

# Emergency Large-Scale Event Evacuation Plenary Panel: Pilot Studies

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# DHS S&T

## Goals, Objectives and Mission Statements

**U.S. Department of Homeland Security (DHS):** 1. Prevent terrorism and enhance security. 2. Secure and manage our borders. 3. Enforce and administer our immigration laws. 4. Safeguard and secure cyberspace. 5. Ensure resilience to disasters.

**DHS Science and Technology Directorate (S&T):** Improve homeland security by providing to customers state-of-the-art technology that helps them achieve their missions. S&T customers include the operating components of the Department, and state, local, tribal and territorial emergency responders and officials.

**HSARPA:** Support basic & applied HS research to promote revolutionary changes in technologies, advance the development, testing & evaluation, and deployment of critical HS technologies, and accelerate the prototyping of technologies that would address HS vulnerabilities

**R&D Partnerships Group:** Support, enhance, enable, and efficiently expedite fielding advanced HS capabilities through interactions with potential domestic and international partners found in the private sector, university communities, national labs, gov't agencies, & others to leverage collective expertise, resources & knowledge to efficiently and effectively develop capabilities aligned to the mission-critical needs of HSE

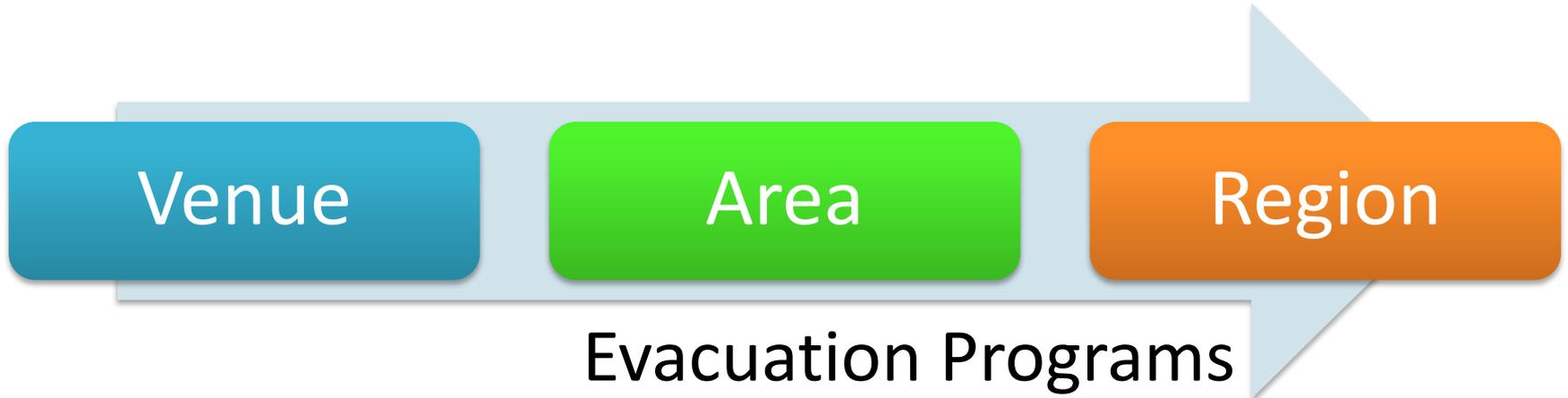
**DHS S&T Infrastructure Protection & Evacuation Planning (IPEP) efforts:** An HSAPRA and RDP partnership that supports DHS Missions, by reducing vulnerability and protecting Critical Infrastructure and the American public in large capacity facilities from threats by developing technologies, solutions, and methods for improved preparedness, planning, training, and operational capabilities before and during emergency situations.



