

“SOÑAR VALPARAÍSO”

**ALTERNATIVE DEVELOPMENT PLAN
FOR CHILE’S REGION V PORTS**

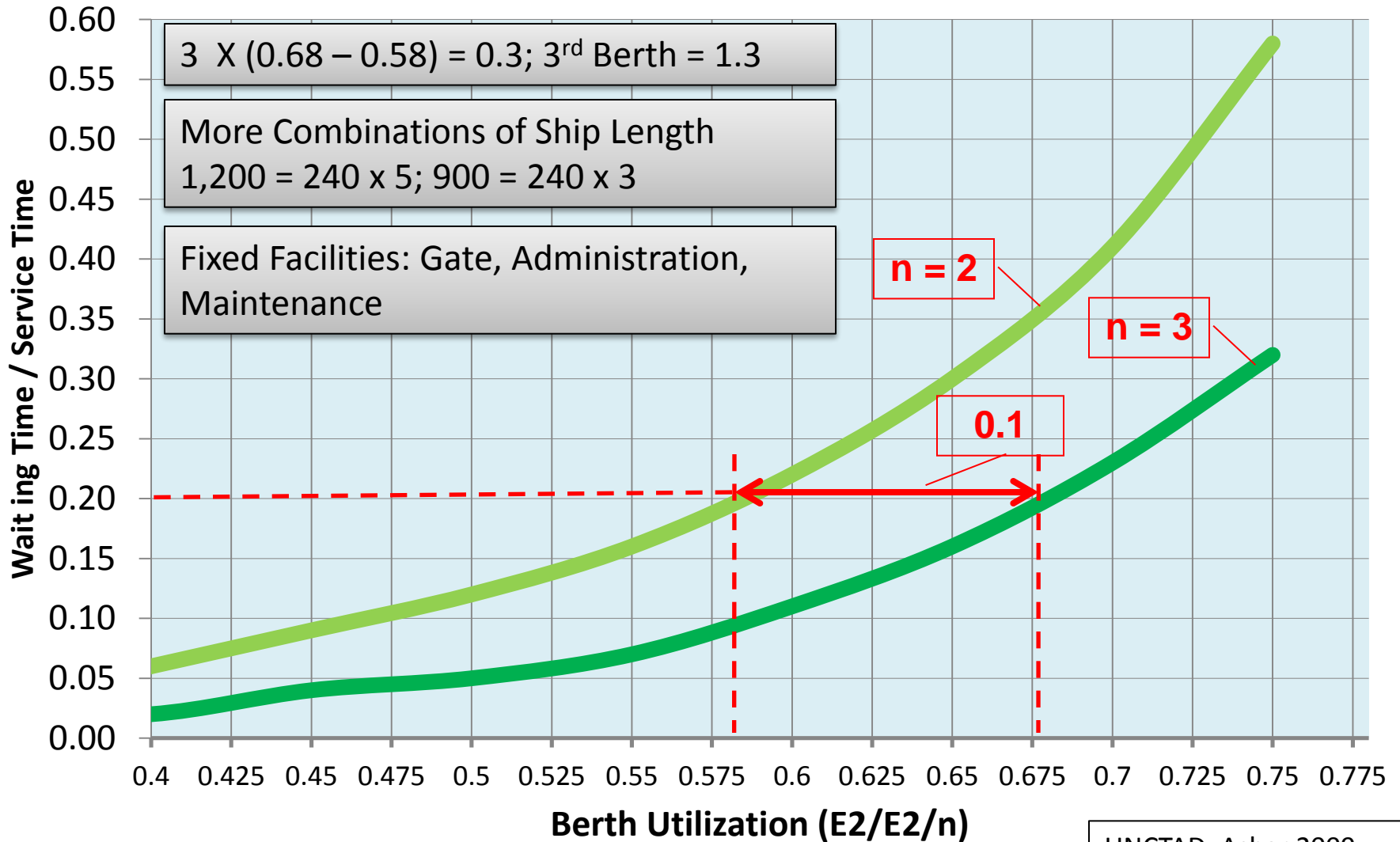
ASAF ASHAR

NATIONAL PORTS & WATERWAYS INT., USA

www.asafashar.com

April 2012

Berth's Scale Economies



$3 \times (0.68 - 0.58) = 0.3$; 3rd Berth = 1.3

