



Maritime Security Services

Development of Region-Wide Port Strategic Risk Management/Mitigation & Port Resumption/Resiliency Plans



<https://www.slideserve.com/gina/maritime-security-services-development-of-region-wide-port-strategic-risk-management-mitigation>
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April 2008

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ABS Consulting
RISK CONSULTING DIVISION



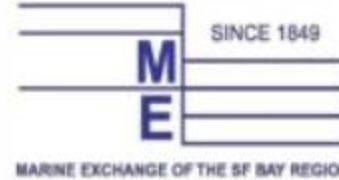
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The Halcrow Team



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PROJECT
MANAGER
Plan Review Lead



Risk Management/Mitigation
Plan Lead and Trade
Resumption/Resiliency Plan
Support



Trade Resumption/
Resiliency Plan
Lead



Risk Management/Mitigation
Plan and Trade
Resumption/Resiliency
Plan Support



RISK MANAGEMENT AND TRADE



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- **Region-Wide – SF Bay and River Delta**
- **Interdependencies**
- **Impact Beyond a Single Facility**
- **Focus on MSRAM**
- **Focus Beyond the Water's Edge**
- **MTS Linkage Inland**

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WORKSHOP SCHEDULE



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Monday, April 27, 2008	Tuesday, April 28, 2008	Wednesday, April 29, 2008	Thursday, April 30, 2008	Friday, April 11, 2008
Project Team Meeting @Marlow Oakland	AMSC Meeting @Port Mason Golden Gate Room	Regulate Coalition Meeting @Yerba Buena Island Gallery		Port of Oakland Stakeholder Meeting @Port of Oakland Exhibition Room Ground Floor Port of Oakland 530 Water Street
Port of Oakland	Stakeholder Continuation Mgt	Stakeholder Continuation Mgt		
Monday, April 14, 2008	Tuesday, April 15, 2008	Wednesday, April 16, 2008	Thursday, April 17, 2008	Friday, April 18, 2008
Port of San Francisco	Marine 04 Terminals @Shell Club	Port of San Francisco Stakeholder Meeting @Pier 1, The Embarcadero San Francisco Baywide Conference Rm 1-3		
Monday, April 21, 2008	Tuesday, April 22, 2008	Wednesday, April 23, 2008	Thursday, April 24, 2008	Friday, April 25, 2008
Port of Richmond Stakeholder Meeting @TSC		Port of Richmond Stakeholder Meeting @The Port of Richmond 1301 Canal Blvd		Exit Brief - Marlow Exchange and Executive Board
Monday, April 28, 2008	Tuesday, April 29, 2008	Wednesday, April 30, 2008	Thursday, May 01, 2008	Friday, May 02, 2008





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Quick Look at Risk and Quicker Look at Maritime Security Risk Analysis Method (MSRAM)

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Basic Elements of Risk



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Risk_{Incidents} = Frequency x Consequence

Risk_{Incidents (ORM)} = [Exposure x Probability] x Consequence

Risk_{Terrorism} = [Threat x Vulnerability] x Consequence

Foundation for Risk Assessment

- | | | |
|-------------------------|----------------------|---------------------------|
| • Historical experience | • Analytical methods | • Knowledge and intuition |
|-------------------------|----------------------|---------------------------|

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Frequency Scoring Categories



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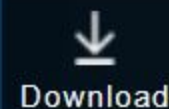
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Frequency Score Descriptions	Frequency Scores
Continuous	730 events per year
Daily	365 events per year
Weekly	52 events per year
Monthly	12 events per year
Quarterly	4 events per year
Annually	1 event per year
Decade	1 event per 10 years
Half-century	1 event per 50 years
Century	1 event per 100 years
Millennium	1 event per 1,000 years

