

TRANSPORTATION RESEARCH

CIRCULAR

Number E-C065

June 2004

Transportation Security Education and Training

*Summaries of Presentations
at TRB's 83rd Annual Meeting*

Washington, D.C.
January 12–13, 2004

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES

Transportation Security Education and Training

Summaries of Presentations at TRB's 83rd Annual Meeting

Omni Shoreham Hotel
Washington, D.C.
January 12–13, 2004

Sponsored by
CRITICAL TRANSPORTATION INFRASTRUCTURE PROTECTION COMMITTEE (ABE40)

Daniel J. O'Neil, *CRADA International, Inc.* (Chair)
Lewis S. Roach, *Military Surface Deployment and Distribution Command* (Vice Chair)
Russell H. Henk, *Texas Transportation Institute* (Secretary)

David Preston Albright
Edward V. Badolato
Hamed Benouar
Annabelle Boyd
Leonard C. Cross
Stephen E. Flynn
George Avery Grimes
Yacov Y. Haimes
Edwin W. Hauser

Lindor P. Henrickson
Thomas V. Morley
Saleh A. Mumayiz
Yuko Julie Nakanishi
William E. Roper
William C. Thompson
Joyce Wenger
Jeffrey L. Western
Gregory B. White

Joedy Cambridge, *TRB Staff Representative*

TRB website:
www.TRB.org

Transportation Research Board
500 Fifth Street, NW
Washington, DC 20001

The **Transportation Research Board** is a division of the National Research Council, which serves as an independent adviser to the federal government on scientific and technical questions of national importance. The National Research Council, jointly administered by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, brings the resources of the entire scientific and technical community to bear on national problems through its volunteer advisory committees.

The **Transportation Research Board** is distributing this Circular to make the information contained herein available for use by individual practitioners in state and local transportation agencies, researchers in academic institutions, and other members of the transportation research community. The information in this Circular was taken directly from the submissions of the authors. This document is not a report of the National Research Council or of the National Academy of Sciences.

Contents

Introduction	1
SESSION 460	
The National Domestic Preparedness Consortium Training Programs	2
Summary of Presentation by Dennis Hunter, <i>New Mexico Tech</i>	
Information Assurance Education: The National Information Assurance Education and Training Program’s Centers of Academic Excellence	4
Summary of Presentations by Vic Maconochy and Christine Nickell, <i>National Information Assurance Education and Training Program</i>	
Use of Evacuation Simulation in Emergency Planning	6
Summary of Presentation by Reuben Goldblatt, <i>KLD Associates, Inc.</i>	
Design and Deployment of Secure Entry Control for Facilities	8
Summary of Presentation by Whitefield Mayes, <i>Wilbur Smith Associates</i>	
SUBCOMMITTEE SESSION	
Transit Security Training and Education Overview	10
Summary of Presentation by Eva Lerner-Lam, <i>The Palisades Consulting Group, Inc.</i>	
The U.S. Maritime Administration’s Training Program	12
Summary of Presentation by Chris Krusa, <i>Maritime Administration, U.S. Department of Transportation</i>	
Training and Education Needs of State Departments of Transportation	14
Summary of Presentation by Douglas Ham, <i>PB Farradyne</i>	
Current Education and Training Initiatives	17
Conclusion	18
Y. J. Nakanishi, <i>Polytechnic University of New York</i>	
Contact Information	19

Introduction

It is impossible to make the nation's transportation system completely secure. The amount of investment needed and the disruption to our transportation system would be too onerous. However, transportation agency and industry workers—when trained properly—can prevent incidents by being vigilant and by identifying suspicious people and packages; when an incident does occur, they are at the front lines and can quickly respond to and manage an emergency situation. In order to perform these important duties effectively, they should be given the best possible education and training.

This e-circular summarizes the transportation security education and training presentations at TRB's 83rd Annual Meeting, January 11–15, 2004, in Washington, D.C. The presentations were organized by the Subcommittee on Training, Education, and Technology Transfer, chaired by Yuko Nakanishi, and by the Critical Transportation Infrastructure Protection Committee, chaired by Daniel O'Neil.

