

**Federal Motor Carrier
Safety Administration**



SECURITY ENHANCEMENT STUDY FOR THE U.S. MOTORCOACH INDUSTRY

Prepared by:

**Volpe National Transportation Systems Center
Cambridge, MA 02142**

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**Security Enhancement Study
for the U.S. Motorcoach Industry**

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Acronyms

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AAR	Association of American Railroads
ABA	American Bus Association
ADA	Americans with Disabilities Act
BDCU	Bus Driver Certification Unit
BISC	Bus Industry Safety Council
BLT-MTA	Maryland Mass Transit Administration
BTS	Bureau of Transportation Statistics
CB	Citizen Band
CBN	Chemical, Biological, Nuclear
CBRN	Chemical, Biological, Radiological and Nuclear
CCTV	Closed Circuit Television
CDL	Commercial Drivers License
CD-ROM	Compact Disk-Read-Only Memory
CIA	Central Intelligence Agency
CMV	Commercial Motor Vehicle
CNG	Compressed Natural Gas
CTA	Chicago Transit Authority
CVO	Commercial Vehicle Operations
CVSA	Commercial Vehicle Safety Alliance
DBA	Doing Business As
DCJS	Division of Criminal Justice Services
DMV	Department of Motor Vehicles
DOD	Department of Defense
DOJ	Department of Justice
DOT	Department of Transportation
DUI	Driving Under the Influence
DVIR	Driver Vehicle Inspection Record
EOC	Emergency Operations Center
EPAS	Emergency Procedures and Security
FBI	Federal Bureau of Investigation
FMSCA	Federal Motor Safety Carrier Administration
FOIA	Freedom of Information Act
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
GCRTA	Greater Cleveland Regional Transit Authority

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Acronyms

GPS	Global Positioning System
HTC	Hempstead Transit Center
ICBT	Interactive Computer-based Training
ID	Identification
IED	Improvised Explosive Devices
ISAC	Information Sharing Analysis Center
ITS	Intelligent Transportation Systems
JPO	Joint Program Office
LACMTA	Los Angeles County Metropolitan Transportation Authority
LIRR	Long Island Rail Road
LNG	Liquid Natural Gas
MARTA	Metropolitan Atlanta Rapid Transit Authority
MBTA	Massachusetts Bay Transportation Authority
MCI	Motor Coach International
MCSAP	Motor Carrier Safety Assistance Program
MOU	Memorandum of Understanding
NIPC	National Infrastructure Protection Center
NTD	National Transit Database
NTI	National Transit Institute
R&D	Research and Development
SEPP	Security and Emergency Preparedness Plan
ST-ISAC	Surface Transportation Information Sharing Analysis Center
TCRP	Transit Cooperative Research Program
TNT	Trinitrotoluene
TRB	Transportation Research Board
TSA	Transportation Security Administration
UMA	United Motorcoach Association
US	United States
WMD	Weapons of Mass Destruction

Table of Contents

EXECUTIVE SUMMARY	VII
STUDY GOALS & OBJECTIVES	VIII
APPROACH.....	IX
METHODOLOGY.....	IX
INDUSTRY REVIEW FINDINGS	X
<i>Composition of the U.S. Motorcoach Industry</i>	<i>xi</i>
<i>Operator Financial Considerations</i>	<i>xi</i>
INDUSTRY ASSOCIATION SURVEY RESULTS	XI
THREAT AND VULNERABILITY ANALYSIS FINDINGS	XII
<i>Historical Data</i>	<i>xii</i>
<i>Vulnerabilities</i>	<i>xiii</i>
<i>Carrier Susceptibility to Attack</i>	<i>xiv</i>
AREAS OF OPPORTUNITY	XIV
<i>Short Term</i>	<i>xv</i>
<i>Long Term</i>	<i>xvii</i>
CONCLUSIONS	XX

List of Tables

TABLE 1. INDUSTRY ASSOCIATION SURVEY RESULTS	XII
TABLE 2. SCENARIOS	XIII
TABLE 3. AREAS OF OPPORTUNITY BY VULNERABILITY	XIX

