



**READYCOMMUNITIES
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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

**San Pedro Bay Port Complex Model:
(Port of Los Angeles – Port of Long Beach)**

Best Practices and Recommendations and
Using Existing COTS (commercial-off-the-shelf-technology) Capability
to Integrate Local Critical Infrastructure into a Surface and Subsurface Awareness, Identification
and Interdiction Network for Military, Port, Law Enforcement and First Response Partners

Roundtable Summary:
Stakeholder Best Practices and Recommendations

March 18, 2014
Port of Long Beach, California

First Edition

READYCOMMUNITIES
PARTNERSHIP
MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE
Roundtable Summary
March 18, 2014
Port of Long Beach, California

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

Roundtable and National Service Awards

March 18, 2014

Port of Long Beach, California

Co-Hosts

Mr. Al Moro, Acting Executive Director, Port of Long Beach
CDR Steve Ruggiero, Assistant Director of Security, Port of Long Beach

Port of Long Beach Harbor Commissioners including Mr. Doug Drummond and Mr. Rich Dines
who participated in the National Service Awards Presentation.

Keynote Address

CAPT. James Jenkins, Commander, US Coast Guard Sector Los Angeles-Long Beach

Moderator

Ms. Rosalie J. Wyatt, National Director, ReadyCommunities Partnership

March 18, 2014 Roundtable Planning Committee

Chair: Ms. Rosalie J. Wyatt, National Director, ReadyCommunities Partnership`
Co-Chair: Mr. Steve Ruggiero, Port of Long Beach Assistant Director of Security
Ms. Rachel Hamer, Port of Long Beach Media Relations Specialist
Ms. Anne Hutton, US Army Corps of Engineers, Los Angeles District
Mr. Cosmo Perrone, Principal, Cosmo Perrone & Associates
Battalion Chief Steve Raganold, Long Beach Fire Department & Port
Mr. Kurt Worden, Business Development Manager, NOVA Power Solutions, Inc.
Ms. Elaine Young, Secretary, Port of Long Beach

Corporate Co-Sponsors

ESRI, Sprint
Germane Systems, Priority5

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

March 18, 2014

Port of Long Beach, California

Roundtable Registrants and/or National Service Awardees (partial)

Mr. Eric Apple, ESRI

Ms. Margaret Arbini-Madonna, Los Angeles Region CEO, American Red Cross

Mr. Brent Woodworth, LA Emergency Preparedness Foundation

Mr. Richard S. Baratta, Director of Risk Management, Port of Long Beach

CAPT. John Carroll, USN Reserve, US 3rd Fleet Unit San Diego; IPERC

Mr. Daniel Connole, Vice President, Germane Systems

LTC Alex Deraney, Dep. District Cdr., US Army Corps of Engineers, LA District

Mr. Luis Diaz del Rio, SatLink Spain

Mr. Rich Dines, Harbor Commissioners President, Port of Long Beach

Mr. Doug Drummond, Harbor Commissioners Vice President, Port of Long Beach

Deputy Chief Laura Farinella, Support Bureau, Long Beach Police Department

Hon. Jim Geringer, ESRI Public Policy Director & RCP Advisory Board Co-Chairman

CAPT. Michael Graychik, Los Angeles Port Police Marine and Patrol Operations Division

Ms. Rachel Hamer, Public Relations, Port of Long Beach

CAPT. Martin H. Hardy III, Commanding Officer, Naval Weapons Station Seal Beach and
Commander of Navy Ammunitions Command CONUS West Division

LCDR Jim Hiltz, USCG Sector Long Beach

CAPT. John Holmes, former Port of Los Angeles Director of Operations USCG Capt. of the Port

CAPT. James D. Jenkins, Commander, US Coast Guard Sector Los Angeles-Long Beach

Ms. Tanya Lin Jones, Sprint ERT Manager, RCP Advisory Board Co-Chairman

Mr. Jouni Keravuori, Vice President, Pax Mondial

CAPT. J. Kip Louttit, Executive Director, Marine Exchange of Southern California

Mr. Leslie Luke, Los Angeles County of Emergency Management

Mr. David Malin, Emergency Manager, Port of Los Angeles

Mr. Al Moro, P.E., Acting Port Executive Director, Port of Long Beach

Mr. Peter Navesky, US Army Corps of Engineers

Lt. II Jeffrey B. Paillet, Los Angeles Police Department Harbor Area/Port Operations,

Mr. Cosmo Perrone, Principal, Cosmo Perrone & Associates, LLC

Chief Steve Raganold, Long Beach Fire Department & Port Battalion Chief

CDR. Steve Ruggiero (USN Reserve), Assistant Director of Security, Port of Long Beach

Mr. David Sawczuk, URS Federal Services

Ms. Renee Stokes, Supervisory CBP Officer, Anti-Terrorism Contraband Enforcement Team,
U.S. Department of Homeland Security

Mr. Kurt Worden, Business Development, Nova Power Solutions

Mr. Paul Wood, CEO, Pax Mondial

Brent Woodworth, President/CEO, LA Emergency Preparedness Foundation

Ms. Rosalie J. Wyatt, National Director, ReadyCommunities Partnership

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With appreciation for their leadership:

National Advisory Board

Hon. Asa Hutchinson; RCP/CCROA Advisory Board Chairman;
U.S. Congressman (R-AR3, '97-'01) and DHS Under Secretary ('03-'05)
Hon. Tom Ridge; RCP/CCROA Advisory Board and DHS Secretary ('03-'05)
Hon. Michael Chertoff, RCP/CCROA Advisory Board and DHS Secretary ('05-'09)
Hon. Bonnie McElveen-Hunter, Chairman, American Red Cross; CEO, Pace Communications
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Gen. Victor E. Renuart, Jr., U.S. Air Force (Ret.)
Hon. Jim Geringer, (Governor of WY '95-'03), Director Public Policy and Strategy, ESRI
LTG Russel L. Honore', U.S. Army (Ret.)
Ms. Tanya Lin Jones, Manager, Sprint Emergency Response Team
Hon. Byron W. Brown, Mayor (05'-present), City of Buffalo, NY
Mr. Jeb Carney, Chairman, Community Institute for Preparedness, Response and Recovery
Dr. Jerry Mechling, Faculty Chair, Harvard University Leadership Networked World (former)
Mr. Joe Trippi, Principal, Trippi and Associates
Ms. Rosalie J. Wyatt, President and National Director, ReadyCommunities Partnership

Others

Advisory Committee

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Mr. Dan Connoles, Germane Systems
Mr. Harris Kempner, Jr., Kempner Capital Management
Police Chief Edward Kondracki, La Crosse, Wisconsin
Mr. Antonio Oftelie, Harvard University
Mr. Mike Rogers, The Citadel Alumni Association
Chief Charles Werner, Charlottesville, Virginia Fire Department

Others

Committee of 100

Mr. Robert Adams, President and CEO, Global Security Systems
Ms. Debbie Hastings, Vice President, TX Oil and Gas Association
Mr. Chuck Miller, CEO, Priority5
Mr. Bryan Norcross; Former President and CEO, America's Emergency Network
Mr. Christopher Ptomey, Director of Federal Relations, Habitat for Humanity International
Mr. Joe Viens, Director, Time Warner Cable

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FORWARD

by

Hon. Asa Hutchinson
ReadyCommunities Partnership Advisory Board Chairman
Military Base and Port Community Resiliency Initiative Hon. Co-Chairman
Member of Congress (R-AR, 1997-2001) and DHS Under Secretary (2003-2005)

Dear Associate,

The ReadyCommunities Partnership (RCP) launched the Military Base and Port Community Resiliency Initiative in 2010 at the Senate Dirksen to identify best practices and recommendations for resiliency in our nation's strategic military base and port communities in the event of a large-scale or national crisis. Since then, the partnership has convened at PortMiami, Charleston, South Carolina, Miami-Dade Office of Emergency Management, and the Port of New Orleans to continue this important work.

I thank each of you who have participated in the roundtable hosted by the Port of Long Beach on March 18, 2014 to outline the San Pedro Bay Port Complex model for resiliency – which recognizes best practices and recommendations of numerous stakeholders including the Ports of Los Angeles and the Port of Long Beach, the US Coast Guard Maritime Transportation System Recovery Unit, the Area Maritime Security Committee, the port police, fire department American Red Cross Los Angeles region and many other entities and individuals.

Additionally, I thank each of you for your invaluable and tireless contributions of time, leadership and talent to community and national resiliency.

Sincerely,

Asa Hutchinson

FORWARD

by

Hon. Jim Geringer

Director of Public Policy and Strategy, ESRI

ReadyCommunities Partnership Advisory Board Co-Chairman;
RCP Military Base and Port Community Resiliency Initiative Co-Chairman
Governor of WY ('95-'03)

Colleagues,

On March 18, 2014, I was privileged to participate in the ReadyCommunities Partnership Military Base and Port Community Resiliency Roundtable to interact with and learn from public and private sector leaders from the Los Angeles-Long Beach community.

The participants fully agreed that shared situational awareness among the fourteen different jurisdictions in the strategic and complex port environment of Los Angeles and Long Beach is critical in order to prepare for response in the first 72 hours of a potential large-scale crisis.

ESRI's Virtual Port in use by the Ports of Los Angeles and Long Beach, was demonstrated and discussed as a most effective technology platform for shared situational awareness. Essential to the effectiveness of the technology and the resulting shared situational awareness are the spirit of collaboration and trust among the several agencies within the ports. As stated by Captain Jenkins and others, the cooperation of agencies and use of all available resources are the key to effectiveness and vital to community and port resiliency.

Much of the discussion focused on prioritization of actions to reduce vulnerability to hostile and/or catastrophic events and to enhance resilience, along with the development of a port and community resilience action plan.

So, just what is resilience? Resilience in the simplest sense is the ability to bounce back after a sudden or stressful event. More so, resilience is the capacity of a community to function economically, socially, and environmentally, so that the people living and working there survive and thrive no matter what stresses or shocks they encounter. Lessons learned from other events and collaboration as partners were highlighted throughout the day.

I trust that your review of the information provided in this roundtable summary about preparedness expertise and capacity will assist you as you in turn, leverage human networks and Commercial Off The Shelf technology to assure resiliency in your own situation. I stand ready to assist you in your resiliency planning as do the other participants in the Roundtable. Please do not hesitate to contact any one of us.

Best regards,

Jim Geringer

FORWARD

by

Tanya Lin-Jones

Sprint Emergency Response Team Manager

ReadyCommunities Partnership Advisory Board Co-Chairman
RCP Military Base and Port Community Resiliency Initiative Co-Chairman

Dear Colleague,

Communication is the foundation of response and recovery.

With a nationwide team, facilities, assets, and technologies, the Sprint Emergency Response Team provides robust communications solutions in the first 72 hours following a natural disaster or manmade crisis.

In line with the objective of our dialogue at the Port of Long Beach on March 18, 2014, Sprint and many other companies offer readily available off-the-shelf technologies to develop and share surface and subsurface situational awareness.

Additionally, each of you can take responsibility for local preparedness by identifying gaps in one's communications plan, working with existing vendors or new vendors to identify bridges for those gaps and including these vendors into your field training exercises.

If you are interested in participating with Sprint's Emergency Response Team in your field training exercises for resiliency, please don't hesitate to contact me.

Thank you.