SESSION 460 PRESENTATIONS: TRANSPORTATION SECURITY EDUCATION AND TRAINING—BEST PRACTICES

TRB Annual Meeting Session 460, Transportation Security Education and Training: Best Practices, was held on Tuesday, January 13, 2004, at the Omni Shoreham. The session, presided by Yuko Nakanishi and Daniel O'Neil, featured the following speakers and topics:

- *Dennis Hunter*, National Domestic Preparedness Consortium (NDPC) Training Programs, discussed the training programs offered by the National Domestic Preparedness Consortium.
- *Vic Maconochy* and *Christine Nickell*, National Information Assurance Education and Training Program (NIAETP), informed the audience about the National Information Assurance Education and Training Program and the Centers of Academic Excellence in Information Assurance Education, which are a part of the National Security Agency.
- *Reuben Goldblatt*, KLD Associates, Inc., explained how simulation programs can be used for emergency planning and training purposes.
- *Whitefield Mayes*, Wilbur Smith Associates, presented information on the design and deployment of secure entry control for facilities.

SUBCOMMITTEE MEETING PRESENTATIONS

The Transportation Security Subcommittee on Training, Education, and Technology Transfer met on Monday, January 12, 2004, at the Omni Shoreham. Presenters were as follows:

- *Eva Lerner-Lam*, President of The Palisades Consulting Group, Inc., and *Douglas Ham*, Area Manager for PB Farradyne's Mid-Atlantic Business Unit, presented training strategies and needs of transit agencies and state DOTs.
- *Chris Krusa* of the U.S. Maritime Administration (MARAD) apprised the Subcommittee members of MARAD's training programs for its personnel.

The National Domestic Preparedness Consortium Training Programs

Summary of Presentation by

DENNIS HUNTER

New Mexico Tech

The National Domestic Preparedness Consortium (NDPC) was formed in response to the Oklahoma City Bombing and delivers weapons of mass destruction training. NDPC is the principal vehicle through which the Department of Homeland Security's Office of Domestic Preparedness (ODP) identifies, develops, tests, and delivers training to state and local emergency responders.

Each of the NDPC members brings a unique set of assets to the domestic preparedness program.

- *Energetic Materials Research and Testing Center (EMRTC)–New Mexico Tech:* EMRTC offers live explosive training including the use of field exercises and classroom instruction. EMRTC offers the Incident Response to Terrorist Bombing and the Prevention and Response to Suicide Bombings courses and is the lead NDPC partner for explosives and firearms, live explosives, and incendiary devices training. Website: www.emrtc.nmt.edu
- *National Center for Biomedical Research and Training (NCBRT)–Louisiana State University:* NCBRT helps prevent, prepare for, respond to, and recover from national and international acts of terrorism, mass casualty incidents, and weapons of mass destruction incidents through teaching, research, and evaluative services. Website: www.ncbrt.lsu.edu
- *U.S. Department of Energy's Nevada Test Site (NTS)–National Exercise, Test, and Training Center:* NTS conducts large-scale field exercises using a wide range of live agent stimulants as well as explosives. NTS develops and delivers a Radiological and Nuclear Agents Course. NTS, in coordination with ODP, is establishing the Center for Exercise Excellence. The Center allows NTS to train jurisdictions in the planning and conducting of exercises, tailored to the unique threats faced by participating jurisdictions. The Center will provide a critically needed new component of the overall exercise training program, meeting those special exercise needs as the state and local jurisdictions define their exercise priorities. Website: www.nv.doe.gov/nts
- *National Emergency Response and Rescue Training Center–Texas A&M University System:* Texas A&M delivers a set of courses to prepare public officials, emergency medical services, law enforcement, fire protection, and public works for the threat posed by weapons of mass destruction (WMD). Courses are developed and designed to provide each specific segment of the emergency response community with the tools needed to accomplish its role in the event of a WMD incident. Additionally, Texas A&M has developed an Interactive Internet WMD Awareness Course for emergency responders. Texas A&M also provides technical assistance to state and local jurisdictions in the development of WMD assessment plans. The Texas Engineering Extension Service offers the following courses of instruction: WMD Threat and Risk Assessment, WMD Incident Management/Unified Command, Emergency Response to

Terrorism Basic Concepts, Emergency Medical Operations, and WMD Awareness (Internet Course). Website: teexweb.tamu.edu/nerrtc

- *Center for Domestic Preparedness (CDP)*: CDP provides hands-on specialized training to state and local emergency responders in the management and remediation of WMD incidents. Located at Fort McClellan, CDP conducts live chemical agent training for the nation's civilian emergency response community. The emergency training provides a valid method for ensuring high levels of confidence in equipment, procedures, and individual capabilities.