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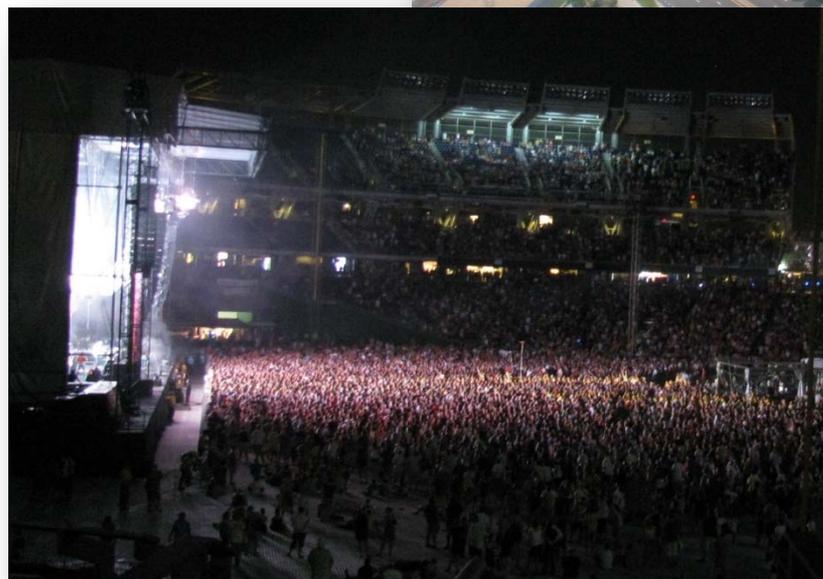
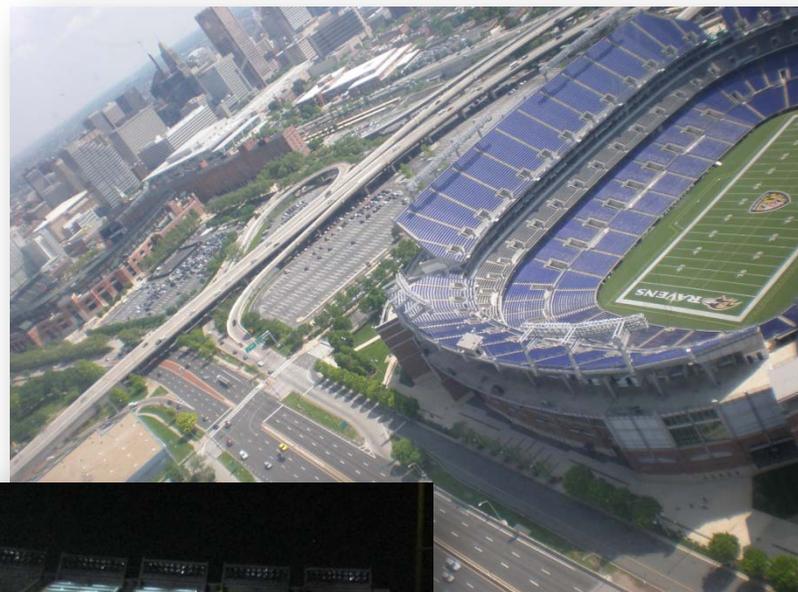
# Evacuation Planning



# Why Stadiums, Complexes & Arenas

- Estimated over 20,000 stadiums, open sporting complexes and arenas in the United States
- Venues can accommodate up to 100,000 people at a time for events that vary from football games to rock concerts to graduation ceremonies
- They are often in central locations and have an economic impact on the local area