Tanya Lin-Jones

Facebook – <http://www.facebook.com/SprintEmergencyResponseTeam>

Twitter - tmlin

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

March 18, 2014

San Pedro Bay Port Complex (Port of Los Angeles – Port of Long Beach)

Port of Long Beach, California

EXECUTIVE SUMMARY

by Rosalie J. Wyatt

National Director

The purpose of the ReadyCommunities Partnership Military Base and Port Community Resiliency Roundtable hosted by the Port of Long Beach on March 18, 2014 was to capture the essence of the local and regional model for resiliency, especially relative to surface and subsurface situational awareness and how stakeholders might collaborate to bring vendors, suppliers, and contractors into the situational awareness picture and use readily available technology known as COTS (commercial off the shelf technology) to address any local requirements to further the work of the port, the military bases, law enforcement, and first responders in the first 72 hours.

About eighty public and private sector participants convened and discussed the challenges to preparedness and response to a catastrophe in the complex and strategic environment of the San Pedro Bay Port Complex:

Complex Catastrophes

- “We call it a complex catastrophe, to ...describe what we’re looking at. Doesn’t mean it has to be an earthquake or tsunami...it could be a terrorist attack.... It just has to do something that really has an impact on our region and how we operate.” (CAPT. M. Hardy, *Naval Weapons Station Seal Beach; Navy Ammunitions Command CONUS West Division, p. 18*)

Strategic Port Preparedness

- “I think the fact that this is a strategic port is something that we should always think about. The fact that it could be a target, that it is so important to the country is another challenge.” (CAPT. J. Jenkins, *U.S. Coast Guard Sector Los-Angeles-Long Beach , p. 7*)

Additionally, the importance of the Port of LA-LB to the national and global economy was highlighted:

Impact of Military Base/Port Community Resiliency on the Economy

- “...40 % of the U.S. goods shipped into our country, that come on via the sea are shipped through the Ports of Long Beach and Los Angeles. This is for distribution throughout every

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RCP Military Base and Port Community Resiliency Initiative Roundtable Summary (3-18-2014, Port of Long Beach), p. 9/49

congressional district in the U.S. A port closure could impact hundreds of millions of dollars of business activity. San Pedro Bay is the busiest seaport in the nation. Long Beach alone moves more than \$180 billion worth of goods every year. We support 1.4 million jobs nationally, 300,000 jobs just right here regionally. The port welcomes over 4,000 vessels a year, including some of the biggest vessels that are afloat. These vessels container vessels carry 14,000 twenty-foot equivalence. We serve over 140 shipping lines and we have connections with 217 seaports throughout the world. When you compound the effects of a shutdown throughout that entire supply chain you can see how easy the effects of a terrorist activity and how wide spread that could be. .” (A. Moro, *Port of Long Beach*, p. 1)

- “The uninterrupted operation of America’s 513 ports is essential to our national economy. They collectively amount for about 13.3 million jobs, generating \$649 billion in annual revenue. Each year, maritime commerce in the United States accounts for approximately 3.2 trillion in total economic activity and generates 2.2 billion in federal, state, and local taxes. And our country has 136 military installations which are considered critical. With ports and military bases knocked off line during a crisis, not only would lives be at risk, but the effect of our economy would be catastrophic.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 2)

Leadership models and communication networks based on collaboration and trust were discussed as fundamental to the region’s modus operandi:

Multi-Layered Approach to Security

- “...our purpose today is to look how we can improve our community’s ability to respond to the national or large-scale crisis during those first critical 72 hours before our state or federal partners can step in to help. It’s all about us; the public and private sector working together, to be as prepared as possible to respond to a disaster, whether man-made, an earth quake or other natural disasters. To a large extent, our national resiliency and economy are dependent upon the resiliency of our nation’s strategic military and port communities.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 2)

Disparate Backgrounds, Common Purpose / Cooperative Spirit

- “And when you walk into a room, even though everybody comes from a different background, and to some extent has a different perspective on the smaller scale in the terms what their interest might be, when people step into the room there is an attitude of cooperation and common purpose that we are trying to achieve, a larger common goal together. And so people are enthusiastic when they come together and I think usually it’s the attitude of friendship and cooperative spirit that we have.” (CAPT. James D. Jenkins, *USCG Sector Los Angeles-Long Beach*, p. 6)

The ReadyCommunities Partnership and CIPRR introduced SeaLogic, an incubator of public/private sector solutions utilizing commercial off-the-shelf technology:

SeaLogic Solutions Incubator

- "...we needed a vehicle where the private sector could work directly with the public and military sectors and the first responders and law enforcement and fire, to be able to come together and work in a neutral environment with the private sector and community organizations as well. They have a lot to offer, because that's where the assets are in the local first 72 hours of the crisis. So what the Community Institute for Preparedness, Response and Recovery (CIPRR) has done is set up an incubator called SeaLogic to deal directly with the challenges between what your needs are in the public and military sectors, with what the community and private sector organizations can provide... pick a couple of things that you think would be the highest level accomplishments that you can make, and let's see if we can't get together and build a model for that. ...work together to find the resources to test that idea, to drive a virtual solution to a demonstration that actually does real things." (*J. Carney, Community Institute for Preparedness, Response and Recovery, p. 30*)

The challenge ahead was described as follows, to do what is necessary:

Understanding and Doing What is Necessary

- "It would be remiss of me not to take the opportunity to bring Winston Churchill into the debate today, so, he said, 'Sometimes doing your best is not good enough. Sometimes you have to do what is necessary.' (*P. Wood, Pax Mondial, p. 57*)

Stakeholders in resiliency for the Port of San Pedro Bay Complex recognized that in addition to each of the visible threats to safety, operations and economic resiliency including fire, flood, active shooters, tsunamis, earthquakes, power failures, etc., there are invisible cyber threats and attacks:

Cyber Threats and Preparedness

- "While responders can see the ocean waves getting bigger in a storm and take precautions, cyber attacks are pernicious in that a user may attribute a slow running computer to a crowded network rather than a cyber attack. Cyber security preparedness needs to involve operators of networks managed remotely in other cities, states or countries to minimize delays in mitigation and response." (*K. Louttit, Marine Exchange of Southern California, Email received on September 12, 2014*)

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

March 18, 2014

Port of Long Beach, California

THE SAN PEDRO BAY PORT COMPLEX MODEL FOR RESILIENCY

In brief, and with respect to a wide array of natural and manmade threats, preparedness and response for a large-scale crisis, the greater San Pedro Bay Port Complex Model for Resiliency was described by participants in the ReadyCommunities Partnership March 18, 2014 Roundtable at the Port of Long Beach to include a specific *modus operandi*, and vehicles for collaboration and communication and technology solutions.

Additional information about the following examples and others can be found throughout the summary of best practices and recommendations contained in this booklet.

Modus Operandi

- Collaboration and Trust
- Joint Training and Exercises
- Shared Situational Awareness
- Use of Commercial Off the Shelf products when feasible
- Backup Plans, Redundancy
-

Intra and Inter-Organizational Collaboration

- Area Maritime Security Committee
 - Incident Command System
- Los Angeles-Long Beach Vessel Traffic Service jointly operated by the USCG and Marine Exchange of Southern California
 - Port of Los Angeles - Port of Long Beach
- USCG Maritime Transportation System Recovery Unit

Communications Solutions

- Emergency Power Facility Assessment Tool (EPFAT) – US Army Corps of Engineers
 - Petroleum Industry Network
- Port of Long Beach Security Command and Control Center
- Vessel Traffic Service – Southern California Marine Exchange
 - Virtual Port by ESRI

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

March 18, 2014, Port of Long Beach, California

Roundtable Summary Editorial Committee:

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Rosalie J. Wyatt, National Director, ReadyCommunities Partnership

Co-Editors

Citizen/Community

David Malin, Port of Los Angeles

Communications/Technology

Tanya Lin Jones, Sprint ERT / TBC

Economics/Infrastructure

CAPT. John Carroll, IPERC Solutions

Education/Training

*CAPT. M. Graychik, Los Angeles Port Police

Fuel/Energy

Kurt Worden, Nova Power / TBC

Intelligence/Situational Awareness

Eric Apple, ESRI

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Legal/Intergovernmental

Leslie Luke, Los Angeles County Emergency Management

Ms. Renee Stokes, CBP Officer, Anti-Terrorism Contraband Enforcement, DHS, LA-LB Seaport

Military/Security

Ms. Renee Stokes, CBP Officer, Anti-Terrorism Contraband Enforcement, DHS, LA-LB Seaport

Public Health/Medical

*CDR Steve Ruggiero, Port of Long Beach / TBC

Transportation/Logistics

*CAPT. J. Kip Louttit, Marine Exchange of Southern California

**Also attended Roundtable Summary Review 9/9/14 in Long Beach (Cdr Alex Avila, LB PD)*

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MILITARY BASE AND PORT COMMUNITY RESILIENCY INITIATIVE:

March 18, 2014

Port of Long Beach, California

STAKEHOLDER BEST PRACTICES AND RECOMMENDATIONS

Stakeholders from across the region convened on March 18, 2014 at the Port of Long Beach to articulate and share these best practices of the Greater Long Beach Model for Resiliency, particularly specific to surface and subsurface situational awareness, so that community can remain resilient in the face of crisis.

Highlights of best practices and recommendations of the ReadyCommunities Partnership March 18, 2014 Port of Long Beach symposium participants relative to first 72 hour resiliency are presented by subcommittee in this summary:

1. Citizen/Community
2. Communications / Technology
3. Economics / Infrastructure
4. Education / Training
5. Fuel / Energy
6. Intelligence / Situational Awareness
7. Leadership / Sustainability
8. Legal / Intergovernmental
9. Military / Security
10. Public Health / Medical
11. Transportation / Logistics

The ReadyCommunities Partnership March 18, 2014 Port of Long Beach transcript can be referenced at www.readycommunities.org for the context of each of the excerpts provided in this summary.

1) CITIZEN/COMMUNITY

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RCP Military Base and Port Community Resiliency Initiative Roundtable Summary (3-18-2014, Port of Long Beach), p. 14/49

Symposium Overview:

Public, private and community sector stakeholders from the Los Angeles / Long Beach port complex and surrounding community as well as other regional stakeholders described the importance of partnerships to effective community-level preparedness and response.

Transcript Excerpts:

Symposium Best Practices:

1st 72 Hour Resiliency

Partnerships and Collaboration

- “The Port of Long Beach can’t do it alone. We rely upon our neighbor, Port of Los Angeles, our partners; our law enforcement and fire partners; as well as our community and our longshoremen that work here in the port.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 3)
- “What can we do to bring the strength of the business sector, and I added also the academic sector, the faith based sector, the non-profit sector, the volunteer sector; basically all the stakeholders within the community of Southern California. How do we get them together to work more effectively with the government? A foundation was created, this was in 2008, called the LA Emergency Preparedness Foundation, which is the official foundation for the City of LA, with the main focus on doing that.” (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 62)
- “We then moved forward with how can we formalize this and, and how can we provide a greater incentive to each of these agencies and these groups? And what we did was we guaranteed every single one a seat inside the emergency operations center for the City of LA with linkage to the County of Los Angeles. So it was no longer a voice for just one person representing every sector plus government. There were 16 different seats inside the EOC where they have full command and full ability to provide their input, their ideas, their capabilities.” (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 62):

Overall Recommendations:

Collaboration and communication between the public, private, community and military sectors and between communities augments surface and subsurface situational awareness and should be considered fundamental to port, port tenant and national resiliency.