The Consortium Review Process is the process by which courses are identified, developed, and implemented. The process begins with the selection of an appropriate consortium member (based upon their individual areas of expertise) to develop a course, which is developed based on input from subject matter experts, First Responders, and other agencies. The course is provided to ODP for review. Pilot courses are then run with instructors and the experts to refine and improve upon the instruction of the course. The pilot course is then provided to first responders. The curriculum is reviewed and modified based upon the results of the pilot courses.

The Consortium Course Validation Process reviews courses by a selected review board of subject matter experts based on the curriculum. The experts review the materials and submit comments before the course review meeting, during which the comments are addressed by the consortium member and ODP. Once any revisions are decided on, they are forwarded to the curriculum developer to evaluate. Course content is evaluated continually by consortium member with a full internal audit at least once a year.

The following website offers additional information about ODP activities and additional information about NDPC: www.ojp.usdoj.gov/odp.

Information Assurance Education
*The National Information Assurance Education and Training Program's
Centers of Academic Excellence*

Summary of Presentations by

VIC MACONOCHY

CHRISTINE NICKELL

National Information Assurance Education and Training Program

Vic Maconochy and Christine Nickell of the National Information Assurance Education and Training Program (NIAETP) informed the audience about their education and training activities and its Centers of Academic Excellence in Information Assurance Education.

The President's National Strategy to Secure Cyberspace, 14 February 2003, refers to cyberspace as the nervous system of our nation's critical infrastructures and indicates that the healthy functioning of cyberspace is essential to our economy and our national security. Securing cyberspace presents a difficult strategic challenge, and information assurance education is a critical component in successfully meeting that challenge.

The seriousness of personal computer (PC) viruses should be apparent: viruses affect all industries and sectors of the economy—transportation, finance, academia, and government agencies. And they have been attacking our PCs at an increasing rate. According to Internet Security Systems' newest report, the number of security threats climbed 9% in the third quarter over the previous three months (*Tech Web News*, Nov. 18, 2003). The costs of each virus outbreak have been tremendous. In a survey of 300 organizations, 36% reported server downtime of 21 hours; additionally, more than 80% of those reporting a virus outbreak required 20 person-days to recover at an average cost of \$120,000. Hence, network protection should be perceived not just as an insurance policy but as a core business requirement for all organizations.

There are fundamentally only three countermeasures available to protect our nation's Critical Information Infrastructure—technology, operations, and people. NIAETP seeks to address the human factors element by enhancing the information assurance (IA) knowledge and skills in the American workforce and school population via community-based education and training programs that are national in focus, future oriented, multidisciplinary and tied to technology and business.

Centers of Academic Excellence in Information Assurance Education is a partnership with 50 universities across the United States that seeks to reduce the vulnerability of our National Information Infrastructure by promoting higher education in IA and by producing a growing number of professionals with IA expertise.

Universities designated as Centers are eligible to apply for scholarships and grants through both the federal programs (www.her.nsf.gov/duet/programs/sfs) and Department of Defense Information Assurance Scholarship Programs (www.defenselink.mil/nii/iasp).

The ***DoD Scholarships for Service Program***, administered by NIAETP, provides IA professionals a chance to gain cutting edge knowledge and skills about IA and to apply them to their current or future jobs with government agencies.

Committee on National Security Systems Community Standards—in addition, NIAETP is involved in the creation and establishment of national training standards through the Committee on National Security Systems. Standards have been developed for the following job titles: Information Security Professionals, Information System Security Officers, System Administrators, System Certifiers, and Risk Analysts.

Additional information about this presentation can be obtained from Christine Nickell at c.nicke2@radium.ncsc.mil.

Use of Evacuation Simulation in Emergency Planning

Summary of Presentation by

REUBEN GOLDBLATT

KLD Associates, Inc.

A key element of emergency planning is evacuation planning. Originally a requirement of the nuclear power industry, evacuation planning has been extended to other venues, including chemical plants (especially after the incident in Bhopal, India) and military installations (particularly where chemical or biological weapons are to be destroyed). Now, in what is regarded widely as a changed world with much greater emphasis on emergency planning, evacuation planning is more important than ever.

EVACUATION PLANNING: FUNDAMENTAL CONCEPTS

In talking with the general public, and indeed with some professionals, there seems to be some misunderstanding of the nature and meaning of evacuation time estimates. Therefore, it is useful to review some of the key concepts and definitions surrounding this topic.