**M&T Bank Stadium,**  
Baltimore, MD



**Nationals Field,**  
2010 Dave  
Matthews Band  
Concert,  
Washington, DC

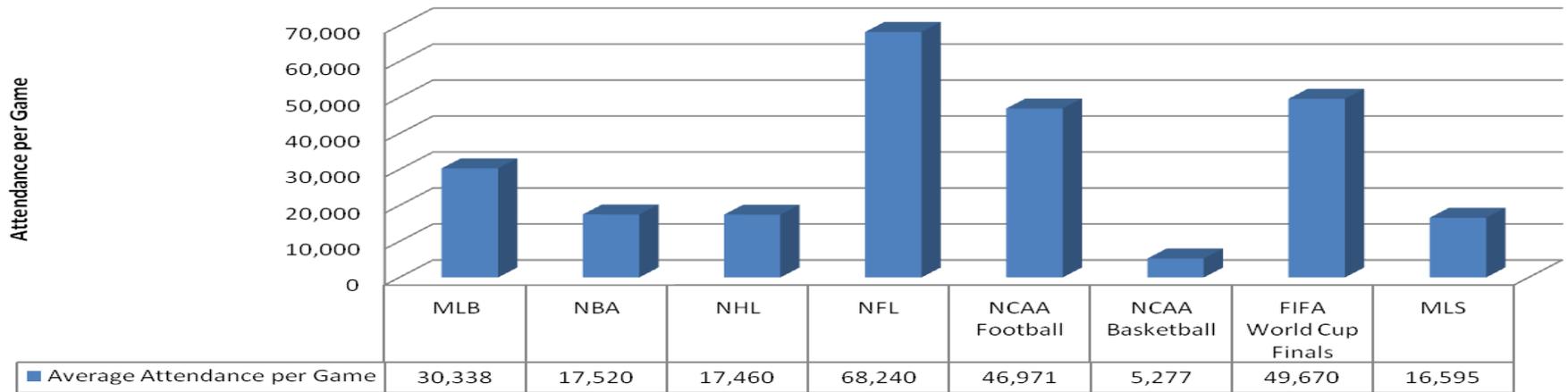


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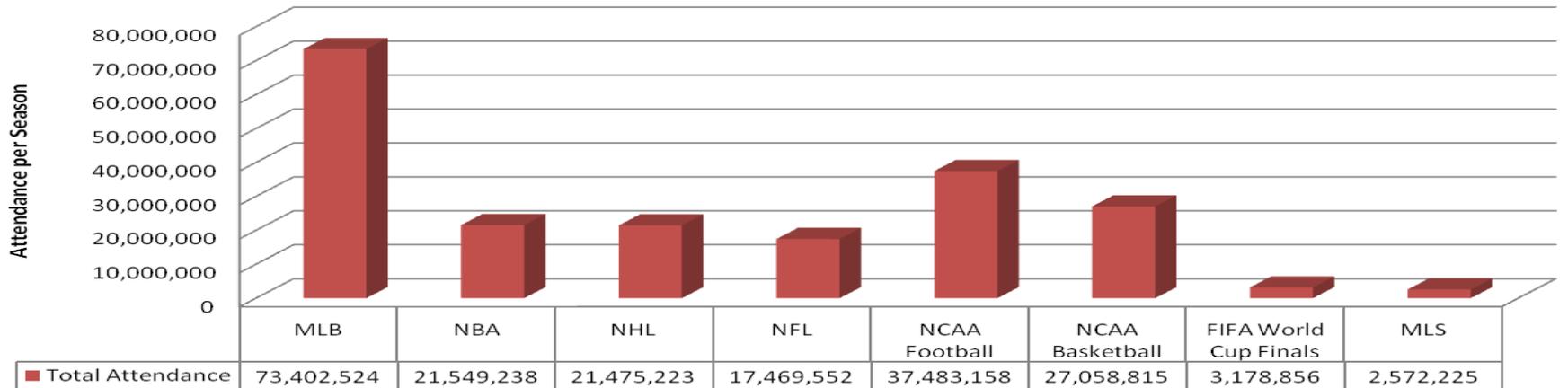
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# Stadium Attendance

