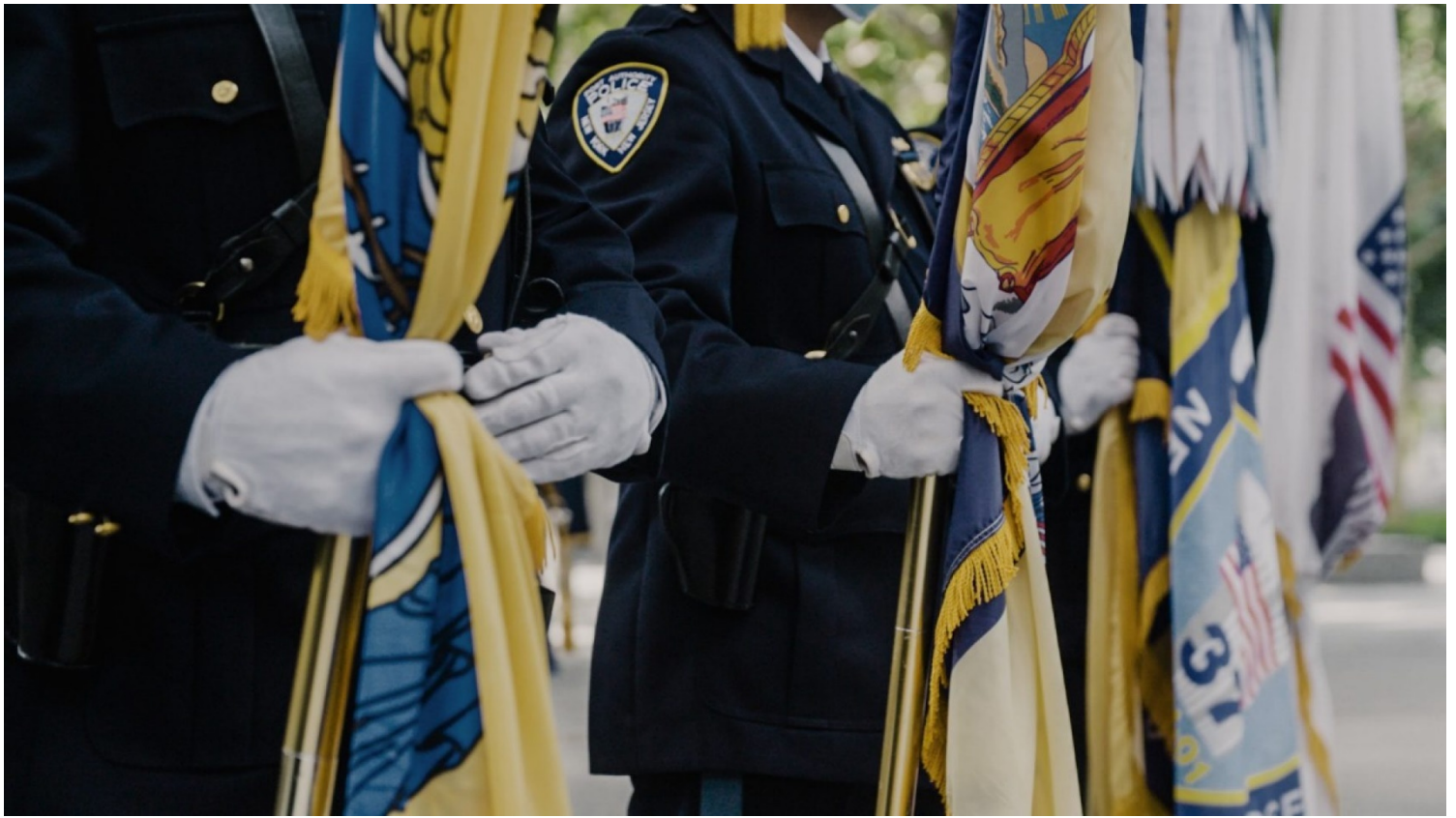




FEMA

National Preparedness Assessment Division

Grant Effectiveness Case Studies



# Grant Effectiveness Case Study: Port Authority of New York and New Jersey

*September 2020*



FEMA



## Grant Effectiveness Case Study:

### Port Authority of New York and New Jersey

#### I. Overview

In August 2019, the Federal Emergency Management Agency (FEMA) conducted a grant effectiveness case study with the Port Authority of New York and New Jersey (Port Authority) to understand how the Port Authority used grant funds to increase its ability to prevent, protect against, respond to, and recover from acts of terrorism and other human threats. Specifically, FEMA examined how the Port Authority made investments using Federal, state, and local dollars to address lessons learned from prior terror plots and attacks to close capability gaps and to determine whether these investments resulted in increased preparedness for future terror attacks. FEMA also examined the processes that the Port Authority uses to prioritize and allocate FEMA grant investments. Additionally, FEMA solicited feedback from the Port Authority to inform future improvements to the grant programs. Overall, the case study found that FEMA grant-funded investments positively enhanced the Port Authority's preparation for and response to threats and acts of terror and other real-world events.

FEMA collected information for the case study using structured interviews through phone calls and site visits with representatives from:

- Port Authority Office of Emergency Management (OEM)
- Port Authority Police Department
- World Trade Center (WTC) Security Operations & Programs

#### II. About the Port Authority

The Port Authority is a joint venture established in 1921 through an interstate compact between New York and New Jersey and authorized by Congress. The Port Authority shapes its homeland security and emergency management priorities, investments, and practices based on the following characteristics:

- The Port Authority builds, operates, and maintains a complex network of critical transportation and trade assets. Its system of aviation, rail, surface transportation, and seaport facilities annually moves millions of people and transports vital cargo throughout the New York/New Jersey region. The Port Authority Trans-Hudson (PATH) train system has a daily ridership of about 220,000.<sup>1</sup>
- In addition to owning the World Trade Center (WTC) site in Lower Manhattan, the Port Authority oversees a large portion of the transportation infrastructure in New York and New Jersey, including four bridges, two tunnels, five airports, the Port Authority bus terminal in Manhattan, and the third largest port in the Nation. Disruptions to its services result in economic impacts experienced regionally, nationally, and globally.