- Evacuation time estimates (ETE) serve as one criterion for developing a Protective Action Recommendation (PAR). PARs are recommendations made to decision makers in an emergency. These recommendations generally involve three choices for public action: do nothing, shelter in place, or evacuate the area.
- ETEs are viewed by the public as an important indication of risk.
- There seems to be some confusion distinguishing between ETE, which is an aggregate measure, and evacuation travel times.
- Mobilization time represents the time required by evacuees to perform all their necessary preparatory activities before starting the trip.
- ETE and mobilization time are both referenced in the Advisory to Evacuate.
- Mobilization and evacuation are *processes* that take place over time and space—they are not *events* that take place at a point in time.

The evacuation travel time depends primarily on the relationship between traffic demand and highway capacity (supply). When demand exceeds capacity over some time period, travel speed declines and the traffic environment exhibits queuing (stop-and-go), which is characteristic of congested conditions. Traffic does move, but slowly.

EVACUATION PLANNING METHODOLOGY

Good evacuation planning methodology involves an iterative process to identify the best evacuation routes and to estimate the time required to evacuate the area at risk. Some of the steps in this methodology follow:

- Identify the region to be evacuated: keyhole or circular. Regions are defined as subsets of the entire area at risk. Usually they are comprised of groups of emergency response planning areas. Regional configurations can be defined on the basis of wind direction and speed.
- Identify the demand (in vehicles) over the area to be evacuated and the voluntary and shadow evacuation areas. Demand population can be subdivided into permanent residents, employees who work in the area of risk, and transients who are passing through the area or staying in the area temporarily. This demand is distributed to zonal centroids, which describe the changes in population density over the area.
- Estimate highway link capacities based on field survey observations and on scenario-based weather conditions.
- Apply a traffic distribution and assignment model to compute the optimal routing of evacuation trips out of the region via the specified destination nodes.
- Apply a traffic simulation model to simulate the movement of vehicles during the course of the evacuation. The model should describe explicitly traffic conditions in the saturated flow regime to account for congestion effects.
- Introduce the traffic management tactics to the simulation and repeat the ETE analysis.

Evacuation simulation can be performed with either microscopic models or with macroscopic models. The tradeoffs between microscopic and macroscopic models are generally that microscopic models provide a more detailed simulation at the expense of computing speed. Where large networks are involved or large numbers of evacuation scenarios must be studied, or both, the macroscopic modeling approach provided reasonable accuracy at a significantly higher level of software efficiency.

TRAINING APPLICATIONS

Emergency evacuations are unique in the sense that drills or exercises involving public participation are not feasible. However, the evacuation control functions that are present in an emergency operations center can be exercised with the evacuation simulation providing the real-time feedback. Decisions on which areas are to be evacuated, how to respond to road closures and traffic accidents, and whether to turn some roads into one-way outbound roads to assist evacuation are some of the scenarios that can be simulated during exercises. Decisions can be introduced into the exercise, and the results of these decisions can be evaluated.

Design and Deployment of Secure Entry Control for Facilities

Summary of Presentation by

WHITEFIELD MAYES

Wilbur Smith Associates

Whitefield Mayes of Wilbur Smith Associates, part of a Department of Defense and consultant team, produced guidelines for the Design and Deployment of Secure Entry Control for Facilities that were developed into the content of a training course for military personnel. Although the primary focus is on entry control at military installations, according to Mr. Mayes, these guidelines would be applicable to transportation facilities such as bus depots and rail yards.

Before September 11, 2001 (9/11), the security level at military installations varied greatly, and no comprehensive design guide for entry control existed. Immediately after 9/11, all military installations increased security at access points: all vehicle occupants were checked; decal vehicles were randomly searched; all nondecal and visitor vehicles were searched; and all commercial trucks were searched. Many installations experienced major congestion because of the inadequate number of identification (ID) check lanes, insufficient and untrained security personnel, limited vehicular turnaround capability, lack of off-street inspection areas, and insufficient equipment and dogs.

It was clear that a comprehensive set of entry control design guidelines were needed. A team of engineers, planners, and security personnel developed guidelines in order to provide access control, maximize personnel safety, provide adequate capacity to meet the daily peak demand, address the primary threat (a vehicle-borne bomb), and provide all required functional components.

It was determined that a secure entry control can be implemented by instituting the following:

- Direct all visitors to one highly-accessible gate with off-street parking;
- Direct all commercial vehicles to a single, truck-only gate away from the population;
- Provide a turnaround at each potential rejection location and establish sufficient clear zones and screens; and
- Provide quality-of-life features.

The team developed detailed design guidelines for the following five elements of entry control—lane requirements, geometrics and design, lighting, signing, and speed control.

LANE REQUIREMENTS

It was determined that two ID checkers per lane provide maximum efficiency; they are able to process 500 vehicles per hour.

