

# Summary of Conclusions

## Operation Safe Delivery Exercise Series

Jersey City, New Jersey Workshop

March 19, 2015



Oil tank railcar



Oil tank railcars



FEMA



## EXECUTIVE SUMMARY

Intensifying exploitation of shale oil reserves has significantly increased the volume of domestic rail shipments carrying volatile shale crude oil. Consequently, there is increased risk for a train derailment or crash resulting in an oil spill, fire, and/or explosion.

To support communities examining core capabilities needed to mitigate, respond to, and recover from the consequences of oil transportation incidents, the Federal Emergency Management Agency (FEMA), United States Coast Guard (USCG), Department of Transportation (DOT), Environmental Protection Agency (EPA), and an array of whole community partners initiated the Operation Safe Delivery Exercise Series. At present, the series consists of three exercises from which a toolkit will be developed to guide future whole community preparedness efforts for similar oil transportation incidents.

The first exercise in the series, conducted at New Jersey City University on March 19, 2015, provided participants with a hypothetical derailment resulting in an oil spill, fire, and explosion in a densely populated area. One hundred seventy-five (175) local, state, federal, private industry, and non-governmental representatives engaged in energetic discussions about challenges posed by the incident, hazards accompanying it, and potential solutions. The event succeeded in fostering productive and actionable dialogue. Participants frequently stated that they would welcome more events “like this.”

Although discussions were wide-ranging, several key themes emerged:

1. ***Primary mitigation strategies must involve greater public education about and increased focus on the hazard itself (cargo, trains, rails) rather than on land use or the built environment.*** Current community development patterns will not change, at least not widely or quickly. Because rails and surrounding infrastructure (e.g., schools, housing, and hospitals) cannot be repositioned, focus needs to be on mitigating the hazard itself.
2. ***Public education activities for this hazard must be professionally coordinated, targeted, resourced, and implemented.*** The public needs a memorable and easily comprehensible message for what to do in the event of an oil transportation incident. This message should be consistent nationally, but delivered via community groups wherever possible.
3. ***Enhanced preparedness for this hazard will require a greater resource base.*** Resources to support local and state preparedness are stretched. Additional funding or in-kind support is needed, and not solely from the rail industry. The rail industry will provide substantial resources in the event of an incident, but local and state governments still require additional resources to meet preparedness goals.
4. ***Training and exercises on this topic should incorporate more responders, recovery stakeholders, and elected officials.*** Responders need more knowledge and experience to address challenges presented by an oil transportation incident. Additionally, the exercise demonstrated a necessity to introduce a range of recovery stakeholders to preparedness discussions.

5. ***Planning specific to this hazard is needed.*** Rail shipments of volatile shale crude oil represent a known, serious hazard; planning specifically related to such shipments is possible, desirable, and necessary. However, hazard-specific planning does not necessarily mean hazard-specific plans.
6. ***Planning for incidents involving volatile shale crude oil must pay greater attention to recovery requirements.*** Decisions made early in response operations may determine lasting effects of such an incident. Plans must address recovery concerns early in response.
7. ***All-hazard planning should be better integrated.*** Planning coordination could be improved, both across jurisdictions and between jurisdictions and single facilities, in order to ensure the whole community operates from common assumptions regarding resources and desirable actions.
8. ***Current information on volatile shale crude oil shipments is not actionable for short-term planning and readiness.*** Information provided by the rail industry regarding weekly crude oil shipments does not sufficiently inform preparatory actions. Without more precision regarding timing and quantity of shipments, local communities cannot usefully reallocate resources to readiness for those shipments.

This Summary of Conclusions details the key themes listed above. The workshop’s participants as well as breakout group concerns and recommendations are provided in the attached Annexes.

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## OVERVIEW

<b>Exercise Name</b>	Jersey City Operation Safe Delivery Workshop
<b>Exercise Date</b>	March 19, 2015 (8:30 a.m.– 4:30 p.m. Eastern Daylight Time)
<b>Scope</b>	The goal of the workshop was to support community preparedness and resilience by examining and validating capabilities necessary to reduce risk, mitigate potential consequences of, and ensure capacity to respond to and recover from a train derailment or crash resulting in an oil spill, fire, and/or explosion.
<b>Mission Areas</b>	Mitigation, Response, Recovery
<b>Core Capabilities</b>	<ul style="list-style-type: none"> <li>• Community Resilience</li> <li>• Long-Term Vulnerability Reduction</li> <li>• Operational Coordination</li> <li>• Planning</li> </ul>
<b>Objectives</b>	<ol style="list-style-type: none"> <li>1. Confirm or establish community-driven desired outcomes and priorities to inform resilience initiatives, prepare for disaster operations in the event of an incident, and guide planning</li> <li>2. Confirm response and recovery priorities for this type of incident and identify mutual aid requirements</li> <li>3. Identify mitigation requirements and potential mitigation solutions</li> <li>4. Examine opportunities to strengthen or develop coalitions between local, state, federal, and private sector partners to support community-based preparedness and resilience</li> </ol>
<b>Threat/Hazard</b>	Hazardous material (oil) transportation
<b>Scenario</b>	At 2:00 p.m. on a weekday in Jersey City, several tank cars carrying hundreds of thousands of gallons of high vapor pressure/low flash point crude oil derail. One tank car explodes and a large pool fire ensues, directly affecting a densely populated urban area with a high concentration of critical infrastructure. The incident results in over 1,000 casualties and displaces another 1,000 persons. (Note: the scenario was designed for maximum effect; rail carriers indicated that tank cars carrying volatile shale crude oil would only traverse densely populated routes in exceptional circumstances.)
<b>Participating Organizations</b>	Participants included emergency management and response personnel from Jersey City, Hudson County, and surrounding jurisdictions. State, federal, private industry, and non-governmental representatives also participated. See Annex A for a full list of participating organizations.

## INTRODUCTION

The Jersey City Operation Safe Delivery Workshop is a component of the National Exercise Program Operation Safe Delivery Exercise Series. The workshop is the first of three jurisdictional workshops intended to advance community preparedness, resilience, and planning for transportation incidents involving a high vapor pressure/low flash point crude oil spill, fire, and/or explosion.

The Operation Safe Delivery Exercise Series is the product of a collaborative partnership between FEMA, USCG, DOT, EPA, and an array of whole community partners all with equities, roles, responsibilities, and expertise related to preparedness and resiliency planning. The series is designed to help communities examine core capabilities needed to mitigate, respond to, and recover from the consequences of oil transportation incidents.

The Jersey City Operation Safe Delivery Workshop centered on issues related to mitigation, response, and recovery, and sought to answer the following questions:

- Based on scenario-driven projected consequences, what are Jersey City’s desired outcomes? What are the City’s initial mitigation, response, and recovery priorities? What community needs can be anticipated? What challenges will Jersey City, its residents and visitors, and economic partners face in achieving desired outcomes and meeting priorities?
- What can we do now as a whole community to collaboratively enhance resilience, sustainably reduce potential effects to critical infrastructure and community resources—energy infrastructure and facilities, hospitals, schools, residential areas and public housing, local businesses, cultural and historic resources, etc.—and prepare the community to respond to and recover from this type of event?