**Security Enhancement Study
for the U.S. Motorcoach Industry**

EXECUTIVE SUMMARY

The United States motorcoach industry is a critical component of the nation's transportation system. It carries about 775 million passengers a year with about 3,700 companies operating 40,000 buses.¹ The industry performs a wide range of services including scheduled intercity service, charters, tours, private commuters, airport shuttles, sightseeing, contract commuters, and others. The industry also provides jobs for almost 200,000 workers, as well as supporting important economic and national security goals. The U.S. motorcoach industry consists of infrastructure elements that include vehicles, personnel, passengers, stations and terminals, however, the open nature of the motorcoach environment makes it difficult to protect these assets. Companies operating throughout the United States rely on public accessibility as a hallmark of service. The motorcoach industry is a physically dispersed, easily accessed, high volume, target rich environment with potential for mass casualties. Motorcoaches serve all large metropolitan areas and travel in close proximity to some of the nation's most visible and populated sites, such as sporting events, major tourist attractions, and national landmarks.

The level of security afforded to the infrastructure of the motorcoach industry is relatively low compared to the security enhancements recently implemented in the commercial aviation sector, despite the fact that the motorcoach industry handles 136 million more passengers a year. There is sufficient reason to believe that the security levels within the motorcoach industry need to be raised as threat levels increase and the vulnerabilities of the current infrastructure become apparent. Both national and international trends have given rise to concerns about the safety and security of this system and its key components should they be targeted by an adversary. The terrorist attacks on September 11, 2001 were unparalleled in nature and magnitude. This tragedy has reshaped national expectations about future threats and created a new urgency to increase preparedness. In this new threat environment, critical infrastructure protection has received heightened attention. Although to date no terrorist attack has been perpetrated against this infrastructure or used its assets as a weapon, there are potential threat scenarios where a significant loss of human life, property damage, or service disruption could occur. Therefore, this is an appropriate time to enhance system security by undertaking an analysis of the vulnerability of the motorcoach system to such threats. It is essential that the industry assess its security posture and ensure that well-planned, coordinated actions are taken to reduce the possibility that such events occur. Such actions should represent a coordinated approach by a partnership of public and private sector institutions to identify vulnerabilities and threats, and enhance the security of the infrastructure segments and operations.

The *Security Enhancement Study for the U.S. Motorcoach Industry* was commissioned by the Federal Motor Carrier Safety Administration (FMCSA) and conducted by the John A. Volpe National Transportation Systems Center (Volpe Center). It was prepared to identify the level of current and emerging security threats in the motorcoach industry; to assess and prioritize vulnerabilities of key assets based on current industry security and preparedness capabilities; and to identify potential opportunities for enhanced protective measures and programs. In all project activities, FMCSA and Volpe Center personnel worked closely with a Project Advisory Panel, comprised of representatives from the American Bus Association (ABA), the United Motorcoach Association (UMA), and the Department of Transportation's Intelligent Transportation Systems (ITS) Joint Program Office (JPO). FMCSA officials coordinated project activity with their counterparts in the newly established Transportation Security Administration (TSA). The results of this study provide a valuable risk assessment framework for consideration by motorcoach

¹ ABA Motorcoach Census 2000

companies, and may guide Federal activities to support legislative, funding, technology, training, and regulatory programs for industry.

The prominence of bus travel and the large number of passengers who rely on this service requires that security be a fundamental objective for motorcoach operators and Federal agencies. This study is an important first step in developing a strategy for combating terrorism and violent crime in the U.S. motorcoach industry. Because it will never be possible to eliminate all vulnerabilities within the industry, prevent all threat activity, or be completely prepared to respond to all incidents, it is important to focus the available resources on areas of greatest need. This report serves as a roadmap of program activity for the Federal Government. It also serves as a decision-making tool to help define the threats, to evaluate the associated risk, and to link requirements to program investments. Areas of opportunity are identified where improvements can be made to enhance the overall safety and security of the motorcoach industry.

It is important that programs designed to ensure security are implemented in an economical and efficient way. These opportunities will help guide Federal programs for U.S. motorcoach security enhancements and prioritize requirements. This will allow for development of a targeted and layered security approach that will efficiently maximize security. The challenge to the Federal government is to develop an industry-wide program that allows prioritization of efforts using a risk-based approach, while ensuring the unique requirements of operators of all sizes and service types are considered. Activities should be programmed with industry input and with the understanding that when it comes to motorcoach security, one size doesn't fit all.

