 2001, mindset. Billions of dollars have been spent to ensure we do not repeat history. Despite all the

money spent on protecting our homeland, our roadways are not secure. As homeland security leaders, the public is looking to us to fill this void.

C. ORGANIZATION OF THESIS

Our national experts on homeland security agree our nation is still vulnerable to terrorist attacks. Al Qaeda in particular has determination and resolve in their quest for destruction of the ideals of the United States, which stand in dire opposition to extremist Islam. Our highways contain critical infrastructure in the form of bridges and tunnels that would isolate communities if destroyed. Al Qaeda in particular has shown interest in destroying these structures as learned through foiled plots. IEDs are the methodology of choice for al Qaeda and like-minded extremist. Roadside bombs attacks are increasing in Afghanistan, with the likelihood of this tactic emerging in the United States, our roadways are vulnerable.

Chapter I illustrates the vulnerable nature of our roadways to terrorism. Our roadways are a vital critical infrastructure, so deeply interwoven with so many other critical infrastructures that a terrorists attack on our roadways, especially an attack that destroys a bridge or tunnel, would have cascading effects on the other critical infrastructures resulting not only in loss of human life and costly repairs, but also profoundly affecting our way of life. Prior terrorism attempts on our roadways and highway critical infrastructure and warnings from our national homeland security leaders solidify the threat. Yet, despite this vulnerability, funding for transportation security continues to favor aviation security with only 2.5% of the Transportation Security Administration's budget allocated for surface transportation. Most roadways and highway critical infrastructure are owned by local and state governments; therefore, the protection of these vital assets is viewed as the responsibility of the state and local governments.

Chapter I also argues law enforcement agencies are the first line of defense in the protection of our highways and highway critical infrastructures. Police have not yet fully embraced their role in terrorism prevention nor have they fully grasped their unique

position within the homeland security enterprise. The chapter concludes by asking what strategies can be employed in an effort to make our highways more secure against the threat of terrorism.

Chapter II examines the status of highway security strategies. The literature review is a critical analysis of the existing literature on the subject and gives the reader a sense of the strategies currently employed as a means of protecting America's highways and highway critical infrastructure while exposing a gap in the literature. The chapter includes an analysis of national highway security strategies, state and local strategies, academic views of highway security strategy, and strategies for the IED threat. The critical analysis of these strategies further illustrates the strategic void in our nation's ability to secure the highways from terrorism threats.

Chapter III provides a case study analysis of several methodologies used for engaging the public in the prevention of terrorism. Though not specific to terrorism on our highways, these models offer insight into the best ways to garner the public's assistance. The case studies include the United States Coast Guard's America's Waterway Watch program, the See Something Say Something program, the First Observer program and the United Kingdom's centralized *PREVENT* program.

Chapter IV provides an analysis of the public engagement models and argues the deficiencies in these models reflect the poor strategies upon which the models are based. The strategies do not take into account the complex nature of homeland security; therefore, any tactics, such as those applied in the public engagement models, mirror the lack of complexity and are flawed.

The literature review reveals the lack of meaningful and actionable strategies designed to address the vulnerabilities on our highways, while the case studies reveal that despite the need for citizen involvement in protecting our nation against terrorism, many of the current citizen involvement programs are deficient. Chapter V provides an overall synthesis of the research by formulating realistic, meaningful and implementable law enforcement strategies that incorporate a holistic public involvement element. The

strategies are designed for law enforcement executives to tailor to the individual needs of their community with regard to securing the nation's highways against terrorism.

D. SIGNIFICANCE OF THE RESEARCH

This research provides local and state law enforcement, as well as local, state and federal decision makers, with research-based methods that should be employed to reduce the terror threat to our nation's highways. Acknowledging law enforcement agencies differ vastly in their resources, abilities, the types of communities they serve, populations, existing highway critical infrastructure, congestion on highways, and whether they serve an urban or rural environment makes the process of creating a singular model impossible. This research offers police executives strategies that can be adopted singularly or in combination with one another, thus allowing a tailored approach to meeting the highway security needs of the community through research-based policy efforts. The research is significant to the security of over 308 million people who depend on our roadways—not just for travel, but also for the delivery of vital goods and services—the findings of this research, if implemented, will make the country safer.

II. CURRENT STRATEGIES

This literature review is devoted to an examination of existing highway security strategies. The literature is subdivided into four areas: national strategy documents, state and local highway security strategy, academic views on highway security strategy, and strategies to address the IED threat. The strategies represent the existing roadmap and an opportunity to see where we are as well as where we need to go.

A. NATIONAL HIGHWAY SECURITY STRATEGY

Executive Order 13416 Strengthening Surface Transportation Security states,

> The security of our Nation's surface transportation systems is a national priority, vital to our economy, and essential to the security of our Nation. Federal, state, local, and tribal governments, the private sector, and the public share responsibility for the security of surface transportation. It is the policy of the United States to protect the people, property, and territory of the United States by facilitating the implementation of a comprehensive, coordinated, and efficient security program to protect surface transportation systems within and adjacent to the United States against terrorist attacks. (Bush, 2006)

The executive order places the Secretary of Homeland Security as the principal federal official responsible for surface transportation infrastructure protection and designates this person to develop a comprehensive transportation systems sector-specific plan.

The vastness and diversity of the types of critical infrastructure and key resources across the United States cannot be protected by a single entity. Oversight of these differing critical infrastructures is therefore divided across many agencies, each one adding a level of expertise in their associated field. The 2009 *National Infrastructure Protection Plan* (NIPP) creates seventeen critical infrastructure/key resource (CIKR) sectors, and designates responsibility for each of the seventeen CIKR sectors to at least one federal agency. The *NIPP* sets a risk assessment strategy in the form of a framework for organizing critical infrastructure and key resource protection across all levels of government. The strategy entails setting security goals, identifying assets, systems,

networks and functions, assessing risks, prioritizing, implementing protective programs and measuring effectiveness (p. 40). According to the *NIPP*, the feedback loop ensures refinement of the strategy (see Figure 1).

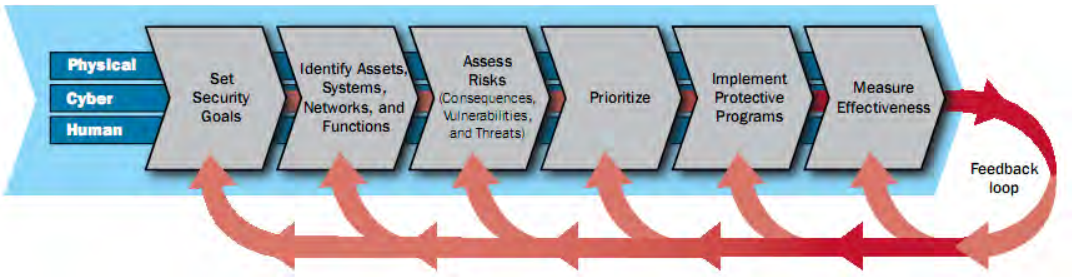

Figure 1. NIPP Risk Management Framework

The *National Infrastructure Protection Plan* places the Transportation Security Administration and the United States Coast Guard (due to Maritime assets) as the agencies responsible for transportation systems (DHS, 2009, p. 19).

The *NIPP* is an extremely broad strategy document; outside of defining which agency is responsible for which CIKR, it offers no specificity to protection of the individual sector's critical infrastructures, such as transportation. Instead, the *NIPP* directs sector-specific agencies to create sector-specific strategies through a coordinated effort involving their public and private sector CIKR partners within the risk assessment framework.

The sector-specific plan, *Transportation Systems: Critical Infrastructure and Key Resources Sector Specific Plan as Input to the National Infrastructure Protection Plan* (2007), divides transportation into six sub-sectors (aviation, maritime, mass transit, highway infrastructure and motor carrier, freight rail and pipeline). Despite the delineation between the sub-sectors, the transportation-specific infrastructure protection plan calls for a systems approach, thus acknowledging cross-sector dependencies amongst and between the sub-sectors that if attacked would lead to non-linear consequences and cascading failures—a ripple effect. Additionally, the sector-specific plan explains securing the highway's critical infrastructure is a shared responsibility between the federal, state, local governments and the private sector.

The *Transportation Systems* sector's goals are to prevent and deter acts of terrorism against the transportation system, to enhance resilience of the U.S. transportation system and to improve the cost effective use of resources for transportation security. The *NIPP* calls for each critical infrastructure/key resource sector to create a Government Coordinating Council (GCC) and a Sector Coordinating Council (SCC). The GCr7(1C()3(Si1 d1r72 [(G)52(. T)1(h.e57-2(0( )-2(r)3(1(h. [(G)2(ove)411 0 Tc 0(. T)1(h(i)-2()3(f)-7(e)0(

The private and public industry leaders who form the GCCs and SCCs evaluate risk and set strategic objectives. *Transportation Systems* indicates these strategic objectives establish specific, measureable, realistic, attainable goals that will improve the transportation sectors risk profile. Figure 2 details the *Transportation Systems* sector's risk management framework incorporated within the NIPP strategic framework.