## Average Attendance per Game



## Total Attendance



# Large-Venue Incidents

- **3 December 1979:** 11 fans killed by compressive asphyxia at The Who concert in Cincinnati, Ohio.
- **11 May 1985:** flash fire consumed one side of the Valley Parade football stadium in Bradford, England. 56 people killed; more than 265 injured.
- **17 October 1989:** during warm-ups for Game 3 of the 1989 World Series, with 62,000 people in Candlestick Park, the Loma Prieta (7.1) earthquake struck causing significant damage in both San Francisco and Oakland.
- **27 July 1996:** Centennial Olympic Park Bombing in Atlanta, Georgia, during the 1996 Summer Olympics. 2 died; 111 injured.
- **30 June 2000:** 9 people killed as concertgoers rushed the stage at a Pearl Jam concert in Roskilde, Denmark.
- **20 February 2003:** Fire at a Great Whale concert at Station nightclub in Rhode Island. 100 dead; 200 injured.
- **26 October 2003:** San Diego Charger's home field served as evacuation site during the Cedar Fire.
- **2005:** Louisiana Superdome served as evacuation site during Hurricane Katrina.
- **29 March 2009:** stampede occurred in the Stade Félix Houphouët-Boigny (Abidjan, Côte d'Ivoire) before a 2010 FIFA World Cup qualification match between Malawi and Côte d'Ivoire. 19 people killed; 130 injured.
- **25 July 2010:** 21 people died as a result of panic in a tunnel leading to the concert grounds of the Love Parade in Duisburg, Germany.
- **14 November 2010:** New Meadowlands Stadium shelter in place during lightning storm.



# Evacuation Planning Tool (EPT)

- Developed by Regal Decision Systems, Inc.
- Modeling and simulation tool for crowd movements during evacuation or shelter-in-place scenarios



# Understanding the Threat

- What is the Threat?

Terrorist

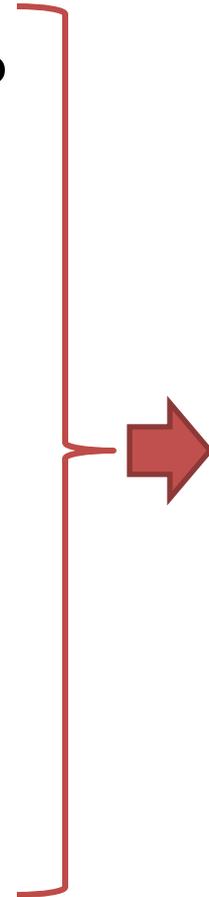
- CBRNE
- Active shooter
- IED

Natural Disaster

- Lightning
- Hurricane
- Earthquake

- Generalize the threat and tactic (Baseline Scenarios)

- Full evac, no re-entry
- Full evac, re-entry
- Partial evacuation
- Shelter in place
- Evac, during crowd loading



# Preparation and Training

- A disaster during a major event endangers people and disrupts economies and communities
- In preparation, venue security must train and educate vendor staff and local first responders to react during emergencies