### WELL-RECEIVED EVENT

*“I was able to correspond and make contacts with reps from Conrail, CSX, and Norfolk Southern that will lead to increased training, communications, and equipment.”*

Jersey City Fire  
Department participant

### Goal

The goal of the workshop was to support community preparedness and resilience by examining and validating capabilities necessary to reduce risk, mitigate potential consequences of, and ensure capacity to respond to and recover from a train derailment or crash resulting in an oil spill, fire, and/or explosion.

**Objectives**

The workshop had four objectives:

1. Confirm or establish community-driven desired outcomes and priorities to inform resilience initiatives, prepare for disaster operations in the event of an incident, and guide planning;
2. Confirm response and recovery priorities for this type of incident and identify mutual aid requirements;
3. Identify mitigation requirements and potential mitigation solutions; and
4. Examine opportunities to strengthen or develop coalitions between local, state, federal, and private sector partners to support community-based preparedness and resilience.

**Core Capabilities**

The National Preparedness Goal (Goal), released in September 2011, aims at ensuring “a secure and resilient nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk.”

The Goal identifies five mission areas—prevention, protection, mitigation, response, and recovery—in which it groups 31 core capabilities. These capabilities are critical to achieving the Goal. Jersey City workshop planners identified three mission areas and four core capabilities (featured in **Table 1** below) integral to their objectives.

**Table 1. Core Capabilities Associated with the Workshop Objectives**

Core Capability	Mission Area(s)	Core Capability Description
Community Resilience	Mitigation	Lead the integrated effort to recognize, understand, communicate, plan, and address risks so that the community can develop a set of actions to accomplish mitigation and improve resilience.
Long-Term Vulnerability Reduction	Mitigation	Build and sustain resilient systems, communities, and critical infrastructure and key resources lifelines so as to reduce their vulnerability to natural, technological, and human-caused incidents by lessening the likelihood, severity, and duration of the adverse consequences related to these incidents.
Operational Coordination	Mitigation Response Recovery	Establish and maintain a unified and coordinated operational structure and process that appropriately integrates all critical stakeholders and supports the execution of core capabilities.

<p>Planning</p>	<p>Mitigation Response Recovery</p>	<p>Conduct a systematic process engaging the whole community, as appropriate, in the development of executable strategic, operational, and/or community-based approaches to meet defined objectives.</p>
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*Scenario*

Workshop discussions centered on a hypothetical catastrophic oil rail transportation incident in Jersey City, New Jersey. The scenario was designed for maximum effect; rail carriers indicated that trains carrying volatile shale crude oil would not normally traverse the route given in the scenario except in very exceptional circumstances.

In the scenario, a train with numerous tank cars derails, spilling hundreds of thousands of gallons of high vapor pressure/low flash point crude oil. This results in a large pool fire, the explosion of one tank car, over a thousand casualties, and over a thousand more displaced residents. Residential, commercial, educational, medical, transportation, and emergency response infrastructure, as well as gas and electric utilities, are affected by thermal radiation and blast overpressure.

**Figure 1** and **Table 2** on the next page detail the location and severity of blast effects. Windows shattered up to 859 yards away from the blast site (roughly a half mile), and the explosion also produced intense heat. For exposed persons within 650 yards of the incident, there was a 50% chance of fatality from burns; within 913 yards (slightly more than a half mile), there was a 1% chance of fatality from burns; and within 1,333 yards (slightly more than three quarters of a mile) there was a likelihood of second-degree burns. For workshop purposes, it was estimated that 27,142 people, housed within 13,083 units, were within those 1,333 yards.