2) COMMUNICATIONS / TECHNOLOGY

Symposium Overview

The role of technology and human networks in facilitating communication for situational awareness and crisis response was highlighted. Communication frameworks such as the Incident Command System and the Petroleum Industry Network wheel were acknowledged for their

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effectiveness. Technology solutions that support situational awareness and crisis response were discussed including but not limited to ESRI's Virtual Port and those of Sprint's Emergency Response Team. IPERC's solution for hardened computer-based information technology was mentioned. Additionally, various commercial off-the-shelf technologies that enable surface and subsurface situational awareness were highlighted in the context of their current or future applications.

Transcript Excerpts:

Symposium Best Practices:

Communications and Information-Sharing Models

Foundation of Response and Recovery

- "...communications is the foundation of response and recovery." (*T. Lin-Jones, Sprint, p. 13*)

Petroleum Industry Network

- "Rather than a linear communication system, it's a network. And all one has to do is activate one of those folks on that inner wheel, and then by MOU, that person on the inner wheel calls the next person on the, and the next person, then the next person, till it goes all the way around. Now the person at the bottom of the wheel, he doesn't know who's associated at the top of the wheel, all he has to know is he calls the next person. ...And think about your organizations, now. How many of them are built upon a fairly rigid hierarchal system and not a network? (*Chief S. Raganold, Long Beach Fire Department, p. 15*)

Regional Stakeholders

- "CBP would be in constant communication with regional stakeholders through the Maritime Coordination Center, the MCC here in Long Beach, the Maritime Transportation System Recovery Unit, the MTSRU, and the Area Maritime Security Committee, the AMSC, to establish the specific needs of the port and to generate an operational plan." (*R. Stokes, Customs and Border Protection, p. 21*)

Incident Command System

- "...how do we communicate with these other first responders? ...what we determined at the Port of Long Beach and at the Port of LA is that you have to have a common framework. You have to have a common methodology ... We use the incident command system.... it gives us a commonality of language. It allows us to facilitate communication. It allows us to communicate with the Coast Guard through the MTSRU group, which is a subcommittee of the Area Maritime Security Committee. It allows us to share a common purpose which is to stabilize the incident. It allows us to control communication." (*R. Baratta, Port of Long Beach, p. 27*)

One Point of Contact

- “We have reorganized locally so that you now have one point of contact for the Red Cross for both the Port of Long Beach and for the Port of Los Angeles.....our mission is simply to prevent, prepare, respond, and recover from emergencies. And we want to be your partner in all of this.” (*M. Arbini-Madonna, American Red Cross, p. 61*)

Maritime Domain Awareness and Common Operating Picture

- “Of notable infamous recent history, Operation Tomodachi in Japan with the Fukushima disaster, and then of course the earthquake in Haiti. In both scenarios the Navy was charged with coordinating the economic viability of those countries, the ports, humanitarian assistance, evacuations, whether they are US citizens or not. In that role, we are very much concerned with what we call maritime domain awareness and a common operating picture.” (*CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego; and Intelligent Power & Energy Research Corporation, p. 22*)

Critical Infrastructure Enabling Communications

- “...it’s really C3, command, control, communications. What’s the backbone behind C3? And it’s really the critical infrastructure that allows us to communicate. That allows us to put people on the ground. That allows the different agencies to talk to each other, transfer data, set up the network, validate the data that’s acquired. And then, of course, allow the different government agencies to react.” (*CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 22*)

Technology Solutions

Technology Driven Assessments and Response

- “Our technological ability to survey and make quick changes, assessments after an incident. Being able to take real time virtual look at the port, a project that we’re working on. (*CDR. S. Ruggiero, Port of Long Beach, p. 3*)

Distributed Server

- “So we do not have a central server. It’s distributed, there’s not master slave. That’s the way...the grid currently operates. If you look at most of the major municipalities ...they’re all main frame mentality. ...If it crashes, you lose everything. We’re (IPERC) highly distributed. They’re individual computers, single board computers, controllers that are placed at each one of the generation points. They’re connected and communicate via fiber, Ethernet, power line carrier, wi-max, that’s for all your communications.” (*CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 54*)

Cyber Security: Hardened Computer-Based IT

- “...the enhanced cyber protocols that meet the current risk management framework protocols. We are the only organization that has deployed micro grids that meet that criteria and has achieved the accreditation. So satellite right now is virtually too expensive for a

commercial company or commercial, or a municipality. But if you take a step back and start looking at computer-based IT cyber, that's very secure and hardened, that's what we do." (CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 54)

Short-Term Power Bridge

- "...we're providing the power that allows you to bridge the gap between the time that you lose that initial energy and the time that you can bring a secondary power source online. ...We're providing you continuity. If you lose your power for even a short period of time, less than a second, that can cause a lot of your IT assets to have to restart. That restart time, not only do you lose that time, that restart time can take 5 to 10, to 15 minutes depending on what you have to do. It may take days depending on the complexity of your IT system. So we're providing equipment that allows critical infrastructure to bridge that gap in those two pieces." (K. Worden, Nova Power, p. 54)

Radiation Portal Monitor and Laptops and Generators

- "We would re-evaluate our radiation portal monitor systems to determine if cargo could still continue to leave the port. But we would do all that when needed. We are equipped with laptops and generators for the completion of our basic functions." (R. Stokes, Customs and Border Protection, p. 21)

Virtual Port by ESRI

In Brief

- "'What did you plan for today?' What daily events are happening? What incident event? What special event, such as the Grand Prix within the Port. Along with what are we seeing now in real time? Where's the hazardous container locations? Where are your vessels located? Where are your blue force resources? And the how does that affect your continuity of operations? And lastly, who do I need to coordinate with and share information with? So being able to plan affectively to cover all these different bases is what the Virtual Port Project is about." (E. Apple, ESRI, pp. 31-35)

Operationalized Plan and Data Feeds

- "In this one, we're definitely trying to operationalize that plan, pre-identify the data, pre get some of those information feeds in there; the dynamic feeds already operationalized so you're sort of hitting the ground running versus waiting to take that plan-off-the-shelf. You're also literally taking that plan and putting it into the system so that it's already in the system. You don't have people in there sketching or adding the plan on the fly, which takes a lot of time." (E. Apple, ESRI, p. 36)

Sprint Emergency Response Team

Nationwide with Dedicated Team and Solutions

- "...nationwide team dedicated, this is what we do full-time for Sprint, dedicated facilities that are hardened in areas across the United States with multiple different assets. ...communications is the foundation of response and recovery." (*T. Lin-Jones, Sprint, p. 37*)

In Brief

- "So if you remember a SATCOLT is going to be cellular and data communications. A fly away kit is going to be data communications only. That ability to drive in a cellular bubble of coverage because the existing infrastructure is down or power is down, telco is down. We can now put up a very large bubble of coverage, about three to five miles, depending on the topography and terrain of the area. So your cell phones that are sitting on your pockets are working. But in addition to that, we deploy with devices. I have about 10,000 devices that my team uses to deploy during emergencies and disasters, so I could hand you a device that would be working off this communication tower." (*T. Lin-Jones, Sprint, p. 39*)

SATCOLT: Cellular and Data Solutions

- "What are the things that we can bring to bear to assist during your times of critical communication needs? So the first is actually going to be a SATCOLT, satellite cell on light truck." (*T. Lin-Jones, Sprint, p. 37*)

3G Voice and Data, 4G LTE or Satellite, Mobile IP Data

- "But a SATCOLT... satellite cell on light truck, it's going to bring you your cellular voice communications. It's going to bring your cellular 3G communications, your data. It also does 4G LTE or satellite, and then mobile IP data." (*T. Lin-Jones, Sprint, p. 38*)

Satellite IP Solutions

- "We also have satellite IP solutions. So that ability to very, very quickly deploy it. Have it on your ship, in your terminal, you take it, you put it in the back of a truck, you deploy it anywhere. There's a small incident out in the middle of nowhere, there's no data connectivity. You need to be able to bring up a Wi-Fi bubble of coverage, that's what this can do for you. You need to be able to bring a command post up, a fly away kit. So, Sprint, we actually have two Sprint-owned [sounds like] stations, San Ramon, California and Franklin, New Jersey for redundancy. Making sure that we still have those communication capabilities for us. We also do trailer based solutions." (*T. Lin-Jones, Sprint, p. 38*)

V-land Tagging: Operational Command and Control

- "We also have the availability of doing V-land tagging. So if you needed to do 15 megabits per second for operational command and control, 2 megabits per second for voice over IP traffic, 3 megabits per second for open dirty Internet, so that your responding agencies and your contractors can come in and also have communications, we have the availability of doing that as well." (*T. Lin-Jones, Sprint, p. 38*)

Trucks Configured to Support 300-500 Users

- "...we say 180 simultaneous calls that actually support about three to 500 users..." (T. Lin-Jones, *Sprint*, p. 41)

Sprint ERT Go-Kits (Cell phone w/GPS + API): Data Solution

- "...then you can kind of overlay it with a GPS platform. So all of our employees, we all have some form of cell phones, whether you have a contract or it's a bring your own device type that you may have with your employer or your agency, but that ability to kind of know where your folks are, based on their cell phone, because they're going to have it on their pocket provided that there is coverage there. And then interoperating through a system that ESRI has, because it's open interface, correct? So we should be able to kind of plug API to API in, so that now you can put another layer on there.... Doesn't matter if they're a Sprint customer or a Verizon customer, or an AT&T customer, provided that they have these GPS solutions that can interoperate with a system like ESRI, you now created another layer for employee accountability. Where are my people, where are my personnel and my assets?" (T. Lin-Jones, *Sprint*, p. 39)

Satellite IP Solutions

- "We also have satellite IP solutions. So that ability to very, very quickly deploy it, have it on your ship, in your terminal, you take it, you put it in the back of a truck, you deploy it anywhere. There's a small incident out in the middle of nowhere, there's no data connectivity. You need to be able to bring up a Wi-Fi bubble of coverage, that's what this can do for you. You need to be able to bring a command post up, a fly away kit. So, Sprint, we actually have two Sprint-owned [sounds like] stations, San Ramon, California and Franklin, New Jersey for redundancy. Making sure that we still have those communication capabilities for us. We also do trailer based solutions." (T. Lin-Jones, *Sprint*, p. 38)

Networks for Response and Recovery

- "...we actually have them spread out all throughout the United States, so there is about 20 of these satellite based trucks. There's about 20 of the (Sprint ERT) Fly-Away-Kit infrastructure, so we can turn a COW (cell on wheels) into a satellite based truck, if need be. But... our ability is basically to kind of leap frog, so we can create a new network in an area that didn't have an existing network, or a network that maybe crippled; we can now create and put towers up and create multiple bubbles of coverage." (T. Lin-Jones, *Sprint*, p. 42)

Land Mobile Radio Interoperability

- "Hang a switch off of there. Put some LMR (land mobile radio) interoperability's, because maybe the radio systems still here at the port are working and the fire systems are still working, but you need to connect now with all the other responders that are coming into that area. So hang an ACUM or 1,000, 2,000 off of that and then interoperate the radio systems that may still be up and running." (T. Lin-Jones, *Sprint*, p. 39)

Wi-Fi

- “Wi-Fi, because you want to be able to, those contractors, those NGOs; everybody that’s coming to respond, put up some dirty internet out there so that other people have connectivity and they can do some communications as well. Again all of this is backed all through Sprint owned stations, so we don’t have to worry about the wireline issue, so when telco is down.” (T. Lin-Jones, p. 39)