STUDY GOALS & OBJECTIVES

This study was prepared to:

- Assess security threat levels and vulnerabilities in the motorcoach industry utilizing existing information
- Prioritize threats and vulnerabilities based on current motorcoach industry capabilities and operations
- Identify the current level of preparedness of the motorcoach industry
- Identify “real world” areas of opportunity to enhance security and emergency preparedness and to define short- and long-term system approaches useful towards the development of an industry-wide security program

During the performance of this study, the Research Team focused on four objectives:

- To conduct a preliminary threat and vulnerability analysis for the U.S. motorcoach industry (considering both national and international experience)
- To identify the current level of preparedness within the motorcoach industry
- To identify useful practices, practical recommendations, and guidance to be implemented by motorcoach operators to support enhanced readiness
- To identify Federal Government actions for legislative, program, and regulatory initiatives to enhance security and emergency preparedness in the motorcoach industry. These activities will promote best practices, identify lessons learned, and guide Federal Government activities to support new technology and training programs for the motorcoach industry.

APPROACH

This study was conducted by the Volpe National Transportation Systems Center (Volpe Center) in partnership with the Federal Motor Carrier Safety Administration (FMCSA). FMCSA and the Volpe Center Research Team worked closely with an Advisory Panel, comprised of representatives from the American Bus Association (ABA), the United Motorcoach Association (UMA), and the Intelligent Transportation Systems (ITS) Joint Program Office (JPO) Commercial Vehicle Operations Program. FMCSA officials have also coordinated project activity with their counterparts in the newly established Transportation Security Administration (TSA). Steps conducted for this study included:

- Establishing a project team under the leadership of the FMCSA
- Establishing a joint advisory panel of industry representatives
- Conducting the research under the leadership of the Volpe Center
- Utilizing existing resources and historical data: databases, testimony, and reports
- Reviewing responses to a survey of motorcoach operators conducted by motorcoach industry associations
- Conducting site visits and interviews with large and small motorcoach operators
- Compiling all the data to provide a "snapshot" of the current levels of security within the motorcoach industry

To address the impacts of new and emerging threats on the U.S. motorcoach industry, working closely with both FMCSA and industry personnel, the Volpe Center assembled a Research Team to provide:

- A preliminary industry-wide risk analysis that identifies the key vulnerabilities of motorcoach operations to acts of terrorism and criminal violence
- A ranking of the types of service provided by industry, prioritized according to the implications of identified vulnerabilities of assets, and the industry as a whole
- Recommendations for reducing specific vulnerabilities through use of countermeasures proven effective in motorcoach operations

METHODOLOGY

Components of this study include a review of historic information about worldwide terrorist attacks, surveys, interviews, and site visits with the motorcoach industry to assess industry capabilities, development of a project database, and a vulnerability assessment. To achieve the study objectives, the Volpe Center Research Team utilized a methodology, comprised of the following elements:

Industry Review. Summary of the motorcoach industry (based on available industry data) that identifies:

- Size and structure of U.S. motorcoach industry
- Characteristics of industry companies (passenger profiles, passenger-miles, and employment) and types of service provided
- Industry assets (vehicles, equipment, facilities, and human capital)
- Existing financial capabilities of industry to support security and preparedness enhancements

Industry Survey. Surveys were sent to 2,012 motorcoach operators nationwide (54.4 percent of all operators) in order to obtain a snapshot of the industry in terms of the security posture of the operators. Areas covered by the survey include: threats (actual and perceived significant threats to service) and vulnerabilities, intelligence availability and use, security capabilities, security preparedness, training/readiness and service characteristics.

Interviews. In-depth interviews of industry association representatives and motorcoach operators that include Greyhound, Coach USA, Paradise Tours, and Cauley Coach, were conducted by the Research Team. The intent of the interviews were to gain further understanding of industry threats, challenges and needs, and to identify key security practices across all size operations and service types.

Threat and Vulnerability Analysis. This report identifies the key threats and vulnerabilities within the motorcoach industry and defines short-and long-term areas of opportunity for enhancing industry security. The vulnerability analysis had three key components:

Threat Identification / Analysis of Historical Threat Data. Historical analysis of threats to motorcoach operations from terrorism and criminal violence, both in the United States and internationally, through creation and analysis of a terrorism chronology documenting occurrences identified in major, open-source datasets and their implications for the motorcoach industry. The completed database documents over 2,800 incidents of world-wide terrorist incidents, of which 42 percent relate to surface transportation and 17 percent were carried out against bus targets. The review of historical data was used to develop scenarios based on attacks that have occurred in the U.S. and internationally against the motorcoach industry, attacks on other transportation modes in the U.S. and internationally, and attacks that might occur but have not yet occurred in the U.S. or internationally.

