ASSET MANAGEMENT IN THE PUBLIC PORT INDUSTRY

AAPA 2012 FINANCE SEMINAR
MIAMI
17 APRIL 2012

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Port Management Consultant

AGENDA

1. Strategic Infrastructure AM
    1. What it is—review
    2. Who's doing it? Why?
2. Approaches being taken
3. PHA perspective—Tom Heidt
4. Interactive discussion

PUBLIC PORT MANAGEMENT CHALLENGE

- ***In general, do more with less.***
- ***For both our commercial and our public stakeholders***

- ***As an <u>enterprise</u>:***
  - ***Meet bottom line expectations***
  - ***Maximizing ROI over an extensive, diverse and expensive asset portfolio***
  - ***Investing to assure operationally efficient and fit-for-purpose facilities***
  - ***Attaining a competitive position for port services***
  - ***In a dynamic and uncertain market place***

- ***As a <u>public agency</u>:***
  - ***Serving as responsible steward of public resources***
  - ***Generate positive economic impact***
  - ***Meet demands exogenous to our commercial goals***

THE PORT MANAGEMENT CONTEXT

- ***Financially, port authorities are on their own, perhaps as never before***
  - ***Scarce public capital***
  - ***More cautious private capital***
- ***Aging infrastructure, deferred maintenance***
- ***Boomers retire and "institutional knowledge" is lost***
- ***A European perspective: Western hemispheric ports are now going through their first experience with generational, end of life-cycle degradation over a significant percentage of asset base.***

Consequences

- ***Uncertain future capital outlay requirements (and capabilities)***
- ***Productivity and unplanned level of service declines***
- ***Run to failure approach to maintenance and repair***
- ***Unpleasant surprises resulting in higher costs and longer down times***
- ***Reputation and position in trade and in public eye***
- ***Due diligence hurdles***

INERTIA STILL REIGNS-- REASONS GIVEN FOR WHY NOT

- Corporate culture
  - "What's the problem?
  - You gotta problem with me (or my department)?
  - What do we want?
  - Where to start?
  - But, we're all too busy to take on something else!"
- "AM is on the front burner, and it sits there with 20 other front burner issues"
- "This is going to be too expensive!"
  - Consultants oversell or miss target

BASIC QUESTIONS

- ***What is the inventory and condition of port assets critical to the port's mission?***
- ***How can the port improve the way it currently is managing its assets?***
- ***Are current and planned initiatives and capital budgeting sufficient, or do they require modification, addition, or redirection?***
- ***What approaches have worked well with other ports and other industries, and which are most appropriate for your port?***

ASSET RELATED STRATEGIC GOALS

Lower long-term costs for infrastructure preservation

Improved performance and service to customers

Improved cost-effectiveness and use of available resources

A focus on performance and outcomes

Improved credibility and accountability for decisions and expenditures.

PORT STRATEGIC INFRASTRUCTURE AM—A DEFINITION

- *A business decision support process*
- *Overarching focus on Port's mission*
- *Methodology for prioritizing capital expenditures*
  - *Defensible*
  - *Auditable*
  - *Repeatable*
  - *Transparent*
- *Based on a systematic and functionally integrated process*
- *Across the entire enterprise*
- *Supported by an improved understanding (data driven) of:*
  - *Risk to the enterprise*
  - *Asset value, performance, cost and risk over the life cycle of the asset.*

- *(What it's not: Maintenance program--necessary but not sufficient)*

ASSET MANAGEMENT: SPORT METAPHOR

- ***PLAYBOOK*—TOP DOWN SUPPORT:**
  - ***AGREEMENT ON ORGANIZATIONAL MISSION AND GOALS AND WHAT THAT MEANS TO EACH DEPARTMENT***

- ***BLOCKING AND TACKLING—BUSINESS PROCESS FOCUS:***
  - ***COMMUNICATION –DATA FLOWS ACROSS DEPARTMENTS***
  - ***COMMON UNDERSTANDING AND DEFINITIONS***
  - ***NO NEED FOR HIGH DRAFT PICKS—MOST OF THE NECESSARY KNOWLEDGE AND EXPERIENCE IS CURRENTLY IN PLACE AT YOUR PORT!***
  - ***TECHNOLOGY SUPPORTS, NOT LEADS***

WHO'S DOING STRATEGIC AM?

- US Public Infrastructure Owners
  - Federal Government: USCG, DoD, GSA, National Park, NASA, FHWA
  - State DOTs
  - Municipalities: Portland Oregon
  - Public Enterprise: Utilities, Airports, Universities
- Canadian Public Infrastructure Owners
  - Federal: St. Lawrence Seaway Authority
  - Provincial: Quebec Ministry of Transportation
  - Municipalities: Montreal Quebec
- Private Sector
  - Railroads—NS
  - Johnson & Johnson
- International seaports—Port of Melbourne Corp, Port of Rotterdam
- North American seaports—Collaborative AM program