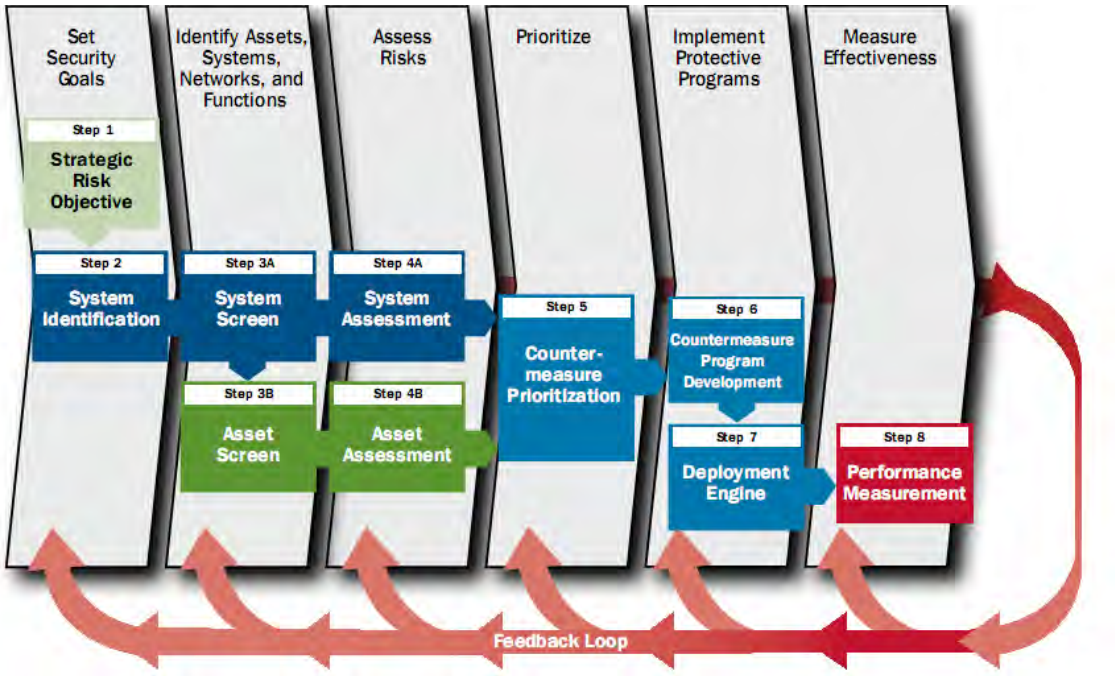

Figure 2. Risk Management Framework/Transportation Security Systems Based Risk Management Process

The annex that most concerns this research is *Annex D, Highway Infrastructure and Motor Carrier (Annex D).* *Annex D* recognizes the uniqueness of this critical infrastructure; indicating it supports 86 percent of personal travel, moves 80 percent of the nation's freight and is key to the nation's defense mobility. Highway infrastructure is interconnected to other critical infrastructures, providing economic vitality, telecommunications and supporting public health (p. A84).

The three goals contained with *Transportation Systems* are incorporated into each of the sub-sector annexes and are conceived within the aforementioned risk management

framework. However, the objectives within each of the three goals are more specific to the sub-sector. In general, federal government-led efforts toward these goals as enumerated in *Annex D* include security awareness training, technology and screening programs, while the public sector has created programs that encourage private sector security initiatives. The Annex goes on to describe various programs, technologies and grant-funded initiatives falling within the three goals of the transportation sector plan.

Because of the complexity of the national critical infrastructure, the national strategy documents are designed like matryoska dolls, each one nesting in another smaller framework adding details; alone, however, they are devoid of utility. Thus, they must be analyzed and viewed as a whole. This is the essential problem with the transportation sector's national critical infrastructure strategy. It is far too complex to be meaningful and applicable.

The national strategy for protection of highway critical infrastructure uses the terms *protection, prevention* and *security* interchangeably throughout the documents, as to imply the words are synonymous. However, these words have different meanings and, therefore, may require different strategies altogether. A strategy to protect highways from terrorism would be far different from a strategy to prevent terrorism on the highways. This leaves the reader and, more importantly, those expected to apply the strategy, confused about the purpose of the strategy. It appears the national strategy is a document designed merely to show the federal government has a strategy and, because such strategy exists, the federal government has overcome vicarious liability. Its utility at the grassroots level is absent, leaving the nation without a meaningful and implementable strategy for protecting our highways from terrorism.

According to *Annex D*, state and local governments own most highways, thus, "Protecting the highway transportation system is a shared responsibility between state and local transportation agencies and their sister agencies responsible for law enforcement" (p. A84). The Government Accountability Office went further to state, "The bulk of the responsibility for implementing specific security measures falls largely on state and local governments who own most highway infrastructure" (GAO, 2009, p. 2). The highway Government Coordinating Council (GCC), the body responsible for

creating the sub-sector strategy and underlying metrics, ironically does not contain members of the state and local transportation agencies or law enforcement officials. Although the American Association of State Highway and Transportation Officials (AASHTO) are represented on the council, the association cannot adequately represent the diverse transportation security needs of the multitude of transportation agencies across our vast nation. As of March 1, 2011, membership on the GCC was dominated by federal agencies (DHS, 2011).

Our current highway security strategies were conceived by federal agencies without critical input of those who own the highway infrastructure and those who are the first line of defense in protecting it. This lack of input from the owners of the highway critical infrastructure—state and local governments and the private sector transportation agencies, as well as law enforcement agencies—is a tremendous oversight. The fact that the *NIPP,* and especially the *Transportation Sector Specific Plan* and *Annex D, Highway and Motor Carrier* were created without the input of a critical component—the state and local agencies that, according to the federal government who authored the strategy, own the highways and are the first line of defense in the event of a crisis, is a deeply flawed approach to strategy development. Buy-in and commitment to the strategy from the state and local governments who are expected to implement the strategy is necessary for success.

Annex D requires the GCC and SCC to submit revisions to the strategy once a year and rewrite the strategy every three years (p. A103). The most current Transportation Security strategy and sub-sector strategy documents are dated 2007, thus these important documents have not been updated as required, indicative of the lack of importance and commitment to improving the strategy at the national level.

The clear implication throughout these strategy documents is recognition of the interdependencies of critical infrastructure and how a crisis within a sub-sector can lead to cascading failures across many critical infrastructures. This explains why the federal government has a vested interest in critical infrastructure protection and the desire to set strategy; critical infrastructure interdependencies dictate the system is too big to fail. However, the one-size-fits-all approach, one framework and expecting all the sector-

specific agencies to tailor their strategies within the framework, does not consider the uniqueness of the vast critical infrastructure across our nation.

Despite the voluminous nature of the transportation and highway national strategy documents, the documents fail to assign specific roles and responsibilities. This oversight can lead to much confusion, with no entity having a defined role in the protection of highway critical infrastructure. Without assigned responsibilities with regard to the overall strategy and either no one is responsible for implementing the strategy or the lack of coordinating responsibility leads to duplication, or lack of attentiveness altogether.

Not only does the strategy lack input from the state and local governments who own, maintain, fund and are expected by the community to protect the highways, the strategy lacks the critical element of collaboration from those outside of transportation but who would be included in prevention and response efforts, such a law enforcement officials. If a broad national strategy is necessary, it must be meaningful and adaptive to those expected to implement the strategy. A strategy for the sake of strategy is meaningless and without utility, especially to those expected to implement such a strategy. State and local officials are in need of an implementable utilitarian strategy. The national strategy documents with regard to highway protection were conceived and are expected to be applied in a vacuum. Protection is contained solely within those organizations that clearly fit within a narrow definition of "transportation stakeholders," ignoring the broader spectrum of entities that play a role in protecting the assets and, perhaps more importantly, ignoring local communities who understand the dynamics of their roadways and highway critical infrastructure much more intimately than federal transportation agencies. This narrow focus, this inability to address highway security in terms of a multidiscipline, community-oriented approach is unrealistic, especially considering how these documents clearly acknowledge the interdependencies to other critical infrastructures inherent to our highways and the impact on local communities in the event of a large-scale critical incident.

B. STATE AND LOCAL STRATEGIES

Individual state critical infrastructure plans follow the federal model, pushing the responsibility for transportation critical infrastructure protection strategy to state-level department of transportation agencies. For example, the *Commonwealth of Virginia Critical Infrastructure Protection and Resiliency Strategic Plan* places the Virginia Department of Transportation as the sector-specific agency with regard to transportation critical infrastructure. It states, "Sector Specific Agencies are responsible for working to implement the VA Plan sector partnership model and risk management framework, develop protective programs and related requirements, and provide sector-level CIKR protection guidance" (p. 6).

State and local transportation officials are expected to adopt the transportation sector and sub-sector national strategy. It would be beyond the scope of this document to examine every individual state, locality, tribal and territorial highway security strategy. However, by simply examining a few of the strategic documents developed by transportation organizations, it appears the local and state transportation officials have expanded concerns far beyond those contained in national strategy documents and thus different strategic priorities with regard to highway security. State and local highway agencies have expanded their highway protection strategies to include elements of prevention, response and recovery.

The AASHTO report, entitled *National Needs Assessment for Ensuring Transportation Infrastructure Security* (2002), recognizes the strategic gap. Although this document predates the most recent *Transportation Sector Specific Plan*, it expands upon state and local departments of transportation's strategic role in highway critical infrastructure security. The authors of this document describe the expanding role of state transportation workers as being more proactive in terrorism prevention. Beyond target hardening measures, the AASHTO noted other prevention type strategies that are a natural segue since transportation workers are often in a position to observe and report unusual or suspicious behaviors. In addition to prevention, AASHTO saw a need for highway security strategy for transportation workers in a new role: as first responders.

Explaining their viewpoint, the association reports state transportation departments have the expertise to reroute, restrict, or otherwise direct traffic after terrorist incidents, are instrumental in developing emergency routes for egress or ingress to affected areas, and state transportation departments have the capability to provide detection, surveillance, and monitoring over the highway network (p. 36).

AASHTO views information sharing as a critical component of critical infrastructure protection strategy. The researchers view information-sharing strategy on both the macro scale, such as the Homeland Security Information Network (HSIN), as well as on the micro-scale in terms of information sharing among local agencies. Although the *NIPP* and subsequently the *Transportation Sector Specific Plan* mention the need for technological solutions and further research and development, they do not expand upon this theme, even with specific regard to highway security as denoted in *Annex D*. However, the AASHTO has a more definitive strategy, and suggests transportation agencies capitalize on Intelligent Transportation Systems (ITS), which is essentially technology used for traffic control and communications.

In a subsequent report produced by the American Association of State Highway and Transportation Officials, entitled, *Protecting Americas Roads, Bridges and Tunnels: The role of State DOT's in Homeland Security* (2005), they state, "The cost of failure to prepare for a terrorist attack that affects the nation's transportation infrastructure, in terms of loss of life and economic destruction, would be catastrophic" (p. 2). In this report, the AASHTO indicates the individual state Departments of Transportation (DOT) are expanding their strategy of critical asset protection. The document reports state DOTs are incorporating strategic countermeasures that include deterrence and detection, and defense and design (designing new hardened structures). AASHTO indicates the state DOTs will need $2.5 billion over the next six years to continue their plans to protect critical highway infrastructure. If funding is available, AASHTO's future prevention strategy calls for retrofitting bridges with countermeasures such as blast shielding, structural reinforcement intrusion detection, reconstructing new bridges with more advanced design features to enhance blast survivability, providing enhanced detection

and surveillance capabilities in tunnels, as well as incorporating protective measures for sensitive areas along the tunnel, such as portals.

