



CENTER FOR
ADVANCES IN PORT MANAGEMENT
LAMAR UNIVERSITY

**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**

MEMBER THE TEXAS STATE UNIVERSITY SYSTEM™

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/allisions
Terrorism
Active shooter

Chronic Stressors

Funding
Aging infrastructure
Security: cyber and physical
Regulation
Social justice
Political interference

Potential Accelerators

Climate variability
Sea level rise
Aging workforce
Trade protectionism

Understanding Marine Transportation System Resilience – An Overview of Activities from the 2017 Hurricane Season

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Center



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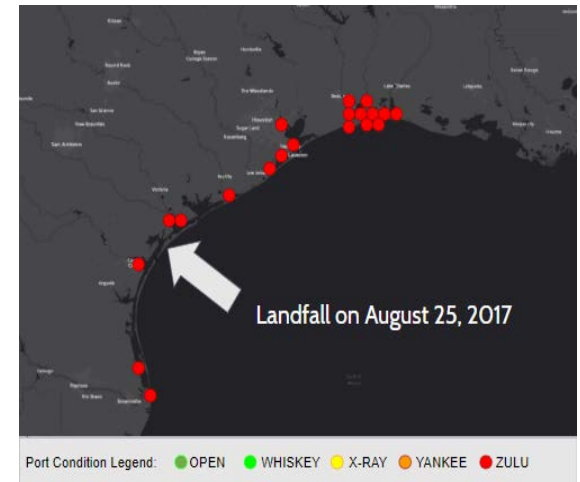
Hurricane Harvey

- Challenges

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

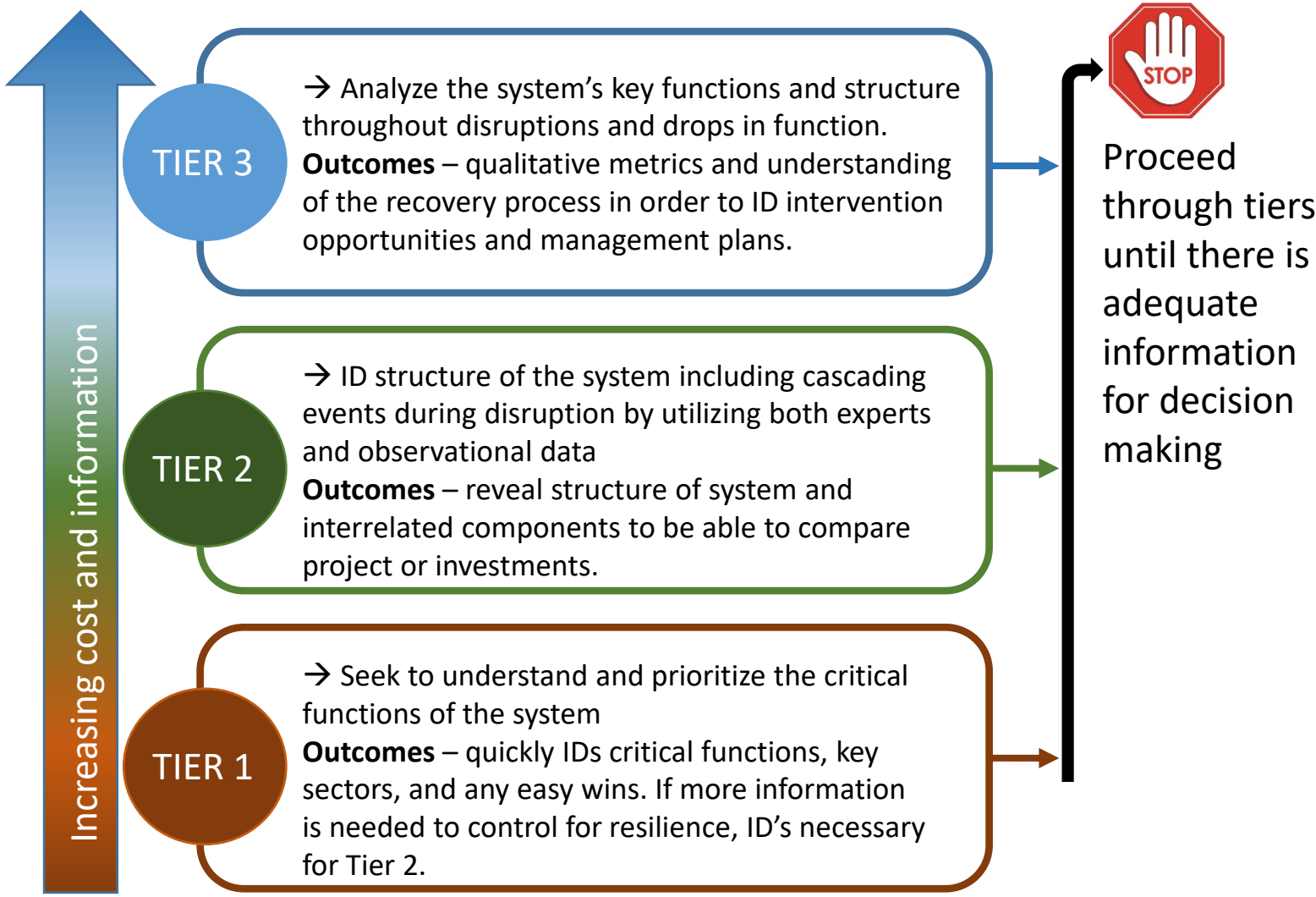
- Successes

- 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



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!

Q&A

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