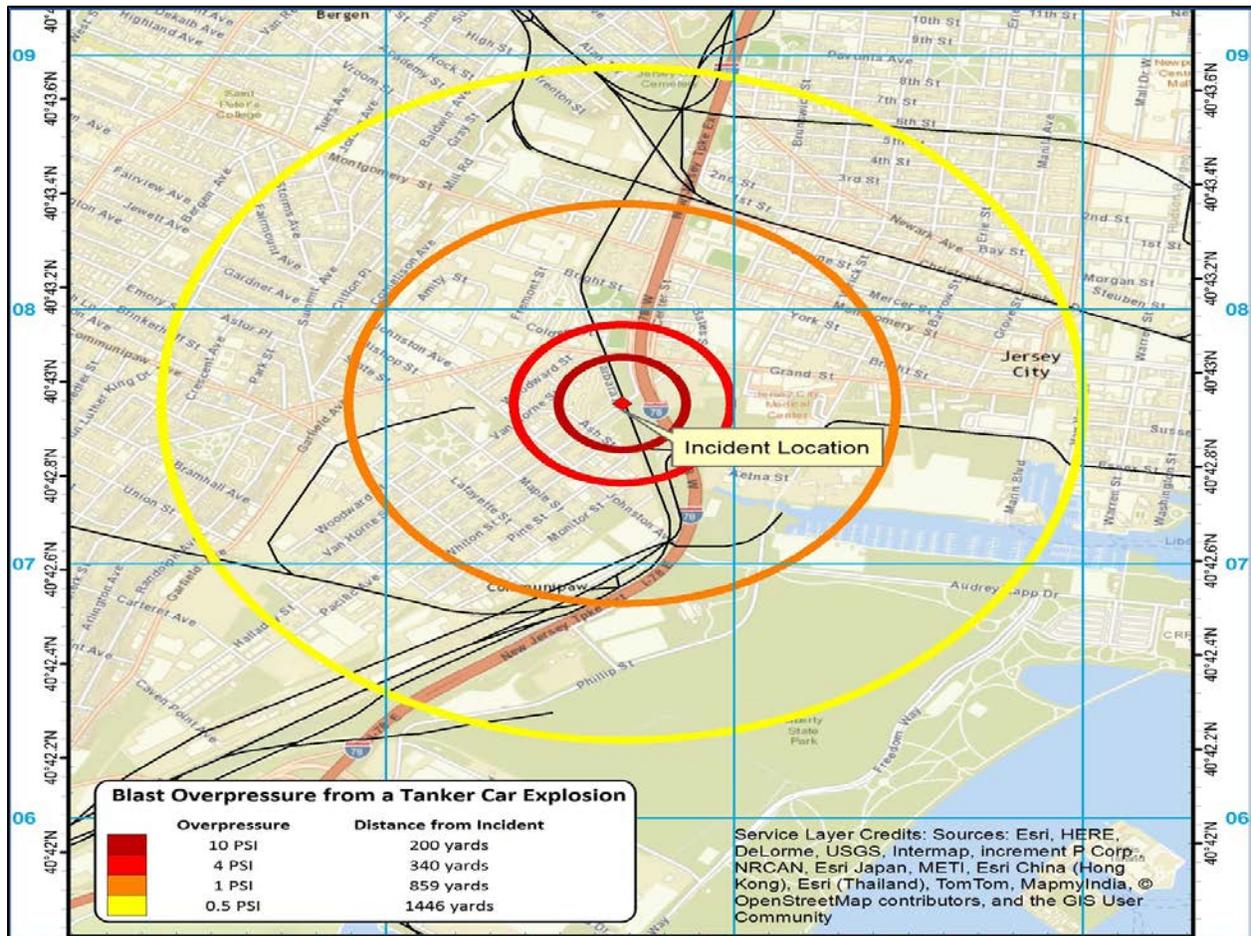
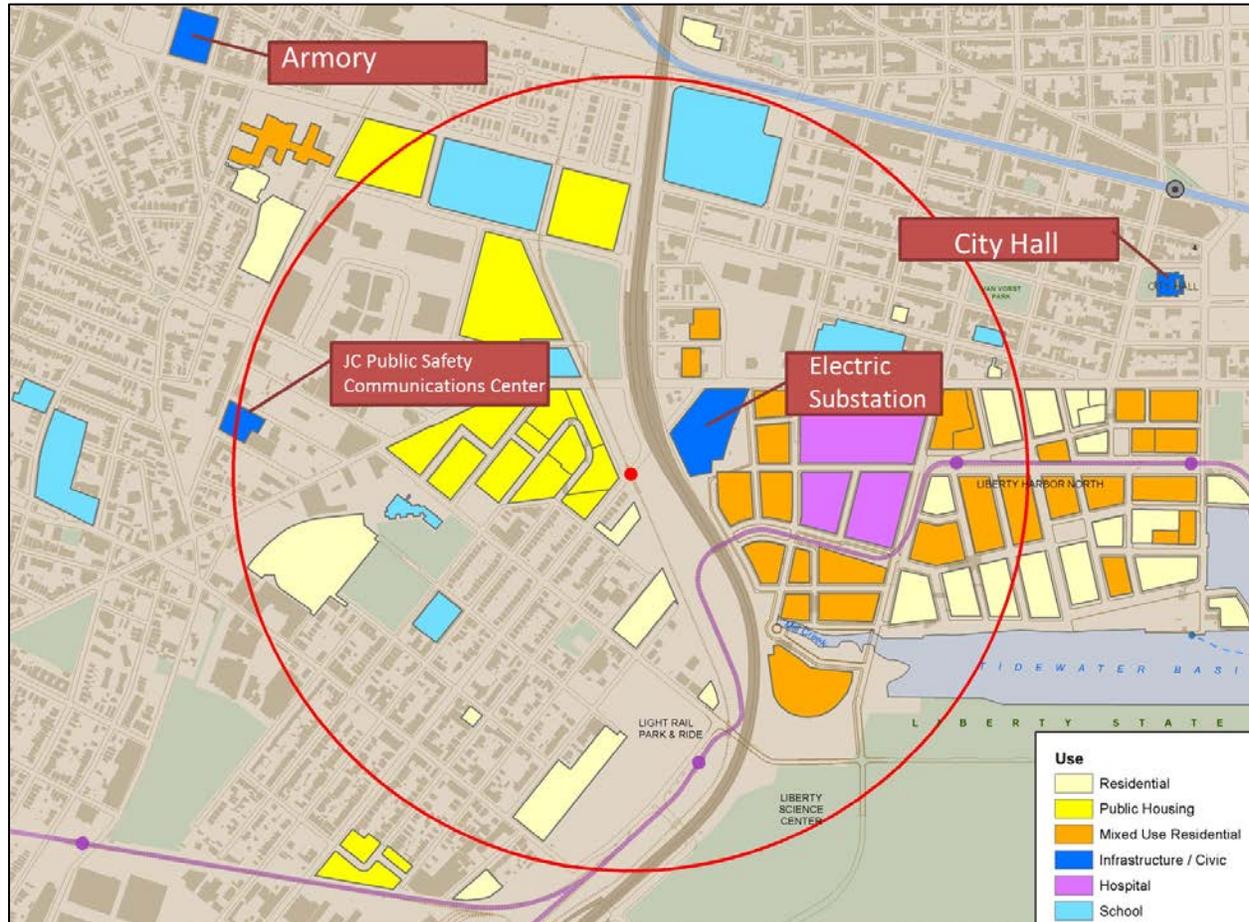


Figure 1. Blast Overpressure from Scenario Explosion

Table 2. Blast Radius and Effects

Overpressure	Damage Radius	Damage Description
10 PSI (pounds per square inch)	200 yards	Possible walls shattered and frame distortion on multi-story reinforced or steel frame buildings, unreinforced brick or wood frame buildings demolished, maximum wind velocity of 294 mph, and widespread fatalities.
4 PSI	340 yards	Brick houses damaged, some wood frame houses demolished, up to 90 percent of trees blown down, maximum wind velocity of 150 mph, widespread injuries, and some fatalities.
1 PSI	859 yards	Windows shattered, skin lacerations from flying glass, corrugated metal panels fail, and most structures remain standing.
0.5 PSI	1,446 yards	Some windows shattered and some minor blast damage to house structures.

**Figure 2** shows some of the critical infrastructure and facilities within a half mile of the incident site. These include a hospital which serves as a Level II Trauma Center, an electrical substation, and several schools and emergency response facilities. Interstate 78 and light rail stations are also within this radius.



**Figure 2. Critical Infrastructure and Facilities near Incident Site**

## SUMMARY OF DISCUSSIONS

### *Key Findings*

**1. Primary mitigation strategies must involve greater public education about and increased focus on the size, scope, and complexity of consequences that may result from incidents involving this type of hazard (cargo, trains, rails) rather than on land use or the built environment.**

Although participants considered mitigation measures focused on restricting land use, developing barriers between railways and critical facilities, and/or hardening critical facilities themselves to withstand blast or other hazards (through direct investment, tax and insurance incentives, or expedited planning approvals), participants generally were doubtful that such measures could realistically be implemented. One participant noted that market forces had increased demand for residential development in Jersey City, and that available land close to the railway would remain too valuable to go undeveloped. He also noted that New Jersey does not develop and promulgate its own building code provisions but has instead adopted a uniform building code developed by the International Code Council. Relevant code changes would take a long time to enact, even if they were aligned to the interests of influential developers. Another participant declared flatly, “The infrastructure of Jersey City is not going to change.”

Multiple groups therefore raised the possibility of focusing on modifying transportation of crude oil itself, to reduce the likelihood or potential consequences of related incidents. Several participants recommended stricter enforcement of requirements for track maintenance, as well as rail and tank car inspection. Participants also recommended improving tank car safety features. Others advocated for restrictions on the number of crude oil tank cars attached to any one train, the time of day trains carrying volatile shale crude oil could pass through populated areas, and the speed at which they travel. One participant even advocated pressuring the oil industry to build refineries closer to oil sources themselves.

However, most participants recognized the “reality” that rail infrastructure cannot be adjusted. Nor can communities be expected to adjust themselves structurally. Thus, the most frequently cited strategy for mitigating consequences of volatile shale crude oil transportation accidents was increasing public education about what to do in the event of a train derailment, fire, and/or explosion. This strategy was cited by five of eight breakout groups in their outbrief presentations.

**2. Public education activities for this hazard must be professionally coordinated, targeted, resourced, and implemented.**

Participants recognized that decades of general messaging about family preparedness have not ensured most families have emergency plans, disaster supply kits, and/or evacuation go-kits. The most effective forms of public education must involve a combination of: (1) a simple, easily understood message (e.g., “stop, drop, and roll”) and (2) outreach that connects personally with

target audiences, including populations with access and functional needs, through trusted community groups, school visits, and other means.