The AASHTO provides the collaborative platform between and among state and local departments of transportation, and takes protection far beyond the national strategy documents into the realm of response and recovery. The AASHTO's strategic vision is clearly an improvement on the limited scope of the national strategy documents. However, there is still a void in defining how state and local transportation agencies will transition into this first-responder role. The AASHTO is silent with regard to ensuring collaboration between other first responders and transportation workers; thus, it appears the issue of roles and responsibilities remains unresolved at the state and local level.

This expanded role envisioned by the AASHTO is commendable, but lacking in details as to "how" this is accomplished. There is no mention of how other partnerships are incorporated into the expanded roles. For example, protection, prevention, response and recovery will require cooperation and collaboration well in advance of a crisis. Fire departments, EMS, law enforcement, private-sector transportation and transportation contractors are not mentioned as components of their strategy. If transportation workers are to become first responders, a strategic framework will need to address how transportation workers fit into the overall response and recovery plan. There is no mention of enhanced training for transportation workers with regard to terrorism prevention or response that is critical to the safety of the workers and is a basic strategic element. The AASHTOs central focus is garnering the funding for improvements and technology.

Like the national strategy documents regarding the protection of the roadways and highway critical infrastructure, the AASHTO has failed to identify and incorporate critical partnerships outside of the realm of state and local transportation agencies. This myopic strategy ignores the complex environment of homeland security.

C. ACADEMIC VIEWS

The Police Executive Research Forum (PERF) is an organization consisting of progressive police executives. Their mission is to improve policing and advance

professionalism through research and involvement in public policy debate. PERF put together a series facilitated discussions with law enforcement executives from across the nation regarding protecting the community from terrorism. Though not specific to protecting our highways from terrorism, some of the strategies suggested by this group of law enforcement leaders can be universally applied, and are equally applicable to highway critical infrastructure as they are to the other facets of terrorism.

Through the course of these facilitated discussions, the researchers concluded, "The threat of terrorism in America's cities and towns, however, has revealed the critical need for improved coordination and resource sharing—whether personnel, equipment or information—to develop a formidable strategy to counter future acts of terrorism" (Murphy and Plotkin, 2003, p. 16). The feedback provided by the executives revealed confusion over roles, uncertainty about responsibilities, breakdowns in communication and lack of trust plaguing effective partnership building, with terrorism merely complicating ruffled relationships. The PERF researchers observed the need for collaboration and partnership strategies as an element of local homeland security, with the critical link between federal authorities and the public, is local law enforcement because no one has better direct ties with the community.

In a subsequent forum, Davis and Plotkin (2005) noted that local law enforcement is the first line of defense against terrorism; they are uniquely positioned to protect communities by identifying critical infrastructure in their jurisdictions that are vulnerable to terrorist attacks. Yet there are no simple solutions for how DHS or other federal agencies can effectively coordinate with more than 17,000 decentralized local law enforcement agencies then integrate those efforts with all other relevant federal initiatives. DHS provides strategic plans, outlines the vision and mission statements, core values, principles, strategic goals and objectives that guide daily DHS operations. DHS is supposed to provide the federal homeland security coordination component, which appears to be lacking. This assumes a partnership between DHS and local agencies in the protection of the nation against terrorism, which Davis and Plotkin argue does not universally exist.

At the conclusion of the executive forum and after analyzing the comments and suggestions of the participants, the researchers concluded,

> Any advances in securing our nation from terrorism must build on the successes of community policing and embrace its underlying principles. Creating and sustaining partnerships with law enforcement agencies at all levels of government, with other disciplines and with the public is essential in all efforts to prevent, prepare and respond to terrorism. (Davis and Plotkin, 2005, p. 75)

The information gleaned by the PERF from law enforcement executives was analyzed by the researchers and reduced to recommendations regarding strategies for local law enforcement to protect their communities from terrorism. The forums were local law enforcement centric; however, federal law enforcement and DHS were included in some of the forums. Noticeably absent from the forum were members of the community, infrastructure stakeholders, first responders, and partner agencies. The participants in these forums, designed to give police executives the way forward for developing strategy, were very narrowly created, omitted critical components that offer value and input into terrorism prevention at the local level. Thus, the resulting strategic suggestions were narrowly structured based on the limited input.

The law enforcement executives identified several strategic gaps in local efforts to prevent terrorism, which the PERF researchers reduced to concluding strategic recommendations for police executives to incorporate. However, the way forward for implementing these strategies is not defined. For example, identifying the barriers to communications between federal and local agencies does not ensure changes in strategy to improve communication.

Brookings Institute researchers Howitt and Makler noted the extreme vulnerability of the surface transportation network and the role of surface transportation in terms of emergency response system and an essential element in recovering from an act of terrorism in their study, *On the Ground: Protecting America's Roads and Transit Against Terrorism* (2005). The researchers found our government has not made surface transportation a high homeland security priority, providing limited funding to state and local governments for protective enhancements to surface transportation security while

placing a significant portion of the funding emphasis on aviation security. The researchers observed state and local officials vary widely with regard to perceived highway security concerns and, therefore, their strategies with regard to prevention, response and mitigation is reflective of this perception posture. In general, Howitt and Makler found state and local officials identified mass transit and highways as a lower priority among the many security issues demanding attention. They observe state budget constraints further limit the scope and scale of the response. In most states, two agencies took the initiative on transportation security: state departments of transportation, with responsibility for the physical infrastructure of major roadways and related facilities, and the state police, typically with responsibility for highway safety and law enforcement.

As a result of their analysis on the current state of highway security, Howitt and Makler made several broad strategic recommendations to improve the state of surface transportation security. These include increasing funding to states and localities for surface transportation security, making provisions for accessibility trade off, using technology to address prevention and implementing emergency preparedness strategies. The researchers suggest the federal government will need to enhance its role by providing funding to the states and localities, adding transportation officials need to step up to the table in lieu of taking a back seat role by developing stronger and more effective voices in state decision making and resource allocation.

Howitt and Makler call for reexamination of the openness of our highway system. Not so much in general terms, but in the event of a large scale attack. The authors simply suggest these discussions, in terms of strategy, need to occur in advance of a crisis and should not occur in a vacuum.

Howitt and Makler argue the federal government has a significant role in setting technology strategy with regards to how the states and localities incorporate technological solutions into their highway security planning. The authors argue federal government should identify and test technological innovations, set standards and provide technical assistance, thus paving the way for sound, universal security practices.

Howitt and Makler's final strategy recommendation acknowledges prevention will not always be successful. Therefore, emergency response, consequence management and recovery must be incorporated into surface transportation security strategy. Transportation agencies have to look beyond awareness and focus on ways to build deeper capacities. Transportation agencies should also be better linked to other agencies outside the transportation purview to include major private corporations or nonprofit organizations (pp. 11–13).

Howitt and Makler's central theme is garnering more federal funding to secure the roadways. They argue that through this increased funding, surface transportation security could benefit from technological enhancements. However, the authors make this determination without identifying how technology could be utilized to address highway security.

Additionally, the two researchers argue transportation agencies need to embrace emergency response, consequence management and incident recovery. These broad strategies are not explored further; thus, their research is void of detail on exactly what role transportation agencies are expected to play in consequence management and incident recovery, as well as how transportation workers fit into the scheme of first responders. Without further defining the elements and responsibilities of these roles, interpretation is left to the reader. To provide uniform utility across transportation agencies and first responder communities, these strategies need to be defined with more specificity and detail. Overall, Howitt and Makler's strategy recommendations are too broad to be useful for transportation organizations as well as law enforcement officials.

D. IED STRATEGIES

Corderre and Register (2009) call IEDs the most dangerous emerging threat United States law enforcement agencies will encounter. They make the point that IEDs are not confined to the Middle East, and attribute their prominence among foreign terrorist to being cheap, lethal and low tech. Corderre and Register describe IEDs as effective because they are weapons of mass influence; an IED has the ability to create an atmosphere of fear and uncertainty.

In terms of protecting our highways from terrorism, according to Mineta Transportation Institute researchers Jenkins, Butterworth, Poe, Reeves, Schrum and Trella (2010), the IED is the tactic most likely to be used by terrorist. Flammable liquids, gases or explosive materials would be the most likely ingredients used to cause damage to highway infrastructure in a terrorist attack. The heat created by such a fire has the greatest potential to inflict structural failure. Recall the collapse of the twin towers on September 11, 2001. Civil engineers Bazant and Zhou conducted an analysis of the collapse, *Why Did the World Trade Center Collapse?—Simple Analysis* (2001), and concluded the physical collapse of these structures was caused by the heat created by the fire of the burning jet fuel (pp. 1–2). However, the literature regarding strategies for either transportation agencies or law enforcement officials to address this threat to our highways is currently non-existent.

Hoffman, Brannan, Herren and Matthiessen, of the RAND Corporation, offer IED strategies in the form of suicide bombers in their research, *Preparing for Suicide Terrorism: A Primer for Law Enforcement Agencies and Officers* (2004). The researchers state, "The spread of suicide terrorism worldwide suggests that the United States will not remain immune from this threat" (p. 1).

Although not specific to the threat of potential use of suicide terrorism on our highways, the research is applicable across any venue, such as critical infrastructures to include the highways, as this tactic can be effective on the highways. Just as terrorists used hijacked planes to commit suicide terrorism, vehicles, especially trucks loaded with flammable materials, make a ready-made suicide bomb.

Acknowledging the potential use of suicide terrorism in the United States, Hoffman et al. note the relative lack of experience our country has with regard to suicide terrorism. For this reason, the researchers look at two countries with extensive experience, Israel and Sri Lanka, for lessons learned in terms of strategies the police in the United States can build upon. These strategies recommend by these researchers include:

- Training police officers on how to identify the indicators of a possible suicide terrorist, how to confront the potential suicide bomber and how to respond in the event of a suicide bombing attack. This includes developing policy, procedures and rehearsing these procedures so officers are familiar with the decisions he/she is empowered to make without seeking permission or calling for specialized units.
- Train first responders on how to gather intelligence in the immediate aftermath of an attack.
- Build cooperation with the local community and businesses. Suicide terrorist may come from local communities, cultivating strong ties with community leaders opening communication lines. Police should cultivate relationships with businesses that sell the precursors to bomb making materials and encourage alerting authorities when individuals purchase unusual or large purchases.
- Police agencies should create counterterrorism units.
- Reduce the potential for shrapnel in and around potential targets.
- Encourage the assistance of citizens by providing them specifics with what they should be aware of and who to call in the event of noticing something out of place.
- Create concentric rings of defense in highly vulnerable areas during special events or around high value targets.