More Combinations of Ship Length
 1,200 = 240 x 5; 900 = 240 x 3

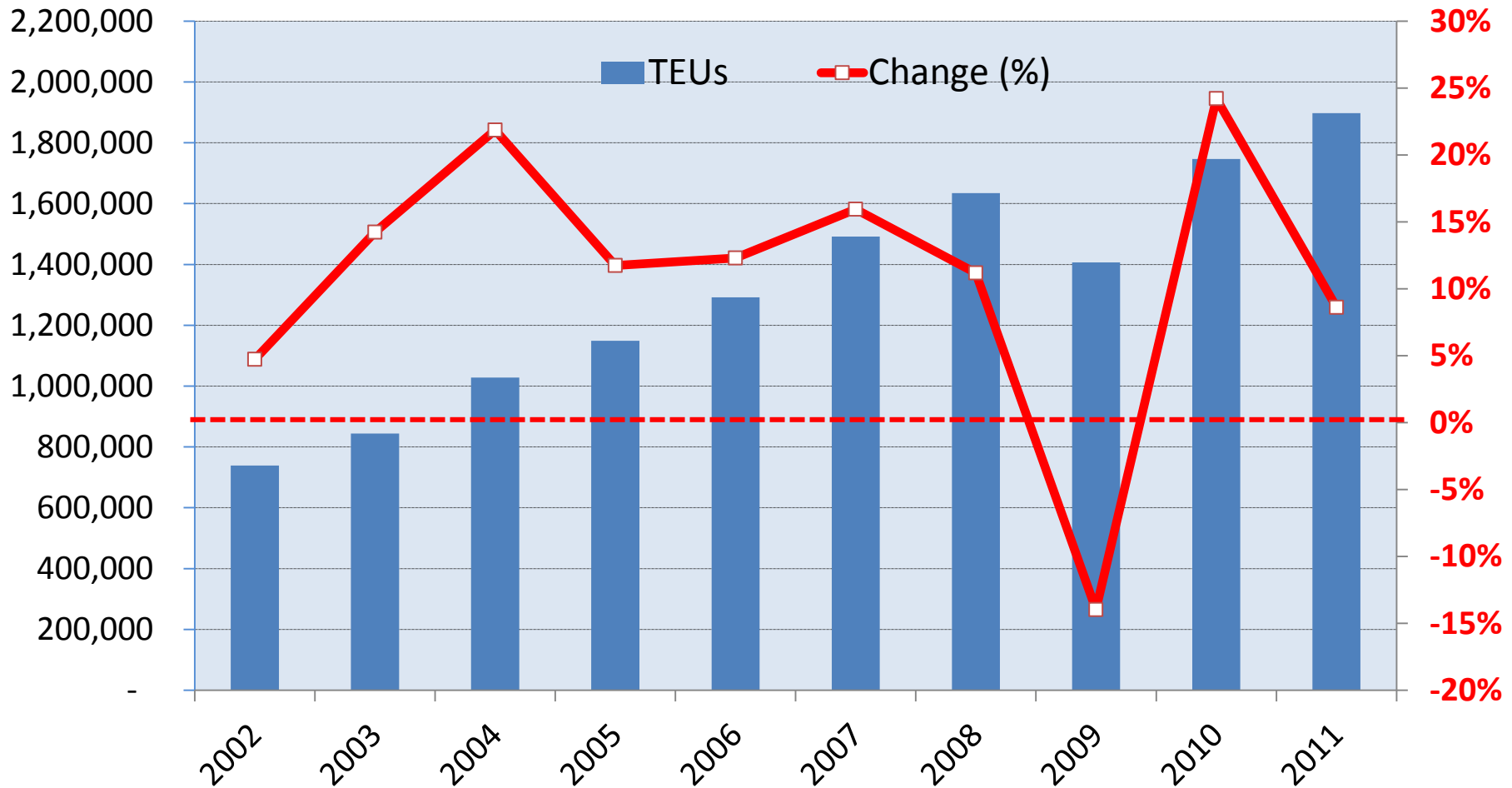
Fixed Facilities: Gate, Administration,
 Maintenance

$n = 2$

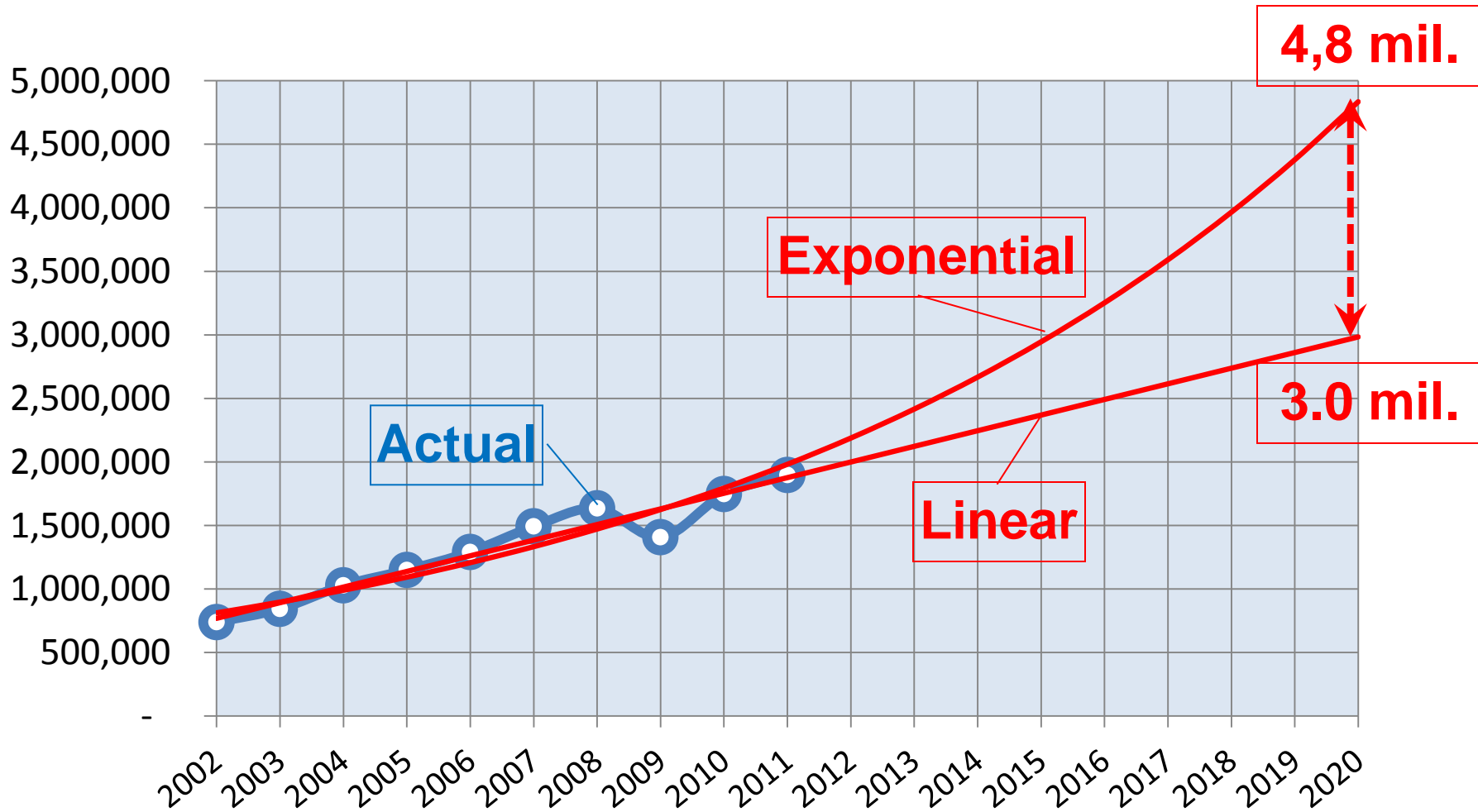
$n = 3$

0.1

Traffic Statistics Region V (TEUs)