Participants noted that for a simple message—the crude oil transportation accident equivalent of “stop, drop, and roll”— to be successful, it needs to be coordinated nationally. Some participants also recommended that rail carriers fund developing an effective message and its delivery by way of professional public service announcements, suitable for broadcast *and* school and community group outreach sessions.

### **3. Enhanced preparedness for this hazard will require a greater resource base.**

Participants in several groups noted that enhancing preparedness for potential consequences from this type of hazard would require tapping other sources of funding or in-kind support. Some participants argued for funding from railroad companies to support training, exercises, equipment, and dissemination of planning best practices. (One participant did note that railroads are already providing free training resources.) However, participants also identified other potential funding sources. It was suggested that before any new developments are built, developers should be required to commit to enhancing water capacity and firefighting capabilities. There was also a suggestion that a portion of any gas tax increases should support an oil transportation preparedness fund. Participants at one table noted that the Threat and Hazard Identification and Risk Analysis (THIRA) process works to help prioritize FEMA’s preparedness grant funding and National Preparedness System activities; thus, the more states and urban areas that identify volatile shale crude oil transportation as a hazard of concern in their THIRAs, the more attention the hazard may receive.

### **4. Training and exercises on this topic should incorporate more responders, recovery stakeholders, and elected officials.**

Participants agreed that beyond educating the public, more responders should be trained regarding hazards and associated consequences posed by increased volatile shale crude oil shipments. Participants did not say it was necessary to develop more training; they instead emphasized the need to raise awareness about availability of existing training opportunities offered through federal government programs and the rail industry. They also recognized a need for resources (whether in the form of travel/overtime compensation) to enable responders and hospital and school personnel to attend training.

Emergency services participants argued that resources allocated for training must enable increased and more frequent attendance. Participants also stressed the importance of involving senior leaders and elected officials in addition to frontline responders. Also, in the interest of greater continuity, participants suggested that senior leaders and their deputies, alternates, or successors have shared experiences at training. Participants across a number of disciplines recognized a variety of challenges presented by retirement and personnel changes, and expressed concern that without continuous and unified training, irreplaceable knowledge would be lost.

Participants also suggested increasing the frequency of exercise conduct to complement training. Participants appreciated the Jersey City workshop and several expressed their desire for more events like it. Participants also stressed the importance of conducting full-scale exercises of a

similar scope and scenario. They did, however, recognize that conducting more full-scale exercises could pose funding challenges.

## 5. Planning specific to this hazard is needed.

Participants agreed that greater planning is required for incidents involving volatile shale crude oil shipments. Recommendations included convening a state-level task force to study the specific hazard and provide planning guidance for meeting challenges posed by volatile shale crude oil incidents. Task force guidance could include a template for incident organization (incorporating railroad representatives and their resources), and a standardized response flowchart for use by incident commanders specifically for a volatile shale crude oil incident. Some participants advocated hazard-specific annexes to plans, while others argued for reviewing existing plans against likely requirements. For example, participants noted that pre-existing assumptions regarding response requirements for large-scale fire and mass casualty incident plans should be revisited, because there are not enough burn beds in the region to effectively respond to a volatile shale crude oil fire/explosion in a densely populated area. Finally, participants advocated for the creation of clearinghouse to disseminate best practices and examples of state and local emergency plans for incidents involving transportation of volatile shale crude oil.



**Figure 3. Media Reports Note That New Jersey Refineries Accept More Crude Oil Shipments by Rail**

## 6. Planning for incidents involving transportation of volatile shale crude oil must enable early attention to recovery requirements.

Response typically focuses on immediately stabilizing an incident after an accident occurs. Participants recognized the importance of such stabilization, but also called for greater attention to long-term efforts needed to return affected communities to normalcy.

Decisions made and priorities established during response operations may significantly affect the scope and length of recovery operations. Closing major transportation routes like the New Jersey Turnpike, the Holland Tunnel, and light rail could turn local recovery operations into regional, even national concerns. Similarly, the scope and duration of environmental cleanup efforts will depend, in part, on decisions made early regarding whether or not to let product burn off or attempt to contain it before it reaches major waterways.

Participants recommended hiring and training Local Disaster Recovery Managers (LDRMs) before an incident occurs. (LDRMs lead local disaster recovery activities within the National Disaster Recovery Framework.) Planning would need to specify the appropriate place of the LDRM in the local incident command structure. However, participants indicated there was a need to bring a recovery perspective to early response decision-making, regardless of the specific place in an incident command structure. That recovery-focused perspective would be informed through the LDRMs' work with community representatives in advance of incidents to discuss recovery priorities. Pre-incident recovery planning with whole community representatives would facilitate conversations between all relevant stakeholders.

Participants also stressed that housing would be the most difficult recovery challenge. Some recommended bringing back the New Jersey Disaster Housing Task Force to better inform efforts for finding temporary and permanent housing for survivors of large-scale incidents.

### **7. All-hazard planning should be better integrated.**

Several groups indicated that planning efforts should be better coordinated—horizontally across disciplines, functions, and jurisdictions, and vertically in aligning jurisdictional and facility-specific plans. Several groups referred to “silos” or “stovepipes” in noting a lack of interdisciplinary awareness regarding plans and capabilities. One group advocated for more regional planning regarding shelter capacity and interstate arrangements for mass shelter. Another group expressed concern that school emergency plans and jurisdiction-wide plans may not rely on the same assumptions.

### **8. Current information on volatile shale crude oil shipments is not actionable for short-term planning and readiness.**

Rail carriers are required to provide information about shipments of crude oil expected for a given week. While some local emergency management participants indicated that they have received such information, they also mentioned that it was not precise enough to enhance readiness and inform short-term reallocation of resources. Some participants noted that even if more precise timings were given, freight shipments experience schedule variations.

#### **NEW JERSEY REFINERIES**

New Jersey has three operating oil refineries: the Phillips 66 Bayway refinery in Linden; PBF Energy's refinery in Paulsboro; and a smaller Axeon Specialty Products refinery, also in Paulsboro. As of January 2014 these had operable crude oil distillation capacities of 238,000 barrels per day (bpd); 160,000 bpd; and 70,000 bpd, respectively.

As of 2013, the Phillips 66 Company reported processing 75,000 bpd of crude oil from the Bakken shale play at Bayway. Shipments were generally by rail to Albany, New York, and from there by barge to New Jersey. However, Phillips 66 planned a rail offloading facility at Bayway to enable direct rail delivery of 70,000 bpd to the refinery.

Also in 2013, PBF Energy was unloading as many as 100,000 bpd of crude oil at its refinery in Delaware City, Delaware, some of which traveled across the Delaware Bay by barge to PBF's refinery in Paulsboro.

One participant suggested tracking tank cars in real time with Global Positioning System (GPS) devices. However, in other breakout groups, discussion participants questioned the usefulness of more precise information; they suggested the volume of shipments and the resources required for a major incident were too great for local jurisdictions to be able to adjust their preparedness continually. Some participants noted that their jurisdictions do not have extra resources (“temporary firefighters” as one participant put it) to put on higher alert, whether for a week or a more precise window.