- The Port Authority has 14 distinct properties and 51 business units spread out over two states. Every part of the Port Authority uses the same security plan framework, with a common format using the same approach to operational security planning.
- Nearly all revenue for the Port Authority comes through tolls, user fees, and facility rentals and leases. Additionally, the Port Authority receives no tax revenue and is prohibited from holding debt. These constraints limit the amount of funding that the Port Authority can direct to Homeland Security and Emergency Management preparedness and make the FEMA grants

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<sup>1</sup> <https://www.panynj.gov/path/pdf/2018-PATH-Monthly-Ridership-Report.pdf>



highlighted in this report critical to building and sustaining the Port Authority's preparedness capabilities.

### III. Assessing Risks and Capabilities

The terrorist attacks on the WTC on September 11, 2011 (9/11) led the Port Authority to significantly redesign many of its operations, including its overall risk assessment process. The Port Authority Board of Commissioners requested that the Port Authority OEM design a risk reduction methodology that would foster efficient use of regional resources and an effective reduction in risk over time.

The Port Authority uses FEMA grant funds to conduct a biennial, independent risk assessment that takes an all-hazards approach and integrates predictive modeling, flood mapping, and overall preparedness assessments. In collaboration with regional partners, the Port Authority shares its risk assessment data to better inform the Threats and Hazards Identification and Risk Assessment (THIRA) and Stakeholder Preparedness Report (SPR) of New York State, New York City Urban Areas Security Initiative (UASI), Jersey City/Newark UASI, and New Jersey State.

*"The risk assessment drives nearly everything that we do."*

— John Bilich, Chief Security Officer,  
Port Authority

The Port Authority's risk assessment applies a scenario-based methodology to identify the greatest and most plausible risks to the Port Authority. Before pursuing grant funds, Port Authority risk specialists collaborate with security engineering firms and use the results of the risk assessment to conduct a cost-benefit analysis of proposed mitigation activities. With this cost-benefit analysis, risk specialists propose solutions to security threats with varying levels of risk tolerance, time, and cost. Because the Port Authority's operational success relies on the continuous functioning of its ports, railways, and tunnels, decision-makers must consider a wide range of approaches.