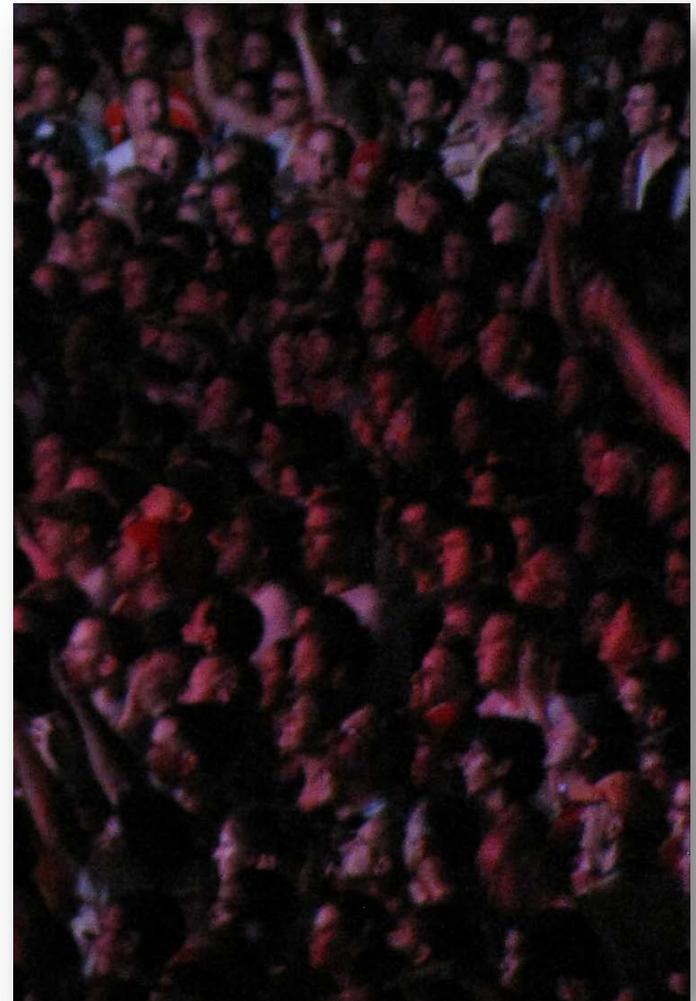


Security personnel at **Soldier Field**  
Chicago, Illinois



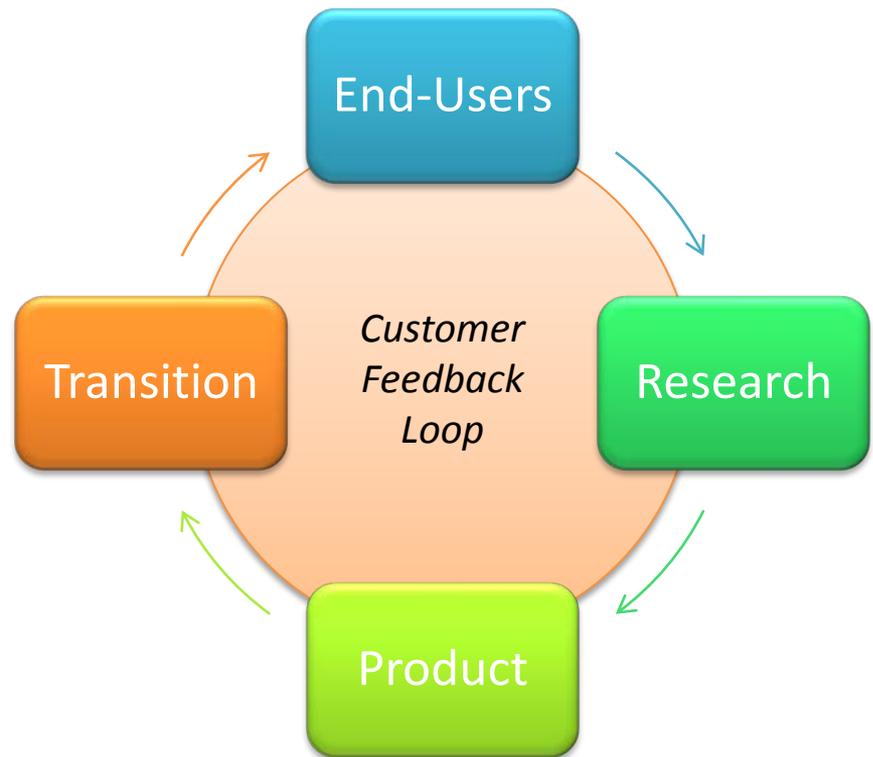
# Getting the People Involved

- Communicating with the public
  - Ensure awareness and readiness
- Harnessing public input
  - Use of social media
- Secretary Napolitano's "If You See Something, Say Something™" Campaign
  - Public awareness campaign
  - March 17: Napolitano announced partnership with NCAA to help ensure safety and security during the NCAA March Madness