Scenario Analysis. Development of a scenario-based analysis representing likely assets, threats, types of attacks, weapons and adversaries. Assessment of the identified scenarios was based on likelihood of occurrence, capability to conduct attack, and severity factors.

Identification of Key Vulnerabilities. Identification of key vulnerabilities of and key factors for assessing motorcoach operator susceptibility to acts of terrorism and criminal violence by type of service provided.

INDUSTRY REVIEW FINDINGS

The U.S. motorcoach industry is a collection of private companies who operate intercity motorcoaches for the express purpose of passenger service. The U.S. motorcoach industry fills its market mission through provision of seven distinct services:

- Charter Services
- Tour Services
- Sightseeing Services
- Airport Shuttle
- Contract Commuter
- Scheduled Service
- Private Contract

Each of these service types have different characteristics that impact the risk profile of the operator.

Motorcoach companies compete for market share by targeting those travelers on fixed incomes who may not be able to afford other means of travel, or who prefer to participate in group travel, or who choose to avoid the growing inconvenience of air travel or automobile travel in specific geographic areas or attractions.

Composition of the U.S. Motorcoach Industry²

These findings indicate that:

- The U.S. motorcoach industry consists of about 3,700 U.S.-based companies. Combined, these companies operate a national vehicle fleet of 40,000 buses.
- Company owned and operated motorcoaches transported 775 million passengers in 2000.
- 50 large operators provide approximately 62 percent of all passenger trips and 30 percent of all passenger miles, with a nationwide fleet of approximately 11,000 motorcoaches. Though these companies dominate passenger service statistics, they comprise less than 1.5 percent of all U.S. motorcoach businesses. The 50 largest companies employ approximately 22 percent of industry employees.
- Mid-size companies, operating between 25 and 99 buses, comprise 7.5 percent of the industry, and using a nationwide fleet of approximately 13,000 motorcoaches, provide 18 percent of passenger trips and account for 30 percent of all passenger miles. Mid-size companies employ an additional 20 percent of employees.
- Over 90 percent of the industry is comprised of small operators with fewer than 25 buses; an estimated 75 percent operate fewer than 10 buses. Combined, these companies provide 20 percent of passenger trips and account for 40 percent of passenger miles. 58 percent of industry employees support companies with less than 25 motorcoaches.

Operator Financial Considerations

Like the airlines, motorcoach operators have experienced tremendous reductions in demand for service since the September 11, 2001 terrorist attacks. Since then, industry interviews revealed that charter and tour operators around the United States have reported losses between 20 and 50 percent of total revenues. While scheduled services have not been as negatively affected, they have also seen reductions on the order of 10 to 15 percent. Only contracted service for private business and public transportation (commuter service) have remained relatively stable in the post-September 11th environment.

INDUSTRY ASSOCIATION SURVEY RESULTS

Of the 2,012 surveys sent out, a total of 224 responses were received. Coach USA, in a coordinated effort with the Volpe Center Research Team, submitted a single survey to represent its 120 individual companies. Therefore, the 224 completed surveys received for the study represent 343 operating companies, or approximately 17 percent of the 2,012 companies contacted. These companies are responsible for approximately 23 percent of all annual motorcoach passenger trips. The current security capabilities and threat profile of the motorcoach industry survey respondents are shown in Table 1.