Some participants also noted potential operational security concerns with making precise information about such shipments widely available. They maintained that such information could be used by individuals interested in causing an incident rather than preventing one.

# ANNEX A: WORKSHOP PARTICIPANTS

The Operation Safe Delivery Exercise Series is the product of a collaborative partnership between an array of whole community partners all with equities, roles, responsibilities, and expertise related to preparedness and resiliency planning. The Jersey City exercise included participants from the local, state, federal, private, non-governmental, and academic sectors.

Participating organizations are listed below, in **Table A1**.

**Table A1. Participating Organizations**

Jersey City	
<ul style="list-style-type: none"> <li>• Jersey City Department of Housing, Economic Development, and Commerce</li> <li>• Jersey City Department of Fire and Emergency Services</li> </ul>	<ul style="list-style-type: none"> <li>• Jersey City Office of Emergency Management and Homeland Security</li> <li>• Jersey City Police Department</li> </ul>
Other Local Governments	
<ul style="list-style-type: none"> <li>• Bayonne Fire Department</li> <li>• Bergen County               <ul style="list-style-type: none"> <li>○ HAZMAT</li> <li>○ Law and Public Safety Institute</li> <li>○ Office of Emergency Management</li> <li>○ Prosecutor’s Office</li> </ul> </li> <li>• Bergenfield Fire Department</li> <li>• Elizabeth Fire Department</li> <li>• Hudson County               <ul style="list-style-type: none"> <li>○ Hudson Regional Health Commission</li> <li>○ Office of Emergency Management</li> <li>○ Prosecutor’s Office</li> <li>○ Sheriff’s Office</li> </ul> </li> <li>• Hunterdon City Fire Coordination</li> <li>• Kearny Fire Department</li> <li>• Linden Fire Department</li> </ul>	<ul style="list-style-type: none"> <li>• Middlesex County               <ul style="list-style-type: none"> <li>○ Prosecutor’s Office</li> <li>○ Office of Emergency Management</li> <li>○ Urban Search and Rescue</li> </ul> </li> <li>• Millburn Fire Department</li> <li>• Morris County Department of Law and Public Safety</li> <li>• Newark               <ul style="list-style-type: none"> <li>○ Fire Department</li> <li>○ Office of Emergency Management</li> </ul> </li> <li>• Passaic City Sheriff’s Office/HAZMAT</li> <li>• Passaic County Sheriff’s Office</li> <li>• Piscataway Fire Department</li> <li>• Teaneck               <ul style="list-style-type: none"> <li>○ Fire Department</li> <li>○ Office of Emergency Management</li> </ul> </li> <li>• Union County Fire Department</li> <li>• Woodbridge Fire Department</li> </ul>

<b>New Jersey</b>	
<ul style="list-style-type: none"> <li>• New Jersey City University</li> <li>• New Jersey Department of Corrections</li> <li>• New Jersey Department of Environmental Protection/Office of Emergency Management</li> <li>• New Jersey Department of Health</li> <li>• New Jersey Division of Fire Safety</li> <li>• New Jersey Health Services Portal</li> <li>• New Jersey Office of Homeland Security and Preparedness</li> </ul>	<ul style="list-style-type: none"> <li>• New Jersey State Police               <ul style="list-style-type: none"> <li>○ HAZMAT</li> <li>○ Office of Emergency Management</li> </ul> </li> <li>• New Jersey Transit Planning Authority</li> <li>• New Jersey Transit Police Department/Office of Emergency Management</li> <li>• University Hospital</li> </ul>
<b>Other States and Interstate Organizations</b>	
<ul style="list-style-type: none"> <li>• Fire Department of New York</li> <li>• New York State Department of Homeland Security</li> <li>• New York State Office of Fire Prevention and Control</li> </ul>	<ul style="list-style-type: none"> <li>• Port Authority of New York and New Jersey</li> <li>• Regional Catastrophic Planning Team</li> </ul>
<b>Federal Government</b>	
<ul style="list-style-type: none"> <li>• Department of Commerce/National Oceanic and Atmospheric Administration</li> <li>• Department of Defense/Defense Coordination Element</li> <li>• Department of Health and Human Services/Office of the Assistant Secretary for Preparedness and Response</li> <li>• Department of Homeland Security               <ul style="list-style-type: none"> <li>○ Federal Emergency Management Agency                   <ul style="list-style-type: none"> <li>- Region II</li> </ul> </li> <li>○ U.S. Coast Guard</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Department of Housing and Urban Development</li> <li>• Department of the Interior</li> <li>• Department of Transportation               <ul style="list-style-type: none"> <li>○ Federal Railroad Administration</li> <li>○ Office of the Secretary</li> <li>○ Pipelines and Hazardous Materials Safety Administration</li> </ul> </li> <li>• Environmental Protection Agency/Region II</li> </ul>
<b>Private/Non-Governmental Organizations</b>	
<ul style="list-style-type: none"> <li>• American Red Cross</li> <li>• Association of American Railroads</li> <li>• CarePoint Health Corporate</li> <li>• Conrail</li> <li>• CSX Railroad Police</li> <li>• CSX Transportation</li> </ul>	<ul style="list-style-type: none"> <li>• Interstate Health Management Co.</li> <li>• Interstate Realty Management</li> <li>• Jersey City Medical Center</li> <li>• JFK Medical Center</li> <li>• Norfolk Southern Railway</li> <li>• Valley Hospital</li> </ul>

# ANNEX B: BREAKOUT GROUP OUTBRIEFS

This Annex details outbriefs presented to the plenary by each breakout group, for both morning and afternoon sessions.

This full-day workshop involved ten tables of participants divided into eight breakout groups. Each breakout group focused on a mission area and at least one core capability, as shown in **Table B1** below.

**Table B1. Breakout Group Focus Areas**

Table(s)	Mission Area	Core Capability
1-3	Mitigation	Community Resilience Long-Term Vulnerability Reduction
4	Response	Operational Coordination
5	Response	Operational Coordination
6	Response	Operational Coordination
7	Response	Operational Coordination
8	Recovery	Operational Coordination
9	Recovery	Operational Coordination
10	Response	Operational Coordination (focused on coalition-building)

During the morning session, participants focused on establishing requirements related to the scenario. They discussed desired outcomes, priorities, resource requirements, and potential challenges.

In the afternoon, discussions were solution-oriented. Participants identified areas for improvement, innovative solutions, actionable next steps, and strategies for verifying improvements in capability and capacity.