Onboard Diagnostics

- “There’s also a lot of ODB (onboard diagnostics) too, kind of plug-ins that you can put in your fleet vehicles, or your generator so that you can track real time where those are as well. If it was a catastrophic event, like an earthquake, where the network actually itself is down, it has a store and forward. So what you’re going to find during an earthquake is the entire network’s not going to be down across all three carriers, but it’s going to look like Swiss cheese. So this group of towers are down, and this group of towers are down, and this group of towers are down across all three or four carriers... ..So your ability to have a tracking capability on your device or on your fleet vehicle or your generators that is going to be a store and forward, so that you can track the bread crumbs of where did it go to? Because during emergencies, it’s chaos. That generator may have been intended for point A and it ended up at Point C and nobody knows exactly where it’s at. So to be able to track those bread crumbs through a store and forward is key as well. And all of that can be interoperated through open systems like ESRI.” (T. Lin-Jones, *Sprint*, p. 41)

Commercial Off-The-Shelf Technology

Leverage Off-The-Shelf Products

- “Use the systems daily during the exercises and events. Leverage off-the-shelf products. Know your data sources and limitations.” (E. Apple, *ESRI*, p. 36)

Multi-Beam Sonar System for Hydrographic Surveys

- “LA Mapper, which is an aluminum 26 foot workboat with an R2 Sonic 2024 multi-beam sonar system; that allows us to see bottom features as the boat passes over it. We use the data we collect to help us draft maps, or hydrographic surveys of the ocean bottom. So in addition to being useful when we need to dredge, hydrographic surveys help us to determine the general condition of a harbor or channel, and help us when we need to respond to a disaster or weather event.” (LTC A. Deraney, *US Army Corps of Engineers*, p. 23)

Underwater Sonar and ROVs

- “We have quite a number of different systems that we use. We have 400 plus cameras. We have a very robust dive team with a pretty good capability. They use underwater sonar to do route surveys and underwater change detection. Also we have numerous ROVs (remotely operated underwater vehicle). We do, like I said, we do channel clearing and peer search, hull searches, that type of public safety diving.” (CAPT. M. Graychick, *Los Angeles Port Police*, p. 24)

Hazmat Identification Equipment

- “We have a hazardous materials unit. They have hazardous material identification equipment, radiation detection equipment. They also operate a scan truck on the landside.” (CAPT. M. Graychick, Los Angeles Port Police, p. 25)

Boats with Radiation Detection, and K9s

- “I should mention a lot of that capability is used on the water as well. The boats are equipped with radiation detection or actually our new boats are coming with radiation detection. Currently, the hazmat team will use handheld detection equipment out on the water. Our K9s are also used out on the water with the boarding teams. So we’re doing a lot with the maritime doing and with boat operations and dive operations.” (CAPT. M. Graychick, Los Angeles Port Police, p. 25)

Port Power Assessment - Management Profile

- “...one of the benefits of our micro grid system is the ability to define what we call a power management profile. So you actually identify in advance what’s critical, what’s not. ...this automatically balances your generation versus your loads, you can actually serve in any weather or crisis hardened environment.” (CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 53)

Micro grid – Automatic Reconfiguration

- “...what we’re bringing to the commercial world right now, is a highly distributed architecture. So individual controls are placed throughout the micro grid where your generation and your loads are. The loads and the generation automatically balances and self-heals. If you lose a node, you lose a load, or a generation point, the grid automatically reconfigures itself.” (CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 52)

Pump Assignment as a Critical Load

- “Part of what we’re proposing ..is to make that location, that pump, that distribution for the pump itself, as a critical load.” (J. Carroll, CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 53)

Identify Critical, Non-Critical Loads

- “So the benefits and the actual start of a micro grid for a port similar to this begin with the port assessment... in identifying critical, non-critical loads and looking at the generation you need to support those loads. And then where does the money come from to put the generation in?” (CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 53)

Micro grid Power Distribution

- “Put the micro grid control in place so that it will distribute the power if it’s not needed at the pumps.’ So if it never floods, it gets distributed elsewhere. The military identifies sipper and

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nipper database centers, communications, command and control locations; those are all critical loads that can't be dropped.” (CAPT. J. Carroll, USN Reserve, US 3rd Fleet Unit San Diego, and Intelligent Power & Energy Research Corporation (IPERC), p. 53)

Ruggedized Servers on Subs

- “What we do is take COTS products...whether it's a server, it's an enclosure of any kind, either make the form factor very small, but make them very rugged, where on a ship they take up to 60 G-Force hit, they can take heavy vibration requirements. We have between two and 300 servers on every sub in the United States. ...We have our servers in Spain, Australia, India... We have sealed units, the Coast Guard's using right now, so the cutters that roll, they can actually take that water.” (D. Connoles, Germane Systems, p. 55-56)

Symposium Recommendations:

Information Sharing

Practice Prior to Crisis

- “...in the event of a crisis, it's not the time to be introducing yourself to your partner, or some other agency. You want to have them on your phone. You want to know them by name, you already want to be exercising in drills, and being in those workshops where you're practicing your incident command...” (S. Ruggiero, Port of Long Beach, p. 16)

Systems Synchronization

- “As I said, we have great technology in the port, but as everybody knows, one person's technology might not sync up with the other person's technology. And so, where you have systems that aren't talking to each other, certainly that's a challenge we face every day. We have great systems independently, but are they coming together and feeding each other, especially at the key command and control points? (CAPT. J. Jenkins, U.S. Coast Guard Sector Los Angeles-Long Beach, p. 8)

Crisis Communications

Social Media: Understanding and Adoption

- One of the challenges that I personally believe we have on the Port of LA side, is social media. We do have the Twitters and some of those other social media applications, but I think we're not doing enough in that respect. So, just to mention something I think we need to improve on. I would say that's one of the things we need to work a little better on, is pushing information out to our public and receiving information from our public. You always hear about, 'See Something, Say Something,' and those types of 800 number systems where people can report things. But I think there's a whole new generation that would just love to be able to communicate with us using social media, so we definitely need a little bit better job doing that. (CAPT. M. Graychick, Port of Los Angeles Police, p. 25)

Resumption of Operations through Incident Command System

- "...the last thing you want is 15 different versions of what is happening going out into the media, because then Twitter and Facebook are not your friends. So what we utilize the ICS for is to resume operations following a disaster. (R. Baratta, *Port of Long Beach*, p. 27)

Overall Recommendations:

Situational awareness sharing and systems synchronization between trusted organizational partners prior to crisis can strengthen the capacity of the military base and port community to remain resilient during a large-scale crisis. Commercial off-the-shelf products were recommended for expediency in implementation and cost-effectiveness to achieve necessary solutions. Relative to cyber security concerns and recommendations, please reference the military / security section of this paper.

3) ECONOMICS / INFRASTRUCTURE

Symposium Overview:

Symposium attendees discussed the importance of strategic ports to the national economy as well as partnerships to port recovery following a large-scale crisis. The importance of port tenant responsibility for preparedness for resiliency was highlighted. Predetermination of critical power requirements as well as establishment of purchasing agreements for generators and other necessary equipment for the first 72 hours was described as critical to resiliency.

Transcript Excerpts:

Symposium Best Practices

Impact of Military Base/Port Community Resiliency on the Economy

Essential and Discretionary Cargo

- "But everything that we have in our homes or everything that we have in our offices are brought here from overseas. So to shut down this port, or any port, is extremely critical to our national economy, to our nation, and obviously to us." (R. Baratta, *Port of Long Beach*, 2014, p. 17)
- "40 percent of all the goods that you use, touch, receive come through these two ports. ...And there's two types of cargo that come through them. One is essential...serves this immediate area. And for our two ports, immediate area is pretty much almost the entire Southwestern United States. But there's also another type of cargo that comes through here. It's called discretionary cargo. It's the stuff that comes through here because it's easy, because it's convenient, and because it's cost effective; but doesn't necessarily come through here. It is that kind of cargo that we want to keep here. Because by keeping that here, we

keep jobs here. And we keep our economic engine here. (R. Baratta, *Port of Long Beach*, p. 26)

Importance of Keeping the Ports Open

- "...of that, 40 % of the U.S. goods shipped into our country that come on via the sea are shipped through the Ports of Long Beach and Los Angeles. This is for distribution throughout every congressional district in the U.S. A port closure could impact hundreds of millions of dollars of business activity. San Pedro Bay is the busiest seaport in the nation. Long Beach alone moves more than \$180 billion worth of goods every year. We support 1.4 million jobs nationally, 300,000 jobs just right here regionally. The port welcomes over 4,000 vessels a year, including some of the biggest vessels that are afloat. These vessels today, container vessels, they carry 14,000 twenty-foot equivalence, that's a lot of cargo just in one vessel. We serve over 140 shipping lines and we have connections with 217 seaports throughout the world. When you compound the effects of a shutdown throughout that entire supply chain, you can see how easy the effects of a terrorist activity and how wide spread that could be. ." (A. Moro, *Port of Long Beach*, p. 1)
- "The uninterrupted operation of America's 513 ports is essential to our national economy. They collectively amount for about 13.3 million jobs, generating \$649 billion in annual revenue. Each year, maritime commerce in the United States accounts for approximately 3.2 trillion in total economic activity and generates 2.2 billion in federal, state, and local taxes. And our country has 136 military installations which are considered critical. With ports and military bases knocked off line during a crisis, not only would lives be at risk, but the effect of our economy would be catastrophic." (CDR. S. Ruggiero, *Port of Long Beach*, p. 2)

Port Recovery from Crisis

Staging Area for Relief Supplies

- "The port (Long Beach) is indeed a strategic port. FEMA has selected it as a staging area for relief supplies in the event of the most likely area wide scenario, which is an earthquake." (R. Baratta, *Port of Long Beach*, p. 26)

FEMA Stafford Act Mission

- "However, if it's normally a FEMA Stafford Act mission, FEMA will deliver several hundred of the units (generators) from their inventory to a staging area. The staging areas are typically, depending upon the staging area location and the event location; they're within about a 50 to 100 mile radius normally." (P. Navesky, *U.S. Army Corps of Engineers*, p. 46)

DoD Surplus / Support

- "...I want to ensure that during a disaster we're going to have abilities to bring in whatever surplus the DOD has to be able to help and support in that role. We're here to get the port back up and operating, just like we want to keep ourselves operating. ...as a team. I know a

couple of people described how important the Ports of Los Angeles and Long Beach are to the commerce and the effect nationwide. But the Navy, we understand the importance of ports and what's moving across the water and into our ports to support our country." (CAPT. M. Hardy, *Naval Weapons Station Seal Beach; Navy Ammunitions Command CONUS West Division*, p. 19)

Port Recovery

Many Initial Responses

- "So when a port disruption occurs there are, as you heard, many types of responses. You have the port response. You have military; you have law enforcement, fire, CBP, US Coast Guard, first responders, American Red Cross, Salvation Army. But typically what happens is after they all go home, what happens? We have to recover the business we call the ports of Los Angeles and Long Beach." (R. Baratta, *Port of Long Beach*, pp. 26-27)

Port Tenant Responsibilities for Preparedness

- "And Rich (Baratta) and I were talking yesterday and he knows that, yes, we have some responsibility at the Port of Long Beach for some of these, but others are tenant situations. ...but I think he's going to be working on kind of like a business plan, ...with all of the other entities in the port saying, 'Hey, if power goes down, you're in the same boat that the rest of us are. Here's what we're looking to do and we recommend you contemplate doing the same thing, so that you can stay operational in this environment.'" (P. Navesky, *U.S. Army Corps of Engineers*, p. 48)