Their research is unique in that it addresses a much-needed void in the literature with regard to suicide terrorism, especially when signs and governmental warning indicate this tactic will emerge in the United States. However, the strategies proposed within the literature fail to acknowledge the role of vital pre-existing law enforcement partnerships in the public safety community in the prevention and response to suicide terrorism. Although engaging the local community and business is one strategy suggested by these researchers, their purpose of engaging the local community and businesses appears to focus on the ability of the local community to provide valuable intelligence to the police with regard to identifying potential terrorist and terrorist type activities. This is an important strategic component; however it falls short of expanding the role of the police in educating other members of the public safety community, and in particular the first responder community and the employees who work in and around high target areas regarding suicide terrorism tactics.

The RAND researchers make assumptions about the presence of the police at the attack site, ultimately assuming the attack will occur at a major event or a place where heavy police presence is routine, such as a high profile target. This assumption offers no strategic solutions for places where police presence is nonexistent at the time of the attack. Suicide terrorists in particular are the ultimate smart bomb and may seek targets where there is no police presence. The strategy proposed by Hoffman et al regarding concentric rings of defense will only come into play after the police have had an opportunity to respond or in high profile events where police are naturally present. The police may not be on the scene in the moments after an attack. In the ensuing mayhem employees of the infrastructure will inevitably attempt to come to the aid of the injured and unknowingly placing themselves in grave danger of secondary devices. Firefighters and other first responders will unwittingly do the same. Concentric rings of defense are designed to minimize victimization to include victimization of the rescuers. In the absence of this strategy what are the strategic options for other first responders to minimize risk?

The strategies proposed by the researchers falls short in acknowledging the strategic role police agencies play as the subject matter experts in terrorism tactics in educating local first responders as well as employees who work in or around vulnerable IED (suicide terrorism) target areas. First responders in particular must be educated beyond being able to identify suspicious activity before and after a blast. The RAND researchers fail to grasp that IED strategies, whether devoted to suicide bombers or otherwise, must be multidisciplinary to be successful.

E. CONCLUSION

There is very limited literature dedicated to law enforcement strategies for the protection of the highways and highway critical infrastructures. The national strategy documents as well the state and local strategies are specifically devoted to highway security and protection of highway critical infrastructure, however the audience for these documents is transportation stakeholders, not law enforcement. Scholarly assessments

are written in terms of general terrorism prevention, directed at strategies to be incorporated by the police, or directly address the vulnerabilities on our highways and are therefore directed at transportation officials.

Since IEDs remain a concern of our intelligence officials who report this tactic will be used by terrorist on our soil, strategies to address this tactic were included in the literature review. Despite these warnings concerning this tactic, there is little scholarly and no governmental literature devoted IED strategies. This is either a testament to the limited research in this area or the lack of unclassified information available in open source documents.

Terrorism strategies, whether devoted to highway security or otherwise, are written for one specific audience. Often it is the direct stakeholders (in this case transportation officials) or the police but not both. Where the literature is lacking is in strategies that acknowledge and subsequently incorporate the myriad of groups and community members who can play a role in preventing, responding to, and recovering from a terrorist attack on our roadways and highway critical infrastructure. In this sense, the limited literature is myopic because it fails to bridge the audiences necessary for effective terrorism prevention strategy.

III. ENGAGING THE PUBLIC IN TERRORISM PREVENTION

The National Strategy for Homeland Security (2002) calls upon the American people to do their part to protect the homeland. Specifically the *Strategy* encourages volunteerism and personal preparedness (p. 11). *Homeland Security Presidential Directive 8* (*HSPD 8*) defines preparedness as the existence of plans, training and equipment necessary at the federal, state, local level to maximize the ability to prevent, protect, respond to, and recover from major events (HSPD 8, 2003). *The National Strategy for Homeland Security* defines the four goals of homeland security as prevention, protection, response and recovery (DHS, 2007, p. 1). The definition of prevention is contained in *HSPD 8:* "activities undertaken by the first responder community during the early stages of an incident to reduce the likelihood or consequences of threatened or actual terrorist attacks" (HSPD 8, 2003).

Citizen involvement in terrorism prevention is ill defined in any of the homeland security strategy documents. The inaugural *National Strategy for Homeland Security*, states, "Every American must be willing to do his or her part to protect our homeland." In qualifying this assessment, the document expands upon the need for volunteers and personal preparedness for a terrorist attack. With regard to prevention, the *Strategy* reserves this activity for truck drivers, train conductors, ship captains and utility workers in the form of suspicious activity reporting (Office of Homeland Security, 2002, p. 12).

The subsequent 2007 *National Strategy for Homeland Security* looks at prevention from a strategic and tactical perspective, such as calling for border security initiatives designed to keep terrorists and weapons of mass destruction out of the country, disrupting terrorist and their capacity to operate in the United States, and preventing radicalization in the United States. Throughout the prevention section of the *National Strategy for Homeland Security*, the prevention strategies are thrust upon law enforcement, the intelligence community, federal, state, local, and tribal governments

(DHS, 2007, pp. 15–23). Community engagement is only mentioned in the context of engaging the Muslim community as partners in the War on Terror. Prevention, it seems, is the duty of the authorities.

The *Quadrennial Homeland Security Review* report (2010) defined five homeland security missions (p. i):

- Preventing terrorism and enhancing security
- Securing and managing our borders
- Enforcing and Administering Our Immigration Laws
- Safeguarding and Securing Cyberspace
- Ensuring resilience to disasters

The *Quadrennial Review* also puts the responsibility of prevention on the shoulders of the authorities. Prevention of terrorism in this document is less strategic and more conceptual, with broad objectives such as understanding the threat, deterring and disrupting operations, protecting against terrorist capability, etc. Engaging the community is one objective listed:

> Individual citizens and cohesive communities are key partners in the homeland security enterprise and have an essential role to play in countering terrorism. Mechanisms for identifying and reporting suspicious activities must be made clear and accessible. (DHS, 2010, pp. 38–39)

As to how this is accomplished, the document is silent.

Strom, Hollywood, Pope, Weintraub, Daye and Gemeinhardt, researchers for the Institute for Homeland Security Solutions, conducted an analysis of 86 foiled and executed terrorist plots in the United States between 1999 and 2009. Their analysis revealed 40 percent were discovered through suspicious activity reporting from the general public (Strom et al., 2010, p. 19). Their research illustrates the value of citizen involvement and provides quantitative data to support this finding.

In the years following 9/11, and the relative absence of a large-scale, mass-casualty terrorist attack on our nation, garnering citizen involvement in terrorism prevention has become more challenging. As a nation, our collective memory of the tragic events of September 11, 2001, has begun to fade, leaving terrorism in the background as other issues challenging our nation evolve and take precedent.

A study conducted by Davis and Silver, political scientists and researchers from Michigan State University, illustrates the waning concern of a terrorist attack. Davis and Silver conducted a survey of Michigan residents to determine their level of concern for a terrorist attack. In the spring of 2002, just months after the 9/11 attacks, 83% of Michigan residents were "somewhat" or "very concerned" about another terrorist attack in the United States. By the winter of 2004, this number had dropped to 67% of Michigan residents responding they were "somewhat" or "very concerned" about another terrorist attack in the United States (Davis and Silver, 2004, pp. 1–2). Although Davis and Silver's survey is Michigan centric, it nonetheless illustrates wavering American attitudes about the terrorism potential on American soil. Their study concluded in 2004, as time has placed even more distance between the catastrophic events of 9/11 and today, it is likely this downward trend will continue until the next attack.

Since the inception of homeland security, terrorism prevention from the perspective of general public involvement in the United States has been overlooked at the national level. The national strategy documents mention the importance of the public in terrorism prevention; however, the documents are silent as to how this is accomplished. These documents give the reader the sense that prevention is a task for the authorities, such as the Department of Homeland Security, the police and the Federal Bureau of Investigation. Since there is no centralized coordination at the national level, public involvement programs have been left to individual governmental and nongovernmental agencies to initiate, develop and coordinate. Terrorism prevention, in the form of citizen involvement models, has emerged in disjointed independent programs with emphasis on suspicious activity reporting campaigns.

Capitalizing on the strength of the masses, especially in the United States, remains an elusive goal, as terrorism on our home turf is slowly eroding from our collective

memory. Public engagement is necessary and an important part of terrorism prevention. Any successful strategy designed to prevent terrorism on our highways (or anywhere) must include a citizen involvement component.

Creating a successful public involvement strategy begins with an assessment of existing programs. This thesis uses comparative case studies of four existing citizen involvement models designed as a means to prevent terrorism. The case studies evaluate the citizen involvement models in four areas: how and by which entity the program is implemented; how the program is solicited to the public to encourage public participation; the success of the program in terms of achieving the public's assistance; and the cost of implementing the citizen engagement program. The purpose of conducting these case studies is to access existing citizen involvement models in terms of applicability to citizen involvement in highway security strategies. These models included in this case study are the *America's Waterway Watch* program, the *See Something Say Something* Program, the *First Observer* program and the United Kingdom's centralized *Prevent* Strategy.

A. AMERICA'S WATERWAY WATCH PROGRAM

The United States Coast Guard's *America's Waterway Watch* program is a public outreach program designed to capitalize on the observations of the people who live, work or play on or around America's waterways. The program's website (http://aww.aww-sp.com/) illustrates the need for citizen engagement in terrorism prevention on our vast maritime critical infrastructures:

> America's coast, rivers, bridges, ports, ships, military bases and waterside industries may be the terrorists' next targets. Though waterway security is better than ever, with more than 95,000 miles of shoreline, over 290,000 square miles of water, and approximately 70 million recreational boaters in the United States, the Coast Guard and local first responders cannot do the job alone.

