ADDRESSING RESILIENCY IN STATE TRANSPORTATION PLANS;
NORTH CENTRAL TEXAS COG--JUNE 26, 2019
“Enhancing Freight Transportation System Resiliency Through the Application of Strategic Asset Management Methodology”
ERIK STROMBERG, EXECUTIVE DIRECTOR, CAPM
CAPM: DEGREES, CERTIFICATES AND CONTINUING EDUCATION

• Degrees/Concentrations:
  • Masters of Science in Port and Marine Terminal Management
  • MBA and Masters of Engineering Management with Concentrations in Port and Marine Terminal Management

• Certificate Programs
  • Global Trade and Logistics
  • Ports and Marine Terminal Development and Operations
  • Management and Leadership
  • Port and Maritime Cyber Security (in development)

• Industry Workshops: Fourth in series addressing port and transportation resiliency in SE Texas, Port of Beaumont, July 18, 2019
PORT AND MARINE TERMINAL MASTERS DEGREE CURRICULUM

• Introduction to Port and Marine Terminal Management
• Strategic and Master Facility Planning
• Economics of Ports and Trade
• Freight Transportation Systems
• Decision Making and Critical Thinking
• Legal Framework for Ports and Marine Terminals
• Marine Terminal Operations
• Capital Planning and Project Development
• Safety, Security and Resilience
• Leadership and Team Building
• Communication and Negotiating Skills
• Port Property and Asset Management
WHAT IS STRATEGIC ASSET MANAGEMENT?

• “...coordinated activity of an organization to realize value from assets.” (ISO 55000)
• ...links the organization’s (system’s) assets to its strategic and business goals
• It is not a project, but a process: data-driven, risk-based
• Success is derived through the engagement of the entire organization (or system!).
Acute Shocks
- Floods
- Hurricanes
- Earthquakes
- HAZMAT incidents
- Collisions/airsions
- Terrorism
- Active shooter

Potential Accelerators
- Climate variability
- Sea level rise
- Aging workforce
- Trade protectionism

Chronic Stressors
- Funding
- Aging infrastructure
- Security: cyber and physical
- Regulation
- Social justice
- Political interference
Understanding Marine Transportation System Resilience – An Overview of Activities from the 2017 Hurricane Season

Katherine Chambers
US Army Corps of Engineers
Engineer Research and Development Center
Hurricane Harvey

• **Challenges**
  • Flooding caused indirect impacts to supporting infrastructure
  • Lack of knowledge management and collaborative tools regarding port condition or status
  • Redundant information requests

• **Successes**
  • Early communication
  • Centralized information distribution
  • Pre-prioritized resource placement
  • Execution of drills and training
  • Early closure of energy facilities
  • Efficient restoration of ATONS following storm
  • Cross agency communication
  • Engagement with public sector for resource needs
  • Delegation of FEMA mission assignments
Port Resilience Assessment and Decision Guide

**TIER 3**
- Analyze the system’s key functions and structure throughout disruptions and drops in function.
  - **Outcomes** – qualitative metrics and understanding of the recovery process in order to ID intervention opportunities and management plans.

**TIER 2**
- ID structure of the system including cascading events during disruption by utilizing both experts and observational data.
  - **Outcomes** – reveal structure of system and interrelated components to be able to compare project or investments.

**TIER 1**
- Seek to understand and prioritize the critical functions of the system.
  - **Outcomes** – quickly IDs critical functions, key sectors, and any easy wins. If more information is needed to control for resilience, ID’s necessary for Tier 2.

Proceed through tiers until there is adequate information for decision making.
SABINE-NECHES WATERWAY PORT AND TRANSPORTATION SYSTEM RESILIENCY

• SNWW and connecting transportation infrastructure critical to regional, state-wide and national prosperity and security

• Approach:
  • Utilize SAM methodology
  • Build on 2009 USCG ‘Port-wide risk mitigation study’ (one-time, nation-wide initiative)

• Proposed study supported by all major SE Texas private and public stakeholders

• Over-arching study on SE Texas Economic Resiliency Underway (EDA funded)
SNWW RESILIENCY STUDY: APPLICATION OF SAM METHODOLOGY

• Outcome: Identification through a data-driven, risk-based process, critical infrastructure projects and process improvements necessary to enhance the resiliency of the SNWW, ports and terminals, and the connecting freight transportation systems.

• Approach: Engage public and private owners, users, customers and stakeholders, system-wide.

• Process:
  1. Define system goals and objectives
  2. Literature search—best practices and lessons learned
  3. Identify risks—all hazards
  4. Identify critical assets and processes
  5. Assess asset condition/life cycle as well as processes (especially communication networks and protocols)
     • Historical performance
     • Dependencies/interoperability, workarounds/redundancies
  6. Define asset/system/process required level of service (LOS—key metric)
  7. Gap analysis
  8. Risk assessment to prioritize projects/process improvements
  9. Develop cost estimates
 10. Recommended list of capex and process improvements—one-five year, five-ten year
 11. Feedback and continuous improvement
3. Identify, assess and inventory assets/asset classes critical to a resilient SNWW port and waterway system

- Navigation channel
  - Dimensions—average and under stress
  - ATON
- Levees, drainage and other flood control assets, including wetlands
- Pilots
- Tugs
  - VTS and PCT
- Docks and wharves
- Roads and highways
- Railroads—Class I and short lines
- Pipelines
- Airports (international and regional)
- Communication infrastructure
- Power supply infrastructure
- Emergency management facility(ies)
- Workforce
STAKEHOLDER SURVEY SAMPLE QUESTIONS

• What is your organization’s mission/goal(s), as related to your corporate priorities as well as those of your Texas location?

• What assets or asset classes under your control (built, natural, human) are strategically critical to the achievement of your mission/goal(s)? Have these assets been identified as part of a deliberate organizational initiative/plan?

• What assets or asset classes not under your organization’s control/ownership are strategically critical to the achievement of your organization’s mission/goals? Have these assets been identified as part of a deliberate organizational initiative/plan?

• Does your SNWW facility have a resiliency plan? If so, does that plan identify, assess and prioritize critical operational risks? Does your plan identify and prioritize strategic assets/processes upon which your facility’s operation is dependent?
PRELIMINARY SELECTED KEY ISSUES

• Public/private sector support—partnership with SETWAC critical
• Communication networks and processes--critical
• Assembling/harmonizing data across public and private sectors—institutionalize data and processes (aging workforce retires)
• Private sector (eg, oil and gas) proprietary concerns (eg, plant vulnerabilities; impact on nation’s gas prices)
• Corporate Hq vs plant managers
• Railroad participation
• Corporate interest and resource availability (staff/funding)—measuring benefits and costs (run to failure) vs competing priorities. Making the business case.
• Freight transportation forecasting and lack of capacity for redundancies and work-arounds. (Regional approach.)
• Integrate planning initiatives—freight interests and COGS (SETWAC and SETRPC, state-wide, west gulf)
• Model risks—implications for transportation system and asset classes (including regional/functional particularities, eg nitrogen)
• Collecting appropriate data and detail to extent necessary to facilitate decision making
• Current and relevant flood plain maps
• Regulatory role (waivers?)
• Study and implementation funding!

CENTER FOR ADVANCES IN PORT MANAGEMENT
LAMAR UNIVERSITY
Q&A

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