Gantry Cranes

- "From our perspective, that may not serve the model of getting the port up and running at the fastest possible time. So we're not totally relying on FEMA or the Corps to be the provider, but instead talking to our tenants ... saying, 'This is something that you need to look at, because you are in fact a profit making entity, and it is to that end that you need to have a business resiliency plan. So it behooves you to install, if for example, Gantry cranes are your livelihood and you depend on those cranes to load and unload ships so that you can do what you're here to do; then it behooves you to consider putting in or looking into obtaining a generator source on your own.' ...FEMA may say, 'No, that's a commercial enterprise and we're not going to help that for a week, two weeks. That may be the case. And we can't wait that long.'" (R. Dines, *Port of Long Beach*, p. 49)

Business Continuity Planning

- The fact of the matter is, is that a business continuity plan is by almost definition an economic plan. (R. Baratta, *Port of Long Beach*, p. 26)

Technology Redundancy Plan

- "And from a resilience and redundancy standpoint, Jacobson pilots and Long Beach pilots, have a duplicate set of equipment. So if our building goes down, we can go over to Jacobson

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and we also can go to Dan's Long Beach Command Center. We have a radio, a traffic control system and a phone there, so we can keep going if we happen to lose our building. (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 50)

Planning for Emergency Power

Preparedness Facility Assessment Tool (Web-Based EPFAT)

- “And then, most importantly, that information has to be provided to our partners. United States Army Corps of Engineers, for example, has a database called EPFAT (emergency power facility assessment tool). We need to populate that database with that information so that they know what we're going to need to power various locations in the port.” (R. Baratta, *Director of Risk Management, Port of Long Beach*, p. 29)
- “So what is EPFAT? It's a web-based online assessment tool....data is completed by, or filled in by a facility manager and electrician. ...There are a lot of internal data checks and balances. The information stored at a geo-reference data base...in a secure website that he can access from offsite. The generator, the facility data can be easily retrieved and updated. ...a city emergency manager, a county emergency manager, a state emergency manager, a federal emergency manager can request reviewer right access and be able to see what's in their political subdivision. ...is a tool we use when we're actually executing a power mission.” (P. Navesky, *U.S. Army Corps of Engineers*, p. 44)
- “...our ultimate goal with this system is to make county, city, state emergency managers more in tune with what their needs might be and can they handle this themselves? There are several states on the East Coast that now have put into place generator contractors, similar to what we provide where they can go out and get those services. They can get, work it directly.” (P. Navesky, *U.S. Army Corps of Engineers*, p. 44)

Defining Critical Power Requirements

- “...one of the benefits of our microgrid system is the ability to define what we call a power management profile. So you actually identify in advance what's critical, what's not. ...this automatically balances your generation versus your loads, you can actually serve in any weather or crisis hardened environment.” (CAPT. J. Carroll, *USN Reserve, US 3rd Fleet Unit San Diego*, and *Intelligent Power & Energy Research Corporation (IPERC)*, p. 53)

Generators Requested through FEMA

Turnkey Delivery/Installation

- “If you're going through a FEMA request, it'll be a turnkey operation. We'll deliver it, install it, fuel it, operate it, maintain it.” (P. Navesky, *U.S. Army Corps of Engineers*, p. 47)

Allocation to Critical Public Facilities

- “Normally the federal generators typically go for what's deemed a critical public facility, before they'll allow them to go to commercial.” (P. Navesky, *U.S. Army Corps of Engineers*, p. 47)

- “Now I know that FEMA and the port (Long Beach), with the designation of this being a critical one that may potentially allow federal generator assets to be used at some of these other private facilities, but I have to leave that up to FEMA.” (*P. Navesky, U.S. Army Corps of Engineers, p. 48*)
- “We recognize that FEMA will allocate the Corps’ assets and their own assets to public locations first and support a commercial location sometime after that.” (*R. Dines, Port of Long Beach, p. 49*)

Generator Backup: Battery Bank Powered by Wind Turbine

- “...we have a really good generator and also just received a FEMA port security grant in 2013 so we’ll add a battery bank powered by a wind turbine which will back-up the generator. ... So we can function in the first 72 hours and more, as long as we can get diesel fuel, we can run.” (*CAPT. J. Kip Louttit, Marine Exchange Southern California, p. 50*)

Symposium Recommendations:

Port Sustainability

Private Sector Support to Identify Needs for Supplies:

Water, Waste Water, Fuel, Communications, Power and Natural Gas

- The other is our life lines, which is going to be crucial for us when we start looking at water and waste water, fuel, communications, power and natural gas. Looking at and working with the private sector to be able to now identify some of those needs and help us be able to come up with some type of options that we can put in place in real-time, whether or not it was going to the military for rope (sounds like) units or looking at water purifiers or whatever else may be out there to be able to help us address some of these situations. (*L. Luke, Los Angeles County Office of Emergency Management, p. 24*)

Planning for Electricity and Fuel Supplies

- “We’re very, very much reliant upon electrical power here in the port. All of our cranes, a lot of our terminals have to have that electricity in order to operate. Assessing fuel supplies. We have a three day supply of oil here within Southern California. Recovery and salvage in the harbor channels at the terminal docks. Our biggest threat here in Southern California as most of us found out yesterday is the earthquake. We could be sitting on a fault line that could trigger a large earthquake and be catastrophic to the seaport. Damage to aging infrastructure. In a 103-year old port, gas lines, water lines, we don’t know at any time these could rupture.” (*CDR. S. Ruggiero, Port of Long Beach, p. 3*)

Power Concerns

Self Sufficiency

- “We have to develop our own in-house capability for powering our loading, unloading, and transportation process, because quite honestly, we can’t count on Edison or DWP to do it for

us. We're going to have to be self-sufficient. So one of those things, and I'll close with this, it's very easy to say, 'Well, let's go to CAT Power, and let's go to Cummins, let's go to whomever, and say, we want to have a contract with you to bring generators to us in the event we call you.' We've got an on-call contract; we've got our agreements..." (R. Baratta, *Port of Long Beach*, p. 28)

Power for Terminal Cranes: Impact Across Supply Chain

- "...our cranes; to be able to power those in the event of a shutdown. And without those port terminal cranes, we have an impact across the supply chain." (R. Baratta, *Port of Long Beach*, p. 16)

Crane Power Requirements

- "We have approximately 80 cranes in the port. Each one of those cranes requires 4,137 volts of power to operate. Without those cranes it's very difficult to unload a container ship. So one of the things that we have looked at in the Port of Long Beach is, how do we power those? But it's not just the cranes; it's what comes off of them. You have 40 foot containers and 20 foot containers known as TEUs (twenty-foot equivalent) that are refrigerated." (R. Baratta, *Port of Long Beach*, p. 27)

Defining Critical Power Requirements

- "...one of the benefits of our micro grid system is the ability to define what we call a power management profile. So you actually identify in advance what's critical, what's not. ...this automatically balances your generation versus your loads, you can actually serve in any weather or crisis hardened environment." (CAPT. J. Carroll, *USN Reserve, US 3rd Fleet Unit San Diego*, and *Intelligent Power & Energy Research Corporation (IPERC)*, p. 53)

Port Micro grid: Assessments and Funding

- "So the benefits and the actual start of a micro grid for a port similar to this begin with the port assessment... in identifying critical, non-critical loads and looking at the generation you need to support those loads. And then where does the money come from to put the generation in?" (CAPT. J. Carroll, *USN Reserve, US 3rd Fleet Unit San Diego*, and *Intelligent Power & Energy Research Corporation (IPERC)*, p. 53)

Earthquake Scenario: Power Supply Concerns

- "Like the Port of Los Angeles, we have one power supplier. They have Department of Water and Power. We have Southern California Edison. We do not share common extension cords. If our power fails as it most likely will in an earthquake scenario, Southern California Edison has told us, that if there is an earthquake that crosses the San Andres up to the Cajon Pass, we could lose power for up to 30 days. While we may have an infrastructure in the LA basin ...The reality is, we aren't going to have power because the main transmission lines that

come into the city are going to be cut by such an earthquake.” (R. Baratta, *Port of Long Beach*, p. 27)

Local Critical Infrastructure Preparedness

Critical Infrastructure as the Backbone to C3

- “Communications is the foundation of response and recovery.’ And to me, we here use the term command and control, but to me it it’s really C3, command, control, communications. What’s the backbone behind C3? And it’s really the critical infrastructure that allows us to communicate. That allows us to put people on the ground. That allows the different agencies to talk to each other, transfer data, set up the network, validate the data that’s acquired. And then, of course, allow the different government agencies to react.” (CAPT. J. Carroll, *USN Reserve, US 3rd Fleet Unit San Diego; and Intelligent Power & Energy Research Corporation*, p. 22)

Importance of Resilient Platforms

- “...the greatest piece of critical infrastructure doesn’t always work as predictably as the human element. And that critical part is one of the things that we need to deal with here so that we put something in place as a base platform that gives us the ability to be resilient, regardless of the circumstance.” (Hon. J. Geringer, *ESRI*, p. 10)

Emergency Supplies

Predetermine Purchasing Agreements

- “Who’s the one person that’s going to pick up the check to start buying all the stuff that we’re going to need to start repairing what’s going to happen within the port?... So you can’t just use blanket purchase agreements. And so this is one of those things as we set up, the ICS (Incident Command System) infrastructure in our unified command, we started working logistics, who’s paying the bill? It’s just something for vendors that are out there to think about.” (D. Malin, *Port of Los Angeles*, p. 18)

Refueling Contracts

- “Yes we do have a refueling schedule. We do have nationwide contracts with refuelers to kind of bring some of that diesel in if needed. But at least it could be rapidly responded and rapidly deployed to an area and last for about seven to ten days based on the fuel that it’s going to have in the vehicle.” (T. Lin-Jones, *Sprint*, p. 38)

Process for FEMA Requests

- “...cuz I was there in Sandy along with a lot of the rest of us, there are a lot of entities that do not know the process to get a request up to FEMA and the Feds for that. And it’s unfortunate....” (P. Navesky, *U.S. Army Corps of Engineers*, p. 46)

Overall Recommendations:

Policies, budgeting and management is required for preparedness for sustainability of national and local critical infrastructure, and planning for power and port tenant resiliency in the base and port community is integral to a functioning economy, situational awareness and national resiliency.

4) EDUCATION / TRAINING

Symposium Overview:

Due to the complexity of port operations, joint training and interoperability is critical to ensuring a rapid recovery and enhanced resiliency.