*Morning Session*

**Mitigation (Tables 1-3, combined)**

Topic Area	Tables 1-3
Desired Outcomes	<ul style="list-style-type: none"> <li>• Better informed public on this threat / hazard (guide appropriate actions)</li> <li>• Enhanced community awareness and engagement with broad range of community leaders / partners</li> <li>• Development / redevelopment assessed with this particular threat / hazard in mind</li> <li>• Engagement with commercial / business community to support economic resiliency</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Enhancing our community awareness and conducting community engagement and planning activities</li> <li>• Supporting on-going training for the responder community</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Develop and conduct public education campaign (capacity building)</li> <li>• Support individual and household awareness (understanding needs of community – example of access and functional needs)</li> <li>• Engage whole community to integrate and synchronize planning activities               <ul style="list-style-type: none"> <li>○ Situational awareness of what is in your community (location of critical facilities; location of potential threats / hazards) and development of facility based plans</li> </ul> </li> <li>• Examine requirements to strengthen critical facilities (windows / positive pressure)</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Public inured to threats / hazards</li> <li>• Development / re-development will occur (market forces)</li> <li>• Land use / zoning will not change</li> <li>• Balance transparency of information with security considerations</li> </ul>

**Response (Tables 4-7, 10)**

Topic Area	Table 4
Desired Outcomes	<ul style="list-style-type: none"> <li>• Define the problem (Assess the damaged area, Establish exclusion areas)</li> <li>• Establish Unified Command within 30 minutes</li> <li>• Messaging and communication, Public announcement (As soon as possible)</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Life Safety: Search and Rescue</li> <li>• Containment of the problem</li> <li>• Evacuation, transportation, sheltering</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• State wide and interstate Mutual Aid</li> <li>• Short and Long term housing plan</li> <li>• Activation of New Jersey Interoperability Communications System (NJICS)</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Compatibility of communications and equipment</li> <li>• Shelter capacity</li> <li>• Public Transportation in and out of effected area.</li> <li>• Water supply</li> </ul>

Topic Area	Table 5
Desired Outcomes	<ul style="list-style-type: none"> <li>• Complete Fire Suppression in four hours</li> <li>• Triage, treat and transport pt. within 12 hours</li> <li>• Evacuating hospital within 12 hours (trauma center in blast zone and field hospital would take 48 to 72 hours to set-up) and establish Urban Search and Rescue</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Site management and control (communication, public information) and coordination of resources</li> <li>• Continuously ensure safety and well-being of responders (PPE, air quality, runoff, etc.)</li> <li>• Establishing Unified Command</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Interdisciplinary knowledge of resources</li> <li>• Transportation routes hampered</li> <li>• Water supplies</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• More understanding of Interdisciplinary plans</li> <li>• Prioritization of missions</li> <li>• Activation of memoranda of understanding (MOUs)</li> </ul>

Topic Area	Table 6
Desired Outcomes	<ul style="list-style-type: none"> <li>• Life safety</li> <li>• Incident stabilization</li> <li>• Property and environmental conservation</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Evacuation and transportation</li> <li>• Contain the rail fire and spill</li> <li>• Identify weakened structures; secure streets; minimize environmental impact</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Mass Care; MSI; transportation</li> <li>• Multiple alarms; 10,000 gallons of foam capacity</li> <li>• Urban search and rescue teams; HazMat; Air monitoring</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Access</li> <li>• Situational awareness</li> <li>• Resources in necessary timeframe</li> </ul>

Topic Area	Table 7
Desired Outcomes	<ul style="list-style-type: none"> <li>• Ensure safety and health of all first responders throughout the response</li> <li>• Save as many lives as possible and protect property within acceptable level of risk</li> <li>• Establish full accountability of all residents in the affected area</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Save lives and protect property (within acceptable levels of first responder risk)</li> <li>• Stabilize incident to prevent further consequences (fire/vapor suppression)</li> <li>• Establish unified command structure including relevant whole community stakeholders</li> <li>• Business recovery and resilience; conservation of environment (Recovery-focused)</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Prompt resource requests via NEPTUNE<sup>1</sup> (foam, sand, etc.)</li> <li>• Industrial firefighting</li> <li>• Air monitoring</li> <li>• Urban search and rescue/emergency medical services (EMS)/law enforcement</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Manpower/medical surge</li> <li>• Information management/sharing (of the incident)</li> <li>• Public messaging/managing misinformation</li> <li>• Situational Awareness/span of control</li> <li>• Public/private sector coordination</li> <li>• Communications</li> </ul>

<sup>1</sup> New Jersey has three “Neptune” large-flow water systems distributed regionally (in Morris, Union, and Gloucester Counties), and available for mutual aid. These systems can deliver 5,000 gallons per minute of water or firefighting foam. See for example <http://www.gloucestercountynj.gov/depts/e/emeresponse/nepssystem/default.asp>.

Topic Area	Table 10 (Coalition-Building)
Desired Outcomes	<ul style="list-style-type: none"> <li>• Life Safety</li> <li>• Evacuation from affected area               <ul style="list-style-type: none"> <li>○ Elderly (will take approx. 24-48 hrs)</li> </ul> </li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Containment of Overall Incident</li> <li>• Containment of Fire</li> <li>• Containment of Product Travel</li> <li>• Evacuation of Injured</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Transportation Assets for Evacuations</li> <li>• Transitional Housing</li> <li>• Mutual Aid/ Law Enforcement/State and Federal Assets</li> <li>• Fire Mutual Aid – Foam Requirements - Urban Area Security Initiative</li> <li>• Booming/Diking Materials</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Training and Experience</li> <li>• Environmental Effects</li> <li>• Recovery Issues - Infrastructure</li> </ul>

**Recovery (Tables 8-9)**

<b>Topic Area</b>	<b>Table 8</b>
Desired Outcomes	<ul style="list-style-type: none"> <li>• Determine incident command structure for community recovery</li> <li>• Mitigate environmental damage</li> <li>• Restore critical infrastructure</li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Evacuate affected people and find temporary shelter within 12-24 hours</li> <li>• Get people the appropriate level of medical care to local and surrounding facilities</li> <li>• Railroad logistics contractors on site within 90 minutes from incident to begin monitoring</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Joint damage assessments for Individual Assistance (IA) and Public Assistance (PA) programs</li> <li>• Mutual aid agreements</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Major thoroughfares closed (Holland Tunnel, NJ Turnpike, Light Rail)</li> <li>• Exhausting mutual aid agreements</li> <li>• Logistics/staffing for emergency and medical personnel</li> <li>• Wind direction and duration of plume affecting additional populations</li> </ul>

<b>Topic Area</b>	<b>Table 9</b>
Desired Outcomes	<ul style="list-style-type: none"> <li>• Getting everyone home</li> <li>• Return to normalcy                             <ul style="list-style-type: none"> <li>○ Infrastructure</li> <li>○ Commerce</li> <li>○ Traffic</li> <li>○ Communications</li> <li>○ Wrap-Around Services</li> </ul> </li> </ul>
Priorities	<ul style="list-style-type: none"> <li>• Environmental Cleanup</li> <li>• Restore power, communications, utilities</li> <li>• Expedite restoration and rebuilding of structures (make resilient)</li> <li>• Interim housing – population needs to be safely housed</li> <li>• Return schools population to normalcy</li> <li>• Ensuring commerce is back</li> </ul>
Requirements	<ul style="list-style-type: none"> <li>• Some school solution</li> <li>• Get tax base back</li> <li>• Situational awareness of the access and functional needs community</li> <li>• Ensure Whole Community is at the table</li> </ul>
Challenges	<ul style="list-style-type: none"> <li>• Is this a major disaster and is individual assistance applicable?</li> <li>• The cleanup problem is highly dependent upon decisions made during response (e.g., did they contain the run-off?)</li> </ul>