GEOMETRICS AND DESIGN

Optimal approach lane width, access road width, center grassed median width, ID checker median, lane width at checkpoint, curb heights, and shoulder specifications were identified and recommended. Pavement surface, transition tapers, lateral obstructions, corner radii, and visitor parking spaces were addressed as well.

LIGHTING

The guidelines recommended the use of transitional lighting, 5-ft candles near the checkpoint area and a minimum of 10-ft candles at the ID check positions, color retention index > 50, metal halide lighting, focused low-level lighting for ID processing, higher candle power for under vehicle search, and high- and low-positioned lighting at the truck inspection area.

SIGNING

For off-post directional signs, the guidelines developed recommended that they be located at critical approach junctions, be presented in as simple and legible manner as possible, adhere to standards (e.g., *Manual on Uniform Traffic Control Devices*), and be coordinated with local transportation authorities. Near the checkpoint, the following guidelines were suggested—only essential signs such as standard speed control signs should be installed within 250 ft of the checkpoint, no electronic signs and banners should be installed in that area, and outbound traffic speeds should be restricted.

SPEED CONTROL

In order to reduce speeds to safe levels, the following safety measures were recommended: speed reduction signing, reduced lane widths, stamping or coloration of pavement, traffic circles, speed humps, flashing warning devices, rumble strips, message boards, and serpentine with jersey barriers.

Additional information about the design and deployment of entry control for facilities can be obtained from Whitefield Mayes at wmayes@wilbursmith.com.

SUBCOMMITTEE SESSION

Transit Security Training and Education Overview

Summary of Presentation by
EVA LERNER-LAM
The Palisades Consulting Group, Inc.

This presentation described the current transit security training and education strategies, the future outlook and challenges for transit security and recommendations for addressing those challenges.

Before September 11, 2001 (9/11), transit security training and education focused primarily on localized, non-suicidal, petty crimes: graffiti, vandalism, robberies, and assault and battery. After 9/11, they expanded to include large-scale, suicide attacks and weapons of mass destruction and cyberterrorism.

Transit responded quickly and in a united way to security threats after 9/11. Only a few weeks after the attacks, the Federal Transit Administration (FTA) launched a highly successful “Connecting Communities” program <http://transit-safety.volpe.dot.gov/training/Archived/EPSSeminarReg/Seminar.pdf>, which brought transit personnel together with first responders so they could explore ways in which they could work more closely in the future. “Empowered” transit staff began engaging with other first responders in training, tabletop and field exercises and practice drills. Importantly, transit agencies around the country began involving the customer in terms of vigilance and emergency procedures.

Many organizations quickly engaged in activities geared toward enhancing transit security training and education, including

- Department of Homeland Security, Transportation Security Administration;
- Centers for Risk and Economic Analysis of Terrorist Events;
- FTA;
- National Transit Institute;
- Web resources at <http://transit-safety.volpe.dot.gov/Security/Default.asp>;
- TRB;
- Trade and professional associations:
 - American Public Transportation Association,
 - American Society of Civil Engineers, and
 - Institute of Transportation Engineers;
- Labor unions and Amalgamated Transit Union; and
- U.S. Department of Transportation’s Joint Program for Intelligent Transportation Systems Teleconference Technical Training.

Today, there is still a pressing urgency to conduct frequent drills and exercises—and indeed, to explore the unthinkable in terms of scenarios. However, funding for such drills and exercises is quite limited, and the economic downturn of the past several years has resulted in fewer employees handling greater responsibilities, so it is increasingly difficult for employees to

take the time to participate. Furthermore, many professional training curricula are still in development, and the demand is far greater than the supply of accredited courses and programs.

In moving forward, security education and training should be integrated into standard operating procedures, in the same manner as “Safety First” was integrated into industrial and commercial venues three decades ago. Partnerships at all levels, both existing and potential, and across relevant disciplines, should be pursued to conserve scarce personnel and funding resources. Finally, the use of best practices using traditional training venues as well as distance-learning platforms should be encouraged.

SUBCOMMITTEE SESSION

The U.S. Maritime Administration's Training Program

Summary of Presentation by
CHRIS KRUSA
Maritime Administration
U.S. Department of Transportation

Chris Krusa of the U.S. Maritime Administration (MARAD) presented the following summary of MARAD's training program.