### IV. Grant Allocation Strategy

FEMA awards preparedness grants to states, localities, tribes, and territories across the country to build and sustain preparedness capabilities. Since Fiscal Year (FY) 2008, FEMA has awarded more than \$416 million in preparedness grant funds (see **Table 1**) to the Port Authority through the following grant programs:

- Urban Area Security Initiative (UASI), under the Homeland Security Grant Program (HSGP)
- Transportation Security Grant Program (TSGP)
- Port Security Grant Program (PSGP)

#### *Urban Area Security Initiative (UASI)*

Over the past 12 years, the Port Authority has received approximately \$133 million in UASI funding. The UASI program supports high-threat, high-density urban areas to deliver the capabilities necessary to prevent, protect against, mitigate, respond to, and recover from acts of terrorism. UASI investments in the Port Authority support regional collaboration and regional capabilities.

For UASI investment prioritization, each office in the Port Authority develops a list of priorities based on the Port Authority risk assessment. Next, the OEM Grant Manager and OEM Agency Project Managers review the prioritized lists and provide recommendations to the Urban Area Working Group (UAWG), which includes all New York City emergency services, the Port Authority, and the Metropolitan Transportation Authority (NY MTA). Because of the numerous and varied facilities in the Port Authority, receiving input from each supporting office during initial investment discussions is essential. Offices within the Port Authority work together to reduce internal competition for similar or overlapping investments and projects. Port Authority grant officials then present the proposed projects to the PA Chief Security Officer for final internal approval.



Interviewees noted that UASI funding is effective because it provides grant recipients with the freedom to reallocate funding when new threats emerge.

### *Transit Security Grant Program (TSGP)*

From 2008 to 2019, the Port Authority competed for and was awarded more than \$151 million in TSGP funds to protect critical transportation infrastructure (excluding airports) and the public from acts of terrorism, major disasters, and other emergencies while traveling. The Port Authority has used TSGP funds to invest in the area's tunnels and bridges, the PATH rail system, and the Port Authority Bus terminal in Midtown Manhattan.

The Port Authority determines how to invest its TSGP dollars using a process similar to the UASI project selection and prioritization. Port Authority project managers who specialize in transit security projects establish the year's investment priorities to help identify projects that best address these priorities. The Chief Security Officer then reviews and prioritizes the proposed projects.

### *Port Security Grant Program (PSGP)*

From 2008 to 2019, the Port Authority also competed for and was awarded more than \$141 million in PSGP funding to support risk management across the area's ports and protect critical port infrastructure. The levels of annual PSGP funding the Port Authority received fluctuated significantly over the past 10 years, ranging from a high of nearly \$50 million to a low of zero dollars.

The Port Authority's process for selecting PSGP investments mirrors the UASI and TSGP selection processes. Port Authority project managers who specialize in port security establish the year's priorities. The Port Authority then identifies projects that best address those priorities. Next, the Chief Security Officer reviews and prioritizes the proposed projects.

**Table 1: Port Authority Preparedness Grant Funds, FY 2007–FY 2019**

Grant Program	Award Amounts (in thousands)													
	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	Total
UASI	\$10,000	\$10,753	\$10,824	\$9,043	\$8,881	\$9,043	\$10,398	\$10,675	\$10,792	\$10,655	\$10,625	\$10,663	\$10,663	<b>\$132,985</b>
PSGP	\$14,858	\$30,675	\$46,478	\$29,062	\$29,716	\$0	\$0	\$0	\$394	\$4,886	\$350	\$0	\$0	<b>\$156,419</b>
TSGP	\$663	\$49,899	\$23,850	\$18,825	\$28,600	\$5,550	\$5,053	\$2,945	\$4,011	\$6,740	\$2,300	\$1,876	\$1,881	<b>\$152,193</b>
<b>Total</b>	<b>\$25,521</b>	<b>\$91,327</b>	<b>\$81,152</b>	<b>\$56,930</b>	<b>\$67,197</b>	<b>\$14,593</b>	<b>\$15,451</b>	<b>\$13,620</b>	<b>\$15,197</b>	<b>\$22,281</b>	<b>\$13,275</b>	<b>\$12,539</b>	<b>\$12,544</b>	<b>\$441,597</b>



## V. Terrorist Incidents, Impacts, and Use of Capability Investments

The 9/11 attacks significantly impacted how the Port Authority, and the entire Nation, manage terror-related risk. The attacks destroyed the Port Authority's Twin Towers and killed nearly 3,000 people in Lower Manhattan, including 343 firefighters and 60 police officers - 37 of whom were Port Authority officers.