*Afternoon Session*

**Mitigation (Tables 1-3, combined)**

Topic Area	Tables 1-3
Innovative Solutions	<ul style="list-style-type: none"> <li>• Establish possible incentives (such as tax abatement or expedited approval) for developers to take actions to strengthen buildings / facilities / infrastructure</li> <li>• Coordinate with rail industry (CSX or others) to do advertising, not to benefit company per se, but to be done as professional public service announcement (PSA) / video we can take into schools regarding preparedness activities (strengthen partnership between rail industry and the community)</li> <li>• Coordinate with federal government to establish requirements/ funding for mitigation activities (similar to noise attenuation) in public housing</li> <li>• Establish requirement for new developments to bring in “big water” to help us defend against fire</li> <li>• Discuss regulatory requirement from Federal Railroad Administration (FRA) regarding track maintenance; may require Congressional action</li> <li>• Build capacity / knowledge / action through people since funding is limited</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Craft coordinated / synchronized public messaging campaign               <ul style="list-style-type: none"> <li>○ Provide visuals that speak to individuals / households</li> <li>○ Use social media to reach members of the community</li> <li>○ Identify something similar to “stop; drop; roll” (awareness not fear)</li> <li>○ Address messaging requirements for access and functional needs</li> </ul> </li> <li>• Schedule meetings (or go to scheduled meetings of existing groups, working through trusted community leaders) to present campaign</li> <li>• Request meeting with Department of Transportation (DOT) / FRA Region I Administrator to share concerns and seek assistance</li> <li>• Examine pipelines versus rail</li> <li>• Establish a community task force specific to this threat / hazard</li> <li>• Advocate any gas tax increase support oil hazard preparedness</li> <li>• Utilize higher education institutions / academic partners to support preparedness and training specific to this threat / hazard and raise awareness of existing federally funded National Domestic Preparedness Consortium (NDPC) training opportunities</li> <li>• Strengthen existing information sharing capabilities and capacity specific to this threat / hazard (what can versus what should be shared)</li> </ul>

**Response (Tables 4-7, 10)**

Topic Area	Table 4
Areas for Improvement	<ul style="list-style-type: none"> <li>• Sheltering Capacity</li> <li>• Communications and Equipment Interoperability</li> <li>• Mutual Aid tactics, techniques, and procedures (TTPs) need greater detail</li> <li>• Expanding capacity to more mass casualties</li> <li>• Transportation and access by responders</li> <li>• Mass public emergency communication</li> <li>• Aging Infrastructure</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Mass Care               <ul style="list-style-type: none"> <li>○ Transportation</li> <li>○ Expanding the capability to transport mass casualties</li> <li>○ Increase the capacity of mobile ambulance buses</li> </ul> </li> <li>• Shelter               <ul style="list-style-type: none"> <li>○ Develop regional sheltering plan</li> <li>○ Repurpose sites for short term sheltering</li> </ul> </li> <li>• Public Communication               <ul style="list-style-type: none"> <li>○ Developing a comprehensive communication strategy.</li> <li>○ Fostering public awareness and education</li> </ul> </li> <li>• Communications Compatibility               <ul style="list-style-type: none"> <li>○ Provide funding and mandate standardized equipment statewide</li> <li>○ Conduct a communication exercise with multiple agencies in the region</li> </ul> </li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Continue communication and dialogue with all stakeholders</li> <li>• More regional planning</li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Increase frequency of training and exercises (Senior Leaders)</li> <li>• Eliminate complacency</li> </ul>

Topic Area	Table 5
Areas for Improvement	<ul style="list-style-type: none"> <li>• IC information pack with what resources are available and contact information, and who is in the unified command to include standardized Template/flowchart for responses</li> <li>• Have railroads supply state and local communities real time information on when high risk cargo trains will be coming thru – regulate times to lower risk (committees flow study)</li> <li>• Mass Sheltering</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Office of Emergency Management (OEM) has money allocated to put together resource plan to include private sectors/contractors; Department of Environmental Protection (DEP) working on geographic information system (GIS) maps of stored HAZMAT in fixed facilities to include railways on a secure site</li> <li>• Out of state agreement for mass sheltering of survivors</li> <li>• Centralized information to include other state/communities plans for Bakken oil</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• More training and exercises of plans</li> <li>• Obtain funding (railroads?) for equipment, storage, planning, and training to include railroad pay for interoperability center for up-to-date information</li> <li>• Safer railcars</li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Establish educational program/requirements</li> </ul>

Topic Area	Table 6
Areas for Improvement	<ul style="list-style-type: none"> <li>• Revisit assumptions of fire plans</li> <li>• Alternate care sites</li> <li>• Cross-disciplinary planning</li> <li>• Need funding flexibility</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Having foam cars travel with trains</li> <li>• Slow down trains; limit the numbers of cars; fund engineering solutions;</li> <li>• Incorporating federal resources into the planning element</li> <li>• Inform the public on how to react using community groups</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Get disciplines together at the county-level                         <ul style="list-style-type: none"> <li>○ Compare plans</li> <li>○ Review/validate existing mutual aid plans</li> </ul> </li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Full-scale exercise (requires substantial funding)</li> </ul>

Topic Area	Table 7
Areas for Improvement	<ul style="list-style-type: none"> <li>• “Silos of excellence” (lack of interjurisdictional coordination)</li> <li>• Greater adherence to principles of Incident Command System (ICS) and Unified Command</li> <li>• More pre-incident planning required for specific hazard</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Leverage private sector (particularly financial services industry) resources for response</li> <li>• Develop pre-determined Unified Command composition for the incident</li> <li>• Multiagency all-hazards Incident Management Team</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Develop canned public messaging that provide unique evacuation/shelter-in-place messages (what/where) by grid (who) while identifying vulnerable populations for consideration</li> <li>• Develop a more formalized, pre-set communications plan</li> <li>• Further networking, training and exercise for incident command organization</li> <li>• Add addendums to existing plans operations plans for flammable material stemming from rail incidents</li> <li>• Disseminate outcomes of workshop to operators</li> <li>• Leverage healthcare coalitions</li> <li>• Encourage elected official participation in future networking, training, and exercise events</li> </ul>

Topic Area	Table 10 (Coalition-Building)
Areas for Improvement	<ul style="list-style-type: none"> <li>• Dissemination of information to the public</li> <li>• Coordination with outside agencies/partners</li> <li>• Accommodations for Pets (Evacuations/Shelters)</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Neptune system developed – White paper on the benefits of new system shared with partners</li> <li>• Medical needs shelter</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Improved training for communities &amp; first responders – Free training resource from CSX (<a href="http://csxhazmat.kor-tx.com/">http://csxhazmat.kor-tx.com/</a>)</li> <li>• Improved messaging and PSAs for communities - Public Education seminars, preparation checklist for the public</li> <li>• Revision of current plans to include appropriate partners</li> <li>• Pre-Identify specialized care facilities for special needs patients...i.e. dialysis patients, etc.</li> <li>• Develop GIS mapping with utilities and water lines</li> <li>• Dye testing water and storm drain systems to see where product runoff would go</li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Exercise with outside agencies/partners</li> <li>• Evaluate the drill</li> <li>• Exercising Neptune system with Port Authority and CSX</li> </ul>