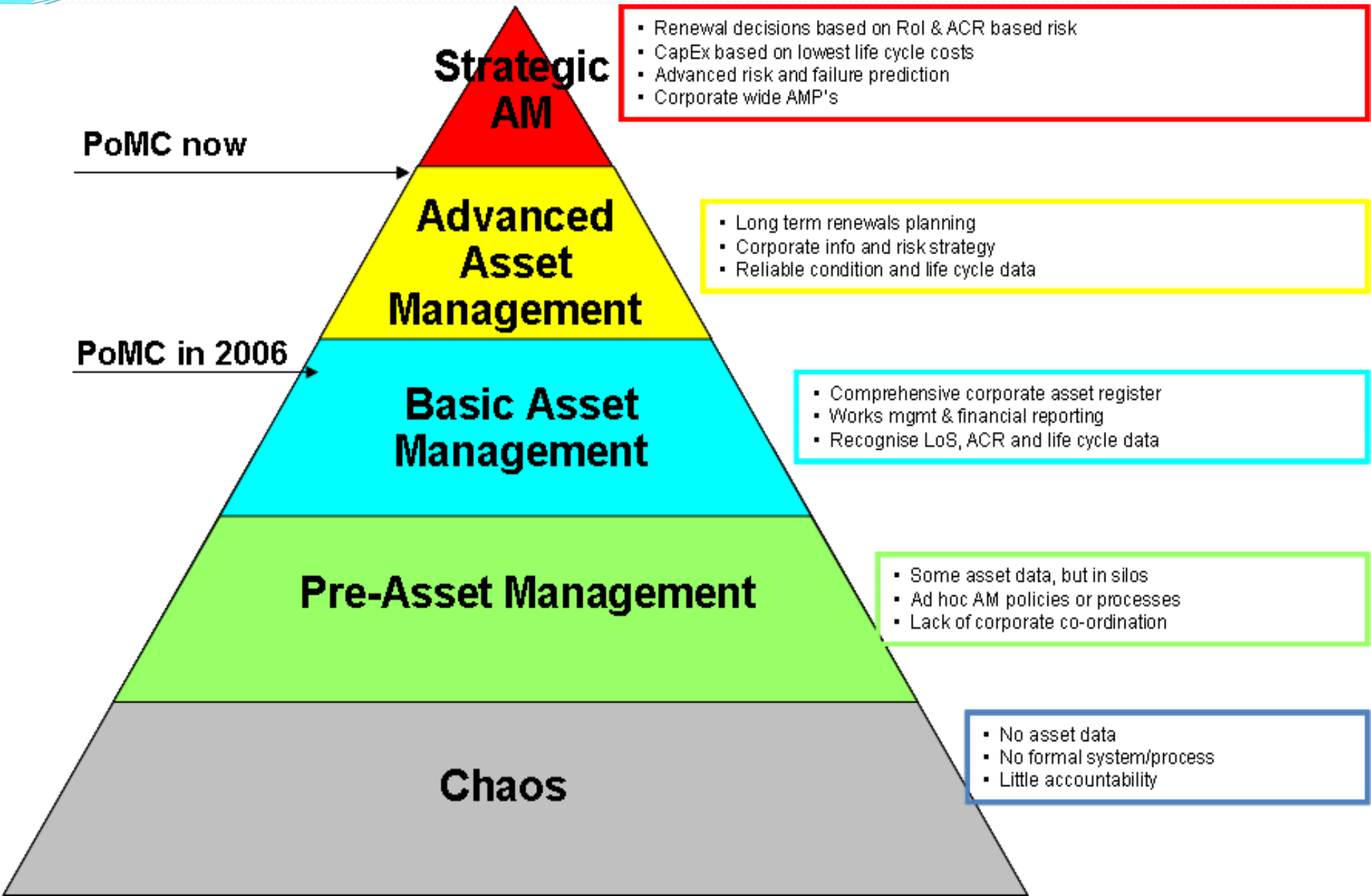
Port of Melbourne Corp

- ***Asset replacement value : AU$1.8 billion.***
- ***Asset renewals, rehab and maintenance: $60–65 million/yr***
- ***Maintenance dredging: $7 million/yr***
- ***Asset management process improvement—2008 start.***

STRATEGIC AM at POMC

- ***Key deliverables:***
  - ***Develop asset renewal forecasts based on age, condition, level of service and risk.***
  - ***Develop life cycle planning processes so as to understand and predict total cost of ownership.***
  - ***Understand asset risk exposure and its influence on maintenance and renewal forecasting.***
  - ***Develop optimized renewals decision-making processes so as to reliably determine optimal treatments and associated timings.***
  - ***Embed asset management as a core business discipline within the business.***