² ABA Motorcoach Census 2000, less Canadian firms

Table 1. Industry Association Survey Results

Current Security Capabilities of the Motorcoach Industry	
Planning and Training	<ul style="list-style-type: none"> • Less than 25% of survey respondents have written security plans • The level of security awareness training provided varies by size of operation. <ul style="list-style-type: none"> • 75% of the operators with 100 or more vehicles provide some level of security training • 34% of small operators have employed some training mechanism
Security Advisories / Warnings	<ul style="list-style-type: none"> • 54% have received security advisories or warnings from external sources
Coordination With Local Law Enforcement	<ul style="list-style-type: none"> • 47% of the respondents have been in contact with local Law Enforcement in the past 12 months
Security Technology / Operational Procedures	<ul style="list-style-type: none"> • Security technology currently in place varies with the size of the operation • Operational procedures have been enhanced and employ such items as locking luggage bays and other compartments, conducting pre-trip inspections, screening passengers, training for driver awareness, and issuing cell phones to drivers. Procedures adopted vary with the size of the motorcoach operation • 75% of large operators have alarm/intrusion detection and half of these operators have CCTV at facilities, emergency communication equipment on vehicles, and fuel tank access locks. Less than half of other operators have any of these technologies • The security technologies most reported by operators of fewer than 100 vehicles are fuel tank access locks and emergency communication systems (cell phones)
Actual and Perceived Security Threats and Actions Taken	
Security Incidents	<ul style="list-style-type: none"> • Within the last twelve months 25% of the survey respondents have experienced security incidents of a varying nature
Perceived Threats	<ul style="list-style-type: none"> • The following threats were identified as significant by operators of all sizes: operator assault (12.7%); vehicle hijacking (11.8%); introduction of explosives into engine compartment or luggage bay (10.9%); and weapons brought onboard by passengers (10.2%) • 11.8% of respondents perceived no significant security threats
Actions Taken to Address Threats	<ul style="list-style-type: none"> • The major actions taken across the industry are encouraging driver awareness, conducting driver awareness training, and locking luggage bays and other vehicle compartments at all times

THREAT AND VULNERABILITY ANALYSIS FINDINGS

Historical Data

The review of historical data was used to identify overall trends. Major findings are:

- Of the total worldwide terrorist attacks over the past century, 42 percent have been directed at surface transportation and land-based transportation facilities, and 17 percent of worldwide terrorist attacks have been directed at bus and motorcoach transportation
- To date there has not been an incident of terrorism against the U.S. motorcoach industry
- Threats and terrorist actions against motorcoaches have occurred in other nations, including Israel, Spain, and the United Kingdom
- Incidents of violence on motorcoaches and transit vehicles appears to be on the rise

Historical data and information collected in assessing the current capabilities of the industry were used to identify 15 scenarios representing categories of threats relevant to the motorcoach industry (see Table 2). These scenario categories were placed into one of five broad groups.

Table 2. Scenarios

GROUP	SCENARIOS
Assaults on Operators	Physical Assault on Operator With Fists or Blunt Instruments (May Result in Adversary Control of Vehicle)
	Physical Assault on Operator With Knives or Other Sharp Objects (May Result in Adversary Control of Vehicle)
	Armed Assault on Operator (May Result in Adversary Control of Vehicle)
Assaults on Passengers	Assaults on Passengers (May Result in Adversary Control of Vehicle)
Use of Explosives / Incendiary / Flammable Devices and Materials	Explosive/Incendiary/Flammable Devices or Materials Onboard Motorcoach Vehicle
	Explosive/Incendiary/Flammable Devices or Materials in Roadway, Station or Nearby
Objects Thrown	Objects Thrown or Launched at Vehicle or Facilities
	Attempts to Crash the Motorcoach Vehicle or Control its Movement from the Road
	Armed Assault on Employees in Stations, and Administrative and Maintenance Facilities
	Forced Evacuations From Vehicles (May be Followed by Armed Assault or Secondary Devices)
Other Attacks	Protests at or Near Motorcoach Vehicles or Facilities
	Chemical and/or Biological Agent Release
	Radiological Dispersal Devices
	Explosive-laden Motorcoach to Attack Destination, Infrastructure, or Site of National Significance

Using these broader groups historic data was used to identify likelihood of occurrence in the U.S. and internationally across these five categories.

Vulnerabilities

Based on historical data and industry concerns, the Research Team identified the following seven common vulnerabilities, which are shared across motorcoach operations and common to all attack scenarios:

- Vulnerability of operator to attack from behind
- Vulnerability of steering wheel to “grabs” for control
- Vulnerability of onboard passenger compartment to the introduction of weapons and explosives
- Vulnerability of other vehicle compartments, including the engine, lavatory, and luggage bays, to the introduction of explosives and weapons

- Vulnerability of motorcoach in traffic to the intentional actions of other drivers, to weapons, and explosives
- Vulnerability of destinations to attacks using motorcoach vehicles to charge locations and detonate explosives
- Vulnerability of vehicle storage areas to unauthorized access and weapons or explosives of sufficient power to damage or destroy equipment

It should be noted that this assessment is based on a logical evaluation of existing factors and conditions. Such assessments are critical to support informed decision-making by industry personnel. However, given the uncertainty that surrounds acts of terrorism and random criminal violence, this analysis is not definitive: emerging threats must be continually identified and evaluated.