The Secretary of the U.S. Department of Transportation (DOT) delegated to MARAD the requirement of Section 109 of the Maritime Transportation Security Act of 2002 (MTSA) to develop standards and curricula to allow for the training and certification of maritime security professionals. The international maritime security mandate, the International Maritime Organization's (IMO's) International Ship and Port Facility Code of 2002 (ISPS), contains duties and responsibilities of maritime security personnel and training is indicated to ensure maritime security effectiveness. At the present time there are no formal required international or domestic training standards; however, this is currently under consideration by the IMO. In the interim, to be in compliance with ISPS, implementers must provide evidence of relevant maritime security training in their ISPS response plans.

- Concurrently, MARAD is promoting aggressively the implementation of standardized maritime security training in a voluntary context.
- MTSA Section 109 standards and curricula were completed at the U.S. Merchant Marine Academy (USMMA), and a Report to Congress was signed by the Secretary of the U.S. DOT and submitted to Congress in May 2003. The Report contains seven course frameworks that target maritime security personnel inclusive of ship, port, and company venues and provides recommendations for broadly implementing maritime security training. (The Report is available via www.marad.dot.gov.)
- As a natural follow-on to the development of the standards, three model courses designed to train designated vessel security officers, company security officers, and port facility officers were created by MARAD at USMMA in cooperation with the government of India, submitted by the U.S. Coast Guard (USCG) to IMO and after a validation and editing process became available in September 2003 for use by training providers. The model courses are available via IMO at www.imo.org. Maryland Nautical Supply in Baltimore is a U.S. distributor, and the courses cost about \$46 each. Several course providers such as DNV, ABS, and industry schools such as MITAGS and Calhoon MEBA, have implemented training that appears to track well with these model courses.
- MARAD is developing additional model courses to cover four remaining categories of maritime security personnel, including land-based military and law enforcement officers, and is coordinating development of these model courses with USCG, the Transportation Security Administration, the Information Analysis and Infrastructure Protection Bureau, and the Federal Law Enforcement Training Center of the Department of Homeland Security and other relevant government agencies.

- A joint MARAD–USCG committee chaired by MARAD is refining the system of certification and course approval proposed in the Report to Congress and is addressing interagency issues. An interagency government team, possibly a subset of the MARAD–USCG Joint Committee, is forming to provide better organization of government resources and to promote continuity in training.

- A MARAD notice will be publicized soon to provide nonmandatory guidance to course providers who may wish to obtain course approval from MARAD. USCG’s National Maritime Center will approve courses for vessel personnel. The purpose of the nonmandatory course approvals is to promote use of the standardized model courses and to encourage consistency in training. It must be emphasized that this will be on a voluntary basis; the IMO model courses that MARAD created are by definition just that, not mandatory but voluntary. Courses will be assessed for conformance to the model courses. MARAD plans to have a system in place that will allow acceptance of course proposals starting in early spring 2004 via a web link to the MARAD website.

- MARAD is planning to implement training opportunities for any federal, state, local, and private law enforcement or maritime security personnel in coordination with the state maritime academies, the USMMA, the Appalachian Transportation Institute, and other nonprofit training schools that conduct approved maritime security training courses in order to facilitate and expedite this training. To be eligible for assistance in the form of grant or subsidy, course providers will have to commit to compliance with the voluntary course approval standard.

- To administer this program a National Maritime Security Education Center is under consideration by MARAD. Its location may be at USMMA, as a stand-alone project office.

SUBCOMMITTEE SESSION

Training and Education Needs of State Departments of Transportation

Summary of Presentation by

DOUGLAS HAM

PB Farradyne

A variety of sources including projects contracted by NCHRP and sponsored by AASHTO's Transportation Security Task Force¹ as well as other state Department of Transportation (DOT) studies were consulted to develop the information provided in the presentation summary.

PRE- VERSUS POST-9/11: SECURITY AND STATE DOTs

Security was not a main consideration of state DOTs before 9/11. Emergency preparedness efforts were uneven between states, and few state DOTs had considered seriously the possibility of terrorism. Post-9/11 security is definitely more important to state DOTs. For example, fostering a security-conscious workforce has become a much higher priority. Some DOT emergency operations plans have been updated and, in some cases, created. Threat level warning procedures have been developed and implemented in many DOTs. More and more DOTs are conducting at least some type of vulnerability assessment, although the specific nature of those assessments varies from state to state. Many state DOTs have participated in additional training and exercising relating to terrorism.

TRAINING CONSIDERATIONS AND RECOMMENDATIONS

Education and training should be provided to assist state DOT personnel in enhancing emergency response, vulnerability assessment, and other security-related capabilities. Training should be provided to field personnel, district management, and headquarters staffs (including state DOT leadership), although differing types of training are needed by the different groups.