Maturity Pyramid--POMC



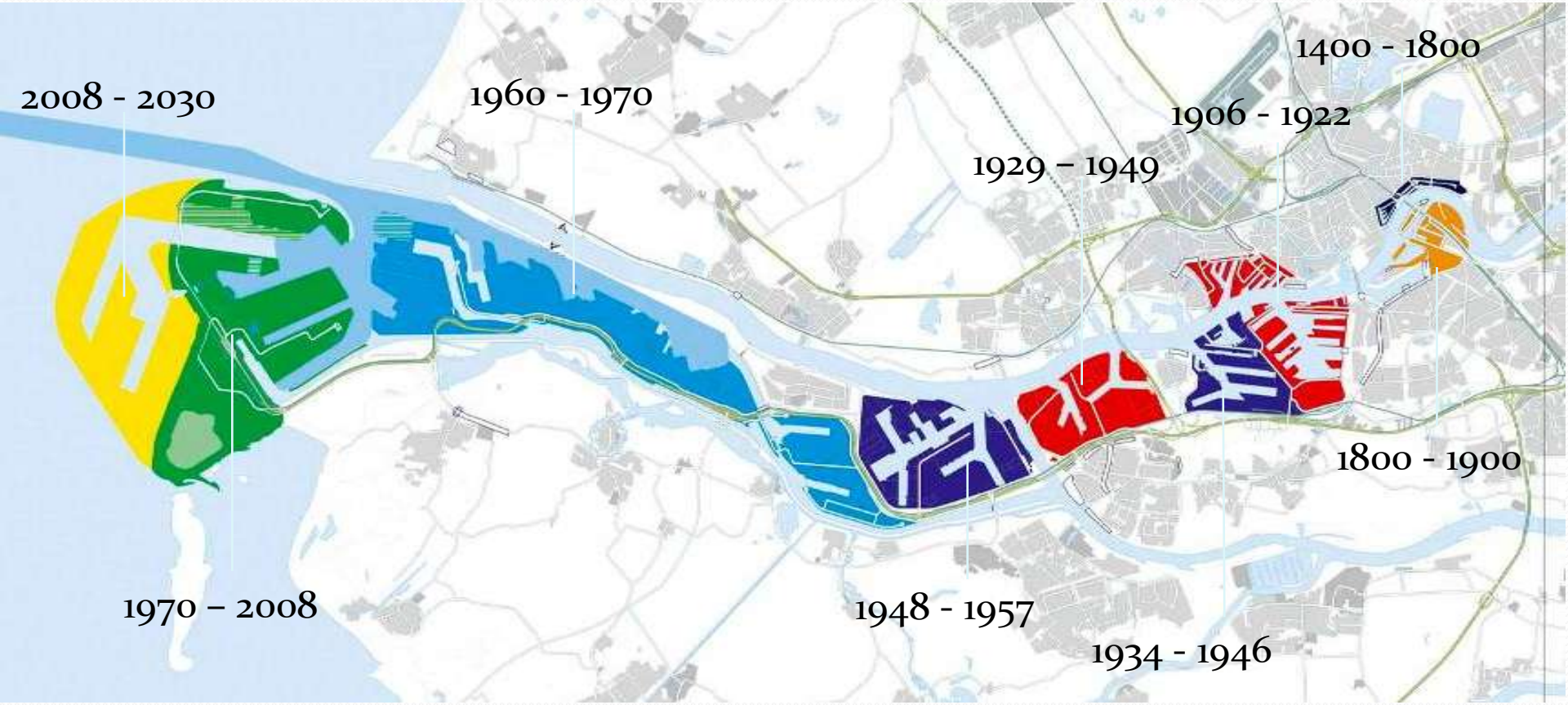
STRATEGIC AM at GRAND PORT MARITIME DU HAVRE

- Largest French container port
- Aging asset : facilities date from 2000 to >100 years ago
- 260 assets classes
- Needs:
  - Vision of critical risks
  - Maintenance master plan
  - Inspection master plan

Grand Port Maritime du Havre : Critical Issues

- **Safety** of goods, people and the environment
- Asset **availability**
- **Performance**

