

NEXT GENERATION VESSELS

CRUISE AND CARGO FACILITIES – A TALE OF TWO PORTS

NOVEMBER 17, 2009



Alliance of the Ports of Canada, the Caribbean,
Latin America and the United States

Facilities Engineering Seminar



Bermello, Ajamil & Partners, Inc.

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container

Enhancing cargo efficiencies – preparing for the future



Container vessels

The earliest container ships were converted tankers (T2 tankers)



In 1951 the first purpose-built container ship in the USA was the Ideal-X which carried 58 metal containers between Newark, New Jersey and Houston.

Container vessels



- Today, approximately 90% of non-bulk cargo worldwide is transported by container

Ship Shape

The container ships squeezing into U.S. ports are nearly a quarter of a mile long. A look at how the big vessels stack up:

TITANIC
883 feet



CMA CGM HUGO
1,095 feet



QUEEN MARY 2
1,132 feet



EMMA MAERSK
1,302 feet



CMA CGM HUGO		EMMA MAERSK
Far East/ U.S. West Coast	ROUTE	Far East/Europe via Suez Canal
140 feet	WIDTH	183 feet
43-47 feet	DRAFT ¹	46 feet
8,200 TEUs ²	CONTAINER CAPACITY	11,000 TEUs
23	CREW	14

Note: Drawings are schematic

¹Number of feet that the hull is beneath the surface of the water ²Twenty-foot equivalent units, a standard measure of containerized cargo

Sources: CMA CGM; A.P. Moller-Maersk Group; WSJ research



Port of Miami 2035 master plan, *current history*



- The Maersk Sealand Atlantic Class Vessel is the largest container vessel to operate at POM
- Container capacity of 4,400 TEUs
- Length of 950-feet
- Maximum draft of 35-feet
- Necessary to prepare for future opportunities - 2015

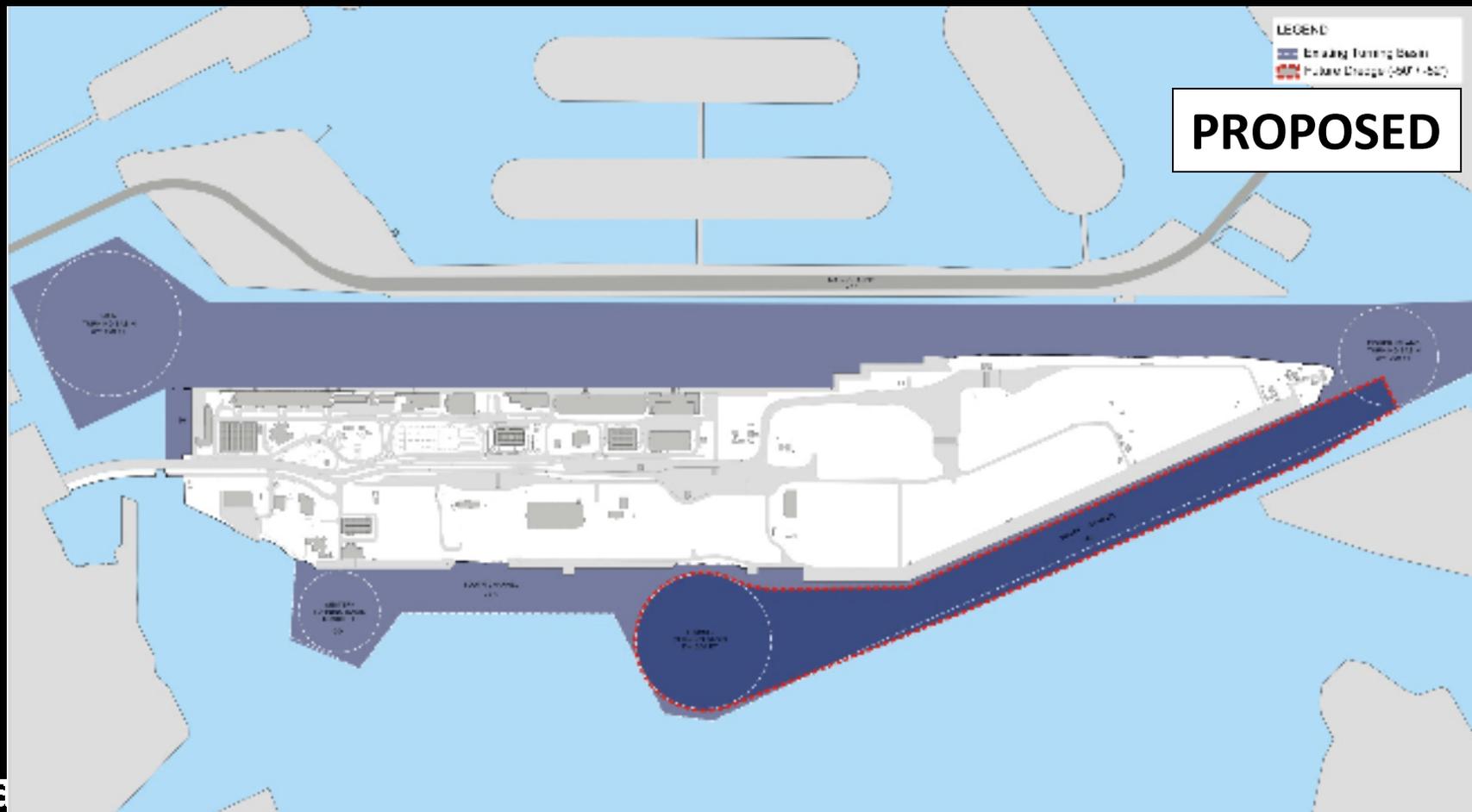
Port of Miami 2035 master plan, *future*