Transcript Excerpts:

Symposium Best Practices:

Public Sector Leadership and Engagement

Partnership Drills and Exercises

- “Just the sheer number of partnerships we have here requires us to do the drills and exercises, and put those MOUs and other agreements in place, to make sure that we’re operating well. It’s also particularly important...” (CAPT. J. Jenkins, U.S. Coast Guard Sector Los Angeles-Long Beach,, p. 8)
- “One of the reasons fire is able to work so well, is that we practice on a regular basis. But typically we just deal with other fire agencies.” (Chief S. Raganold, Long Beach Fire Department, p. 16)

Joint Exercises and Training

- “Frequent communications and partnerships are definitely a necessity for all of us and our stakeholders. We do a lot of joint exercises and training, and that helps reduce conflicts, and helps us with our tactics and our joint operations.” (CAPT. M. Graychik, Los Angeles Port Police, p. 25)

Security Integration Training

- “...to maintain the awareness and the ability to interoperate is to continue this security integration during normal peace time operations, because it builds the relationships we need to better be prepared to respond to any local crisis. We look forward to continued opportunities to work and cooperate with the authorities here as we do these world [sounds like role operations and as we branch out to participate more in the training scenarios. (CAPT. Martin Hardy, Naval Weapons Station Seal Beach, Navy Ammunitions Command CONUS West Division, p. 20)

Sprint ERT Training with Partners

- “And on Saturday, out of McChord the Air Force is actually flying a SATCOLT over to Alaska for an exercise. Because I talked about exercises and how important it is for us to bring in your partners. We actually do about 80 of Them a year. We don’t charge anybody to do them. We just ask that you get on our calendar very, very early because we understand the impact.” (*T. Lin-Jones, Sprint, p. 38*)

Symposium Recommendations:

Port Complexity

- “...should be the recognition that we have a lot of complexity here.” (*CAPT. J. Jenkins, U.S. Coast Guard Sector Los Angeles-Long Beach, p. 7*)
- “Long Beach is one of the most complex....” (*Hon. J. Geringer, ESRI, p. 12*)
- “You’re going to have dozen of agencies responding to it. And your organizational sophistication is going to have to grow exponentially.” (*Chief S. Raganold, Port of Long Beach, p. 14*)

Training and Exercises

Partnership Drills and Exercises

- “Just the sheer number of partnerships we have here requires us to do the drills and exercises, and put those MOUs and other agreements in place, to make sure that we’re operating well. It’s also particularly important...” (*CAPT. J. Jenkins, U.S. Coast Guard Sector Los Angeles-Long Beach, p. 8*)

Practice Using Resources and Capacity Wisely

- “...so it’s important for the routine evolutions, but I think it’s even more important here where we’re faced with both this strategic port, with the importance it has to the country, that if we have the major event where we will be stretched, we have to protect this entire port complex, that we on a day-to-day basis practice using our resources wisely. So getting that right, figuring out how we’re going to spread this capability and capacity across the entire enterprise wisely I think is key.” (*CAPT. J. Jenkins, U.S. Coast Guard Sector Los Angeles-Long Beach, p. 8*)

Leverage Lessons-Learned When Training Dollars Scarce

- “...share our situational awareness and share these really complex relationships that we have. Some of the best ways we can do this in the Navy is when we do real world operations, because sometimes there’s not a lot of money to bring a lot of the training assets to bear.” (*CAPT. Trip Hardy, Naval Weapons Station Seal Beach, Navy Ammunitions Command CONUS West Division, p. 20*)

Interagency Training

- “All these systems require a lot of training and a lot of capability to operate, a lot of coordination. As mentioned earlier, there’s a lot of cooperation of other agencies. The Coast Guard, Port of Long Beach, all the public safety agencies that work and operate in the Port environment.” (*CAPT. M. Graychick, Los Angeles Port Police, p. 25*)

Importance of Daily Exercises

- “...NIMS (National Incident Management System) training, ICS 300 and 400, all of you have had that. But how many of those skills do you actually exercise on a daily basis?” (*S. Raganold, Long Beach Fire Department, p. 14*)

Overall Recommendations:

The first 72 hours of a large scale crisis is critical; it is imperative to quickly gather situational awareness as well as to understand the implications and complexities of the port environment. Multi-discipline training and exercises will enhance preparedness and response as well as aid in the development of recovery plans.

5) FUEL / ENERGY

Symposium Overview:

The U.S. Army Corps of Engineers supports FEMA under the Stafford Act to provide temporary power. To maintain self-sufficiency and resiliency during crisis, purchasing agents and risk management officers should evaluate the potential return on investment and purchase of generators with sufficient capacity to power critical equipment during crisis.

Transcript Excerpts:

Symposium Best Practices:

US Army Corps of Engineers – Support for Temporary Power

- “...our 249th Engineering Battalion, the Army’s technical experts on electrical distribution and transmission and generation systems... when we support FEMA with Stafford Act (Relief and Emergency Assistance Act) providing temporary emergency power.” (*P. Navesky, US Army Corps of Engineers, p. 43*)

Symposium Recommendations:

Fuel and Power Supply

Electrical Assessment and GIS Mapping

- “One of the things we’ve looked at is an electrical assessment.... Then what we want to do is ...put all that data in to GIS mapping, so that in the event of a disaster we can quickly go to that and say,...if you want to power those four cranes ... is where you connect a one megawatt generator.” (*R. Baratta, Port of Long Beach, p. 28*)

Fuel Supply Solutions

- “Generators require a fuel supply. So we’re also looking at that. The potential of not being able to get fuel into the port is a very real possibility. We may have a number of suppliers who want to bring it and can’t get here....because of infrastructure collapse, because of road blockage, whatever it might be. So we’re looking at how do we power the cranes if Edison tells us we’d like to help but can’t. How do we get fuel down here when the suppliers tell us we’d like to help you, but we don’t have any?” (R. Baratta, *Port of Long Beach*, p. 28)

Generators

Contracts with Resilient Suppliers

- “We’re going to have to be self-sufficient. ...let’s go to whoever... have a contract with you to bring generators to us in the event we call you.... The other thing you have to do is you have to say, ‘But what is your resiliency plan? What are you going to do to assure us that when we call you, you in fact can provide what we’re asking for?’” (R. Baratta, *Port of Long Beach*, p. 29)

Gantry Cranes

- “...Gantry Crane for port containers. And as they mentioned, it needs 4160 and FEMA does not own any 4160 type generators in their inventory. About 98 percent of what’s required under normal emergency situations are 2 megawatt or less size units. And most of those are below 1 mg, for most critical public facilities.” (P. Navesky, *US Army Corps of Engineers*, p. 43)

Cal/EPA Emission Standard

- “...whatever (generator) you put out there better meet Cal/EPA emission standards.” (P. Navesky, *US Army Corps of Engineers*, p. 43)

Powering Equipment

Dependent Organizations

- “...like Captain Graychik, we support lots of equipment that is not ours. So the port police’s microwave tower is powered by us. We have a USGS antenna and a DOD antenna. That’s part of why we’re so concerned about power at the Marine Exchange. We want our partners’ equipment to run when it needs to.” (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 50)

Continuous Surveillance

- “But if you have a continuous surveillance need ...(you) need continuous power to really meet that need.” (K. Worden, *Nova Power*, p. 55)

Overall Recommendations:

There are preparedness steps that military base and strategic port stakeholders can take to mitigate power and fuel shortages to sustain resiliency. Prior to crisis, generators and their respective fuel supply should be purchased and positioned for ready access in the immediate

aftermath of a crisis. Additionally, alternative sources of power and fuel should be identified prior to a large-scale crisis.

6) INTELLIGENCE / SITUATIONAL AWARENESS

Symposium Overview:

Sharing of institutional or other situational awareness was recommended to broaden the scope of situational awareness in the context of the complex port environment in Los Angeles and Long Beach.

Transcript Excerpts:

Symposium Best Practices:

Common Operating Picture

Community Stakeholder Network (LAEPPF)

- "...database, could run in the cloud, and provide something called situational awareness or business intelligence in a way that had never been done before. A way instead of signing into 15 or 20 systems to figure out both well, what's the weather, where are the ships moving, all the different elements that you want to know on a disaster; but put it into one system that was very easy to use, integrated, used a lot of visual capabilities, and that had to be built. ...several million dollars of private money, into a system called the Community Stakeholder Network, which now exists and has been launched in a beta mode. ... And one of the key partners in this system is ESRI. ESRI's providing a lot of the mapping. Microsoft has donated a million dollars' worth of software to it. ESRI has developed about a million and a half dollars of modeling computation analysis that's in the system." (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 62-63)

Maritime Domain Awareness

ESRI's Integrated Virtual Port

- "Maritime domain awareness just isn't shipping, it just isn't ships. It's about everything that's going on in and around the port. And you'll hear from one of our other partners, ESRI, who's developing what's called Virtual Port." (CDR. S. Ruggiero, *Port of Long Beach*, p. 3)

Fourteen Jurisdictions

- "During Eric Apple's presentation on Virtual Port, he'll describe in many ways what the routine is here at the Port of Long Beach and all the integrated activities that are here. Fourteen different jurisdictions I believe, governmentally, not to mention the private sector, and the NGOs or the service organizations." (Hon. J. Geringer, *ESRI*, p. 11)

Integration and Data Feeds

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- “In terms of the integration, we integrate with many people. We already talked about virtual ports. Our data feed goes to them. And terms of common operating picture, the exact vessel traffic control picture that my people look at goes to Captain Jenkins’ operations center. It goes to the LA pilots, it goes to the Long Beach pilots, and it goes to the Long Beach Joint Command Center.” (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 50)

Who’s Coming - Ships Report

- “...one of our priorities is to keep the cargo flowing in and out of the port. So each day at noon everyone looks for our “Who’s Coming” report to know how many ships are expected today and tomorrow...” (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 50)

Vessel Traffic Control

- “With respect to COTS technology, the vessel traffic control system that we use is the Kongsberg Norcontrol.” (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 49)

Vessel Traffic Service

- “We’ve got the Vessel Traffic Service. With that system we can see everything that has an AIS (automatic identification system) from Point Conception to the Mexican border. That’s the transponder that ships now use. And we can see 25 miles out by radar. We’ve eight AIS units and four radars that integrate into the system. So when one goes down, as they periodically do, we still have all the rest and it works very well.” (CAPT. J. Kip Louttit, *Marine Exchange Southern California*, p. 50)

Buoys with Sonar Detection

- “...we are manufacturing 30,000 buoys per year for the tuna ships and vessels around the world....Each one has sonar detecting the quantity of tones.” (L. Diaz del Rio, *SatLink*, p. 51)

Satellite Automatic Identification System

- “We have experience in integrating an automatic identification system. And we are doing the same with the satellite, automatic and integration system. (L. Diaz del Rio, *SatLink*, p. 51)

Symposium Recommendations

Share Situational Awareness and Complex Relationships

- “...share our situational awareness and share these really complex relationships that we have. Some of the best ways we can do this in the Navy is when we do real world operations, because sometimes there’s not a lot of money to bring a lot of the training assets to bear.” (CAPT. M. Hardy, *Naval Weapons Station Seal Beach; Navy Ammunitions Command CONUS West Division*, p. 20)

Information-Sharing

- “So some of the keys for us are kind of looking at information sharing, both amongst our government agencies and with the private sector, all the way down to the general public; making sure that we have one voice to be able to put the information out to everyone, so they know what to do. As someone else was talking about earlier, is making sure that they have faith in what’s actually being done and that the decisions being made are actually accurate and up-to-date.” (*Leslie Luke, Los Angeles County Office of Emergency Management, p. 24*)

Bring Private Sector into Situational Awareness Picture

- “And then bring in the private sector community into subsurface and surface awareness picture.” (*CDR. S. Ruggiero, p. 4*)

Power Bridge for Continuous Surveillance

- “But if you have a continuous surveillance need ...(you) need continuous power to really meet that need.” (*K. Worden, Nova Power, p. 55*)

Overall Recommendations

Enabled and readily available technology should be identified and sourced to provide surface and subsurface situational awareness for resiliency in the first 72 hours. Private sector integration into the situational awareness picture and exchange of information will enhance the port communities’ ability to remain resilient in the first 72 hours.