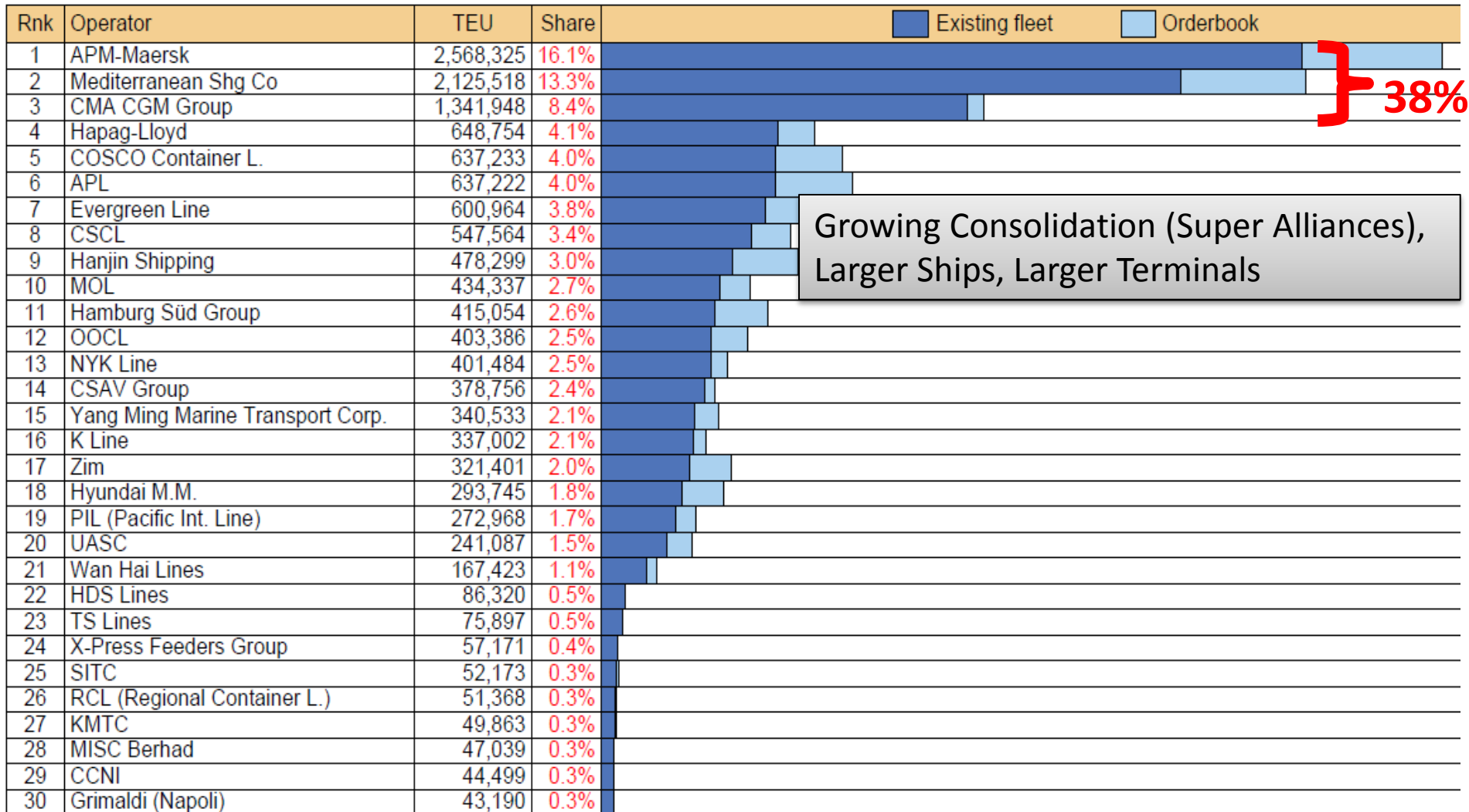
Forecast Scenarios Region V (TEUs)



Present and Future Ships

Category	Name	Operator	Capacity (TEUs)	Dimensions LOA x Beam x Draft (m)	Arrangement Under-Below-Across (rows)
Sub Panamax	Cap San Antonio	HSD	3,700	252 x 32.2 x 12.5	8 - 6 - 13
Panamax - Max	Zim Savannah	Zim	5,000	295 x 32.3 x 13.5	8 - 6 - 13
Post Panamax I	Monte Class III	HSD	6,300	300 x 40 x 13.5	9 - 5 - 16
Post Panamax II	Sovereign Maersk	Maersk	8,000	347 x 42.8 x 14.5	9 - 6 - 18
Post Panamax III	New Panamax (NPX)	---	12,500	366 x 49 x 15.2	10 - 6 - 19/20
Post Panamax III	MSC Daniela	MSC	13,800	366 x 51.3 x 15	10 - 6 - 20
Post Panamax III	Emma Maersk	Maersk	14,500	396 x 56.4 x 15.5	10 - 6 - 22
Post Panamax III	Triple E	Maersk	18,000	400 x 59 x 15.5	10 - 8 - 23
Post Panamax IV	Malacca Max (MalMax)	?	25,000	400 x 60 x 21	12 - 9 - 24