1. Program Implementation

Launched in 2003, the program has a two-pronged outreach; the USCG Reservist concentrate on businesses and government organizations, while the USCG Auxiliary targets recreational waterway users. The program encourages recreational boaters, marina operators and dock managers to contact the USCG or the local police if they observe suspicious behavior on or around ports, docks, marinas, riversides, beaches and waterfront communities. Informational brochures, boat decals, and reporting forms are distributed during vessel inspections and public safety boating courses. Posters and brochures are distributed to marinas and commercial businesses near the waterways (USCG, 2005, pp. 2–4)

2. Soliciting Public Participation

The *America's Waterway Watch* program is unique in contrast to many other public suspicious activity reporting programs. It appeals individuals to tap into a heightened sense of awareness in a meaningful and productive way through the inclusion of a web-based educational component. The America's Waterway Watch website offers various descriptive examples illustrative of suspicious activity and defines where citizens should be particularly observant of suspicious activity, such as around bridges, tunnels, in and around passenger terminals, chemical or industrial facilities and government facilities. In addition to the information printed on the webpage, the USCG provides a link to a short training video that demonstrates different types of suspicious activity around waterways. The brochures and posters encourage citizens to contact the local police by dialing 911 or the Coast Guard National Response Center Hotline via a toll free number. The United States Coast Guard's public outreach suspicious activity reporting campaign has managed to add specificity without complicating the message by taking the concept of observe and report a step further to include what to look for, where to look, and who to call (Evans, 2002, p. 22).

3. Achieving Public Involvement

Ryan Owens, chief of the Coast Guard's Industry Information and Outreach Branch, reported that in 2010, the Coast Guard logged 3,000 hours of outreach regarding the *America's Waterway Watch* program, and the National Response Center received about 26,000 calls (Collins, 2011).

4. Cost of Implementation

The *America's Waterway Watch* program offers a multifaceted approach by reaching out to businesses and to private citizens. This model is unique and therefore interesting because part of the program is administered by a volunteer arm of the United States Coast Guard and is therefore an inexpensive approach to garnering public involvement in homeland security. Despite the fact personnel cost are in part minimized by using the auxiliary and reservist, the Coast Guard is allocated $3 million annually to administer the program (United States Senate Bill 3659, 2010).

B. SEE SOMETHING, SAY SOMETHING

New York City's Metropolitan Transit Authority's (MTA) launched their *See Something, Say Something* program in 2003. This security campaign depends on heavy marketing in and around MTA assets to include the subway system, buses and trains. The *See Something, Say Something* program encourages the public to get involved if they see something suspicious by reporting the suspicious activity. It should be noted the *See Something, Say Something* tagline is licensed, but MTA has permitted 54 organizations worldwide to use the tagline free of charge for public awareness campaigns about security. Therefore, many homeland security-minded agencies and organizations, including the Department of Homeland Security, has adopted the *See Something, Say Something* mantra.

1. Program Implementation

At its heart, *See Something, Say Something* is a no frills, simple public involvement campaign. The phrase itself, coupled with the constant state of alert,

reminds citizens of their need to maintain vigilance in a city with an ample terrorism history. Thus, there is no citizen training associated with See Something, Say Something.

2. Soliciting Public Participation

See Something, Say Something depends on heavy marketing in the form of advertising designed to solicit the support and participation of the public.

DHS released a *See Something Say Something* video in early 2011. The video shows people observing suspicious activity and reporting it to the police and offers an explanation on how the tips are processed by law enforcement agencies.

3. Achieving Public Involvement

With so many organizations adopting the *See Something Say Something* campaign, gathering statistics with regard to the quantity and quality of reporting is difficult. However, the *New York Times* reports the New York City hotline received 8,999 calls in 2006. This included a significant number of calls about suspicious packages, many in the transit system. Most involved backpacks, briefcases or other items accidentally left behind by their owners. In 2007, the hotline received 13,473 calls, with 644 of those meriting investigation (Neuman, 2008).

In terms of success, *The Wall Street Journal* reports the *See Something Say Something* campaign was responsible for the actions of an alert citizen who contacted the authorities regarding a sport utility vehicle abandoned by Faisal Shahzad on May 1, 2010, as he attempted to detonate a vehicle-borne IED in Times Square (Grossman, 2010).

4. Cost of Implementation

New York City has a history of terrorism beginning with the first attack on the World Trade Center in 1993. Not only was New York City one of the primary targets of al Qaeda on September 11, 2001, it remains in al Qaeda's sites as they continue to attempt to inspire attacks in New York City. New York City is therefore the recipient of substantial federal homeland security dollars, to include $151 million in Urban Area Security Initiative (UASI) funding in 2010 (McCarter, 2011). With a total of

$662,622,100 allocated to UASI grants across the United States, New York City receives 23 percent of all UASI funding (FEMA, 2011). The New York City's Metropolitan Transit Authority receives between $3–$4 million from DHS to fund the *See Something, Say Something* campaign each year (Neuman, 2008).

C. FIRST OBSERVER

The Department of Homeland Security provides funding and the Transportation Security Administration provides oversight of the *First Observer* program. The *First Observer* program is a security awareness program specifically for highway professionals in support of the National Preparedness Guidelines, and is designed to protect critical transportation assets. The program recruits volunteers from the trucking, motor coach and school bus industries to act as a "First Observer" in reporting suspicious activities on our roadways of either a criminal or potential terroristic nature to authorities (firstobserver.com).

1. Program Implementation

The *First Observer* program is an interesting model in that it is federally funded by a grant, but administered by the private sector. Originally conceived as the Highway Watch program and administered by the American Trucking Association (ATA), the Highway Watch program came under heavy fire, accused of catering to members of the ATA. Realizing the program was not managed properly, the Transportation Security Administration put the program out for competitive bids, with HMS Corporation receiving the contract (Morasch, 2009). HMS describes their expertise as program management within the public safety, homeland defense and emergency management sector (firstobserver.com).

2 Soliciting Public Participation

First Observer provides a web-based training platform with modules specific to various transportation partners in lieu of the general public. These modules include general trucking and motor coach training, school bus training, law enforcement, cargo,

highway critical infrastructure/key resources, hazardous materials, highway workers, ports, truck rental and leasing, parking facility and Operation Secure Transport training. The website offers homeland security news, publications and articles specific to transportation security (firstobserver.com, 2009).

3. Achieving Public Involvement

HMS operates a toll-free call center for suspicious activity reporting. Information is entered into a secure database and transferred to TSA Information Sharing and Analysis Center. Director of Security Operations Doug Morris reports 6,100 calls made to *First Observer* by truckers, with a total of 254 calls resulting in investigations by law enforcement or federal authorities (www.truckflix.com).

4. Cost of Implementation

In 2004, the Department of Homeland Security allocated $21 million to launch the Highway Watch Program (DHS, 2004). Over the years, and under the revamped and renamed *First Observer* program, HMS's contract with TSA spans three years with a price tag of $15.5 million (Patton, 2009).

D. PREVENT

In the United Kingdom, terrorism prevention in terms of public involvement campaigns has expanded well beyond suspicious activity reporting. The United Kingdom has implemented a citizen involvement model that is administered by the central government.

In July 2006, Her Majesty's Government released *Countering International Terrorism: The United Kingdom's Strategy*. This document acknowledged the evolution of terrorism within the United Kingdom moving from a domestic threat—stemming from the longstanding "troubles" with Northern Ireland—to the more recent radicalized elements of the Islamic faith. The report calls Islamic terrorism "serious and sustained" and describes Islamic terrorists as posing a continuous threat to the United Kingdom, her citizens and her interest abroad (Her Majesty's Government, 2006, p. 1). The United

Kingdom's counterterrorism policy, originally implemented in 2003, is known as CONTEST, and has four principal strands defined as follows:

- Prevent – to stop people from becoming terrorist or supporting violent extremism
- Pursue – to stop terrorist acts
- Protect – to strengthen our protection against terrorist acts
- Prepare – where an attack cannot be stopped, to mitigate its impact

Of the four "Ps," the *Prevent* strand is most focused on citizen involvement and is therefore be the focus of this case study.

Prevention, according to *Countering International Terrorism: The United Kingdom's Strategy,* is achieved by addressing the issues of the disadvantaged—such as inequalities and discrimination by supporting reform, deterring those who facilitate terrorism by changing the environment in which they operate, and by engaging in a battle of ideas by challenging violent extremist ideologies and by supporting Muslims who wish to dispute Islamic extremism (Her Majesty's Government, 2006, pp. 1–2). This report stresses the importance of working together and citizen involvement:

> Perhaps the most important of all these partnerships is between these bodies, led by the Government and our citizens and communities. Public awareness of the threat, understanding of the measures needed to combat it and active support and cooperation with the police are critical to the success of the strategy. (Her Majesty's Government, 2006, p. 3)

The report concludes by reminding citizens the government's strategy is dependent upon everyone contributing to its success. It encourages people to work within their community to counter those who seek radicalization and terrorist violence, be alert to their surroundings and report suspicious activity to the anti-terrorism hotline (Her Majesty's Government, 2006, p. 33).

1. Program Implementation

This strategy document does not explain how the elements of CONTEST, specifically the Prevent strategy, are to be implemented in the real world.

Implementation of the Prevent strategy is defined more thoroughly in Her Majesty's Government *The Prevent Strategy: A Guide for Local Partners in England* (2008). In this document, the duty of *Prevent* as defined in the CONTEST strategy falls on every level of government. However, local authorities are expected to take the lead, with the central government playing a relatively minor role in the process.

2. Soliciting Public Participation

Prevent is a holistic approach that involves not just suspicious activity reporting, but also all aspects of the community, recognizing that preventing violent extremism embraces the experience, energy and ideas of the entire community. It calls for a jointly agreed-upon community plan of action specific to the unique needs and problems identified by the community. This coordinated response challenges the leadership of the community, such as the police, social services, cultural services, sports and leisure services, and health services to implement these community-based programs. However, it is up to each community to determine who/which agencies will be included in their community's *Prevent* program. *Prevent's* community engagement model is an individualized, tailored approach developed by local partnerships and supported by the central government. However, the overarching emphasis is for communities to develop their own strategies to deal with the emergence of radicalized Islamic extremists. The *Prevent* strategy has five key objectives (p. 6):

- Challenging the violent extremist ideology and supporting mainstream voices
- Disrupting those who promote violent extremism
- Supporting individuals who are being targeted/recruited to the cause of violent extremism
- Increasing the resilience of communities to violent extremism
- Addressing the grievances the ideologues are exploiting

3. Achieving Public Involvement

The Prevent Strategy: A Guide for Local Partners in England provides suggestions for how to address each of the aforementioned objectives. However, since the concept is for each community to create an individualized approach, how the

objectives are implemented is left to each affected community. Examples of successful community programs are included in *The Prevent Strategy: A Guide for Local Partners in England.* For example, listed under the first objective, "challenging the violent extremist ideology and supporting mainstream voices," were several short excerpts on what other communities had implemented as part of the *Prevent* program. One excerpt explains how the City of Birmingham worked with British Muslim organizations to enable conventional Muslim Imams to reconnect with youth by discussing mainstream Islam. These Imams were viewed as authoritative voices, mentors and teachers by countering the arguments of radical Islam.