Carrier Susceptibility to Attack

Based on survey results, threat and vulnerability analysis, scenario analysis, and interviews with industry operators and representatives, the Research Team identified factors relevant to carrier susceptibility to the seven vulnerabilities identified above. These include:

- Name recognition
- Characteristic of trip (length of trip, overnight stays)
- Characteristics of passengers (customer affiliations, availability of alcohol/drugs)
- Destinations (symbolic importance, casino runs, configuration of bus parking, staging operations)
- Age of vehicle (ability to secure)

All threats are not created equal, nor are all providers in the motorcoach industry equally vulnerable to acts of terrorism and criminal violence. The following list indicates the relative risk for operators based on service type:

- Fixed, scheduled service – highest risk level
- Charter/tour/sightseeing servicing specific cities (20 percent of operators)
- Contracted commuter service
- Remaining 80 percent of charter/tour/sightseeing
- Airport private shuttle service (current security measures limit vulnerability)

AREAS OF OPPORTUNITY

The approach for developing recommended areas of activity was to create distinct yet complementary sets of action items for Federal and other government agencies, and the U.S. motorcoach industry. The recommendations offer an approach for developing an industry program that would raise the level of security and preparedness. The industry recommendations should identify those measures that research has shown to be effective when applied to domestic and international bus operations.

To date, the vast majority of resources and activity related to transportation security in the United States has been focused on aviation. The country's motorcoach industry is also vulnerable to several types of terrorist and criminal attacks. A variety of countermeasures must be incorporated into motorcoach operations to mitigate these vulnerabilities. Countermeasures, as presented in

this report, are strategies, actions, technologies, and systems or procedures that can be enacted to reduce a type of vulnerability, or the impact of an attack. Countermeasures may include physical modification, police and security deployment and staffing alternatives, security technology, environmental design and review, security materials selection and analysis, administrative and operational procedural changes, education/training, or other measures that will reduce the vulnerability and/or impact. These activity areas have been chosen because of their potential to reduce the vulnerabilities identified in this study, or to mitigate the potential impact on people or the motorcoach transportation system if these vulnerabilities were exploited.

To support government agencies in developing an industry-wide security program, the Research Team has focused on activities to address threats and vulnerabilities identified in this study. Opportunity areas have been formulated to address all phases of the countermeasure development life cycle, from assessment of the problem to development and implementation of solutions. They include initiatives that should be addressed by government agencies at the Federal, State, and local levels; that should be undertaken by commercial industry; and several initiatives that would be most effectively addressed by public/private partnerships. *These are preliminary recommendations, and do not represent all of the initiatives necessary to ensure security of the motorcoach industry.*

The identified areas of opportunity contain both short-term and long-term activities that could be conducted to enhance industry security posture. Through creation of a federally funded task force or advisory committee, the Research Team recommends that industry representatives, union officials, and vehicle and technology vendors work together with government agencies to develop a clear mission regarding the scope of the industry program, based on comparative vulnerability with other transportation providers, available funding, available regulatory authority, and threat levels and concerns established for the industry by the Department of Homeland Security.

Short Term

Key near-term improvements could be implemented immediately, many involve implementation of readily-available existing countermeasures to reduce vulnerability. These initial steps in developing a national commitment to motorcoach security enhancement include:

Develop a Motorcoach Security Program Plan

- Prioritize activities based on risk and identify risk reduction benefits.
- Conduct high level research to develop risk association with susceptibility factors such as service type and destination.

Enhance Employee Training and Public Outreach

- Promote the concept of employee and patron vigilance which is essential to motorcoach security. Identify and employ measures that support the security awareness, education and training of employees and patrons, particularly in high-volume passenger environments and remote facilities.
- Focus training on deterrence, detection and response to various types of terrorist incidents (e.g., threats, bombs, and suspicious substances) ensuring a common terminology for situations, methods of on-location assessment and understanding roles until local police or fire officials assume authority and control of a situation.