**Recovery (Tables 8-9)**

Topic Area	Table 8
Areas for Improvement	<ul style="list-style-type: none"> <li>• Improve training for first responders on responding to these types of incidents – the private sector trains first responders but how do we train people at hospitals and schools?</li> <li>• Patient tracking and family reunification for mass casualty events</li> <li>• Notifying residents without phones of evacuation, non-potable water, etc.</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Add real time GPS tracking to each rail car - this is already happening in trucking/EMS - policing agencies can monitor location of the rail cars</li> <li>• Identify critical locations for generators (work with state/ office of homeland security) and pre-wire for connections; install fixed generators at fire houses</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• The railroad has an app called <b>Ask Rail</b>; you can input a car initial/number and know what is in that specific rail car - this app will be provided to the Fire Chief and other local first responders - will need to reach out to Neil Ferrone - only applicable to hazmat shipments. Class One railways sponsor these notifications.</li> <li>• Develop a public information/education program that is similar to the Radiological Emergency Preparedness Program Federal program - any town within 1 mile of a rail line carrying hazardous materials to build resiliency among residents</li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Establish a disaster recovery coordinator in the local community prior to disaster that can coordinate with the response incident commander - pre-orchestrate the capability to recover using the recovery support functions (critical infrastructure, housing, health and social services, economic recovery, natural/cultural resources, community planning and capacity building) – refer to National Disaster Recovery Framework</li> </ul>

Topic Area	Table 9
Areas for Improvement	<ul style="list-style-type: none"> <li>• Plans – If they exist, have they been socialized? And are they in common language?</li> <li>• Whole Community engagement</li> <li>• Public/Private partnership – especially engage the utilities to determine,</li> <li>• What are your strengths and weaknesses?</li> <li>• Note we have these partnerships in response, but it is harder in preparedness</li> <li>• State and local planning mechanism for recovery</li> <li>• Engage the philanthropic community – ascertain how they can help before the disaster</li> <li>• Get NJ State Housing Task Force stood up (again)</li> <li>• More planning with the “right” entities at the table</li> <li>• Situational awareness among state and local partners – ascertain who is in charge of what</li> <li>• Ascertain what the railway is responsible for in recovery</li> <li>• Inspections of railways – both the rails and the rolling stock; the state has no rights</li> <li>• Mutual aid among police forces</li> </ul>
Innovative Solutions	<ul style="list-style-type: none"> <li>• Review authorities with an eye towards potential issues/waivers – note that many of these issues will be in the local level and there is a moral hazard</li> <li>• The grant process encourages cooperation and improved planning</li> <li>• Also, use grants for expanding your resource base for planning, policies, and procedures</li> <li>• Reach out to academic institutions</li> <li>• Use the UASI model – looks at problems on a regional basis</li> <li>• State and local business incubators – the sooner we get businesses up and running</li> </ul>
Actionable Next Steps	<ul style="list-style-type: none"> <li>• Use the grant process</li> <li>• Plan for critical lifelines – what is the impact of opening and closing major highways, tunnels, bridges?</li> <li>• Review all authorities for mutual aid – esp. police</li> <li>• Work with businesses to develop, train, and validate COOP plans</li> <li>• Provide support to business community for recovery – state and local incubators</li> </ul>
Validation of Capabilities and Capacity	<ul style="list-style-type: none"> <li>• Planning, training, and exercises</li> <li>• THIRA works</li> </ul>

# ANNEX C. PARTICIPANT FEEDBACK

Of the 175 workshop participants, 67 (38%) submitted feedback forms. **Table C1**, below, summarizes feedback received. Participants were asked to rate each assessment factor from 1 (strongly disagree) to 5 (strongly agree). The table gives a mean score and the distribution of scores for each assessment factor.

**Table C1. Participant Feedback**

Assessment Factor	Mean Score	Distribution of Responses												
The seminar provided an interesting and useful foundation for workshop discussions. <sup>2</sup>	4.7	<table border="1" style="display: none;"> <caption>Distribution of Responses for Factor 1</caption> <thead> <tr> <th>Score</th> <th>Number of Responses</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>0</td> </tr> <tr> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>17</td> </tr> <tr> <td>5</td> <td>46</td> </tr> </tbody> </table>	Score	Number of Responses	1	0	2	0	3	3	4	17	5	46
Score	Number of Responses													
1	0													
2	0													
3	3													
4	17													
5	46													
The workshop helped me improve collaboration with and between whole community partners on mitigation, response, and recovery capabilities related to potential consequences of an oil rail transportation incident scenario.	4.3	<table border="1" style="display: none;"> <caption>Distribution of Responses for Factor 2</caption> <thead> <tr> <th>Score</th> <th>Number of Responses</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>1</td> </tr> <tr> <td>3</td> <td>9</td> </tr> <tr> <td>4</td> <td>23</td> </tr> <tr> <td>5</td> <td>34</td> </tr> </tbody> </table>	Score	Number of Responses	1	0	2	1	3	9	4	23	5	34
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<sup>2</sup> One form lacked a rating for this factor.

<p>Following the workshop, I have a better understanding of the mitigation, response, and recovery priorities, requirements, and challenges of an oil rail transportation incident scenario.</p>	<p>4.3</p>	<table border="1"> <thead> <tr> <th>Rating</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>11</td> </tr> <tr> <td>4</td> <td>21</td> </tr> <tr> <td>5</td> <td>33</td> </tr> </tbody> </table>	Rating	Count	1	0	2	2	3	11	4	21	5	33
Rating	Count													
1	0													
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<p>I was able to identify areas for improvement, innovative solutions, and actionable next steps to address mitigation, response, and recovery considerations of an oil rail transportation incident scenario.</p>	<p>4.4</p>	<table border="1"> <thead> <tr> <th>Rating</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>1</td> </tr> <tr> <td>3</td> <td>8</td> </tr> <tr> <td>4</td> <td>23</td> </tr> <tr> <td>5</td> <td>35</td> </tr> </tbody> </table>	Rating	Count	1	0	2	1	3	8	4	23	5	35
Rating	Count													
1	0													
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4	23													
5	35													
<p>I am now more prepared to mitigate, respond to, and recover from potential consequences of this type of incident.</p>	<p>4.0</p>	<table border="1"> <thead> <tr> <th>Rating</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>2</td> </tr> <tr> <td>3</td> <td>14</td> </tr> <tr> <td>4</td> <td>30</td> </tr> <tr> <td>5</td> <td>21</td> </tr> </tbody> </table>	Rating	Count	1	0	2	2	3	14	4	30	5	21
Rating	Count													
1	0													
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<p>I found the workshop to be a beneficial use of my time.</p>	<p>4.6</p>	<table border="1"> <thead> <tr> <th>Rating</th> <th>Count</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>0</td> </tr> <tr> <td>3</td> <td>5</td> </tr> <tr> <td>4</td> <td>17</td> </tr> <tr> <td>5</td> <td>45</td> </tr> </tbody> </table>	Rating	Count	1	0	2	0	3	5	4	17	5	45
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