Although the *Prevent* local strategy appears to be a bottom-up approach to preventing terrorism, it is actually hierarchical in form with the central government playing a role by providing funding support in the form of research, analysis, information sharing, awareness of terrorism radicalization trends, and providing training materials (p. 41). *Prevent* coordination in the context of CONTEST is also the responsibility of the central government and is accomplished through the Office for Security and Counter Terrorism within the Home Office.

4. Cost of Implementation

The centralized approach with local implementation in the form of the United Kingdom's *Prevent* program comes with a tremendous price tag. The cost to maintain the *Prevent* program is $230 million annually (Power, 2009).

IV. MOVING FORWARD

A. WHERE WE ARE NOW: AN ANALYSIS OF CITIZEN ENGAGEMENT MODELS

The four citizen terrorism prevention involvement models were chosen because they represent different approaches in soliciting citizen participation in homeland security. Two target a specific citizenry, the third takes a much broader approach by soliciting help from the citizenry at large, while the final model looks at a holistic approach applied in the United Kingdom where the community creates community-specific ways of preventing terrorism. Each model has its particular strengths and weaknesses.

The *America's Waterway Watch* program offers training specific to suspicious activity on and around waterways. The United States Coast Guard has the luxury of having an auxiliary arm and reservist who can administer the program at little cost. However, the *America's Waterway Watch* falls short by not including local law enforcement agencies in their program. The demographic targeted by the *America's Waterway Watch* campaign are instructed to contact either the Coast Guard or local police by dialing 911. The assumption is the police are inherently aware of what observations could be construed as potential terrorism activity around the waterways. In fact, police agencies may not train their personnel on specific terrorism trends on and around the waterways, since this is generally the jurisdiction of the United States Coast Guard or state game commission. Furthermore, the local police agencies must be familiar with the program, since it is occurring within or alongside their jurisdictions, and there is an expectation from both the public and the United States Coast Guard of a police response.

It is the simplicity of the *See Something, Say Something* Campaign that is appealing. However, *See Something, Say Something* is not without its flaws. Unlike the *America's Waterway Watch* program, the MTA or the DHS *See Something, Say Something* model does not define suspicious activity. This is left to be interpreted by the

millions of transit users. People are left to interpret suspicious behavior using their own judgment. This may explain why, of the 13,473 suspicious activity calls received pursuant to the New York campaign, only 644 were worthy of investigation. Valuable time is spent vetting the reports, adding to the overall cost of the program. Despite the simple message, the MTA campaign is expensive. The Metropolitan Transit Authority receives $3–$4 million from DHS to fund the *See Something, Say Something* campaign each year (Neuman, 2008). The luxury of DHS funding is not universally shared.

The *First Observer* program is specifically dedicated to preventing terrorism on our highways by targeting a certain audience, such as highway workers, bus drivers, parking attendants and truck drivers. This program is difficult to assess due to lack of available statistics to support (or oppose) the continued utility of *First Observer*. Additionally, the program limits itself by targeting only specific groups. There appears to be no effort to incorporate the 308 million people who use the highways and other transportation assets into this suspicious activity program. Failure to market this program to a broader spectrum of highway users is a weakness of this program. The general public could add to the value and utility of this program, especially since the *First Observer* program provides an educational component missing in most suspicious activity reporting programs.

The United Kingdom's *Prevent* model reaches across a broad spectrum in its efforts to prevent terrorism. *Prevent's* strength is in its ability to allow the communities to be deeply engrained in program development; it therefore creates valuable buy-in at the local level. This element is often missing in generalized suspicious activity campaigns designed to prevent terrorism, especially in the United States. However, *Prevent's* central focus appears to be on the individual in lieu of preventing terrorism in the grander scheme, such as attacks on critical infrastructure. Perhaps this is a reflection of the uniqueness of the United Kingdom's concern for radicalization within the community.

Several important aspects of these models could potentially provide a base upon which to build a citizen involvement model for prevention of terrorism on our roadways and highway critical infrastructure.

First and foremost, educating the public about terrorism and terrorist tactics seems to be an elusive concept, predominantly because, in the United States, documents describing potential signs of terrorism are often labeled "Law Enforcement Sensitive," "Official Use Only," or a more stringent classification. Our nation and our police in particular need all the help they can get from our citizens in collective efforts to prevent terrorism on our highways (or elsewhere). Programs like *First Observer* and *America's Waterway Watch* have provided us with a profound lesson regarding ways to provide meaningful information designed to educate the public on what is "suspicious," without compromising the integrity of sensitive information.

See Something, Say Something has become a catch phrase for terrorism prevention, not just in New York City, but also across the United States and beyond. The lesson for success gleaned from the *See Something, Say Something* campaign is in its simple message; it reminds people of the need to be constantly vigilant, that terrorists still want to destroy us, and the police want to be bothered by you when you see something out of place.

The *Prevent* model is in opposition to the assumptions of the United States government that terrorism prevention programs must come from the government and be administered by the authorities. *Prevent* takes terrorism prevention out of the hands of the authorities, where it has been firmly entrenched in the United States, and puts terrorism prevention in the hands of the local community. *Prevent's* lesson is that it shows that terrorism prevention is really about inclusion. *Prevent's* approach allows for the development of strong partnerships, while simultaneously allowing the local community to identify strategies for terrorism prevention.

Although the United Kingdom has achieved a national-level prevention program, a concept that eludes the United States, *Prevent* is an extremely expensive prevention program with constant reoccurring expenses necessary for maintaining the program.

As illustrated, none of the citizen engagement models truly represent where we need to be as a nation in terms of garnering and maintaining the public's involvement with terrorism prevention on the highways. The various public engagement models are

merely homeland security strategies put into action. The disjointed, independent programs illustrate in microcosm the fundamental flaws in homeland security strategy, in particular with regard to strategies for the protection of highway and highway critical infrastructure.

B. WHERE WE NEED TO BE

In his book, *The Age of the Unthinkable,* Joshua Cooper Ramo (2009) stated,

> We all remember Charles Darwin for explaining the process of evolution, but his notebooks also contained pages of failed attempts to bring math to bear on the chaos of ecological development, a reminder that even genius hits a wall from time to time. (p. 43)

Darwin failed in his attempt to explain evolution in terms of a mathematical equation because he was not taking into account unexpected shocks within the ecosystem. These unexpected shocks, or complexities, are not unique to nature.

Per Bak, a Danish physicist and biologist, studied the sand pile as a new way of looking at the underlying physics of the world. A small cone-shaped pile of sand appears stable; however, it is unstable and unpredictable. Adding a few more grains of sand may only add to the pile, or may cause a complete avalanche, shifting the sands both interior and exterior to the collapsing sand pile. Bak, through his experimentation, learned neither physics nor mathematics could explain what was going to happen to the sand pile next (Ramo, 2009, p. 53).

Bak's experiment illustrates the complexities our nation faces as we forge ahead in this quest to achieve homeland security. Homeland security is not unlike evolution or the sand pile. It is a complex environment in a constant state of evolution. The asymmetry of terrorism, the effects of globalization, the redefining of roles, the vastness of the United States, and the openness of our nation are just some of the myriad of factors, or grains of sand, creating complexity and adding to the heaping sand pile.

This complexity, the constantly falling grains of sand in the prevention of terrorism on our highways' sand pile, has never been a factor in our highway security strategy. This research has illustrated the inability of our federal, state and local

governments, the private sector and academics to grasp this extremely complex environment. This inability to understand complexity is reflected in strategies designed to protect the highways and critical highway infrastructure. Strategies designed to protect our highways are completely disjointed and are either designed for transportation agencies or law enforcement agencies, but not both. None of the strategies incorporate a holistic approach by including the citizenry at large or even some of the other agencies within the homeland security enterprise. As a result, the public engagement programs created across the nation designed to involve citizens in terrorism prevention are reflective of highway security strategies and are also created without a firm understanding of the complex homeland security environment. Attempts to engage the public in the prevention of terrorism have resulted in programs that are generally myopic because they only reach out to a certain demographic, or they are so broad they result in an over-reporting of suspicious activity.

Because homeland security is a dynamic network of complex systems, to manage risk, homeland security leaders and our governments must learn to adapt to these complexities. These adaptations must be reflected in homeland security strategies, like those created by DHS, and state and local agencies regarding highway security. If our strategies are reflective of these complexities, then the tactical solutions, such as public engagement programs, must also incorporate the complexities.

It must begin with our national strategies with regard to highway security and reflect across state and local governments, since they own most of the highways and the highway critical infrastructure. The *NIPP* and subsequent transportation sector and sub-sector–specific strategies acknowledge the interconnectedness of the nation's critical infrastructures. However, they somehow seem to forget that strategies to address the sectors must reflect the local community as well as the full spectrum of homeland security partners who have a role to play in the protection, prevention, response and recovery of terrorist attacks on our highways and highway critical infrastructure.

The United States is blessed with freedoms unmatched anywhere else on earth. Nevertheless, freedom is not without its tradeoffs. The openness of our country means we have purposely and knowingly sacrificed some of our security. Benjamin Franklin

said, “Those who desire to give up freedom in order to gain security will not have, nor do they deserve, either one.” This is especially true of our highways. Citizens, illegal aliens, bank robbers, murderers, thieves and even terrorists drive America’s roadways, generally unencumbered in their pursuits. Unfortunately, the openness of our highways lends itself to vulnerability in the form of terrorist attacks on the highways and critical highway infrastructure. Highway security strategies need to evolve and reflect the complex environment that has been presented. Strategies must incorporate a more realistic assessment of who the transportation stakeholders actually are. In lieu of defining transportation stakeholders as simply state and local transportation agencies and private transportation asset owners, the definition of stakeholders must incorporate a much broader demographic to include first responders, the intelligence community, the law enforcement community and the local community served by the transportation assets. Terrorism prevention strategies at the federal, state and local level must include elements of each level of government.