Improve Intelligence Sharing

- Coordinate with the FBI's National Infrastructure Protection Center (NIPC) to support the Association of American Railroads (AAR) lead Surface Transportation Information Sharing Analysis Center (ST-ISAC). It is recommended that the appropriate Federal agencies participate in the ISAC and serve as a liaison between motorcoach operators/industry associations, the AAR, and the FBI regarding security intelligence.
- Explore methods and protocols for gathering, analyzing, and disseminating intelligence, and information related to potential threats, and incidents within the motorcoach industry.

Form Government/Industry Partnerships to Develop Practical Approaches to Security

- Conduct an industry-wide conference or round-table to address several key components of motorcoach security that may require standardization. A possible model for this conference is the *Emergency Preparedness and Security Forums* conducted by the Volpe Center for the Federal Transit Administration.
- Facilitate cross-jurisdictional contacts, information sharing, and negotiations with other organizations and agencies.
- Improve communications with others involved in transportation security; creating partnerships and consortia involving public and private sectors and the academic and research communities to improve motorcoach security.

Identify Best Practices from Motorcoach Industry Leaders and Other Members of the Transportation Industry

- Research industry security best practices, particularly model forms, checklists, training videos, manuals, procedures, and programs. A newsletter or some other type of consistent communication with industry on these topics is also recommended. Operators have stated that their biggest problem in updating their programs to address security was not a lack of understanding of what had to be done, but a lack of templates and models to reduce the administrative time required to develop the formal program. Guidance on establishing security plans, procedures, and training programs would be beneficial.
- Develop a separate industry-wide security advisory system, tailored to the types of services provided in the motorcoach industry and specifying appropriate security activities / protective measures for each Homeland Security Advisory System threat level.
- Research risk assessment techniques specific to the motorcoach industry that are currently used by various sizes and types of operations.

Establish Security Clearinghouse

Collect, screen, manage, and make available to industry information on motorcoach security issues. Provide information on Federal grant opportunities; cutting-edge technology/ countermeasures (capabilities, cost/effectiveness, deployment); demonstration project results; best practices; threat and vulnerability assessment guidance, methodologies, and models; and training materials and course availability.

Collect, Evaluate and Disseminate Information on Security Incidents, Threats and Countermeasures

Security strategies for the motorcoach industry must be based on accurate threat and countermeasure information.

- Collect comprehensive data on security incidents and disseminate it throughout the motorcoach industry and law-enforcement communities.
- Develop timely threat information related to critical transportation system vulnerabilities, as well as effective systems to disseminate this information nationally. Develop a threat-notification system that can reach both industry association members and non-members. Explore schemes to develop and disseminate information on both specific and non-specific threats. Discuss guidelines on public notification of threats.
- Develop and exercise analysis, modeling and simulation techniques for determining transportation vulnerabilities and assessing effectiveness of security countermeasures.
- Provide information on the cost and effectiveness of new and developing countermeasures.
- Assimilate information on best practices, lessons learned from real life incidents, and pursue the most effective countermeasures systems and procedures.

Identify Technological and Institutional Issues

Identify motorcoach industry-specific technological and institutional issues and barriers to successful implementation of new security practices, procedures, or technology.

Enforce the Patriot Act

Work with Federal, State and local law-enforcement agencies to pursue aggressive enforcement and prosecution of the Patriot Act.

Long Term

This section recommends a number of initiatives needed to ensure the continued development of new and improved solutions to address the vulnerabilities identified in this report:

Facilitate Technology Development

Several areas have been identified where initiatives are needed to ensure the development of technologies, systems, and procedures that would improve the security of the transportation environment. Investigate current technology for use in the motorcoach industry, such as: GPS, onboard CCTV, automatic vehicle shut off, access control, and facility/perimeter security.

Develop Standards and Guidelines

Many in the transportation security community feel that some degree of standardization is needed to promote effective implementation of countermeasures throughout the national transportation system. Explore adoption of standards and guidelines addressing vehicle and facility design, and operations security.

Conduct On-going Best-Practice Surveys

Best-practice surveys provide a means for compiling information on how various industries, both inside and outside of the transportation community, approach security problems. While there are examples of innovative and effective security practices, a periodic re-evaluation must be made across public and private organizations, and the results compiled and disseminated.

Initiate Legislative Action

Initiate a Federal prohibition of unchecked/undeclared weapons and hazardous materials on motorcoaches.

Table 3 summarizes the identified areas of opportunity and highlights the vulnerabilities they address.