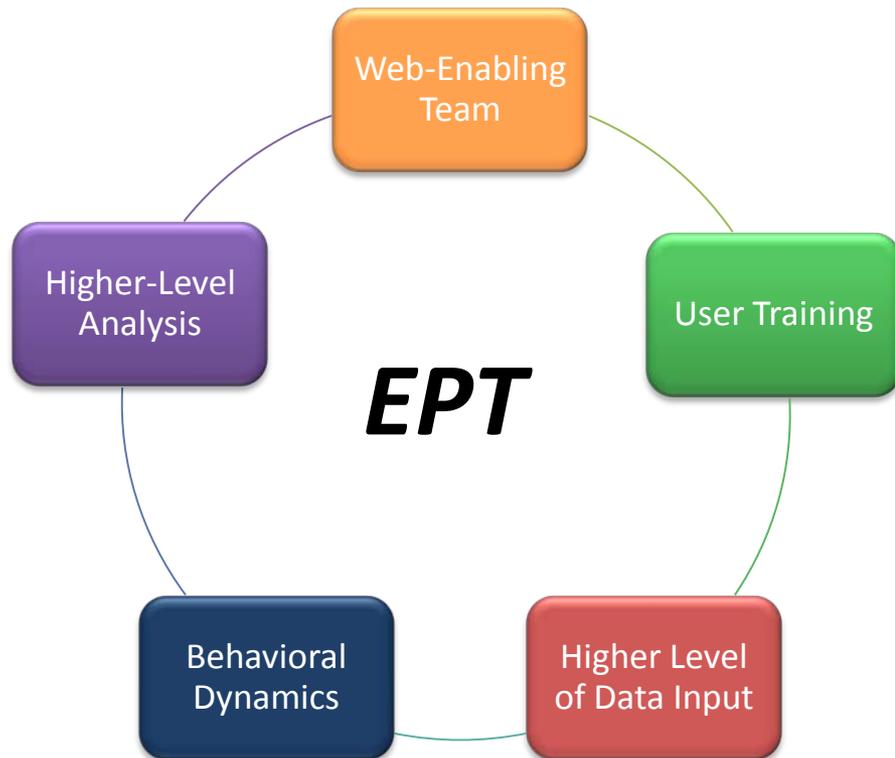
# Gathering Requirements and Feedback

- Partner / 1<sup>st</sup> Responder Steering Group
  - Practitioners / 1<sup>st</sup> Responders
  - Technical Advisors (research community)
  - Developers
  - End-users
  - Federal representatives



# Advancement Through Collaboration with COE

- Advancing the Tool (the science):



- Advancing the Application of the Tool:
  - Tie in with other S&T evacuation efforts
  - Modeling stadiums-to-wide-area evacuations
  - Use in training programs
  - Verification and validation of the tool's capabilities



# IPEP Activities

## **SERRI Program (2006- Sep 2011)**

- EPT/REACT/SPORT EVAC Development
- Univ. Southern Mississippi
- University of Tennessee
- US Military Academy
- New Meadowlands Stadium (Giants/Jets)

## **Additional Professional and NCAA Venues (2011-2013)**

- Lucus Oil Stadium (Colts)
- Super Dome (Saints)
- NBA, MLS, MLB, NHL, NCAA football and basketball, NASCAR, 2012 political national conventions, major horse racing events, other public events with Pres, VP, other heads of state possible attendance

## **CCICADA Center (2010-2013)**

- M&T Bank Stadium (Ravens)
- FedEx Field (Redskins)
- Cowboys Stadium (Cowboys)
- Lincoln Financial Field (Eagles)
- Behavioral Analytics – EPT Advancement

## **VACCINE Center (2010-2012)**

- Advancement of Software capabilities including imaging, visualization, etc.



# IPEP Symposium: March 28, 2011

- Speakers/Participants from:
  - U.S. Secret Service
  - FEMA
  - Office of Infrastructure Protection
  - DHS Science and Technology
  - Academia
  - American Red Cross
  - National Football League
  - State/local first responders
- Goals/Objectives:
  - Shared understanding of the vision and direction for large-venue evacuation R&D efforts
  - Establish understanding of where DHS S&T R&D should focus evacuation efforts in the coming years
- Results/Next Steps:
  - **HOLD.**

• **HOLD FOR PHOTO FROM SYMPOSIUM**



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# Plenary Panelists

- **Jeff Miller**, Director, Strategic Security Programs, National Football League
- **Daniel DeLorenzi**, Director of Security, New Meadowlands Stadium, New Jersey
- **Capt. Richard Aschenbach**, Region 1 Commander, New Jersey State Police
- **Joe Borkoski, Jr.**, President, Regal Decision Systems, Inc.