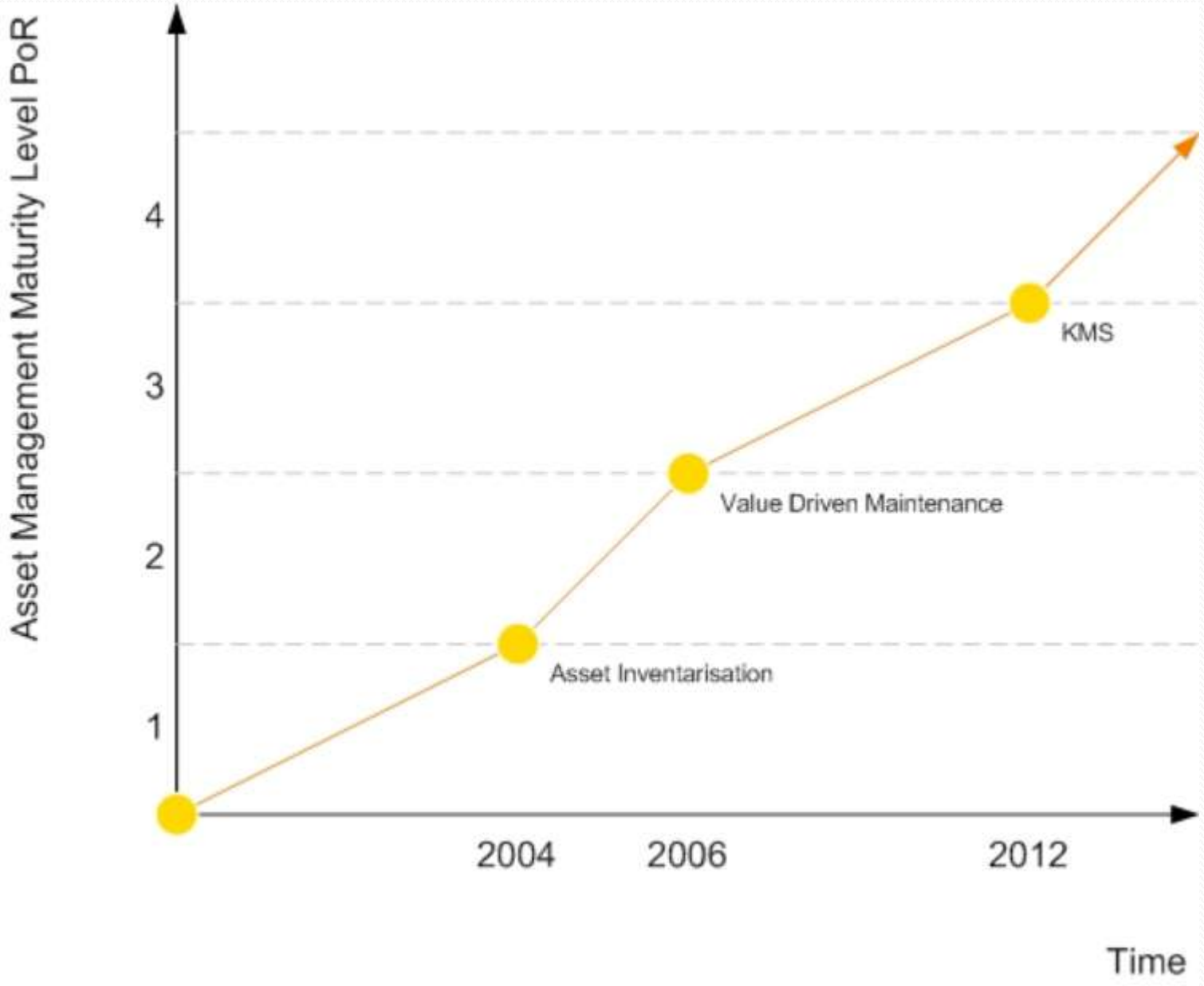
Port of Rotterdam



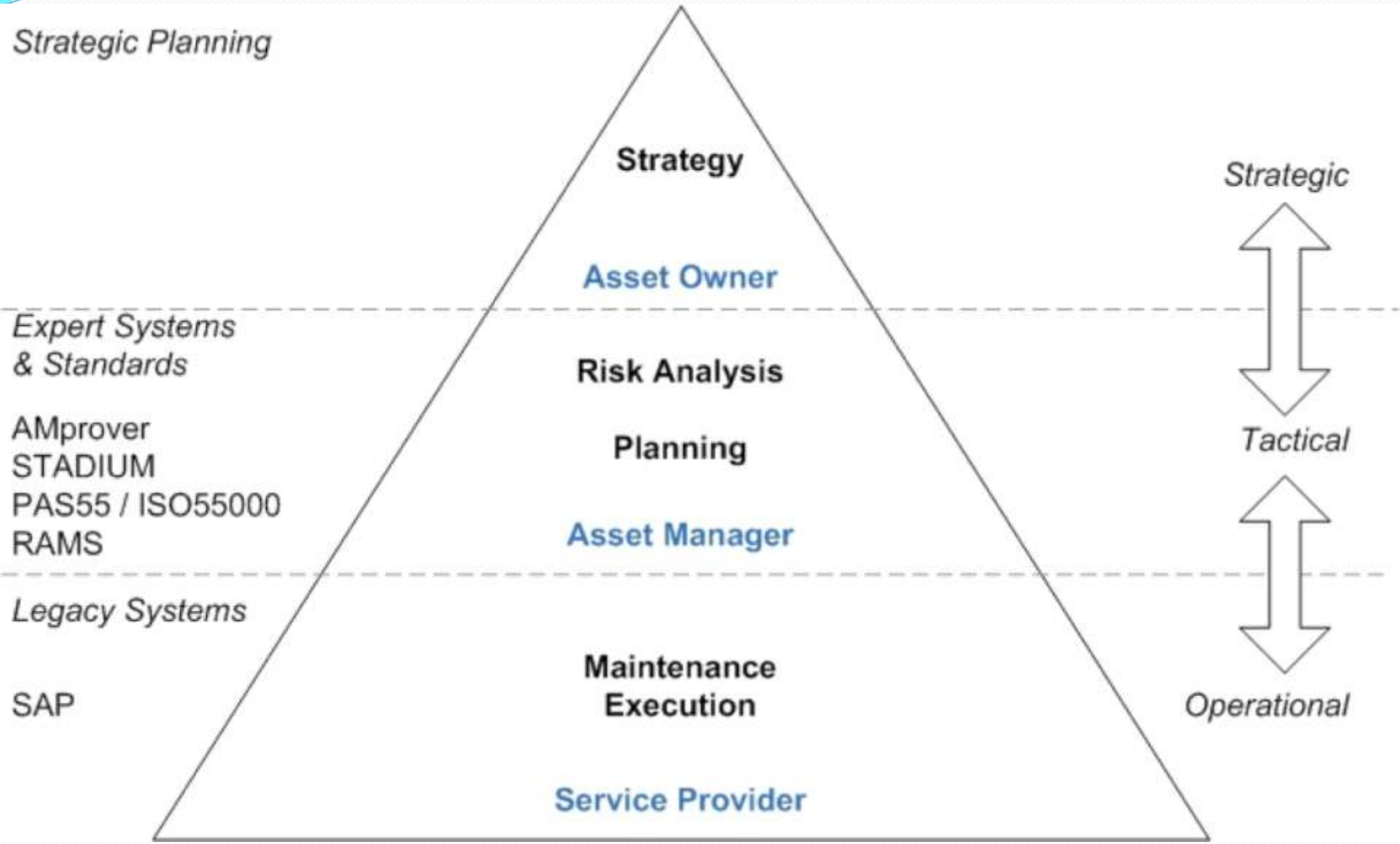
Assets of PoR

- 32 asset types:
  - 80 km quay walls
  - 200 km banks
  - 3,1 million m^2 roads
  - 3,500 ha water bottom
  - 25 harbour patrol vessels
  - 36 radar sites
  - 1,500 km pipelines
  - 4-7 million m^3 annual dredging qty

Asset Management at PoR



Asset Management at PoR



AAPA PORT COLLABORATION TO DEVELOP SAM: 7/11-5/12

- Port Metro Van BC
- Port of Portland
- Port of Oakland
- Port of Houston
- NC State Ports Authority
- Maryland Port Administration

COLLABORATIVE SAM OBJECTIVES

1. Common understanding of strategic asset management.
2. Global best practices and lessons learned.
3. Performance metrics/level of service definitions.
4. Risk based strategies to prioritize capital investment.
5. Monitor and measure the success.
6. Steps required to develop SAM “road map”.