Table 3. Areas of Opportunity by Vulnerability

Area of Opportunity	Time-frame: (Short / Long Term)	Vulnerability								
		Operator / Passenger Attack from Behind	Weapons and Explosives in Passenger Compartment	Weapons and Explosives in Other Vehicle Compartments	Attack Using Motorcoach to Charge Destination and Detonate Explosives	Weapons, Explosives, Intentional Actions of Other Drivers	Weapon/Explosives / WMD in Terminal / Station	Weapons or Explosives via Unauthorized Access to Vehicle Storage Areas	Cross-cutting	
Motorcoach Security Program Plan	S									●
Motorcoach Security Program Plan Development										●
Risk Prioritization										●
Intelligence Sharing	S									●
Intra-industry intelligence-sharing										●
Partnering	S									●
Creating or enhancing motorcoach companies' relationship with local law enforcement; create industry taskforce										●
Best Practices	S									●
Preparing security plans and procedures										●
Data Collection / Dissemination	S									●
Security threat / incident repository										●
Driver Training, Employee Training, Passenger Education and Public Outreach	S									●
Support security and preparedness in new operator training								●		●
On-going/refresher training										●
Empower driver to make onboard security decisions (passenger ejection/refusal to board)		●	●							
Training on protective postures and defensive driving maneuvers		●				●				
Prohibited Items	S									
Identify prohibited items		●		●						
Signage to alert public of prohibited items		●	●		●			●		
Coordinate w/layover/terminal vendors to prevent sale of prohibited items		●								
Onboard Protection, Vehicle Security, and Inspection	S									
Transparent divider to protect driver's back / right-hand-side protection systems to prevent steering wheel "grabs" for control of vehicle		●								
Communications w/dispatch or law enforcement (cellular phone/GPS/"panic button")		●				●				
Yellow stand line/electronic sensor at front of coach		●								
Passenger and luggage screening to detect prohibited items		●	●	●						
Luggage handling and access to luggage bays procedures; locking of vehicle compartments				●					●	
Securing vehicle at layover/destination				●					●	
Frequent vehicle inspections				●	●				●	
Technological and Institutional Issues	S									●
Patriot Act Enforcement	S									●
Technology Development	L									
GPS; AVL		●								
Onboard CCTV		●	●				●		●	
Hidden "kill switches" activated by drivers in distress		●								
Facility Security	S									
Controlled access			●	●	●		●	●		
Video surveillance			●	●	●		●	●		
Fencing and gates			●	●	●		●	●		
Security patrols		●	●	●	●		●	●		
Security lighting			●	●	●		●	●		
Standards and Guidelines	L									●
On-going Best-practice Surveys	L									●
Legislative Action	L									●

CONCLUSIONS

The U.S. motorcoach industry does not exhibit a substantial security or anti-terrorism capability, particularly when compared to the emphasis commercial aviation places on these activities. This is primarily because in the U.S. experience, aviation has been by far the most visible and dramatic transportation target for terrorism and violent criminal incidents. Few similar actual incidents involving domestic surface transportation assets have occurred, and none for buses in particular.

The U.S. motorcoach industry has responded, based on its own specific security and terrorist history, and has developed and implemented security practices that are consistent with its experienced and perceived vulnerabilities. In the past, security has focused on crimes such as assaults and vandalism. It is not surprising that although the likelihood of a successful threat event is judged to be high, many operators do not yet perceive terrorists threats as a major concern. There are few examples of sustained or resource-intensive security practices in the motorcoach industry, due to the absence of firm justification for such an approach to date. In addition, the open nature of the environment makes it difficult, if not impractical, to apply security measures that would hinder the movements of individuals. This study has shown that threats against U.S. motorcoach industry assets may exist and that operators are vulnerable to these threats.

Given the potential threats facing the industry, many opportunities exist to develop initiatives to assess and begin to strengthen the security readiness of the motorcoach industry. Federal, State, and local government, industry associations, and operators must focus on both long and short-term efforts to increase security awareness, improve cooperation across agencies and jurisdictions, evaluate industry threats and vulnerabilities in more detail, improve operating practices, and develop emergency response, mitigation, and recovery strategies. These efforts are the first steps in enabling the prioritization of risks and implementation of workable, effective, and efficient security solutions for motorcoach operating companies that are specifically tailored to their risks, needs, and operating environment.