Managing homeland security risk as a complex, adaptive system requires the ability to change and adapt quickly. Unfortunately, our federal, state and local governments are plagued bureaucracies unable to evolve and respond quickly in the face of change. As homeland security leaders and government officials, we need to remember Bak’s discovery and develop highway security strategies incorporating the complexities interwoven in our nation.

V. RECOMMENDATIONS AND CONCLUSIONS

Prior to 9/11, for the most part, terrorism was something that happened "over there." Although the United States had isolated incidents of domestic terrorism, international terrorism was a tactic we heard and read about occurring in some foreign county. Our harsh awakening to this seemingly new threat resulted in the concept of homeland security. We, as a nation, struggle to determine what homeland security means, as the construct itself is constantly evolving as organizational forces, politics, budgets and changing threats are only some of the myriad of factors shaping its definition. Like the sphinx rising from the ashes, homeland security is a strange mixture of creatures melded together into a stronger, more resilient being. Bellavita observes this genesis; writing in *Homeland Security Affairs*, he exposed seven different definitions of homeland security, concluding, "Homeland security is a continuously evolving social construction, a reality shaped by social processes" (Bellavita, 2008, p. 21). Although homeland security is a new concept, we can see Bellavita's point as we considered the evolution of the term from a means of preventing terrorism to response and recovery from natural disasters. The definition and application of homeland security is in the eye of the beholder, often conceived and applied in terms of roles and responsibilities. Thus, homeland security is far different for FEMA than it is for the FBI.

The *Quadrennial Homeland Security Review* states,

> Homeland security is a concerted national effort to ensure a homeland that is safe, secure, and resilient against terrorism and other hazards where American interests, aspirations, and way of life can thrive. (DHS, 2010, p. 13)

No other organization has a larger role in ensuring a safe homeland against terrorism than law enforcement organizations. Terrorism, at its most basic level, is a violation of law. The military, although proficient at providing expertise and support, is constrained by the limits imposed by *posse comitatus*. The *Quadrennial Homeland Security Review* considers homeland security an enterprise, defining this enterprise as,

> The collective efforts and shared responsibilities of Federal, State, local, tribal, territorial, nongovernmental, and private-sector partners—as well as individuals, families, and communities—to maintain critical homeland security capabilities. It connotes a broad-based community with a common interest in the *public safety* [emphasis added] and well-being of America and American society and is composed of multiple partners and stakeholders whose roles and responsibilities are distributed and shared. (DHS, 2010, p. 12)

Law enforcement, with its central focus on protection of human life and property, is one of many public safety organizations within this homeland security enterprise; however, law enforcement has an additional responsibility not shared with most other public safety organizations. Law enforcement agencies have the added authority of enforcing the law and apprehending criminals. Within this homeland security enterprise, law enforcement agencies are the sole organization with the ability to prevent a terrorist attack through investigation and arrest. Thus, law enforcement's role is unique, tremendous and vital to the success of maintaining a secure homeland.

Globalization has entrenched terrorism, at least for the foreseeable future. Terrorist organizations will change, tactics will evolve, but terrorism will remain a threat to our way of life well into the future. Like drugs, gangs and Internet scams, terrorism is crime—to be dealt with by the police. However, many law enforcement agencies have not recognized their pivotal and incredibly important role in this fight against terrorism and, therefore, have not embraced this new role. Terrorism is not a big city problem. Just as drugs and gangs started within large cities and spread to smaller communities, so will terrorism. Ignoring the threat forces us to repeat history and places us in the September 10, 2001, mindset, lacking the imagination for the unimaginable. Law enforcement officers are the foot soldiers of this war on terror in the United States. It is a very small army with a tremendous responsibility. Our public looks to the police to protect them against crime and criminals; terrorists are the new criminals and terrorism is the new crime.

The strategies and tactics to make the public safe against terrorism are similar to, and a natural extension of, existing law enforcement strategies. Embracing the concept of maintaining public safety against acts of terrorism should not be a difficult process if

one remembers that terrorism is a crime. No paradigm shift is necessary. Police are trained from a very early stage in how to identify the signs that criminal activity is afoot. Terrorism is not unlike other more traditional crimes, like burglary and murder. The signs of terrorism are identifiable. Expanding the police officer's repertoire to include the ability to identify these signs is just an extension of the officer's skill set.

A. TRAINING LAW ENFORCEMENT PERSONNEL

In cities and areas affected by previous terrorism attacks, law enforcement organizations have excelled in their anti-terrorism and terrorism-preparedness roles. New York City and the National Capital Region's law enforcement agencies are forever changed by the events of 9/11. An outpouring of homeland security funding has enhanced the capabilities of the affected organizations.

Highway safety is a natural role for law enforcement organizations. Traffic enforcement is a fundamental function and a public expectation. The basics of enforcement are taught at the academy, with emphasis on looking beyond the initial violation for signs of impaired driving, drug trafficking and crimes in progress. Despite the fact that terrorism will remain a pervasive threat to our nation, the signs of terrorist activity are often not taught in police academies outside of agencies with prior terrorism histories or those with high-profile terrorists targets. As so many of law enforcement's encounters are with the general public, and often during the course of a traffic encounter, and nearly all terrorist will travel our highways en route to their target destination, academy basic training must teach officers how to identify potential terrorists activity in progress. This training should start with the basics, such as understanding the threat and terrorist tactics. Police officers just entering law enforcement may have been very young on 9/11, and may not have fully grasped the events leading up to the attack. Understanding this history will provide perspective. Police officers may not realize their role in securing the homeland because no one has told them.

No assumptions should be made about a police officer's ability to recognize precursors of terrorism, such as the presence of chemicals, wires, tape, strange odors, weapons, ammunition and pipes in the vehicle. Academies and police administrators

cannot make the assumption that police officers will recognize terrorism on their own without appropriate training. Additionally, the public expects the police to be knowledgeable in terrorism tactics.

Training has to be continuous and must be updated as terrorism tactics evolve. Training should recognize the difference between al Qaeda-inspired tactics and methods versus those of traditional domestic terrorists, since the precursors and behaviors of different terrorists groups may vary.

Police officers need a basic understanding of the current threat, the potential targets in their communities, and any specific threats in the area. Police also need to be empowered to share this information with stakeholders and even the community when appropriate and without compromising valuable intelligence. As we engage the public in our efforts to prevent terrorism on our highways, police officers need to be taught how to facilitate this relationship. Police officers have a role in teaching the public about terrorism, especially with regard to suspicious activity reporting. Police officers have much interaction with the public; these interactions must be viewed as an opportunity to facilitate the public's help in terrorism prevention.

Police officers need training with regard to the investigation of suspicious activity reporting. This involves enhanced interviewing techniques designed to extrapolate specific and detailed information uniquely identifying potential terrorist activity. A proficient interview can prevent unnecessarily chasing erroneous leads, reduce the amount of costly time devoted to needless follow-up investigations and prevent allegations of police profiling. Suspicious activity reports are anonymous; returning to the reporting person may be impossible. Therefore, police have one opportunity to conduct a thorough interview and obtain pertinent details that can be analyzed and evaluated to determine if further follow-up is necessary.

Linking information together is critical. Suspicious activity reports in and of themselves may seem innocuous. However, linking reports together can reveal much greater detail and insight. The inability to link critical pieces together, in part, led to the catastrophic events of 9/11.

The National Suspicious Activity Reporting (SAR) Initiative is designed to help create these vital links. The National SAR Initiative recognizes the important role of police officers,

> In today's policing, *connecting the dots* of suspicious activity before an incident occurs has become an integral and imperative job for America's law enforcement, from the officer on the street to supporting analysts. The NSI is designed to do just that, connect the dots. (2010)

The National SAR Initiative is designed to be a partnership for sharing of information, and is accomplished in several ways: a simple phone call from the police agency to the FBI's Joint Terrorism Task Force, pushing the information to the local fusion center, or even the option of submitting the information through eGuardian. Ultimately, the information is available on a shared database.

Police officers must understand the importance of sharing information, but also the importance of keeping abreast of information being shared. The National SAR Initiative provides the mechanics as well as the platform for better information sharing in general and the sharing of SARs.

Police training must go beyond the realm of preventive and investigative techniques. Terrorist, especially the lone wolf, often stay below the radar and remain undetected despite our best efforts. In the event of a terrorist attack on our highways or on highway infrastructure (or elsewhere), our police officers must know how to appropriately respond to the incident. Responding to a terrorist attack is unlike most other police responses. Terrorism adds new elements, such as secondary devices, multiple terrorists, multiple locations, and suicide terrorism. Thus, police officers must know how to respond, and create concentric rings of defense as proposed by Hoffman et al. Additionally, police officers must be trained in the investigation of a successful terrorist attack; recognizing such an attack will result in a multi-jurisdictional, multi-discipline investigation involving all levels of government.

Timothy McVeigh was stopped in rural Oklahoma, miles from his target location. He was stopped by an Oklahoma State Trooper who simply observed a minor traffic violation. Every traffic stop is an opportunity for police to intervene on a crime, whether

the crime is drunk driving or terrorism. Our police officers may be placed in the position of stopping a terrorist en route to his/her target destination while carrying or wearing an explosive device. As suicide terrorism is a preferred method used by al Qaeda and expected to gain prominence, police officers must be appropriately trained in how to deal with this unique threat. Imagine a police officer stopping a suicide terrorist along a busy highway. This is the new reality and calls not just for a change in training, but also a change in the rules of engagement.

B. ENGAGING THE PUBLIC

In the years following 9/11 and the relative absence of a large-scale, mass-casualty terrorist attack on our nation, garnering citizen involvement in terrorism prevention has become more challenging. As a nation, our collective memory of the tragic events of September 11, 2001, has begun to fade, leaving terrorism in the background as other issues challenging our nation take precedent.

The decline in the public's perception of potential terrorist attacks in the United States is inconsistent with the reports and analyses of our government. Our nation is still in harm's way with regard to terrorism.

Law enforcement represents a small portion of the American populous. The relative small quantity of police personnel, the sheer size of the United States, and waning public involvement make the concept of preventing terrorism on our highways seem an impossible task. Nevertheless, public complacency can be reversed if police organizations are willing to take the appropriate steps, especially with regard to preventing terrorism on our highways. The average American drives 13,476 miles per year (Federal Highway Administration, 2011). Each one of those drivers, as well as passengers and public transit users, can be another set of eyes in the prevention of terrorism on our highways. The motoring public is a valuable and abundant asset the police cannot afford to ignore.