Fleet Composition by Line

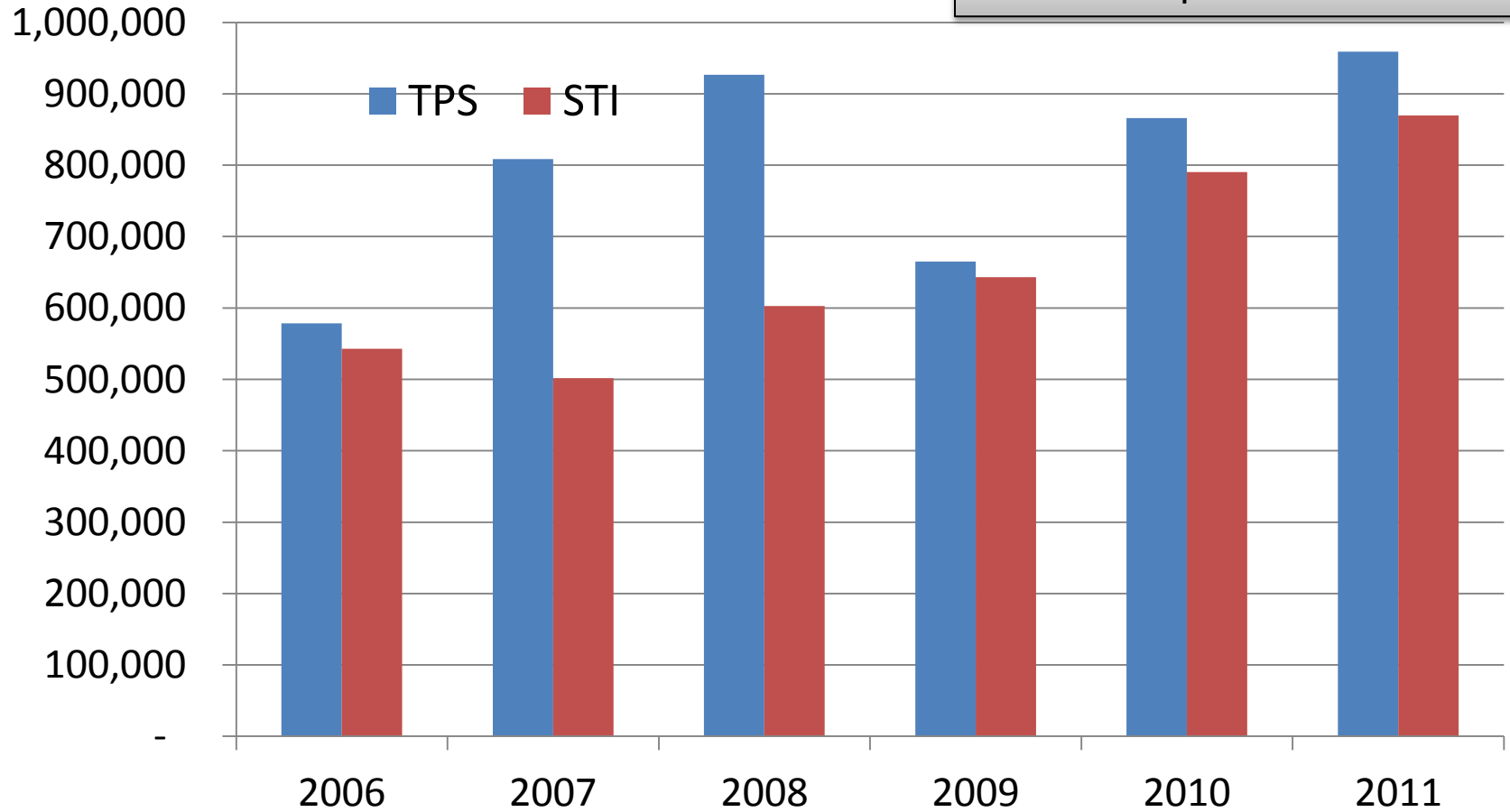


Terminal Competition in Region V

- **TPS and STI Serve the same Hinterland**
 - No Captive Cargo
- **TPS and STI Provide Similar Services & Prices**
 - Low Handling Price \$120/Box
 - Line Switching Terminals for \$10/Box
 - Efficient: No Ship & Truck Waiting
- **TPS and STI have Similar Market Share**
- **EPSA and EPV Exert Tight Price Control**
- **Puetro Central will Heighten Competition**

TPS vs. STI Traffic (TEUs)

TPS & STI Equal Market Share



Alternative Development Plans

Year	Valparaiso		San Antonio
	EPV	Ashar	EPSA
2011 Panamax	Terminal 1 = 2 berths	Terminal 1 = 2 berths	South Terminal = 3 berths
2015 Post II	Terminal 1 = 2 berths Terminal 2 = 2 berths	Terminal 1 = 4 berths	South Terminal = 3 berths Central Terminal = 3 berths
2018 Post III	Terminal 1 = 2 berths Terminal 2 = 2 berths Terminal 3 = 2 berths	Terminal 1 = 4 berths Outer Harbor	?

EPSA Plan – South Terminal (STI)

Área Total: 31 ha (40 ha)
Frente lineal: 746 m (900 m)
Calado: 15 m

16 Ha

7,2 Ha

8,8 Ha

900 m

131 m

Ampliación Frente

Ampliación a incorporar por canje a STI

Área de respaldo a canjear a STI

Área Inundada a canjear a STI

Puerto Central

EPSA Plan – Puerto Central

Área Total: 35.7ha
Frente lineal: $945\text{ m} (700 + 245) + 250 = 1,195\text{m}$
Profundidad : 15 m

Ship-side Yard: 12 ha; 4 ha / Berth

Odd-Shaped Sea Protection?