AAPA Economic Development Seminar

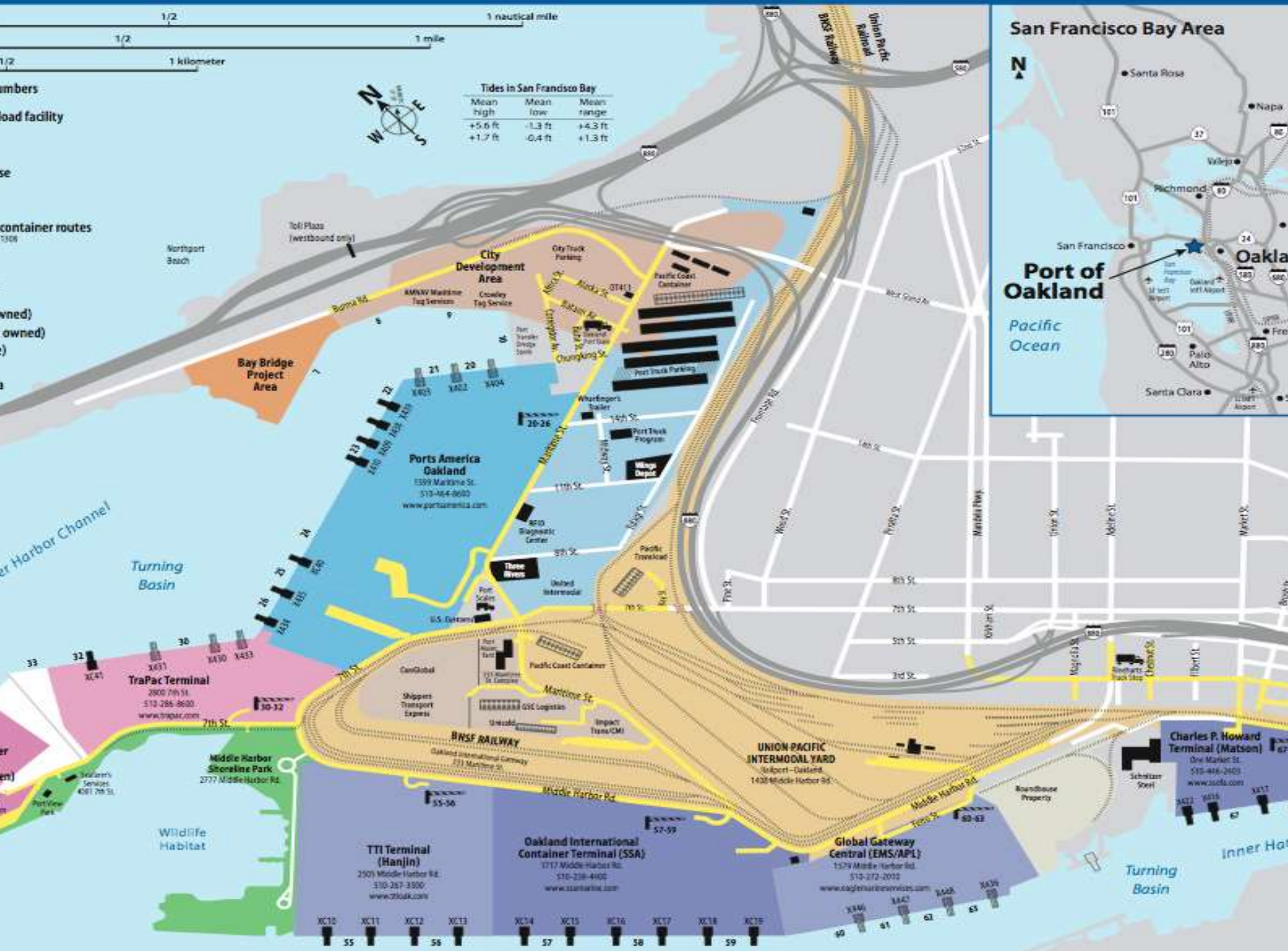
Strategic Asset Management

July 12, 2011

PORT OF OAKLAND

Maritime Division

Oakland Maritime Facilities



WHAT SAM WILL DO FOR THE PORT OF OAKLAND

- *Asset inventory*
- *Age, condition, and replacement cost*
- *Risk assessment strategy to upgrade, replace, or expand*
- *Decision making tool for senior management and the Commission*