The New York City metropolitan area is one of the most at-risk regions for terrorist attacks in the country,<sup>2</sup> and since the 9/11 attacks, the Port Authority has responded to multiple incidents targeting its infrastructure. The Port Authority uses the lessons learned from each incident to inform future preparedness investments and to identify evolving counterterrorism needs. This case study will examine key FEMA-funded preparedness grant investments that build upon the lessons learned from these highlighted incidents:

- On July 7, 2006, the Federal Bureau of Investigation (FBI) announced that it had uncovered a plot to detonate explosives in the **PATH Downtown Hudson Tubes** (initially said to be a plot to bomb the Holland Tunnel). Reports indicated that the perpetrators would have used an improvised explosive device (IED) to significantly damage and flood the tunnels, endangering all the occupants and vehicles in the tunnel at the time of the explosion, as well as anyone inside the main station house or waiting on one of the PATH platforms. The terror planners believed that the IED's explosion would flood the WTC site in Lower Manhattan, as well as a significant portion of Jersey City.
- On June 2, 2007, the FBI uncovered an alleged terrorist plot to bomb an underground jet fuel pipeline connected to John F. Kennedy (**JFK**) **International Airport**. Reports indicated that the perpetrators planned to destroy a 40-mile system of jet fuel supply tanks that run underneath densely populated areas in NYC. The plot was prevented by an undercover operative who infiltrated the terrorist cell. The plot reportedly would not have resulted in human casualties but had the potential to cause significant economic damage.
- On December 11, 2017, at the height of morning rush hour in NYC, a homemade pipe bomb partially detonated in the Times Square–42<sup>nd</sup> Street subway station adjoining the **Port Authority Bus Terminal** in Midtown Manhattan. Fortunately, the explosive was constructed incorrectly, and the detonation caused only minor injuries and no significant structural damage. With nearly 400 buses in transit toward the terminal at the time of the incident, bus terminal service was delayed for multiple hours following detonation.

**Figure 1** (below) provides a snapshot of the focus incidents of this report, as well as a depiction of the large scope of activities that occur in the Port Authority daily.

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<sup>2</sup> [https://govinfo.library.unt.edu/911/report/911Report\\_Ch12.htm](https://govinfo.library.unt.edu/911/report/911Report_Ch12.htm)





**Figure 1: Port Authority Incidents, Critical Infrastructure, and Geography**

The Port Authority made numerous investments following these events using FEMA and other Federal grants. The descriptions below highlight investments in resilience that address adversarial threats, with each investment's primary funding source listed in brackets.

## 9/11 Terrorist Attacks

- World Trade Center Vehicular Security Center [TSGP, UASI]**—Following the 9/11 attacks, the Port Authority wanted to design a new, more resilient WTC complex. A primary security concern for the new complex was the use of a vehicle-borne improvised explosive device (VBIED) by terrorists to attack the complex (similar to the attack that occurred at the WTC in 1993). As a result, the Port Authority used a mix of TSGP and UASI grant funds to install a comprehensive vehicular security facility to screen vehicles entering the WTC complex. prior to arrival. Within the screening center, WTC security officials possess the capability to detect explosives and radiological and chemical materials entering the facilities, isolate vehicles that may pose a threat, and further protect the WTC complex. In total, the Port Authority supported this project using \$2 million in FY 2009 TSGP funding and \$1.2 million in FY 2008 and FY 2009 UASI funding.
- Business Continuity Program [UASI]**—The business continuity management program consists of nearly 50 departmental plans, which set forth structures that ensure business continuity across the Port Authority's 51 business units during an incident. UASI funds cover the full business continuity planning program, and since 2007, the Port Authority has used \$4.9 million in UASI funding across all fiscal years (excluding FY 2015) to support the program. Since the 9/11 attacks, the Port Authority business continuity program has captured the institutional knowledge of business operations and emergency management, which was in decline due to emergency managers retiring from the Port Authority. The program codified that knowledge into

*"If we don't have a business operation, the Port Authority closes."*  
 — Gerard McCarty, Director of the Port Authority Office of Emergency Management

action plans that support the Port Authority's functions. In the event of an incident, business continuity planners serve an administrative role, liaising between the business and operational components of the Port Authority. Importantly, the Port Authority is moving toward having a workforce that can operate remotely and at full strength in the event of evacuation or loss of facility.