Specifically, state DOTs should review and inventory terrorism and related training to date, identify what additional training is needed, and provide that training on a continuing basis as necessary and should coordinate with other emergency management agencies and the private sector on ways to develop more and improved multi-agency exercises.

Topics of most utility to state DOTs include general terrorism awareness (for many or all employees) and specific responder skills (for a subset of employees, mainly field personnel) such as the Incident Command System/Unified Command and more details about weapons of mass destruction and their effects.

¹ A Guide to Updating Highway Emergency Response Plans for Terrorist Incidents (Project 20-57A), Bridge and Tunnel Vulnerability Assessment Workshops [Project 20-59(2)]; National Needs Assessment for Ensuring Transportation Infrastructure Security [Project 20-59(5)]; Emergency Transportation Operations Preparedness and Response Workshop for Statewide Applications [Project 20-59(8)]; and Guide for Emergency Transportation Operations [Project 20-59(11)].

Training approaches could include courses and training sessions provided via the web, classroom, tabletop exercises, operational exercises, workshops, conferences, and field training.

TRAINING COSTS

The following are the cost estimates for training state DOT workers over the six-year federal surface transportation reauthorization timeframe²:

- Training: \$42,250,000
 - Develop and deliver awareness training to 100% and responder training to 15% of state DOT staff; recurring training of 5% of DOT staff on awareness and 1% on responder training.
- Exercising: \$140,400,000
 - One significant exercise at \$250,000 and two smaller exercises every year at \$100,000.

CONSTRAINTS AND CHALLENGES

Currently, state DOTs face the following constraints and challenges:

- Lack of adequate resources, primarily funding and staffing;
- Guidance on recommended training and exercise program;
- Information on available training; and
- Relating DOT training activities to other security or emergency management activities, for example, at other federal, state, and local agencies as well as the private sector.

OTHER NCHRP–TCRP ACTIVITIES³

Ongoing or forthcoming NCHRP–TCRP projects include

- An AASHTO–NCHRP Field Personnel Training Program is under development through the National Transit Institute (NTI) and is focused on awareness training.
 - NTI is funded under Project 20-59(6B) at \$50,000 in FY 2004 and (proposed) \$50,000 in FY 2005 to provide train-the-trainer programs.
 - Publication of a field personnel handbook is anticipated in spring 2004.
 - A CD-ROM version of the NTI awareness training should be available in mid-2004.
- Two joint TCRP–NCHRP projects are in procurement as of spring 2004:
 - NCHRP 20-59(18)–TCRP J-10C Guidelines for Transportation Emergency Training Drills and Exercises.

²The costs are based on *National Needs Assessment for Ensuring Transportation Infrastructure Security*, a report done under NCHRP Project 20-59(5).

³Source: Stephan Parker, Senior Program Officer, TRB.

– NCHRP 20-59(21)–TCRP J-10F Continuity of Operations Plans for Transportation Agencies.

For further information, contact Doug Ham at 703-742-5909 or at HamD@pbworld.com.

SUBCOMMITTEE SESSION

Current Education and Training Initiatives

A number of initiatives were proposed during the subcommittee meeting and during subsequent discussions with subcommittee members and the parent committee. Some of them are currently underway. The proposed initiatives are described below:

- Development of a website and an electronic inventory of resources with links to relevant education and training (E&T) documents, manuals, university training sites, and other educational and training websites;
- Development of a 2005 TRB session on Education and Training Needs of Transportation Agencies and Best Practices That Address Those Needs;
- Development of an inventory of threat-level color codes;
- Development of templates for a variety of E&T courses;
- Cosponsorship of the ASCE Transportation Security 101 course; and
- Cosponsorship of Workshop on Education and Training Needs of Transportation Agencies in the New York–New Jersey Region with Rutgers University.

Conclusion

Y. J. NAKANISHI

Polytechnic University of New York

There is no way to completely eliminate the possibility of terrorism and criminal acts against our transportation system, *without* depleting all of our time and resources, *without* shutting down the system completely, and *without* shutting down our way of life. However, we should be vigilant and alert.

Let us not bow down to terrorism. But, let us be smart, and let us be prepared. *Training and education* is one of the least expensive yet effective ways to enhance our nation's transportation system. Let us make the most use of it.