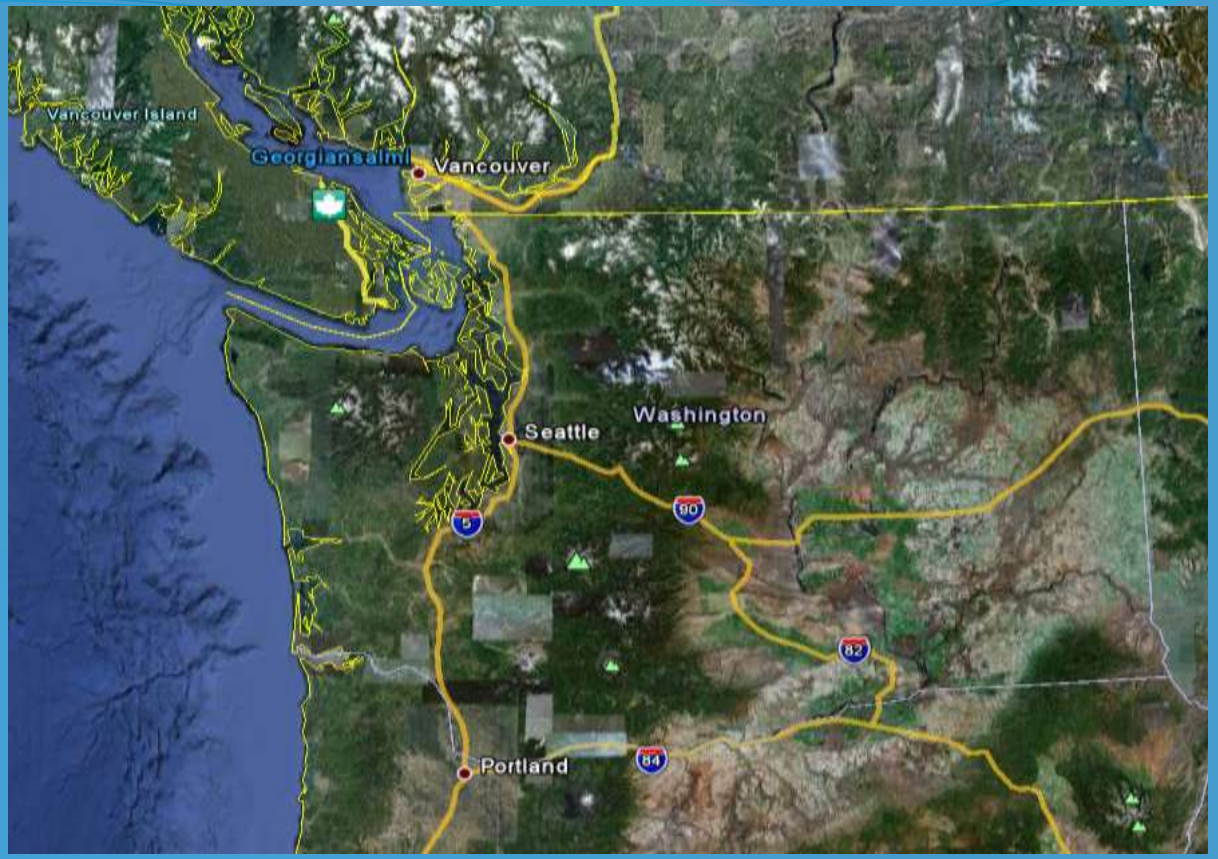
PORT METRO vancouver

Infrastructure Asset Management at Port Metro Vancouver

Gary M. Tosh
A.M. Coordinator
Engineering Dept.

July 12, 2011

PMV



- ***Largest, busiest and most diversified port in Canada***
- ***Handled 118 million tons of cargo in 2010***
- ***28 major marine cargo terminals and 3 Class 1 railroads***
- ***600 km (373 miles) of shoreline, bordering on 16 municipalities***

AM at PMV

- Prior to 2005, no AM program existed
- Infrastructure assets were inspected based on:
  - Random observations
  - Accident reports
  - Intuition
- In 2005 an engineer with AM experience was hired with the secondary goal of starting an AM program
- Program started in 2008

CURRENT STEPS AT PMV

Level 1 condition inspection.

- ***High level visual inspection***
- ***682 assets to be inspected by end of 2012.***

Level 3 condition assessments.

- ***In-depth engineering evaluation***
- ***Yearly budget of $300,000/year***

Top down AM Directive

Levels of Service Requirements

Software needs analysis

PORT OF TACOMA AM PROGRAM RFQ (3/12)

1. Financial stability through enhanced understanding of asset conditions, better forecasting of life-cycle costs, reduced frequency of emergency repairs and the achievement of acceptable Returns on Assets (ROA);
2. Modernization of the Port's assets based on strategic, informed and timely reinvestment decision-making;
3. Customer satisfaction and improved competitiveness through preservation of mission-critical and high-margin asset values, service levels and operating efficiencies;
4. Organizational alignment through improved internal processes and a shared understanding of asset reinvestment priorities; and,
5. Reduced risk of loss and improved life safety through better preventive maintenance, early hazard detection and timely corrective action.

PORT RELATED RESOURCES

- **AAPA:**
  - Collaborative Program Involving Six US and Canadian Ports: Report on SAM, Status, Trends and Global Best Practices
  - Facilities Engineering Subcommittee
  - AAPA Web site: "Issues and Advocacy--Best Practices in AM"
  - AAPA Infrastructure Survey
- **TRB (Ports and Channels Committee, Eric Shen, POLB):**
  - AM S/C
  - TRB Call for Papers—AM Best Practices for 2013 Annual Meeting
- **ASCE:**
  - Ports and Harbors Cte--Asset Management Task S/C
  - Infrastructure Report Card to include Ports?
- **PIANC: InCom Report of WG 25**
- **NAMS (NZ/AUSTRALIAN STANDARDS): International Infrastructure Management Manual (IIMM) and the Optimised Decision Making Guidelines (ODMG)**

TAKE AWAYS……

- ***AM issues will not go away-- solutions will not be easier or cheaper over time***
- ***Pick a goal and get started***
- ***Don't let best get in the way of the good!***