- The Maersk Sealand S Class Vessel is anticipated to operate at POM
- Container capacity of 6,600 plus TEUs
- Length of 1,138-feet
- Maximum draft of 48-feet

Port of Miami 2035 master plan, *capital improvement plan*

- Channel deepening to 52-ft, widening adtl. 100-feet
- Deepening of the existing 1,500-ft. diameter Lummus Island turning basin to 50-feet



Future POM cargo facilities

- Meet the marine requirements for safe ship movements
- Focus on efficiencies...
 - Movement of containers to and from vessel – quick turns
 - Expedite inspection and gate services for higher traffic flows
 - Use technology
 - Adding tunnel for movement bypassing downtown
 - Possible on-port rail linkages
- Interface with off-port intermodal facilities

crjise

Cruise terminals must process more people than any international airport.....



Ever growing mega ships



The new mega cruise ships



Oasis / Allure
5,400 Passengers



Freedom of the Seas
4,370 Passengers



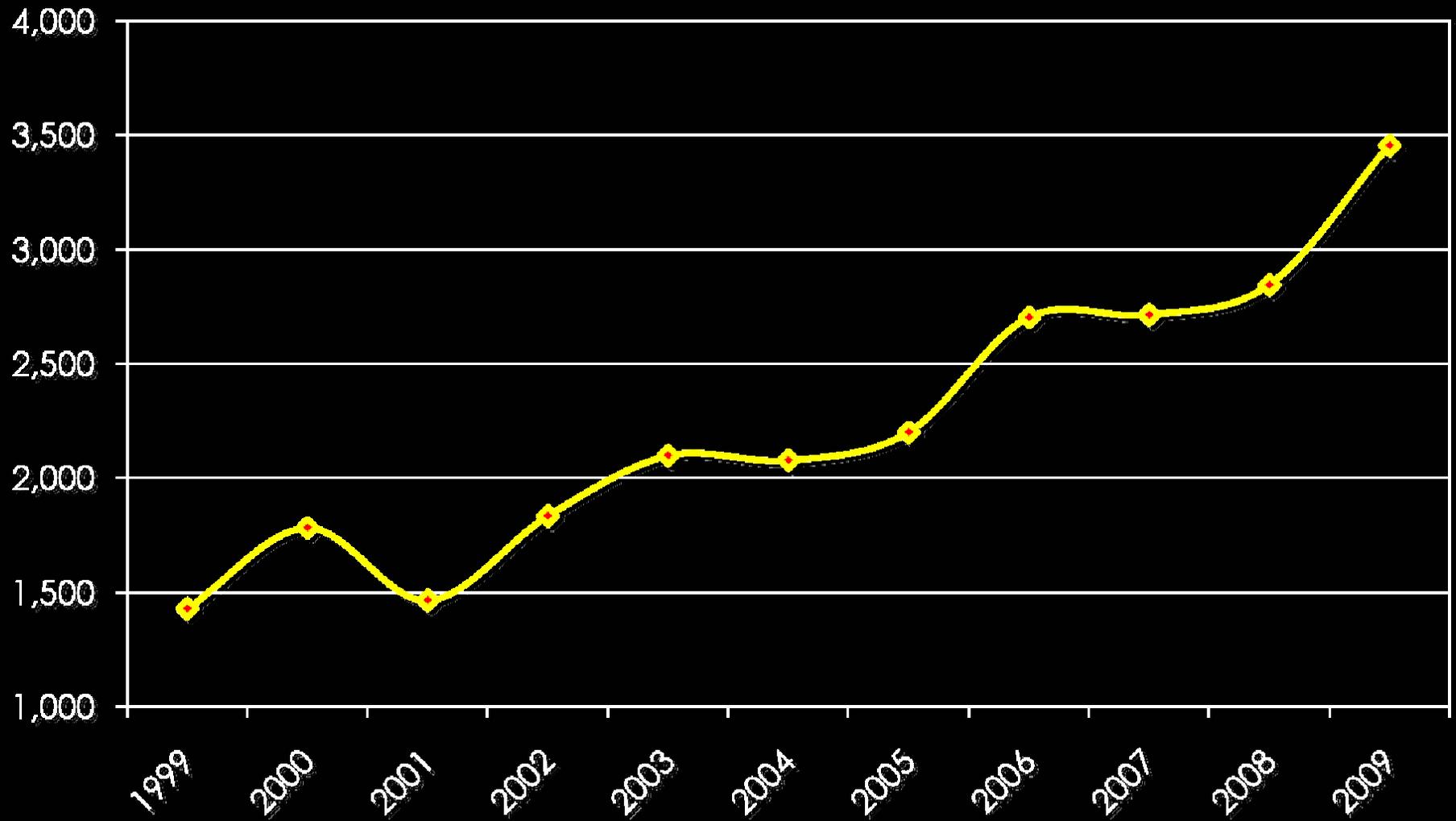
Queen Mary 2
2,620 Passengers

Oasis of the Seas

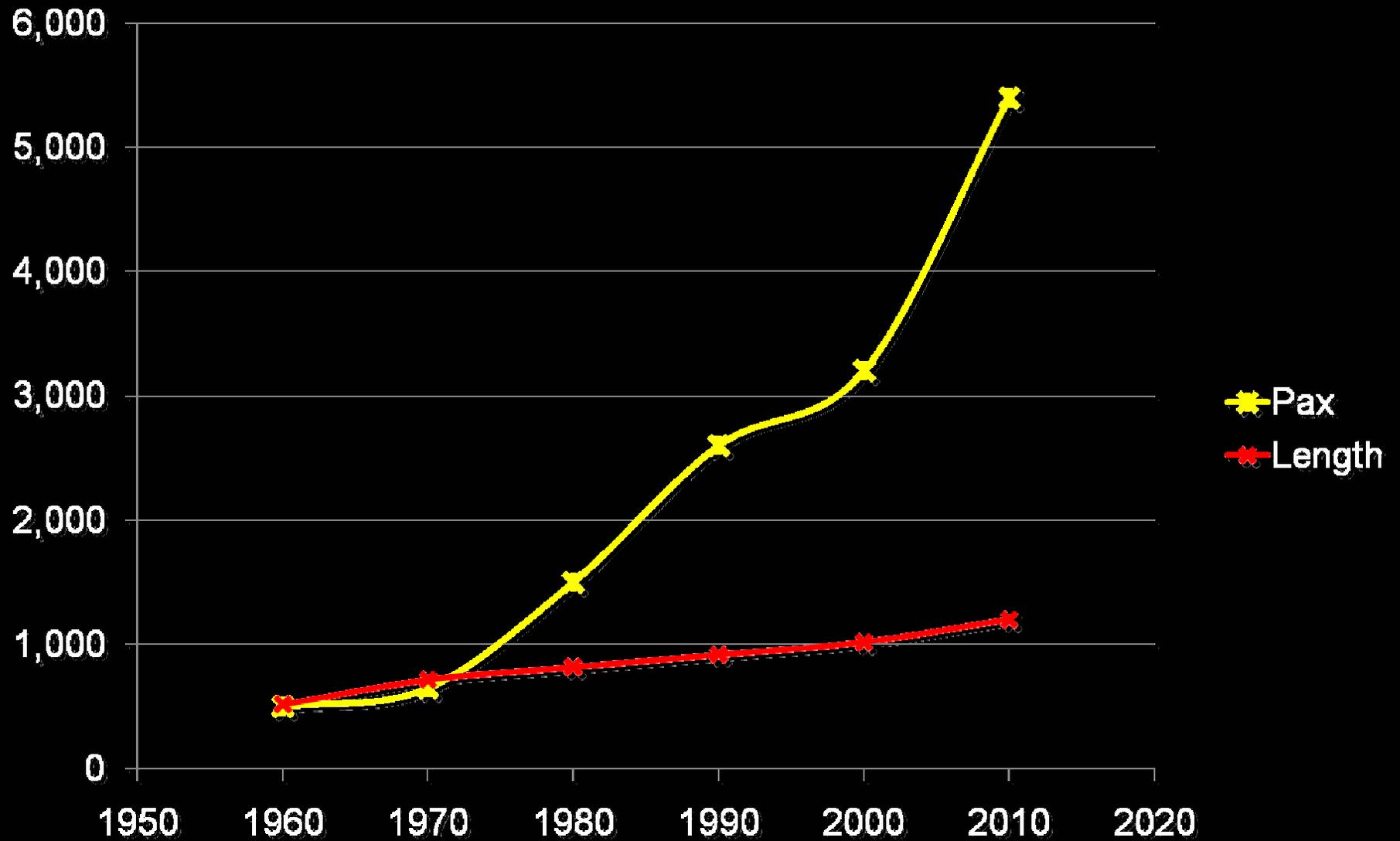
- LOA of 1,184-feet
- 220,000 Tonnes
- Air Draft of 239-feet
- Max Beam of 184-feet
- 5,400-pax lower berths
- 2,000-crew members