EPV Plan – Terminal 1 (TPS)

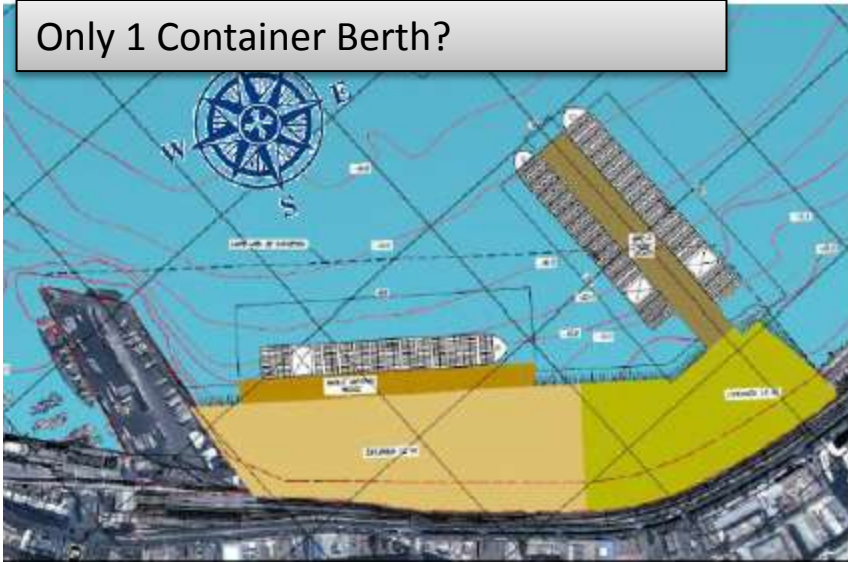
Área Total: 13 ha
Frente lineal: 740 m
Profundidad: 14.5 m



Ultramar 2012; Ashar 2012

EPV Plan -- Terminal 2

Only 1 Container Berth?



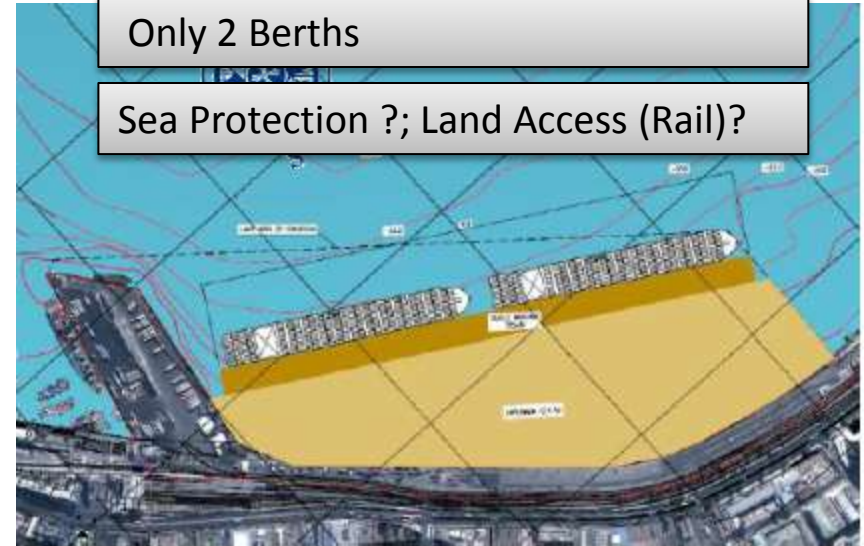
Alternative A

Berth: 1000 m.

Total Yard³:
21.0h.

Only 2 Berths

Sea Protection ?; Land Access (Rail)?



Alternative B

Berth: 725 m.

Total Yard³:
23.9h.

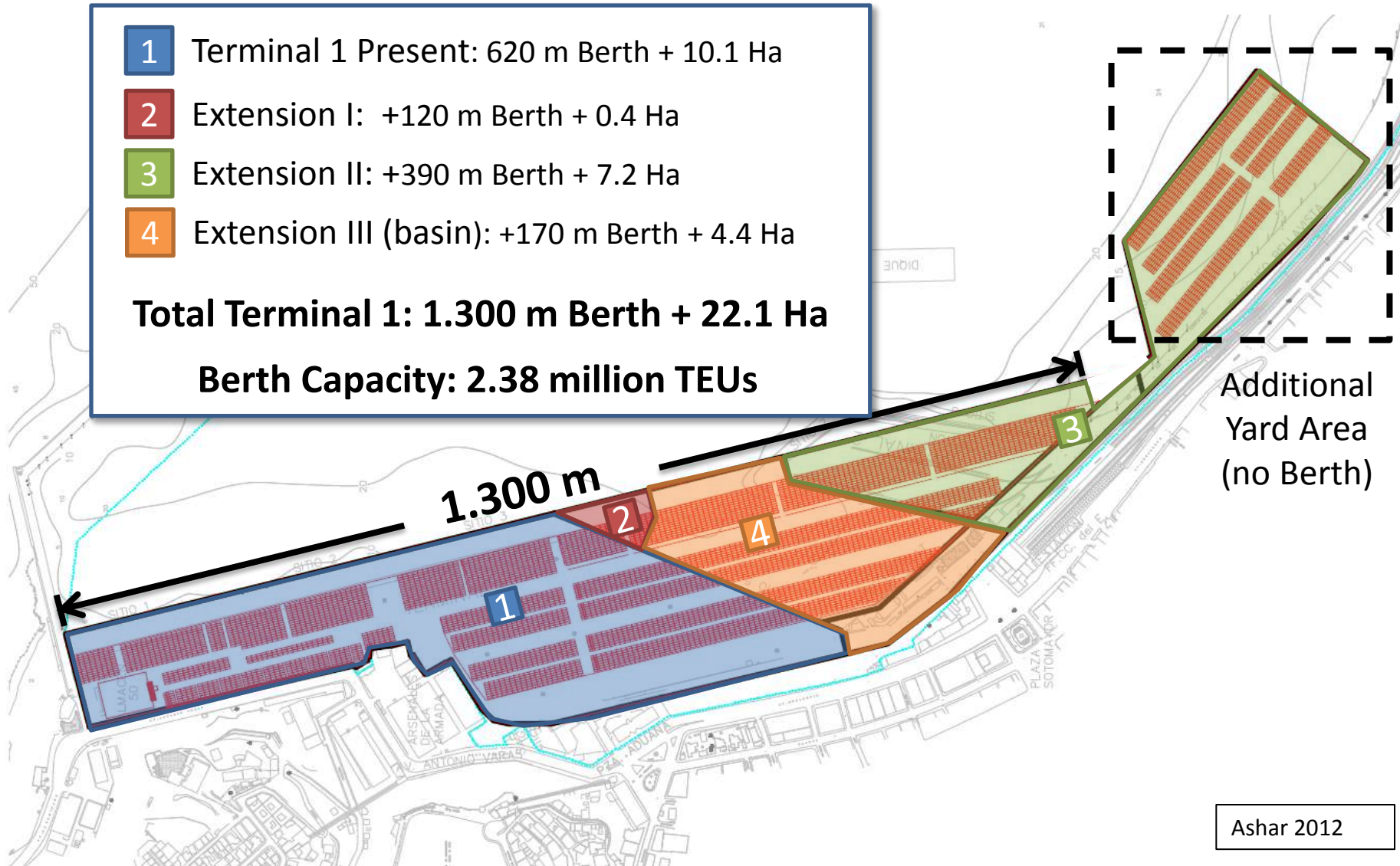
?