7) LEADERSHIP / SUSTAINABILITY

Symposium Overview:

The Maritime Secure Committee decision making model was highlighted as effective for dynamic situations in the first 72 hours. CIPRR’s SeaLogic solutions incubator was introduced as a leadership initiative to fill gaps in a military base and or strategic port community through best practices and cross-collaboration.

Transcript Excerpts:

Symposium Best Practices:

Leadership Models

Incident Command System

Long Beach Fire Department

- “...because of the history we have here ... have an ad hoc organization that grows to 1500 employees with all the associated infrastructure working in a hazardous environment. And have that built within literally a day. We do that lots of times here in Southern California. And the reason it works is because we have this well institutionalized, incident command system concept in our head. (*S. Raganold, Long Beach Fire Department, p. 14*)

American Red Cross

- "...how the changes at the Red Cross have emerged over the last 18 to 24 months. Hurricane Katrina and Super Storm Sandy have made a lot of changes with us. We're moving to the ICS, the Incident Command System..." (*M. Arbini-Madonna, American Red Cross, p. 60*)

Maritime Security Committee Decision-Making

- "We do have a very strong area in Maritime Security Committee. I think we get a wonderful participation at the right... decision-making level... try to make improvements and make things happen.... port security is a dynamic not a static situation. (*CAPT. James D. Jenkins, USCG Sector Los Angeles-Long Beach, p. 7*)

Sea Logic Solutions Incubator

- "...we needed a vehicle where the private sector could work directly with the public and military sectors and the first responders and law enforcement and fire, to be able to come together and work in a neutral environment with the private sector and community organizations as well. They have a lot to offer, because that's where the assets are in the local first 72 hours of the crisis. So what the Community Institute for Preparedness, Response and Recovery has done is set up an incubator called SeaLogic to deal directly with the challenges between what your needs are in the public and military sectors, with what the community and private sector organizations can provide... pick a couple of things that you think would be the highest level accomplishments that you can make, and let's see if we can't get together and build a model for that. ...work together to find the resources to test that idea, to drive a virtual solution to a demonstration that actually does real things." (*J. Carney, Community Institute for Preparedness, Response and Recovery, p. 30*)

Private Sector Support:

Water, Waste Water, Fuel, Communications, Power and Natural Gas

- "The other is our life lines, which is going to be crucial for us when we start looking at water and waste water, fuel, communications, power and natural gas. Looking at and working with the private sector to be able to now identify some of those needs and help us be able to come up with some type of options that we can put in place in real-time, whether or not it was going to the military for rope units or looking at water purifiers or whatever else may be out there to be able to help us address some of these situations." (*Leslie Luke, Los Angeles County Office of Emergency Management, p. 24*)

Symposium Recommendations:

Leadership

Network-Based Incident Management

- "Look at your incident management system. Look at your notification. And consider more a network based system rather than, or a web based system, not like world-wide web, but web-network type system, rather than a more rigid hierarchal. These are some of the things

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that we're trying to work on here in the Port of LA (Los Angeles) and Long Beach.” (S. Raganold, *Long Beach Fire Department*, p. 15)

Maintaining Contact

- “Leadership changes out. In fact, I’m leaving here shortly. And just in my three and a half years here, we’ve had significant changes throughout the port security leadership. So, you create those relationships. You think you know who’s sitting’ in the seat and who you’re going to call, and then that number on your cell phone or that relationship that you formed, that understanding that you have might not be there. So it requires continual updating and effort to keep current; keep those relationships current.” (CAPT. J. Jenkins, *U.S. Coast Guard Sector Los-Angeles-Long Beach*, p. 7)

Pre-Identify Alternate Location for Continuous Operations

- “Identifying and staffing an alternate location in the event of our port security command center that is designed as a multi-agency headquarters if that were to be disrupted.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 4)

Stretching Resources for Response

- “...if we do have a big event, even with the capacity and the capability that we have, we may be stretched to capacity. So if it’s an earthquake and some of the resources that we think would be focused on the port are actually focused more regionally. How are we going to manage those things?” (CAPT. J. Jenkins, *U.S. Coast Guard Sector Los-Angeles-Long Beach*, p. 7)

Strategic Port Preparedness

- “I think the fact that this is a strategic port is something that we should always think about. The fact that it could be a target, that it is so important to the country is another challenge.” (CAPT. J. Jenkins, *U.S. Coast Guard Sector Los-Angeles-Long Beach*, p. 7)

Risk Management

- “...the best solution to a crisis is prevention. How do we do risk assessment to the point where we actually can prevent something from happening? ... how do we anticipate the risks that are there, mitigate those threats, because resiliency in many ways is the ability to anticipate what could happen, putting things place that mitigate the impact, even things like zoning areas so you don’t have the risk that might occur.” (Gov. J. Geringer, p. 12)

Operations Prioritization

- “So how do you prioritize from a shareholder, if you’re commercial, or the mission side at command level, and then from a business side, what are the business risks to this, be it power like we’ve been talking about. And then operationally, how do we get and move things? So we look at the lens of those three domains against the risks and the priorities and then we talk about how you assess and baseline.” (D. Sawczuk, *URS*, p. 58)

Understanding Resiliency

Assure Public of the Response

- “The key part of resiliency is how quickly can we assure the public that they can be confident in our response.” (*Hon. J. Geringer, ESRI, p. 11*)

Bouncing Back or Better?

- “My simplified way of talking about resilience is, in essence it’s bouncing back, but back to what? What was the routine before this major event occurred? How quickly can we get back to that? And one of the ways that the chief reminded me of, he says, ‘What if it should be better? Let’s not just go back to what was. Maybe there is a way through lessons learned and other activities that we can make it better.’” (*Gov. J. Geringer, p. 11*)

Confidence in Leadership

- “...if the public gets the impression that you are confused as a leader, say in my situation or others in an incident command situation, the chief in the first 72 hours, and incident commander after that, if the public doesn’t develop a confidence in that, you’ll have anarchy.” (*Gov. J. Geringer, ESRI, p. 11*)

Understanding the Supply Chain

- “So what’s needed? Understanding the supply chain.” (*Gov. J. Geringer, ESRI, p. 11*)

Ensuring Health and Safety

- “How do you assure that health and safety are being attended to? How do you restore security after a major event? ...where are the health facilities? Where is your surge capability for a major event?” (*Hon. J. Geringer, ESRI, p. 12*)

Resiliency Planning - Four Steps

- “The first action item is to identify the gaps in your communications plan that you have now.” (*T. Lin-Jones, Sprint, p. 13*)
- “...work with your existing vendors or new vendors to identify bridges for those gaps.” (*T. Lin-Jones, Sprint, p. 13*)
- “...bring these vendors into these field training exercises that you do.” (*T. Lin-Jones, Sprint, p. 13*)
- “...the need for credentialing.” (*T. Lin-Jones, Sprint, p. 13*)

Understanding and Doing What is Necessary

- “It would be remiss of me not to take the opportunity to bring Winston Churchill into the debate today, so, he said, ‘Sometimes doing your best is not good enough. Sometimes you have to do what is necessary.’ So in the context of the kind of work we get involved in, whether it’s being asked to protect critical infrastructure at Kajaki Dam in Afghanistan, or training the Pakistani police in being able to respond to counter-IED, which they can’t do at the moment, or build a coast guard from scratch; we have a potential client in the Middle

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East, or deal with maritime security issues for various governments on the West Coast of Africa, or we're the only, talk to the Panama Canal about some of their issues; understanding what is necessary is the key thing for us to try and get our head around. Most of the people we talk to don't understand what is necessary. And that's really the focus of the kind of value proposition that we've put together." (P. Wood, *Pax Mondial*, p. 57)

Overall Recommendations:

Leadership involves the identification and understanding of the steps required to achieve resiliency from the perspective of all stakeholders and conducting risk assessments on all mission critical functions and operations. Appropriate mitigation measures should be identified to address any possible anticipated failures and be incorporated into a resiliency plan. When activated, the plan should ensure the continued operations of the critical mission functions, while under stress, at a pre-identified acceptable level. The resiliency plan should be treated as a living document that requires constant management review for appropriate revisions. Training of all pre-identified critical stakeholders and exercising of the plan at regular interval is also highly important and should be addressed.

8) LEGAL/ INTERGOVERNMENTAL

Symposium Overview:

Collaboration across sectors and between port entities as well as trust and a spirit of cooperation have contributed to community resiliency. Additionally, engagement of private sector and NGO capacity have contributed to community resiliency.

Transcript Excerpts:

Symposium Best Practices:

Collaboration

Across Sectors

- "...within LA (Los Angeles) and now working very closely with the county as well and all 88 cities, the 16 major sectors that make up Southern California. Governments one, but the others are like, academic, manufacturing process, retail, finance, and so forth. Each one very well identified. And each of them meeting now, a lot of them on a fairly regular basis, just about once a quarter, to come in and have meetings to talk about what can be done to share information, collaboration, commitment, and capabilities in preparing for and responding to catastrophic events." (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 62)

Port to Port Assistance

- "CBP would be able to support its own mission essential for the first 72 hours. And if a significant need were to come up, we have ability to request assistance from other ports

located throughout the country. So we would be able to utilize our other ports to come and give us assistance. “ (R. Stokes, *Customs and Border Protection*, p. 21)

Sharing Across the Enterprise

- “With that comes an attitude I think ...of sharing. I think people don’t hold things close to their vest or get technology or capability and try to keep that for their own purposes. Usually when we bring those things online, all of the partners, they look to capitalize on that across the partnership. So, across the enterprise, how can we use this capability to the best of everybody’s benefit? (CAPT. James D. Jenkins, *USCG Sector LA-LB*, p. 6)

Common Purpose / Cooperative Spirit

- “And when you walk into a room, even though everybody comes from a different background, and to some extent has a different perspective on the smaller scale in the terms what their interest might be, when people step into the room there is an attitude of I think cooperation and common purpose that we are trying to achieve, a larger common goal together. And so people are enthusiastic when they come together and I think usually it’s the attitude of friendship and cooperative spirit that we have.” (CAPT. James D. Jenkins, *U.S. Coast Guard Sector Los Angeles-Long Beach*, p. 6)

Information-Sharing: One Voice

- “So some of the keys for us are kind of looking at information sharing, both amongst our government agencies and with the private sector, all the way down to the general public; making sure that we have one voice to be able to put the information out to everyone, so they know what to do. As someone else was talking about earlier, is making sure that they have faith in what’s actually being done and that the decisions being made are actually accurate and up-to-date.” (L. Luke, *Los Angeles County Office of Emergency Management*, p. 24)

Trust and Commitment to Strategic Port Complex Resiliency

- “I think we do have a very strong security apparatus, great partnerships, capability, capacity here, as compared to other areas around the country and really around the world. Our partnerships are built on continued interaction, really trust based relationships I think where public partners, private companies, the management and labor unions come together and discuss these issues on a regular basis and work towards a common purpose of keeping this port up and running; of keeping it safe and secure, of keeping it safe and secure, of keeping commerce flowing because I think there’s a recognition throughout the entire community of the importance and strategic nature of this port complex. (CAPT. James D. Jenkins, *USCG Sector Los Angeles-Long Beach*, p. 6)

Private Sector/NGO Capacity

- “But at the same time, because of the system, the faith- based community was communicating out to their churches, to synagogues, to mosques what was going on. Interfacing with the Red Cross as to where shelters were going to open? Is there a shortage?