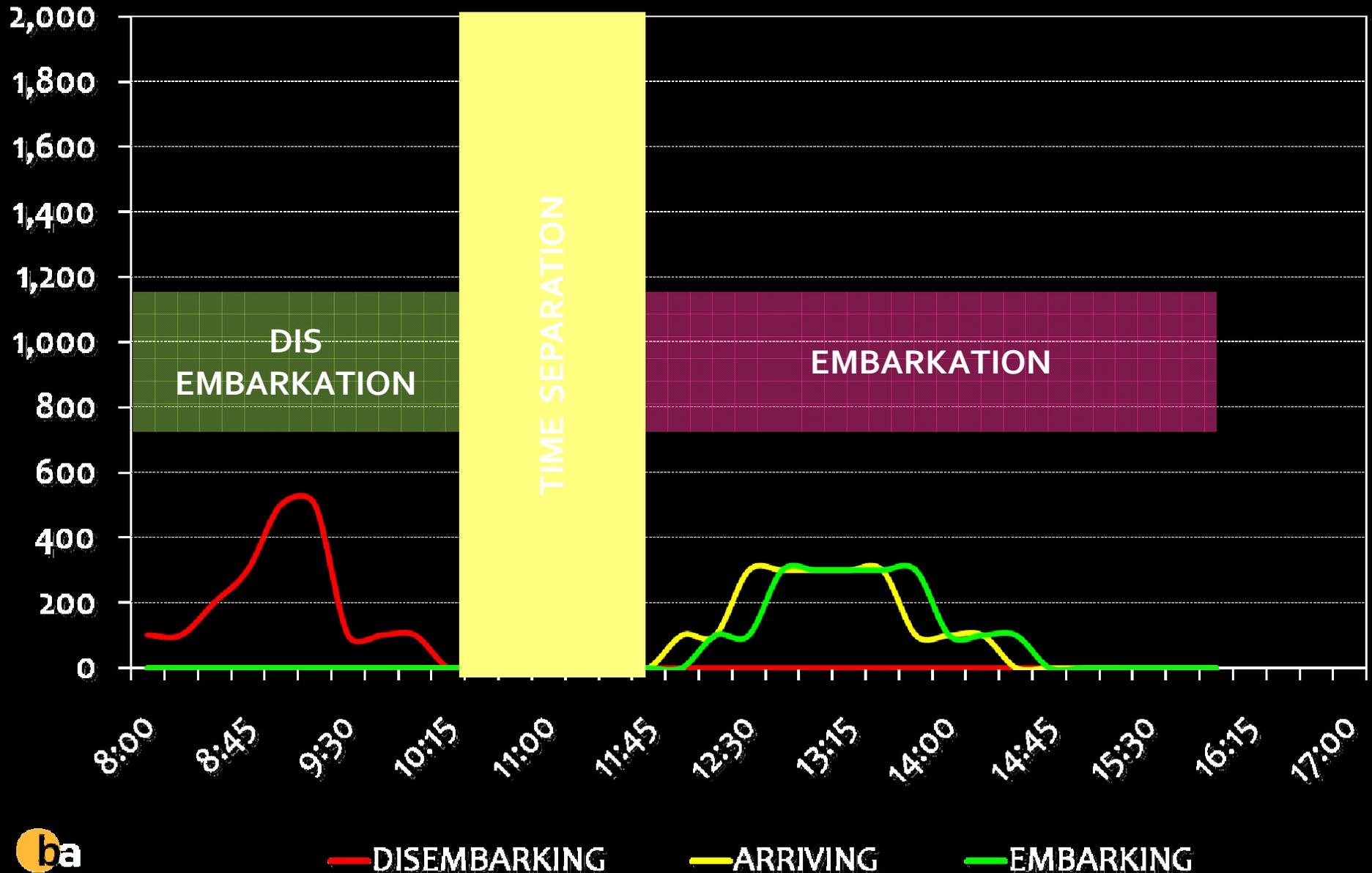
Average passengers/ship by year of construction