### *PATH Train Bombing Plot*

- **Training and Exercises [UASI]**—Training and exercises play an integral role in maintaining a state of readiness to respond to potential incidents throughout the PATH system and the Port Authority's entire transportation network. In FY 2007, the Port Authority used \$1.7 million of UASI funding to enhance its capability to respond to all-hazard events, including the development, implementation, and exercising of a response plan for critical incidents in the PATH train's underwater tunnel system.

The Port Authority conducted counterterrorism exercises in the PATH tubes connecting the Exchange Place station with the WTC. Using UASI funds, the Port Authority invited the New York City Fire Department (FDNY) and Emergency Medical Services (EMS) to participate alongside the Port Authority Police Department (PAPD) in a collaborative, capability-building effort. In total, these exercises trained more than 200 FDNY firefighters and an equal number of PAPD officers and other first responders.

In FY 2018, the Port Authority used approximately \$668,000 of UASI funding to support its comprehensive exercise program by planning full-scale, regional exercises to test emergency preparedness, response, and recovery from a natural or man-made incident. Funding also supports the procurement of supplies and educational materials that the Port Authority provides to the public during exercises to help educate about preparedness activities related to the use of Port Authority services during an incident.

- **PATH Tunnel Hardening [TSGP]**—In response to the PATH train bombing plot, the Port Authority recognized the need to harden the two PATH tunnels that connect Manhattan with Jersey City. The Port Authority considered 18 engineering solutions and 30 operational solutions that would better protect the tunnels from an IED. Using its risk assessment, the Port Authority conducted a cost-benefit analysis of the proposed solutions, opting to harden the tunnels with a mixture of concrete and steel, to construct flood gates at either end of the tunnels, and to install geotextile materials to help seal any breach. The Port Authority invested \$15.7 million in FY 2007 TSGP funding in this effort.
- **Laser Intrusion Detection (LID) System [TSGP]**—Following the PATH train bombing plot, the Port Authority installed the LID System to detect intruders inside the PATH train network. The system is a remote-sensing array of light beams in place on select entrances to the PATH tunnels. When heat, radiation,



**Figure 2: PATH users walk through the Oculus.**

light, or an object cross the path of one of the lasers, an alarm activates. The Port Authority reduced the risk of tunnel infiltration using \$7.7 million in TSGP funds to install the LID System.

### *JFK International Airport Attempted Fuel Line Bombing*

- **Training and Exercises [UASI]**—The Port Authority used UASI funds to purchase a plane crash simulator, which is shared with the Newark Fire Department and FDNY to build greater regional preparedness at the region’s airports. The plane crash simulator is a Boeing 757 main cabin that burns propane to simulate the effects of a crashed aircraft. The plane crash simulator primarily resides at JFK International Airport and allows the 300 members of the PAPD’s firefighting unit to train year-round on live jet fuel fire on the tarmac while training moderators control the flame’s area. In some simulations, moderators encompass the entire plane in fire, completely obstructing the firefighters’ view of the aircraft. In other simulations, the fire is more contained, primarily impacting the engines, the flight deck, or the interior of the aircraft. Fighting the active propane fire, first responders push the fire away from the plane, providing a path for passengers to escape the aircraft.
- **Counterterrorism Patrols [UASI]**—In response to the 2007 JFK plot, the Port Authority deployed additional counterterrorism police forces to the JFK perimeter fence using UASI funds to cover the overtime costs. The responding police officers secured the surrounding perimeter and provided situational awareness throughout the threat period. JFK’s design allows for four primary soft spots, which, due to fiscal constraints, the Port Authority previously found difficult to cover simultaneously. However, the Port Authority allocates 25% of its UASI funding to law enforcement overtime for counterterrorism operations. With this contribution, the PAPD backfills those soft spots in a tiered, systematic approach that provides greater security in the airport.
- **Enhanced Closed-Circuit Television (CCTV) Coverage [UASI]**—In FY 2008, the Port Authority invested \$4.5 million of UASI funding to enhance CCTV coverage of JFK International Airport. Specifically, these investments assess the vulnerability of critical infrastructure, identify key assets that require increased protection, and acquire the necessary equipment to meet the assessed need.