Contact Information

Reuben Goldblatt
KLD Associates, Inc.
47 Mall Drive, Suite 8
Commack, NY 11725
631-543-6500 (tel) 631-543-4330 (fax)
www.kldassociates.com
rgoldblatt@kldassociates.com

Douglas B. Ham
PB Farradyne
485 Springpark Place
Herndon, VA 20170
Business: 703-742-5909
Fax: 703-742-5989
Mobile: 703-362-9459
HamD@pbworld.com

Dennis Hunter
National Domestic Preparedness
Consortium Training Programs
New Mexico Tech
Energetic Material Research and
Testing Center
801 Leroy Place
Socorro, NM 87801
505-835-5674
www.emrtc.nmt.edu
dennis@emrtc.nmt.edu

Chris Krusa
U.S. DOT Maritime Administration,
Maritime
400 7th Street, SW, Mar 400, Room 7123
Washington, DC 20590
202-366-2548
www.marad.dot.gov
chris.krusa@marad.dot.gov

Vic Maconochy
Christine M. Nickell
National Information Assurance Education
and Training Program
Attn. I2, Suite 6752
9800 Savage Road
Ft. Meade, MD 20755-6752
410-854-6206 (tel) 410-854-7043 (fax)
<http://www.nsa.gov/ia/academis/acade00001.cfm>
c.nicke2@radium.ncsc.mil

Eva Lerner-Lam
The Palisades Consulting Group, Inc.
91 West Clinton Avenue, Suite 2
Tenafly, NJ 07670
www.palisadesgroup.com
elernerlam@palisadesgroup.com

Whitefield W. Mayes
Director of Military Transportation
Engineering
Wilbur Smith Associates
215 Talley Place
Newport News, VA 23608
or
Wilbur Smith Associates
2108 West Laburnum Avenue
Richmond, VA 23227
757-369-5050 NN office
757-880-3992 mobile
wmayes@wilbursmith.com

THE NATIONAL ACADEMIES

Advisers to the Nation on Science, Engineering, and Medicine

The **National Academy of Sciences** is a private, nonprofit, self-perpetuating society of distinguished scholars engaged in scientific and engineering research, dedicated to the furtherance of science and technology and to their use for the general welfare. On the authority of the charter granted to it by the Congress in 1863, the Academy has a mandate that requires it to advise the federal government on scientific and technical matters. Dr. Bruce M. Alberts is president of the National Academy of Sciences.

The **National Academy of Engineering** was established in 1964, under the charter of the National Academy of Sciences, as a parallel organization of outstanding engineers. It is autonomous in its administration and in the selection of its members, sharing with the National Academy of Sciences the responsibility for advising the federal government. The National Academy of Engineering also sponsors engineering programs aimed at meeting national needs, encourages education and research, and recognizes the superior achievements of engineers. Dr. William A. Wulf is president of the National Academy of Engineering.

The **Institute of Medicine** was established in 1970 by the National Academy of Sciences to secure the services of eminent members of appropriate professions in the examination of policy matters pertaining to the health of the public. The Institute acts under the responsibility given to the National Academy of Sciences by its congressional charter to be an adviser to the federal government and, on its own initiative, to identify issues of medical care, research, and education. Dr. Harvey V. Fineberg is president of the Institute of Medicine.

The **National Research Council** was organized by the National Academy of Sciences in 1916 to associate the broad community of science and technology with the Academy's purposes of furthering knowledge and advising the federal government. Functioning in accordance with general policies determined by the Academy, the Council has become the principal operating agency of both the National Academy of Sciences and the National Academy of Engineering in providing services to the government, the public, and the scientific and engineering communities. The Council is administered jointly by both the Academies and the Institute of Medicine. Dr. Bruce M. Alberts and Dr. William A. Wulf are chair and vice chair, respectively, of the National Research Council.

The **Transportation Research Board** is a division of the National Research Council, which serves the National Academy of Sciences and the National Academy of Engineering. The Board's mission is to promote innovation and progress in transportation through research. In an objective and interdisciplinary setting, the Board facilitates the sharing of information on transportation practice and policy by researchers and practitioners; stimulates research and offers research management services that promote technical excellence; provides expert advice on transportation policy and programs; and disseminates research results broadly and encourages their implementation. The Board's varied activities annually engage more than 5,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation. **www.TRB.org**

www.national-academies.org

TRANSPORTATION RESEARCH BOARD
500 Fifth Street, NW
Washington, DC 20001

ADDRESS SERVICE REQUESTED

THE NATIONAL ACADEMIES™
Advisers to the Nation on Science, Engineering, and Medicine

The nation turns to the National Academies—National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council—for independent, objective advice on issues that affect people's lives worldwide.

www.national-academies.org