Ashar Plan – Expanded Terminal 1

- 1 Terminal 1 Present: 620 m Berth + 10.1 Ha
- 2 Extension I: +120 m Berth + 0.4 Ha
- 3 Extension II: +390 m Berth + 7.2 Ha
- 4 Extension III (basin): +170 m Berth + 4.4 Ha

Total Terminal 1: 1.300 m Berth + 22.1 Ha

Berth Capacity: 2.38 million TEUs



4-Berth Terminal vs. 2 x 2-Berth Terminals

- **Higher Berth Utilization**
 - +29% for 4-berth vs. 2-berth
- **Share Equipment**
 - STS, RTG
- **Fixed Facilities & Labor**
 - Gate, Maintenance Shop, Administrative Building
 - Management
- **Market Position**
 - All Services in one Terminal
 - Higher Berthing Flexibility

Berth Capacity Indicators

Year	Type of Berth	Berth Length (m)	Depth Alongside (m)	Berths per Terminal	Design Ship	Berth Capacity (TEUs)	Berth-m Capacity (TEUs/m)
2009	Sub Panamax	250	12	3	3,000	350,000	1,400
2012	Panamax	280	14	3	4,500	450,000	1,607
2012	Panamax	280	14	4	4,500	495,000	1,768
2014	Post Panamax I	300	15	3	5,700	500,000	1,667
2014	Post Panamax I	300	15	4	5,700	550,000	1,833
2017	Post Panamax II	350	16	4	8,000	700,000	2,000
2025	Post Panamax III	400	16 - 18	4	12,000	1,000,000	2,500
2009	Multipurpose	150	10 - 11	2	1,000	100,000	667