Port of Houston Authority; Discussion of One Port's Journey

Tom Heidt

Vice President—Finance and Administration

Port of Houston Authority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Capital Costs 2009-2011/Capital Budget 2012-2014

	2009	2010	2011	2012	2013	2014
Container Terminals						
BCT	$6,440,594	$5,548,414	$4,624,677	$34,655,926	$93,389,500	$95,086,150
Bayport	135,142,992	27,896,799	40,912,157	97,960,200	162,166,000	5,062,000
	141,583,586	33,445,213	45,536,834	132,616,126	255,555,500	100,148,150
Turning Basin Terminals						
Care Terminal	299,777	-	270,000	2,000,000	800,000	391,000
HPGE#2	-	400,000	-	-	100,000	400,000
Jacintoport Terminal	-	-	-	3,200,000	500,000	500,000
Turning Basin - Northside	5,013,806	4,330,463	724,387	15,767,694	27,510,000	12,970,000
Woodhouse	1,162,463	1,004,767	-	-	300,000	3,800,000
	6,476,046	5,735,230	994,387	20,967,694	29,210,000	18,061,000
Houston Ship Channel						
Beneficial Use Sites	27,238,000	22,750,000	200,000	920,000	2,930,000	5,890,000
Channel Development	-	3,595,000	3,250,000	2,900,000	6,090,000	5,250,000
	27,238,000	26,345,000	3,450,000	3,820,000	9,020,000	11,140,000
Other	13,430,055	9,433,224	29,485,017	32,957,641	36,768,107	13,133,846
TOTAL CAPITAL	**$188,727,687**	**$74,958,667**	**$79,466,238**	**$190,361,461**	**$330,553,607**	**$142,482,996**

Column has partially shifted beneath beam.

Column has shifted and broken free from overlying beam.

Corrosion to the Lower Reinforcement in the bottom of the beam.

Exposed Reinforcement in the bottom of the beam.

INTERACTIVE DISCUSSION—YOUR QUESTIONS AND THOUGHTS

1. ***Based on the maturity pyramid? (from "chaos to strategic"), where does your port fit?***

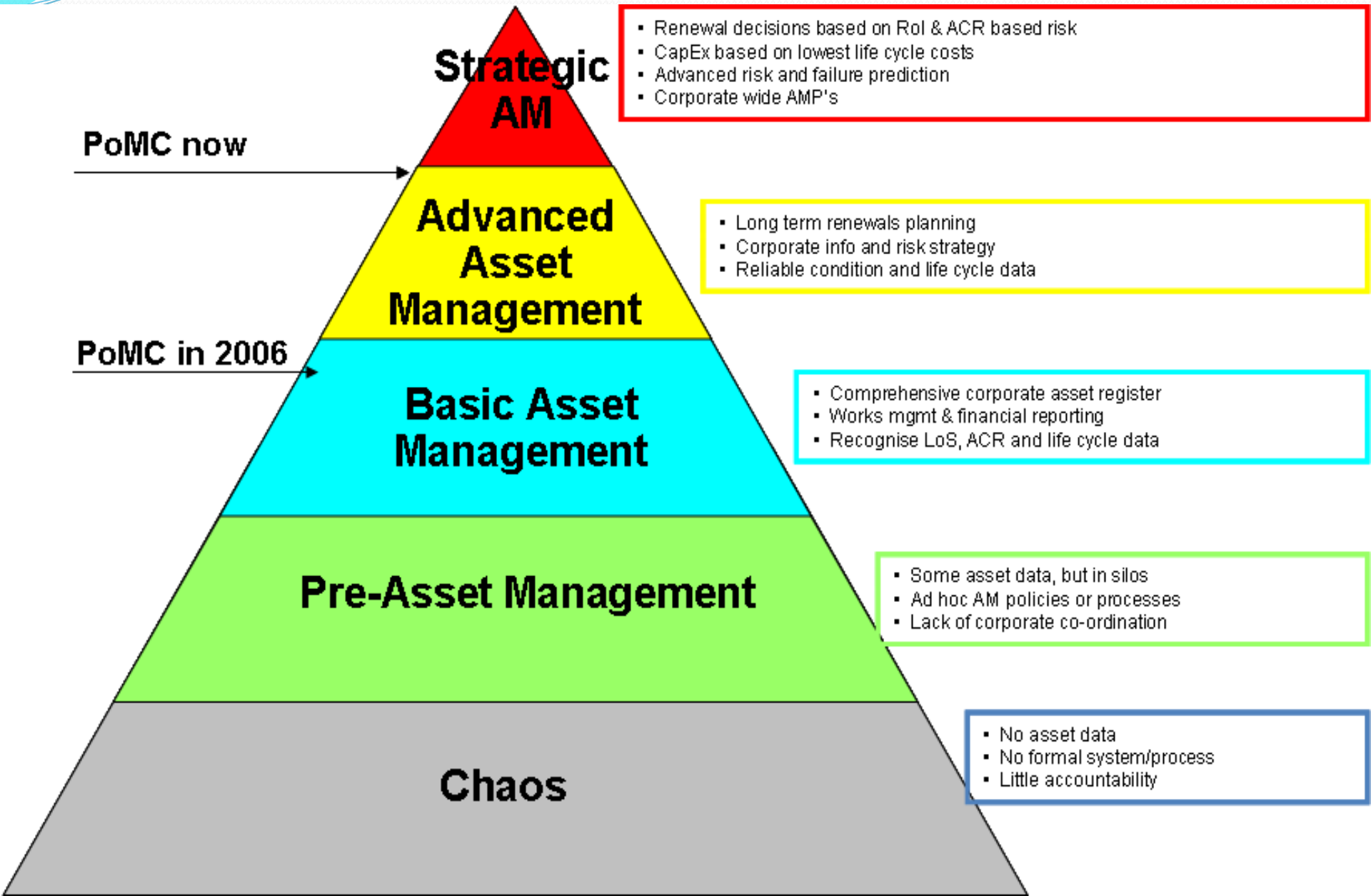
2. ***Do you see this management initiative as important, relevant, timely and actionable?***