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Severity Scoring Categories



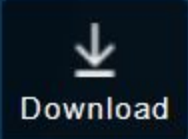
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Types (Pain Points)	CAT 2 (1,650)	CAT 3 (16,500)	CAT 4 (165,000)	CAT 5 (1,650,000)	CAT 6 (16,500,000)	CAT 7 (165,000,000)
Disruption of port commerce	Interruption of vessel traffic/port commerce or recovery operations for 4 to 7 days	Interruption of vessel traffic/port commerce or recovery operations for 8 to 15 days	Interruption of vessel traffic/port commerce or recovery operations for 16 to 45 days	Interruption of vessel traffic/port commerce or recovery operations for 46 to 120 days	Interruption of vessel traffic/port commerce or recovery operations for more than 121 days	
Public safety and health		10 to 99 deaths and others with life-threatening injuries	100 to 999 deaths and others with life-threatening injuries	1,000 to 9,999 deaths and others with life-threatening injuries	10,000 to 99,999 deaths and others with life-threatening injuries	≥100,000 deaths and others with life-threatening injuries
Environmental Impact		1,500 bbls < 15,000 bbls (63,000 < 630,000 gals) of oil spilled	15,000 bbls < 150,000 bbls (630,000 gals < 6.3 million gals) of oil spilled	≥150,000 bbls (≥6.3 million gals) of oil spilled		

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Risk Analysis Process



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Expert judgment



Facilitated analysis of credible scenarios





Simple Terrorism Risk Model



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$$\text{Risk} = \text{Threat} * \text{Vulnerability} * \text{Consequence}$$

- Scenario
 - Combination of a target and attack mode
- For each scenario, assess the following:
 - **Threat** – likelihood of a specific terrorist attack
 - **Vulnerability** – probability that the attack will be successful
 - **Consequence** – level of impact associated with a successful attack

What can go wrong?

How likely is it?

What are the impacts?

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How do we characterize the factors in the MSRAM Risk Model?



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- Scenario
 - Application of an attack mode against a target
- Threat
 - Relative likelihoods (0 to 1 scale)
- Vulnerability
 - Probabilities of adversarial success (0% to 100%)
- Primary & Secondary Consequences
 - Risk Index Number (RIN) using a consequence equivalency matrix
- Response
 - Percent of consequences reduced (0% to 100%)

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Natural Hazard Threats



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- Overview of Data
- Discuss lessons learned from major past incidents
- Discussion - Top-tier concerns

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Flood and Earthquake



- Will be tapping FEMA HAZUS data

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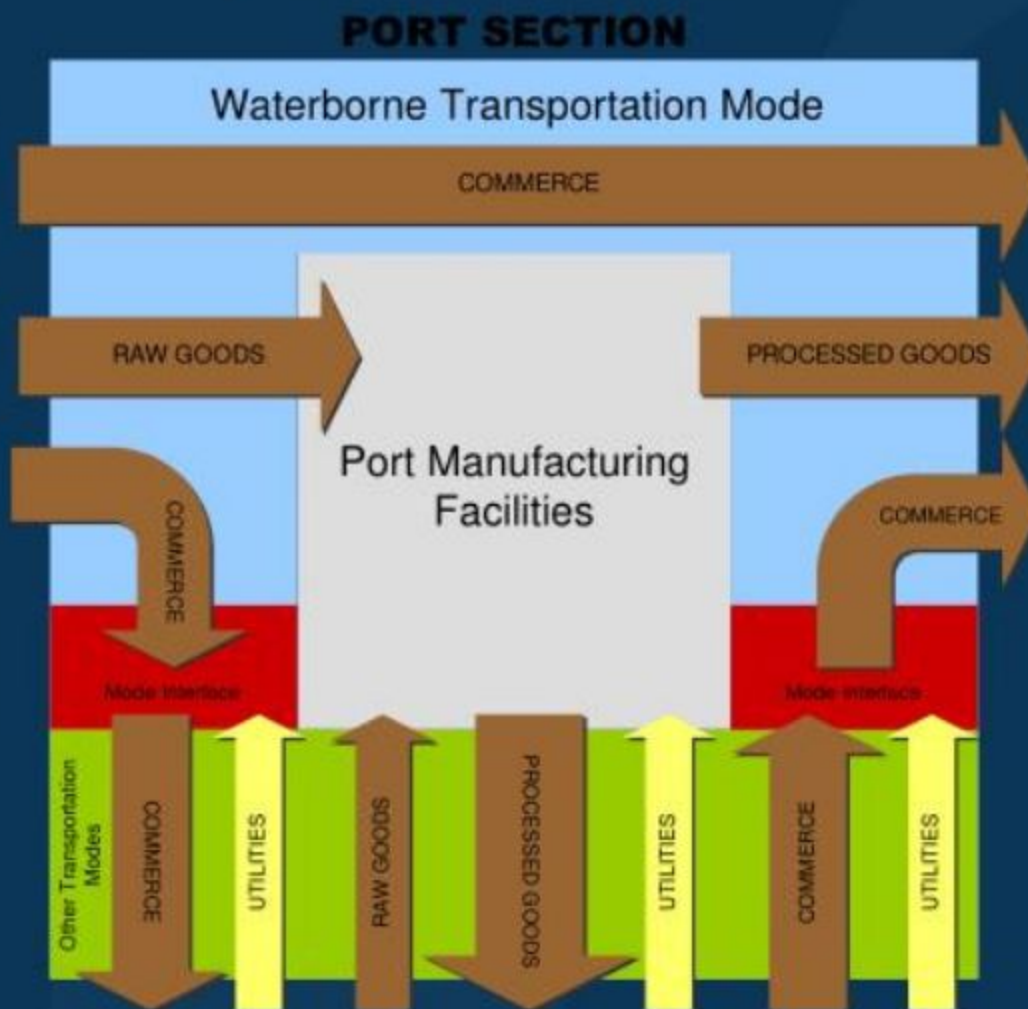