EPV vs. Ashar Plan

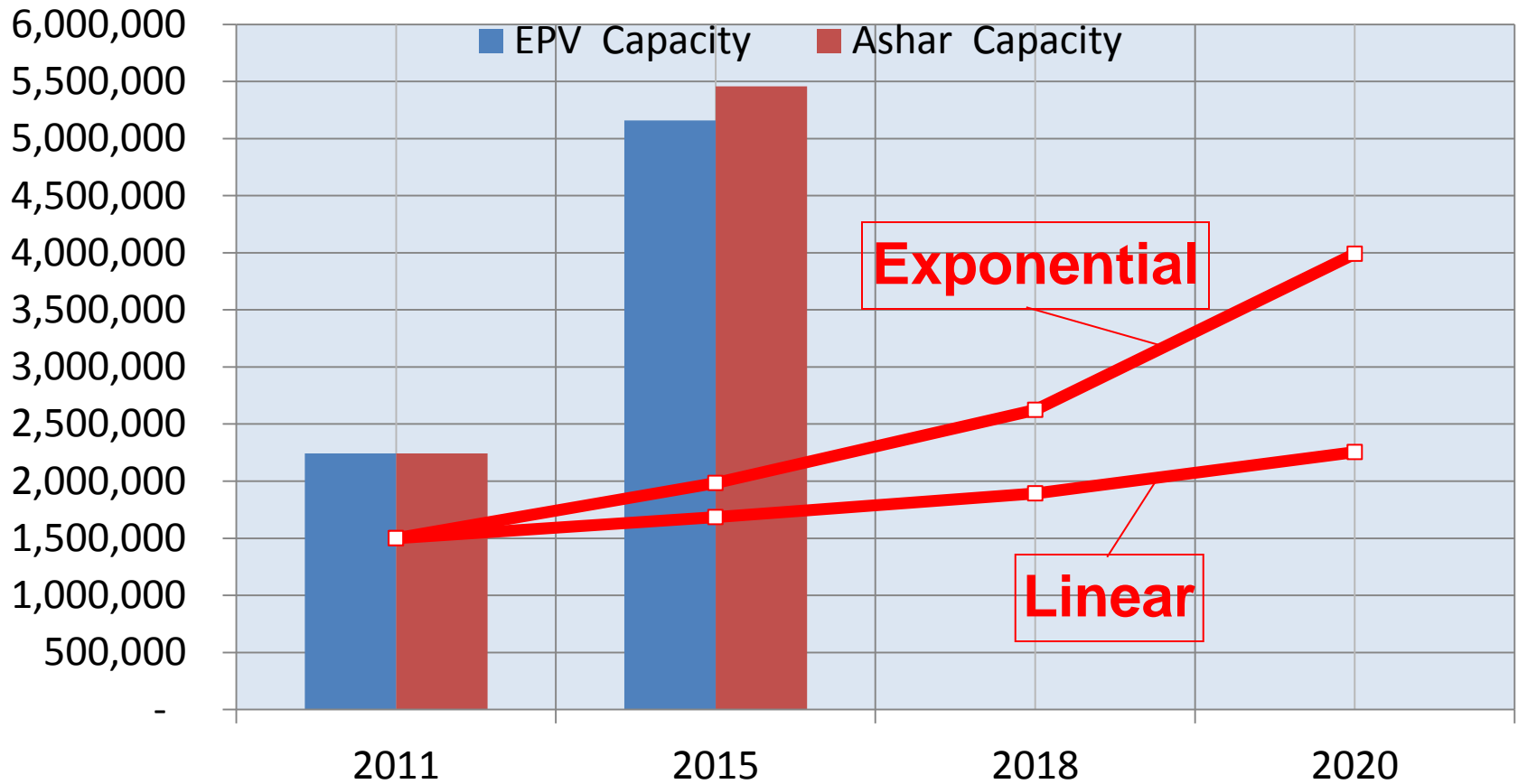
- **EPV**

- Terminal 1: 740 m (2 Post-Panamax Berths); 10.5 ha
- Terminal 2: 725 m (2 Post-Panamax Berths); 18 ha (?)
- Total 1,465 m (4 Post-Panamax Berths); 28.5 ha
- Berth Capacity: **2.08 million TEUs**
- Water Protection? Land Access?

- **Ashar**

- Terminal 1: 1,300 m (4 Post-Panamax Berths); 22.1 ha
- Berth Capacity: **2.38 million TEUs**
- Savings in Capital & Operating Costs

Forecast vs. Capacity Region V



New Terminal in Moin, Costa Rica

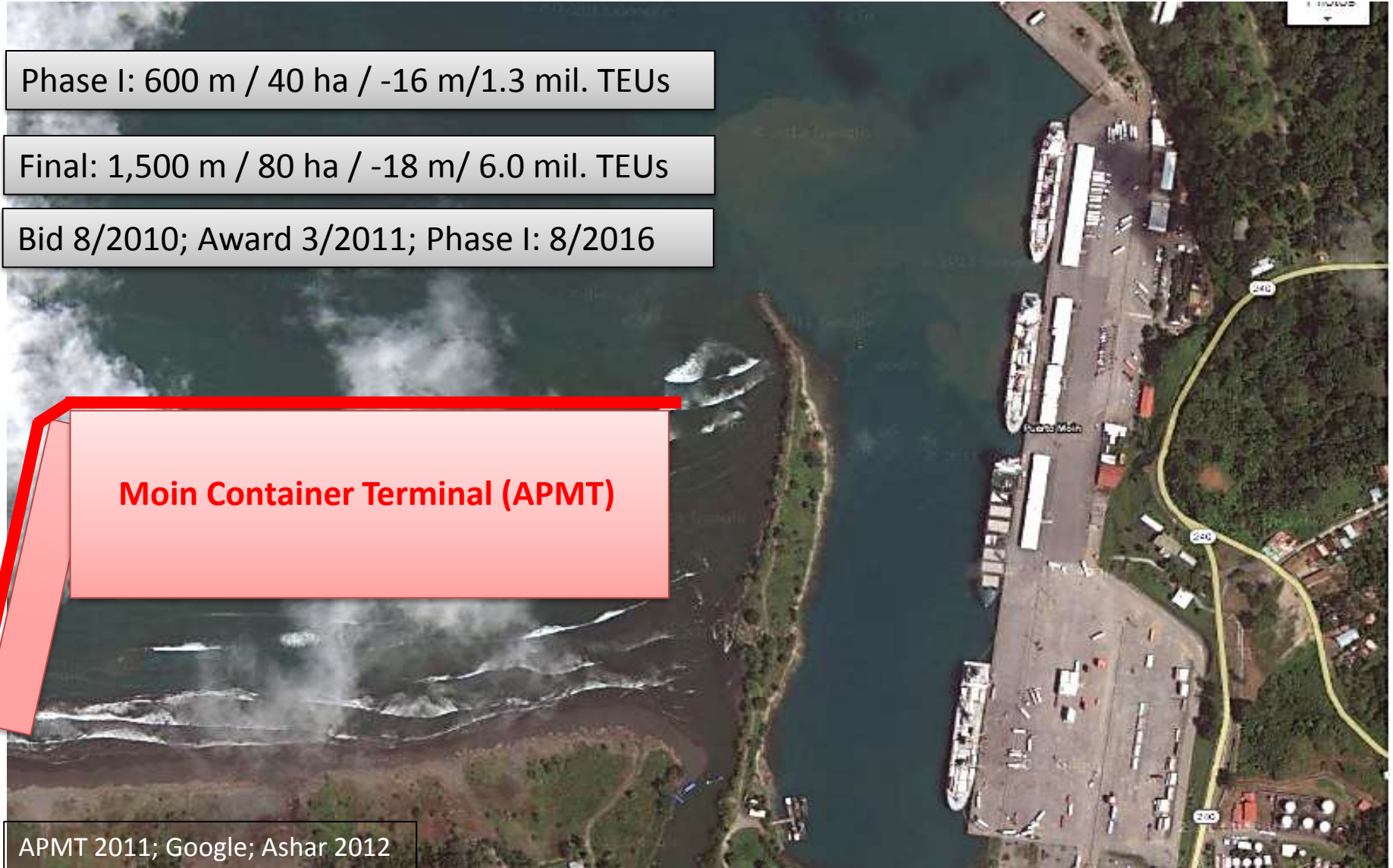
Phase I: 600 m / 40 ha / -16 m/1.3 mil. TEUs

Final: 1,500 m / 80 ha / -18 m/ 6.0 mil. TEUs

Bid 8/2010; Award 3/2011; Phase I: 8/2016

Moin Container Terminal (APMT)