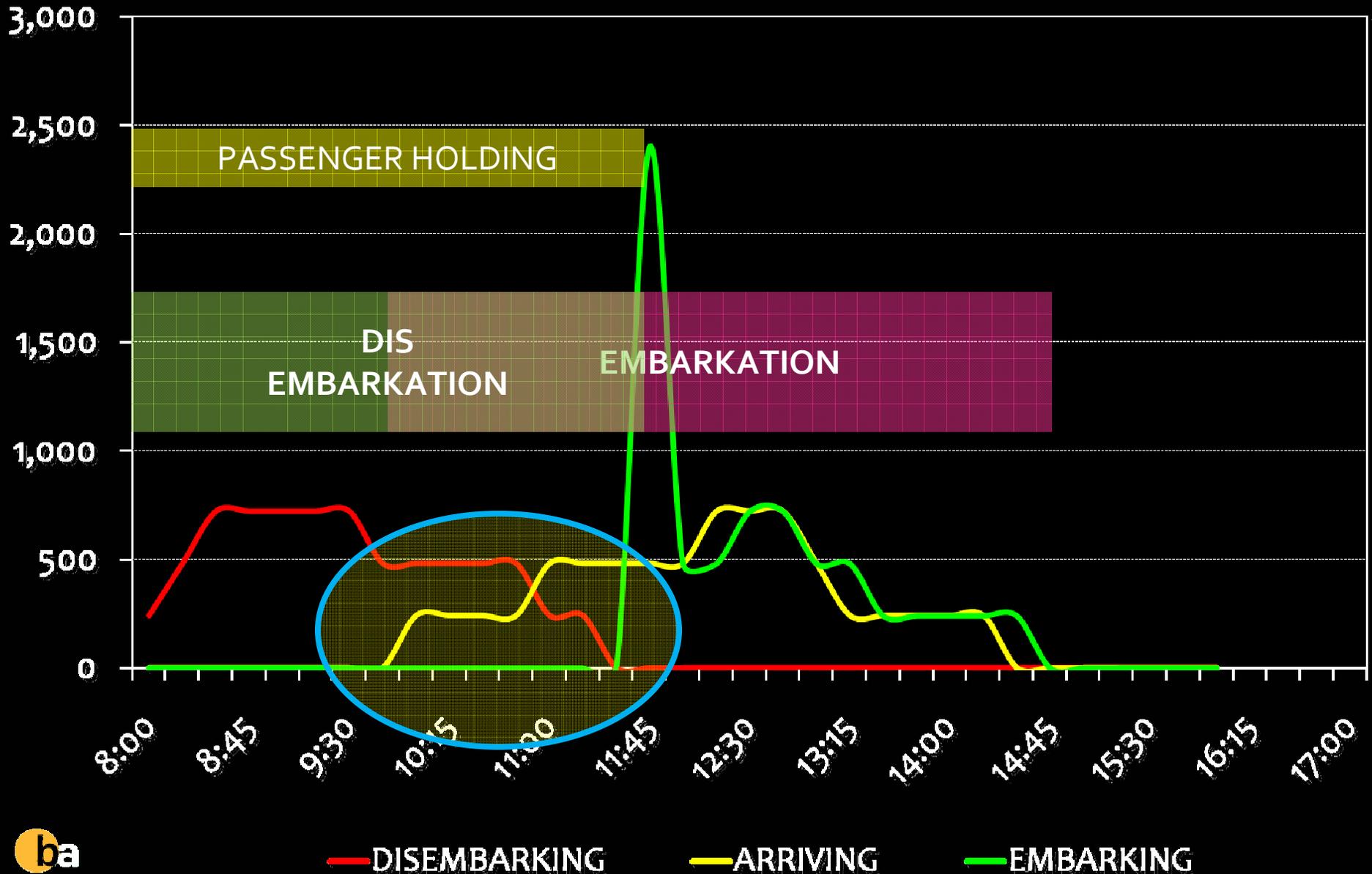
Cruise ship trends



Homeport passenger movements < 1,500 passengers



Homeport passenger movements 6,000 passengers



— DISEMBARKING

— ARRIVING

— EMBARKING

Evolution of the cruise terminal



TEMPORARY FACILITY



CONVERSION OF EXISTING BUILDING

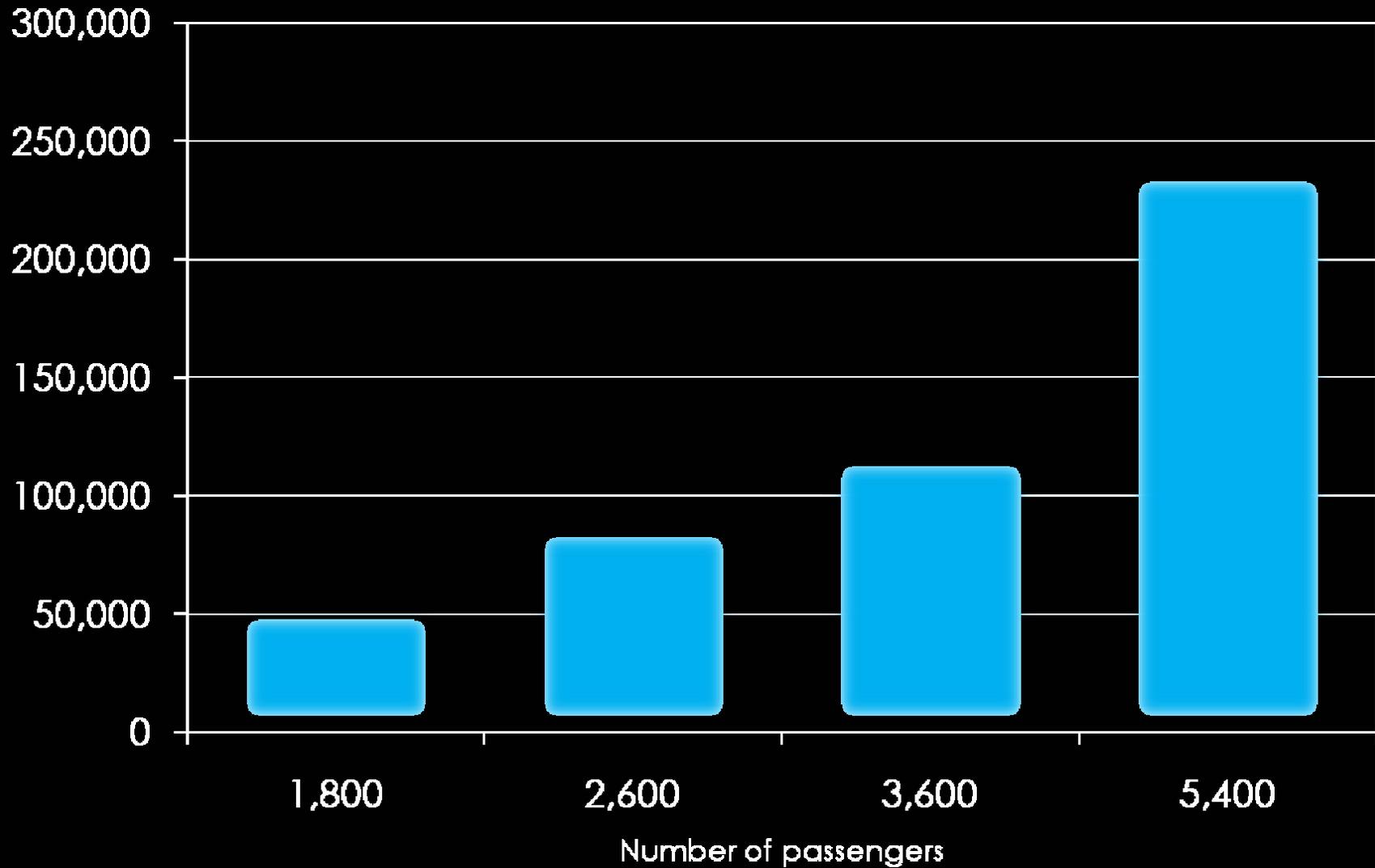


NEW FACILITY



JOINT DEVELOPMENT

Progression of terminal size (ft²)

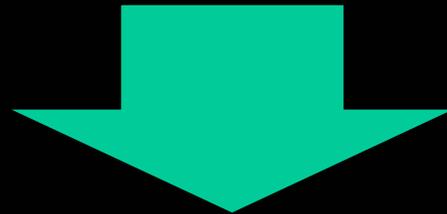


How to design a cruise terminal

- There are CBP guidelines
- Cruise line input is essential
- Stakeholder input is important
- However.....

Putting theory into practice

- Cruise lines do not have an uniform concept