Public engagement programs in the form of suspicious activity reporting offer promise as a means of preventing terrorism on our highways, but only if properly retooled. The *See Something, Say Something* model created by the Metropolitan Transit

Authority offers a simple message that has been adopted by countless other organizations as a means of soliciting the help of the public. The problem is the *See Something, Say Something* campaign offers no specifics with regard to what is considered suspicious or what the indicators of terrorists activity are. Individual citizens are left to their own judgments to determine what is considered suspicious.

In my experience, I have witnessed this countless times as citizens allow their imaginations to fill in details and make faulty assumptions. The police are left spending countless hours tracking down the suspicious individual, only to learn the caller omitted pertinent details that would have explained the behavior or action. Too often, suspicious activity calls are centered on people who are described as "Middle Eastern." Therefore, any behavior, such as merely waiting for the next train, is instantly assumed suspicious. The resulting investigation often reveals nationalities are assumed, and more often than not the "suspicious" individual is actually Hispanic, Asian, or African American, and their behavior was innocuous. Law enforcement personnel chase these worthless leads that often lead to hurt feelings. Time is wasted and limited resources are strained.

Just as police officers must be trained in terrorism, so must the public if we are to improve the quality of the information the public reports to the police. Therefore, public engagement campaigns must be coupled with an educational component. The public can be educated about the threat and what types of activities and behaviors are considered suspicious and worthy of police intervention, without compromising the integrity of intelligence data. The public needs to understand behaviors and actions are suspicious; people, simply because of their assumed national origin, are not.

The public will get involved if the police solicit their assistance and provide them with an education on terrorism. Additionally, through this education process, the public's observation skills can be honed, reducing the frivolous and often annoying suspicious activity calls. Educating the public can be achieved in a variety of ways.

Community Oriented Policing offers a ready-made platform that can easily expanded to include precursors to terrorism, identifying individuals who are engaging in the steps towards radicalization, and identifying suspicious behaviors specifically

associated with certain businesses such as storage facilities, gun dealers and home improvement centers. Citizen's police academies offer similar opportunities to train the public in terrorism awareness. Additionally, community oriented policing and citizen police academies offer law enforcement agencies the opportunity to showcase the expanding role of law enforcement in the realm of terrorism, while simultaneously engaging citizens in the war against terrorism in their own communities.

The Coast Guard's *America's Waterway Watch* program has incorporated a public educational component worthy of further exploration by police agencies. Most police agencies already have established websites. Emulating the Coast Guard model, police agencies may consider incorporating public terrorism awareness training on their websites. Short video clips produced in-house can offer an inexpensive method of public education about the highway terrorism threat as well as how to identify and report suspicious activity. A more cost-effective method would be to incorporate links to lists of potential terrorism indicators/behaviors specific to the highway. Police agencies can tailor the message to their specific vulnerabilities beyond highways and transportation assets.

The pervasiveness of social media demands further exploration by law enforcement agencies as we seek new ways to engage the public in all types of crime prevention to include terrorism prevention. Twitter, Facebook and YouTube offer inexpensive outlets for public education and are a great means of information exchange.

Nearly 70 million people in the United States own smartphones (Comscore, Inc., 2011). With roughly a quarter of the population in possession of these devices and popularity still on the rise, police agencies must capitalize on the amenities the smartphones offer. Organizations are creating their own downloadable applications, or apps, thereby giving the smartphone user instant access to a wide variety of information, while also providing for information exchange. For example, Kentucky's Office of Homeland Security released an app known as *Eyes and Ears on Kentucky*. It gives the user the ability to provide anonymous real-time suspicious activity reporting and the ability to attach pictures and utilize the phone's global positioning system during the reporting process (Homeland Security Newswire, April 4, 2011). Police agencies have

the ability to launch similar applications with specific emphasis on suspicious activity reporting of potential terrorist activity on the highway (or anywhere) within their community.

Although technological innovations have expanded the horizons of information exchange and communication, more traditional methods are worthy of exploration. Traditional media sources offer methods for educating and engaging the community in terrorism prevention through suspicious activity reporting. Hometown newspapers provide a more traditional platform for short educational articles. Public service announcements on community access television channels and on local radio stations, especially if delivered by a member of the local police community, has the ability to reach diverse audiences. The messages need to stress remaining vigilant, the current threat, what is suspicious, and exactly who to call in the event of witnessing suspicious activity.

The important aspect to remember when creating public engagement campaigns is the need to ensure they do not target one specific demographic, organization or agency. The entire public needs to be brought to bear on our efforts to prevent terrorism on our highways and critical highway infrastructure. To emphasize or omit one group limits the scope of the campaign and therefore limits the information gleaned. In this pervasive fight against terrorism, everyone, in every community and beyond, is a stakeholder.

C. ENGAGING OUR PARTNERS

Law enforcement agencies have worked hard to build relationships with other agencies and non-governmental organizations. Law enforcement agencies should capitalize on these pre-existing relationships as they seek to prevent terrorism on our highways (and elsewhere). Social service workers, firefighters, utility workers, highway workers, medical caregivers and private businesses can be great observers and reporters. However, it is up to law enforcement to start the dialogue and educate their public service partners about the signs of potential terrorism.

With regard to preventing terrorism on our highways, state and local departments of transportation, utility workers, toll collectors, and highway maintenance contractors

are particularly good observers because of their familiarity with the area and ability to readily identify when something looks out of place. Toll collectors have the ability to observe the demeanor of the driver and the contents of the vehicle.

According to the Transportation Security Administration, the responsibility of terrorism prevention and response on our highways is in the hands of the state and local transportation departments who own the roads and the roadway infrastructure. Highways are considered critical, but not enough to merit a cohesive, well-funded, uniform prevention program. Local and state transportation agencies may not understand the threat or their role in preventing an act of terrorism on our roadways. Police executives not only have a responsibility to educate their police officers and the general public, but also to educate their state and local transportation agencies. Local and state transportation officials also need to work with the police, as their roles go well beyond prevention, extending into response and recovery in the event of a successful terrorist attack on our highways. The issue of resolving how transportation workers will work as first responders must be resolved at the local community level and well in advance of an attack.

As fellow first responders, transportation workers, firefighters and EMS must also be educated by the police on terrorism tactics. Firefighters and EMS workers in particular are susceptible to secondary attacks as they unwittingly rush into an injured crowd after an IED attack. The police, as the subject matter experts in explosives and terrorism tactics, must be the educators for all homeland security partners engaged in this type of response.

The benefit of engaging our partners is their ability to spread the word beyond our partner agencies. Law enforcement should ask their partners to look for ways to prevent terrorism and report suspicious activity.

D. STRATEGY

Strategy designed to prevent an attack on our highways and highway critical infrastructure often does not include the police. Police must intervene and help facilitate the development of local and state strategies that accurately reflect the complex

environment that has developed in the years following 9/11. Highway security strategy must incorporate all the organizations and agencies that have a role in prevention, response and recovery—not just transportation agencies and the local police. Roles must be established in advance, with a clear understanding of the limitations and expectations of those within the partnership. Although the highways and highway infrastructure are owned by the state and local governments, any large-scale event will entail a multidiscipline response from all levels of government. Abilities, resources, responsibilities and roles must be established in advance of an event to prevent the overlapping of responsibilities and duplication of effort.

E. PRACTICE MAKES PERFECT

After developing strategies for the prevention of and response to terrorism on our highways and highway infrastructure, it is critical to test these strategies to determine whether they meet the needs of the community. Exercising strategies allows weaknesses to be identified, clarifies roles and responsibilities, and allows the strategy makers to adjust the strategy as weaknesses are observed. Exercises must include all the stakeholders and must be reflective of the complexities that naturally exist in the community.

F. HIGHWAY CONTINGENCY PLANNING

The cascading effect of an attack on our highways or on other critical infrastructures is a testament to the vulnerability to this very open system. Local and state strategies must consider the effects of the loss of a bridge or roadway to a terrorist attack and the effects on the local community, region, state and nation. Local and state highway security strategies must have contingency plans for rerouting traffic and providing goods and services to an isolated community. By discussing the "what ifs" in advance, and creating viable options to the worst-case scenario involving the loss of critical highway infrastructure, the local community has an alternative plan available for just such a disaster.

G. CONCLUSION

The strategies proposed can and do work. The attempted detonation of a vehicle-laden IED in Times Square on May 1, 2010, illustrates these strategies in action. The initial report of the suspicious vehicle was a direct result of employing the assistance of the public through the *See Something, Say Something* public engagement suspicious activity reporting campaign. Although it appeared to be a smoldering vehicle, the well-educated, well-trained fire department quickly realized this situation was far more than the run-of-the-mill car fire. The collaborative effort between the police department, fire department and public works department was integral to maintaining order and defusing the situation expeditiously, but with attention to detail necessary in a criminal investigation. The success of the Times Square attempted bombing incident is a direct result of training law enforcement personnel, engaging the public and engaging our partners. This success can be shared if strategies such as these are put in place in advance of a terrorist incident, such as an IED on our roadways.

The *National Strategy for Counterterrorism* states,

> The United States deliberately uses the word "war" to describe our relentless campaign against al-Qa'ida. However, this Administration has made it clear that we are not at war with the tactic of terrorism or the religion of Islam. We are at war with a specific organization—al-Qa'ida. (The White House, 2011, p. 2)

Moghadam argues globalization will spawn the rise of terrorism. In the United States, law enforcement officers are the warriors in this war, whether it is against al Qaeda or any other terrorist group operating in the United States. This is a tremendous responsibility thrust upon law enforcement and one that has yet to be fully embraced by law enforcement agencies. No other organization within the homeland security enterprise has the power to investigate and arrest. Terrorism, at its most basic level, is a crime and should therefore be a natural extension to law enforcement's traditional duties.

The police are far too small a force to fight this war alone. The public must be engaged in the process, but before doing so, the police must fully understand the threat and their newly expanded role. Highway safety is a law enforcement niche, but terrorism

threats to United States highways and highway critical infrastructure have unwittingly placed American police in new role, well beyond the confines of highway safety. Our police must now fill the void created by the threat of terrorism on our highways by embracing an expanded role of highway security.

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