APMT 2011; Google; Ashar 2012



New South Harbor, Colombo



Maasvlakte 2, Rotterdam

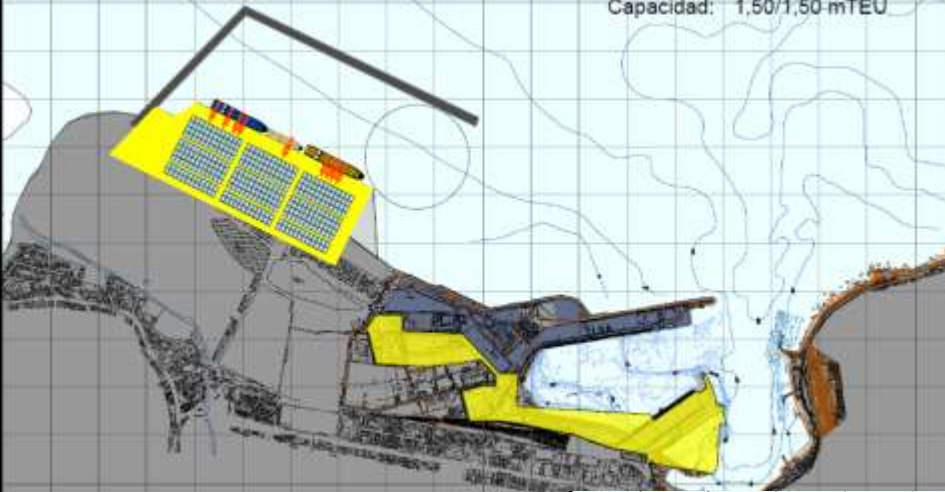


Sol. B1 - Desarrollo mínimo

Línea de atraque: 1.000 m (+ 450 m Ro/Ro)

Superficie: 50 ha

Capacidad: 1,50/1,50 mTEU



Outer Harbor Development Options

Sol. A - Desarrollo completo

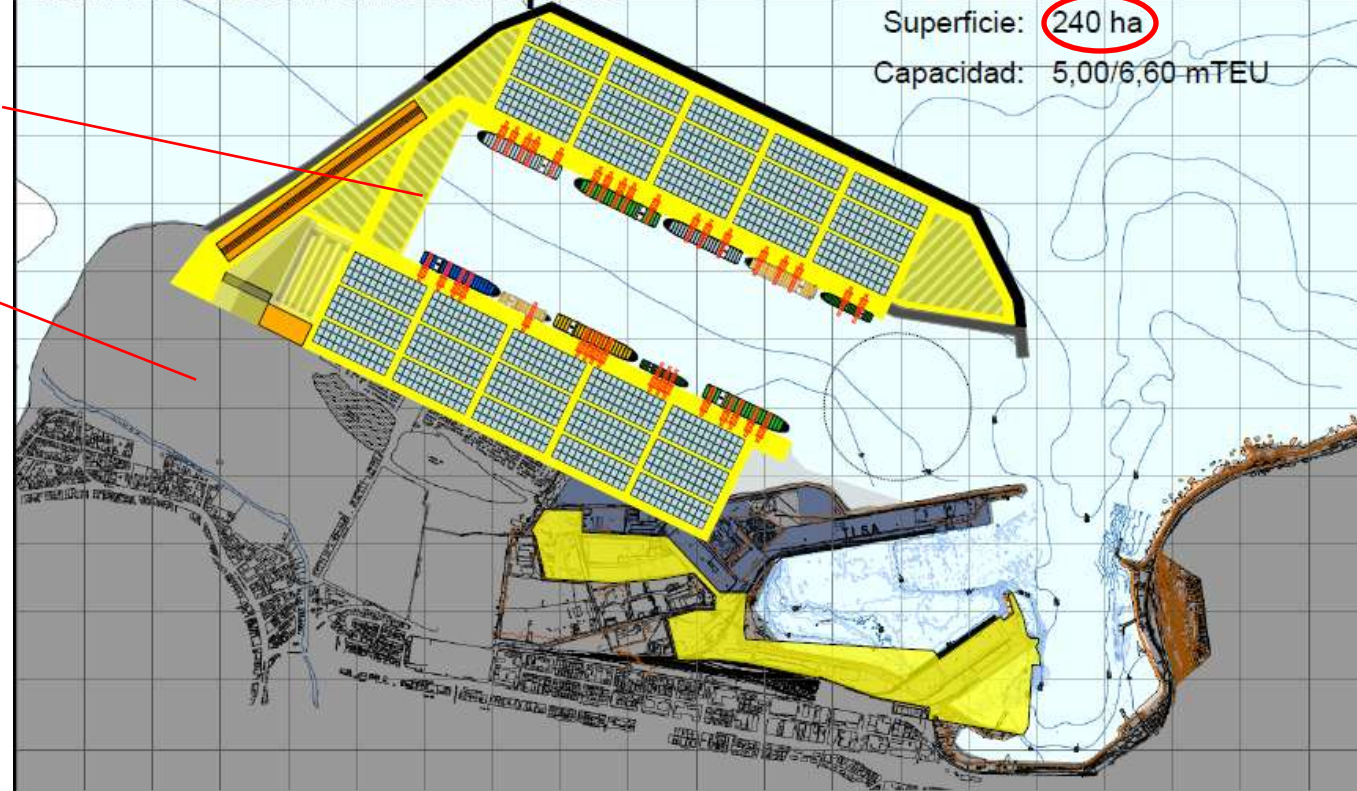
Línea de atraque: 3.300 m (+ 450 m Ro/Ro)

Superficie: 240 ha

Capacidad: 5,00/6,60 mTEU

General & Bulk

Logistic Park



Ashar/Woodbury 2009

http://www.lyd.com/lyd/control/s/neochannels/neo_ch4358/deploy/presentacion2.pdf

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Gracias

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