Maritime Mobility Concerns



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- Disruption of vessel traffic patterns of major waterways for more than three days from one event
- Disruption of transfers of cargo or passengers within the port for more than three days from one event
- Disruption of processing (manufacturing/refining) facilities within the port for more than three days from one event.



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Commodity Cargo Categorization



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- **Commodity Cargoes**
 - CDC and Hazardous Cargo
 - Dry Bulk/Liquid Fertilizers
 - Metals
 - Wood Products
 - Agriculture Feeds/Supplies/Grains
 - Petroleum Products
 - Palletized Cargo
 - Coal/Rock/Sand
- **Top-tier concerns**
- **Impact to flow**
- **Top-tier concerns**

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Quick Look at Risk Analysis Meeting Work



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- Meetings will be facilitated and structured to ensure a comprehensive look at risks at a high-level. The meetings only examine risks associated with one unwanted event (i.e., threat scenario) at a time occurring in a section.
- Although some unwanted events may originate within a facility/or vessel, we are not interested in the specific vulnerabilities and actions of the facility or vessel; rather the risk to the section and how the section manages the risk.

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Quick Look at Risk Analysis Meeting Work *(cont'd)*



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- We are using risk to measure port-level effectiveness of prevention, protection, response, and recovery capabilities, so that we can build a strategy for the port.
- We are not discussing specific facility plans nor scoring specific facility performance.
- The unwanted events and consequences of concern for these meetings are outlined. Security incidents are extracted from the Coast Guard MSRAM attack modes for high consequences MTSA facilities and AMSC concerns.

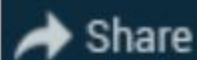
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Risk Management Plan

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18 / 21





TRADE RESUMPTION/RESILIENCY



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- Define the MTS
- ID Key Systems/Functions
- Prioritize Protection of Functionalities
- Analysis Current Capabilities and Gaps
- ID Interdependencies
- Investment Options for Mitigation

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Immediate Needs for Building Deliverables



- Port Security Plan
- Port Continuity of Operations Plan
- Port Emergency Management Plan
- Port Contingency Plan
- Port Risk Assessments
- Port Event Data (MSRAM, MISLE (accidents and law enforcement), BARD)
- Exercises of above plans and lessons learned/recommendations from those exercises
- Port security initiatives (and their % complete) that were funded in part with federal grant money
- Description of the port's economic impact
- Nasty cargoes transported/stored in the port (CDC/HAZMAT)

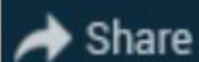
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QUESTIONS

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21 / 21