Do they need blankets? Walgreens immediately offered cases of water for free. Walmart said, ‘OK. We’ll look and see what we have to do if there is an evacuation, what can we do to make certain stores are open, we have additional supplies and capabilities?’ We pushed a lot of the non-profit and others to even go further. Companies like Wells Fargo, be ready to say, ‘Hey, in a presidential declared disaster, why don’t you waive your ATM fees and give everybody a break?’ So a lot of these things are going on as well.” (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 63)

Symposium Recommendations:

Value of Public/Private Partnerships

- “But it shouldn’t come to any surprise to you that government can’t do it all. We are going to and need to depend on public/private partnerships. “ (L. Luke, *Los Angeles County of Emergency Management*, p. 23)

Expert Teams to Fill Gaps Between Capacity and Needs

- “...development for the response system. And this takes a team of experts who’ve been through hundreds of disasters throughout the world, and providing their common knowledge together; working with the private sector and the public sector to fill that gap that exists in events, between what the government capabilities are and the true needs of the population in Southern California.” (B. Woodworth, *Los Angeles Emergency Preparedness Foundation*, p. 63)

Overall Recommendations:

Public/private partnerships are essential to community resiliency.

9) MILITARY / SECURITY

Symposium Overview:

National resiliency and the economy are intertwined with the capacity of the strategic military and port communities to be resilient. The strategic port's capacity involves a multi-layered approach in partnership with law enforcement.

Transcript Excerpts:

Symposium Best Practices:

Public Sector Leadership and Engagement

Multi-Layered Approach to Security

- “...our purpose today is to look how we can improve our community’s ability to respond to the national or large-scale crisis during those first critical 72 hours before our state or federal partners can step in to help. It’s all about us; public and private sector working together, to be as prepared as possible to serve a disaster, whether man-made, an earth quake or other

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natural disasters. To a large extent, our national resiliency and economy are dependent upon the resiliency of our nation's strategic military and port communities.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 2)

- “...our multi-layered approach to security and safety in tandem with our law enforcement partners. We have a state of the art security command and control center that serves our entire region when there's a threat. We have an outstanding security dive team.” (A. Moro, *Port of Long Beach*, p. 1)

Surface and Subsurface Search and Rescue Capabilities

- “We have an extensive dive group ...we have our patrol boats that are out there in the water, the Coast Guard, our CBP (Customs Border Protection) partners, and also our law enforcement, and our fire and marine lifeguards. So we have the ability to do quick responses to any type of radio call that may come out for a search and rescue or even just a vessel that is stranded on the water.” (CDR S. Ruggiero, *Port of Long Beach*, p. 16)

Military Support for Local Plans

- “...the Navy and Marine Corps team, we've got a lot of tremendous amount of capabilities that we can bring to support the local plans (preparedness/response exercises).” (CAPT. M. Hardy, *Naval Weapons Station Seal Beach; Navy Ammunitions Command CONUS West Division*, p. 19)

CBP: Balancing Facilitation of Trade with Port Security

- “The agency acts on a sliding scale, balancing the facilitation of trade with the security in the port. So depending on what was needed of us, we would change our focus.” (R. Stokes, *Customs and Border Protection Long Beach Seaport*, p. 21).

Active Shooter Response

- “...active shooter. The law enforcement folks and fire folks are working very closely together and we're including some of the port facilities to join exercises and training.” (CAPT. M. Graychick, *Los Angeles Port Police*, p. 25)

Symposium Recommendations:

Security

Three Domains - Wireless vs. Cyber Security vs. Physical

- “...but cyber, we define and separate the wireless component from cyber so that you think of them in those silos, because the equipment, both that we use to help and then our enemy uses to attack, are different than in those two domains, wireless and cyber, and then as separate from physical. So we look at that in sort of separately and then in an integrated fashion. And really the magic or the real vulnerabilities are usually in the gaps and seams of those two areas.” (D. Sawczuk, *URS*, p. 57)

- “There’s the three domains, and anybody that knows anything about the ability to attack, you could find the gap and seam to attack just that one little instant.” (*D. Sawczuk, URS, p. 58*)

Cyber Security

- “...challenges and concerns, cyber has been mentioned. We’re concerned about that.” (*CAPT. J. Kip Louttit, Marine Exchange of Southern California, p. 50*)
- “Furthermore, even if an individual or firm wants to take action, with the nature of networks and international shipping, the people who control a firm’s network may be in another city, state, or country, and it can take time for them to understand the problem and take action. Planner, operators, and responders need to consider the cyber threat in everything they do.” (*CAPT. J. Kip Louttit, Marine Exchange Southern California, Email received September 9, 2014*)

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Overall Recommendations:

Security involves identifying and addressing vulnerabilities and the business of security is balanced with facilitation of trade as a priority. Given the preeminent threats, port complex stakeholders should further address any gaps and plans for cyber security.

10) PUBLIC HEALTH / MEDICAL

Symposium Overview:

The symposium addressed a few concerns for ensuring public health and safety in the first 72 hours of a large-scale crisis in the context of the overarching discussion about surface and subsurface situational awareness.

Transcript Excerpts:

Symposium Recommendations:

Ensuring Health and Safety

- “How do you assure that health and safety are being attended to? How do you restore security after a major event? ...where are the health facilities? Where is your surge capability for a major event?” (*Hon. J. Geringer, ESRI, p. 12*)

Sheltering Stock and Operations

- “But looking at working with the private sector, to be able to help us to do some of those things that are going to be key to us; sheltering. Sheltering operations are going to be very important to us. Feeding and housing; housing short term and both long term in this area, in an urban setting, is going to be crucial. There’s not a lot of housing stock on a good day, and what are we going to do with a number of people that have actually been impacted or become homeless.” (*L. Luke, Los Angeles County Office of Emergency Management, p. 24*)

Overall Recommendations:

Surge capacity and sheltering stock are just two resiliency factors that must be considered by community leaders prior to crisis.

11) TRANSPORTATION / LOGISTICS

Symposium Overview:

Following a large-scale disaster, the USCG Maritime Transportation System Recovery Unit and port engineering teams facilitate clearing the channels and reopening the port.

Transcript Excerpts:

Symposium Best Practices:

USCG Maritime Transportation System Recovery Unit

- “Maybe it’s a natural disaster, such as an earthquake, that we need to stand up after. How are we going to do that quickly, and have that as a focus in all of our exercises? And then if an event happens, immediately to not wait until after we’ve responded to the immediate needs of the event, but immediately start thinking about getting the port back up and running. So at Maritime Transportation System Recovery we’ve been working on that.” (CAPT. J. Jenkins, *USCG Sector Los-Angeles-Long Beach*, p. 8)

Clearing the Channels

- “Sonar in the Port of LA (Los Angeles). We also have an engineering section that has the sonar capability, and they work to help clear our channels. The dive team would also work to help the channels once something were to happen that affected our shipping lanes. We have a very robust construction and maintenance division that would help with debris removal, re-establishing electricity, setting up generators and lighting, helping with delivering supplies, and other matters of that nature.” (CAPT. M. Graychik, *Los Angeles Port Police*, p. 26)
- “Sonar in the Port of LA (Los Angeles), we also have an engineering section that has the sonar capability, and they work to help clear our channels; and the dive team would also work to help the channels once, say something were to happen that affected our shipping lanes. We have a very, pretty robust construction and maintenance division that would help with debris removal, re-establishing electricity, and setting up generators, lighting; helping with delivering supplies and that type of stuff.” (CAPT. M. Graychick, *Los Angeles Port Police*, p. 26)

Symposium Recommendations:

Crisis Response Logistics

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Identify Alternate Location for Multi-Agency Headquarters

- “Identifying and staffing an alternate location in the event that our port security command center, which was designed as a multi-agency headquarters were to be disrupted.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 4)

Reassembling an Evacuated Workforce

- “Reassembling our workforce that does not to have access the port if they evacuate to other areas. We have to work with our labor partners and our terminal operators in order to be able to staff or get people back to work.” (CDR. S. Ruggiero, *Port of Long Beach*, p. 4)

Commodities Distribution

- “Some of the things that we have to really depend on whether we’re looking both internally and externally. We must be able to get commodities into the region and be able to distribute those to the general public.” (L. Luke, *Los Angeles County Office of Emergency Management*, p. 24)

Powering Port Cranes

- “...cranes operate at 4137 volts. Getting a generator of some sort to keep those cranes powered is challenging.” (CDR S. Ruggiero, *Port of Long Beach*, p. 17)

Overall Recommendations:

Key crisis response logistics include establishment of a multi-agency workforce headquarters if the primary location is unavailable, distribution of commodities to public consumers, and powering port cranes in order to move containers with cargo are a few of the issues that the strategic port emergency, security and operations managers must prepare to address to maintain community and institutional resiliency in the aftermath of crisis.

APPENDIX

ReadyCommunities Partnership Military Base and Port Community Resiliency Initiative Overview

America's domestic response capability can be measured in part by its communities' ability to respond during the first 72 hours of crisis without the assistance of a state or federal partner. This requires each community to know its own local critical infrastructure for services, deliveries and communications, and the corresponding logistics and dependencies on external supporting infrastructure.

A majority of the critical infrastructure other than public sector power, water and sewer are owned and managed by the private sector. Even some of the public sector services and transmission facilities are maintained by commercial vendors. Mapping this local infrastructure and dependencies on external support logistics is an important part of each local public sector understanding of its own community's ability to prepare and respond to threat or crisis. Partnerships and programs developed locally to identify, catalog and support this process help not only local communities, but strengthen America's overall domestic response capability.

One critical benefit of a well-developed local critical infrastructure identification and logistics plan is how it can help reinforce port and military base resiliency in such communities. Most port facilities and military bases rely upon local contract providers for delivery of goods and services. Working in a few key communities through an exercise, ReadyCommunities Partnership members can help identify how communities can implement some basic components of a template to identify, catalog and map asset and logistics capabilities and gaps in the local critical infrastructure using knowledge of the networks and resources of local private, academic and community sector stakeholders in conjunction with the local public sector leadership.

To keep the project within practical boundaries, a Military Base Working Group (MBG) would focus on defining the initial objectives and recommending various components of a template to be developed and then shared with key communities in subsequent pilots. For example, the MBG could develop recommendations on how to integrate local academic partners to survey local businesses and community services organizations, how to identify contractors that provide services to bases, ports, institutions, cities and counties; develop the requirements for Crisis Response Officers (CROs); and how these CROs and their company assets might be brought into a secure network and resource-typed and cataloged; the MBG could investigate ways that might incentivize local businesses and organizations to participate and become involved and protect sensitive proprietary information and limit liability; and, the MBG could develop a realistic outline of the steps and requirements needed to go from mapping of infrastructure and logistics to identification of gaps in communications, services and deliveries.

Some of the framework has already been built by various state and federal agencies and is embodied in national plans, capabilities/task requirements and systems. Here however, the

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objective here is not to reinvent but to apply this work using current private technology, best practices and innovation at the local level through compatible, common-sense solutions that facilitate the coordination between military, public, private and community sector organizations. Other non-local participants in the ReadyCommunities Partnership can provide market experience, academic and technical tools in order to meet requirements as they are identified during the exercise.

The baseline model defined through this exercise must be scalable, understandable, adaptable and easily implemented at the community level, making the role of the MBG that of outlining the vision, initial plan and corresponding next steps rather than complex demonstrations or cost intensive exercises. MBG's contribution should be a thoughtful, foundational effort that defines the challenge, identifies current technology and best practices, and proposes a framework that communities and large institutions can use to identify, resource-type and catalog local assets and infrastructure that reinforce public and military sector logistics and capabilities.

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