*“The number of layers that contribute to our deployment strategy would be a shell of what it is without FEMA grant funds.”*

— John Bilich, Chief Security Officer, Port Authority

### *Port Authority Bus Terminal Bombing*

- **Training and Exercises [UASI]**—To maintain specialized police officer capabilities, members of the Port Authority Police Emergency Service, K-9 units, and other specialized response units must remain current in the most advanced technology, equipment, and tactics to support counterterrorism initiatives at Port Authority facilities. The Port Authority used \$1.3 million of FY 2017 UASI funding to support three projects that sustain its progressive training program to ensure safe and effective response efforts. The Port Authority used the designated 25% of UASI funds toward police overtime salaries, including counterterrorism training for police officers.





Furthermore, the Port Authority conducts six full-scale exercises and up to 50 additional exercises yearly.

- **Column Reinforcement [TSGP]**—In response to the Bus Terminal bombing, the Port Authority invested \$219,000 of TSGP funding to reinforce the support columns of the Port Authority Bus Terminal to prevent progressive collapse of the structure due to the use of an IED. The Port Authority also installed glazing on glass surfaces to prevent glass shattering.
- **Police and K9 Sweeps [UASI]**—Within two hours of the 2017 Bus Terminal bombing, the Port Authority searched 1.5 million square feet of the facility, including the use of ten K9 units sweeping for residual substances. In order to conduct this sweep, the Port Authority leveraged UASI grant funds for counterterrorism operations. The post-incident sweeps enabled the rapid and secure resumption of the bus terminal's functions.

## VI. Grant Recipient Program Feedback

Throughout the case study, FEMA solicited feedback from stakeholders on the FEMA grant programs and on possible Federal-level improvements to support grant recipients. Local officials in the Port Authority provided program feedback on the following topics:

- **Increased Clarity on FEMA Priorities:** Interviewees indicated that some projects that address FEMA priorities are not approved, whereas other projects that do not seem to advance the grant requirements do get approved. As a grant applicant, the Port Authority believes it is a better use of scarce internal resources to have a more targeted range of topics from which to choose. Therefore, grant recipients would like additional communication with FEMA to better understand what priorities to address in their grant applications (e.g., cybersecurity).
- **Remove Port Security Grant Program Local Share Requirement:** Port Authority interviewees reported that investment requirements present a barrier to applicants, as the required funds might have been spent elsewhere. As such, grant recipients recommend removing the PSGP local share requirement.
- **Ease Restrictions on Investment Areas for FEMA Preparedness Grants:** According to the Port Authority, risk is much broader than an individual malicious actor on the ground. It can be someone in front of a computer committing cyber espionage, or threats like the Asian long-horned beetle that can devastate natural resources. Threats are always evolving, and the Port Authority sees benefits in FEMA permitting grant recipients to apply funding to a wider range of investment categories, closer to an all-hazards approach rather than requiring a nexus to terrorism. This would allow grant recipients to be better laboratories of innovation.
- **Encourage Regional Approaches to Risk Reduction:** Port Authority representatives indicated that law enforcement constantly works across administrative and geographic boundaries because criminals do not limit their activities to a single jurisdiction. Emergency management is similar, as human-caused and natural hazards also are not restricted to a single jurisdiction. Therefore, FEMA funding should encourage regional approaches to reducing risk.

## VII. Conclusion

The 9/11 attacks changed the way that the Port Authority, and the Nation as a whole, prepares for acts of terrorism. With the support of FEMA grant funding, the Port Authority has leveraged lessons learned from the incidents highlighted in this case study, among others, to assess risk and invest Federal, state, and local funds to enhance the Port Authority's preparedness and resilience. The findings from this case study indicate that FEMA grant funds have had a significant impact on the Port Authority's preparation for and response to threats and acts of terror and other real-world events. Grant funding allowed the Port Authority to harden and secure critical infrastructure that is used to move millions of people per week throughout the New York/New Jersey region. Additionally, collaboration with regional partners has



enabled stakeholders to reduce risk and improve capabilities to address the broad range of threats and hazards that impact the Port Authority's unique, transit-focused administrative boundaries.

FEMA will use the results from this and other case studies to enhance preparedness programs, to develop tailored technical assistance, and to better communicate the impacts of preparedness grant programs to multiple stakeholders, including Congress, state governments, local jurisdictions, and tribal governments.