3. ***If you don't think it's important, either in absolute terms or relative to other port priorities, why not?***

4. ***If you think it's important, what constraints exist and how to overcome?***

5. ***What else should AAPA be doing in this area?***

Maturity Pyramid--POMC



Technology tools

- ***GIS/BIM/CAD Software***
- ArcView/ArcGIS
- AutoCAD
- Revit
- Microstation
- LUSAD
- Archibus
- InfoWATER

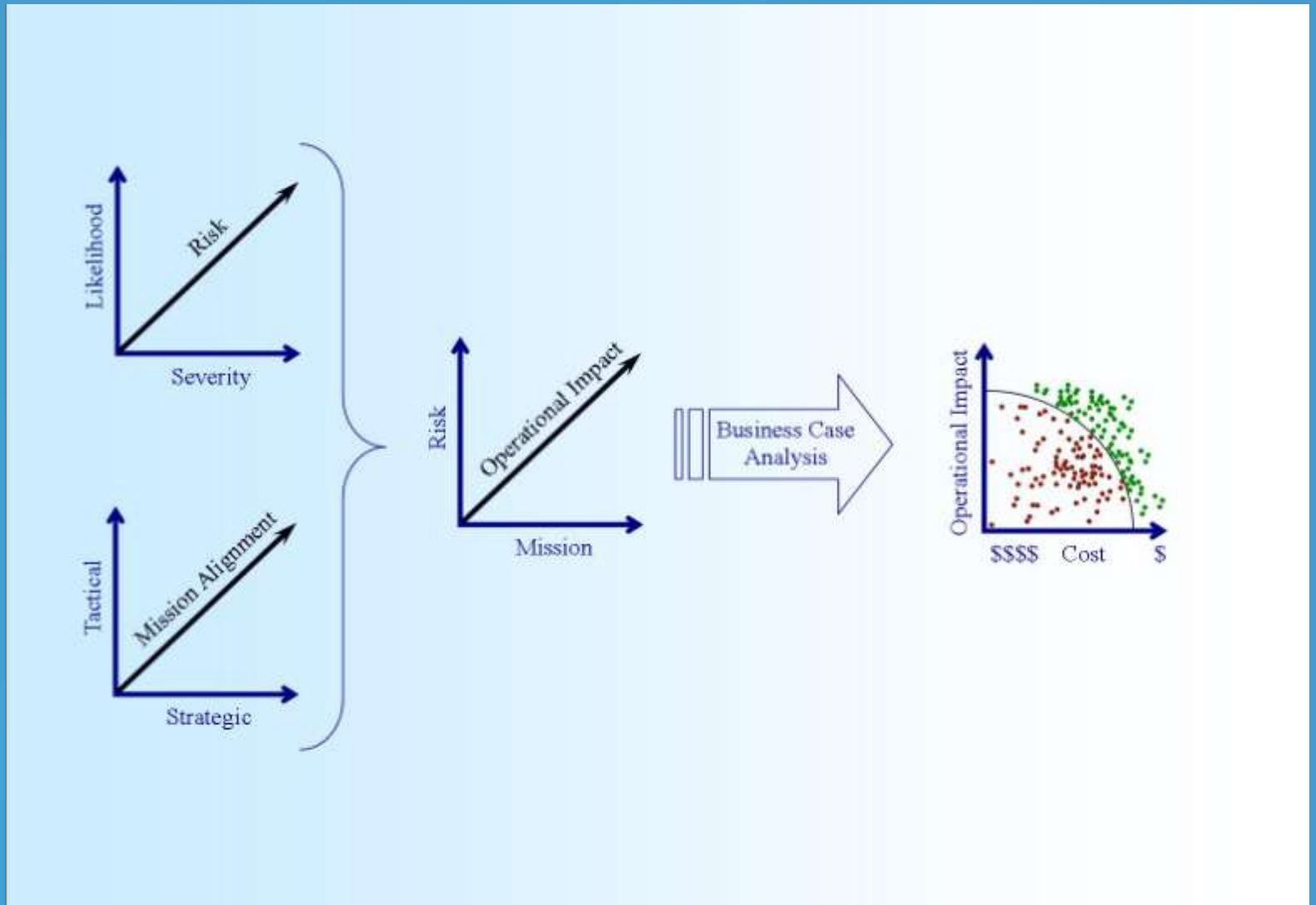
CMMS/Business Management Software

Maximo®
PWTools™
SAP
MainSaver
PropWorks (RAMS)
Avisoft
ACES (US Air Force)
IFMS (US Army)
iNFADS (US Navy & USMC)

Facility Assessment Software Tools

VFA.Facility
Vertex™
Builder™
MicroPaver™
Roofer™
Railer™
TECfms™
Whitestone Research MARS™
NASA Deferred Maintenance Model

Evaluation of Risk to Mission: US Coast Guard



Evaluation of Risk to Mission—Business Case