- People within the same cruise line have different opinions as to how the facility should be developed
- Security design is not uniform from place to place



- There is not one standard way of designing a facility

HOW TO HANDLE 13,000 PEOPLE PER DAY
AND
32,000 PIECES OF LUGGAGE



Port Everglades Terminal 18 *(Nov. 6, 2009 Inaugural)*



Terminal 18 Overview – large retrofit plan

- Designed & Built in less than 18-months
- 240,000 sq. feet
- Phase 1 – 10,000 sq. m. & Phase 2 – 14,000 sq. meters
- Simultaneous embarkation and debarkation
- Curbside to ship in 15 minutes
- 90 check-in counters
- Seating for 3,000 passengers
- 16,000 piece baggage lay-down area
- 1,000 parking spaces
- Segregated bus, taxi, car and provisioning areas

Port Everglades Terminal 18 , *Oasis of the Seas*



Port Everglades Terminal 18



Terminal lessons learned

- Keep it simple – easy to say, hard to do...
- Involve the cruise line and stakeholders from the start
- Define performance standards (embark and debark)
 - Check-in
 - Security
 - Baggage
 - Provisioning
 - GTA
- Understand your design vessel – design to those details

The future generation

- An integrated terminal
- A part of the waterfront
- It can both make the City a homeport **AND** a port-of-call

Singapore International Cruise Terminal



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