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# **Port Authority of Guam Master Plan for Port Modernization**

***FRC San Francisco***

Prepared by PB International, Inc.

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# History & Snapshot

- Navy Designed & Put in Service in Late 1960's
- Has Remained Largely Unchanged Since
- Ownership/Operations to Gov-Guam in 1970's
- Done its Job for Guam & Bases as Sole Gateway (Over 90% moves through Port)
- But Facilities are Considerably **Out of Date** for Modern Cargo Operations
- PBI has Substantially Completed Master Plan
- **WILL NOT** meet Marine Base Relocation Demands



**Apra Harbor**

**Commercial Port**

**Route 11**

**Route 1**

**Piti Channel**

Piti

Lockwood Terrace

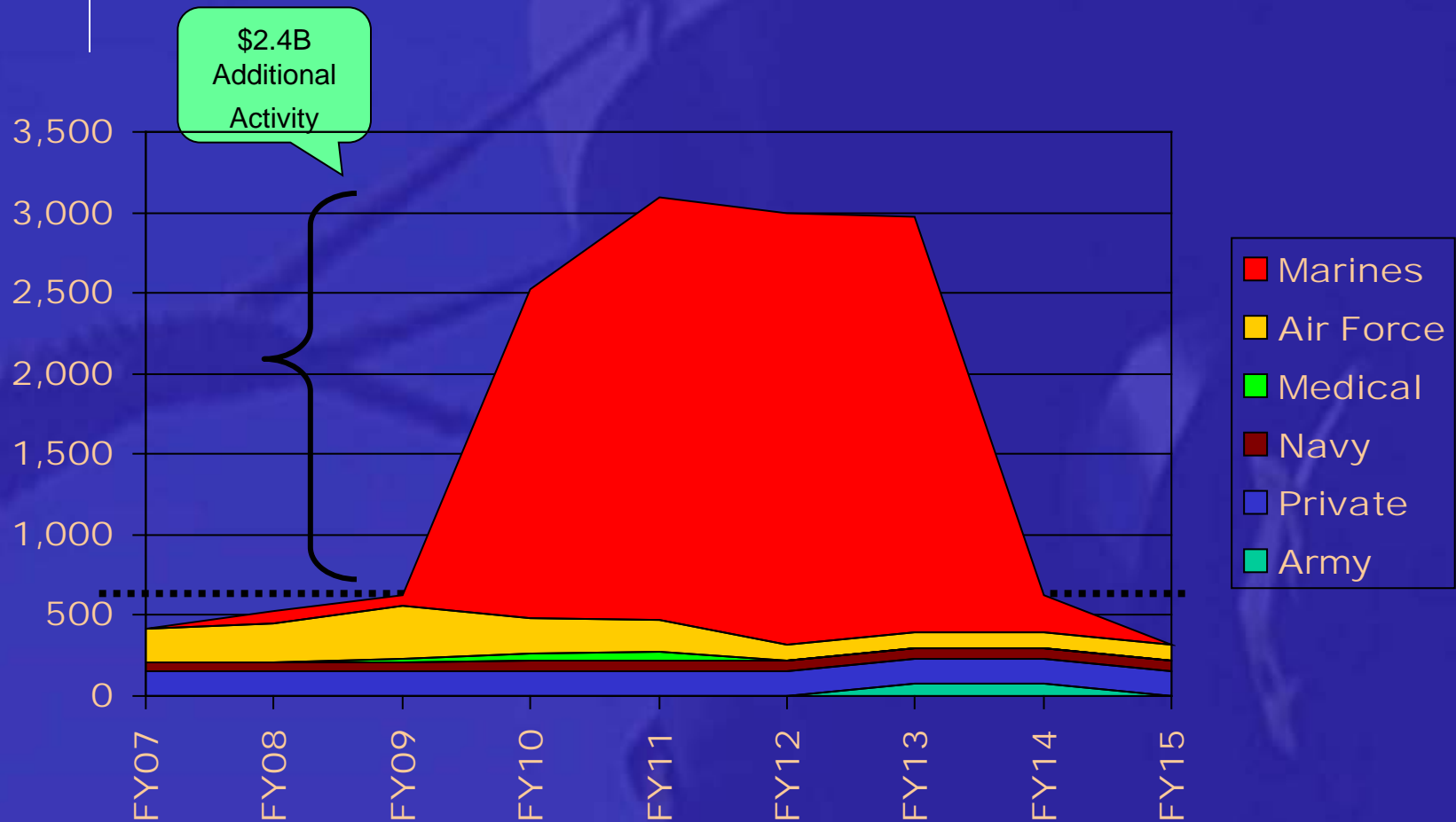


# Cargo Forecast

## *Framework for the Forecasts:*

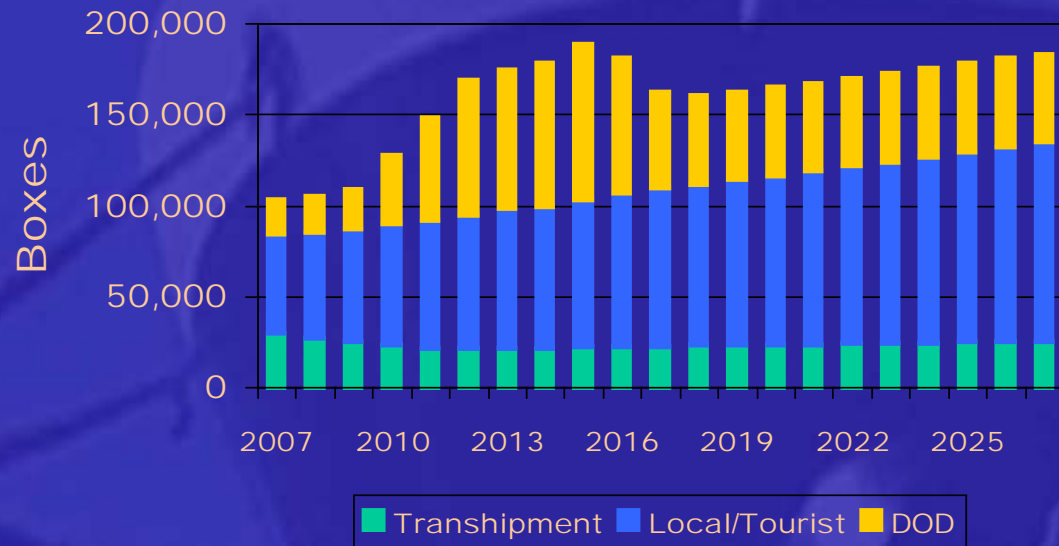
- Transportation is a derived demand
- Population
- Employment & markets
- Major Drivers
  - Base Construction & 22% Population Increase
  - GovGuam Infrastructure Program

# DOD Guam Construction Activity (Millions 2007\$)

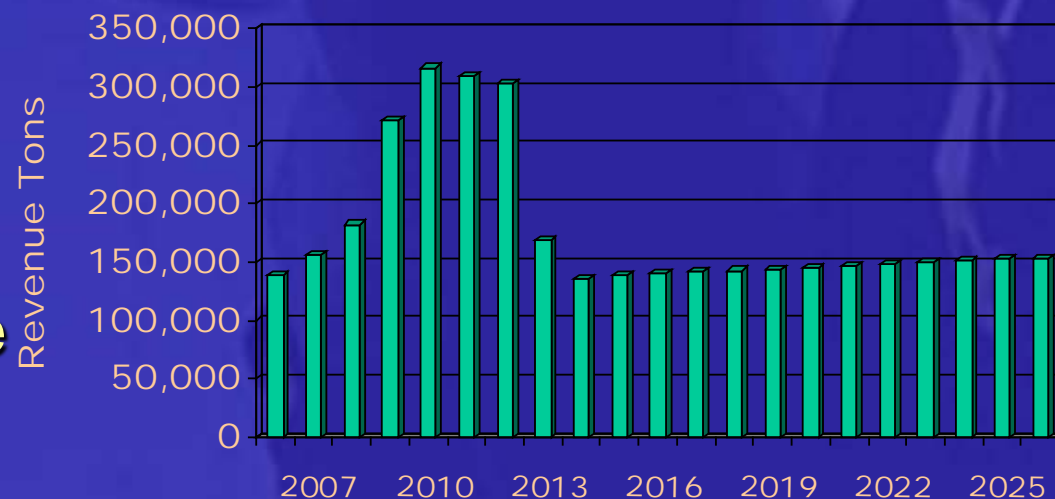


# Forecast

Containers in  
Boxes



Median Break-  
bulk Cargo



Cement is Double  
or More

# Critical Capacity Constraints for Containers, Break-bulk & Cement

## *Annual Cargo:*

- |                |                                    |                           |
|----------------|------------------------------------|---------------------------|
| ■ Containers:  | 103,000                            | Boxes in 2007             |
| Est. Capacity  | 120,000                            | (current trade pattern)   |
| Peak Demand    | 190,000                            | (200,000 high peak)       |
| ■ Break-bulk:  | 155,000                            | Tons Peak in 2006         |
| Est. Capacity  | Close to Capacity                  |                           |
| Peak Demand    | 320,000                            | Tons During Construction  |
| ■ Cement:      | 100,000                            | Tons in 2007              |
| Est. Capacity  | 125,000                            | Tons                      |
| Peak Demand    | 250,000                            | Tons (Could range higher) |
| ■ Cruise:      | 6 to 8                             | Vessels                   |
| Future Demand  | 25                                 | Vessels if Successful     |
| ■ Liquid Fuels | Have Excess Capacity (Shell/Mobil) |                           |

# Design Ships

## Short Term (Base Relocation Driven)

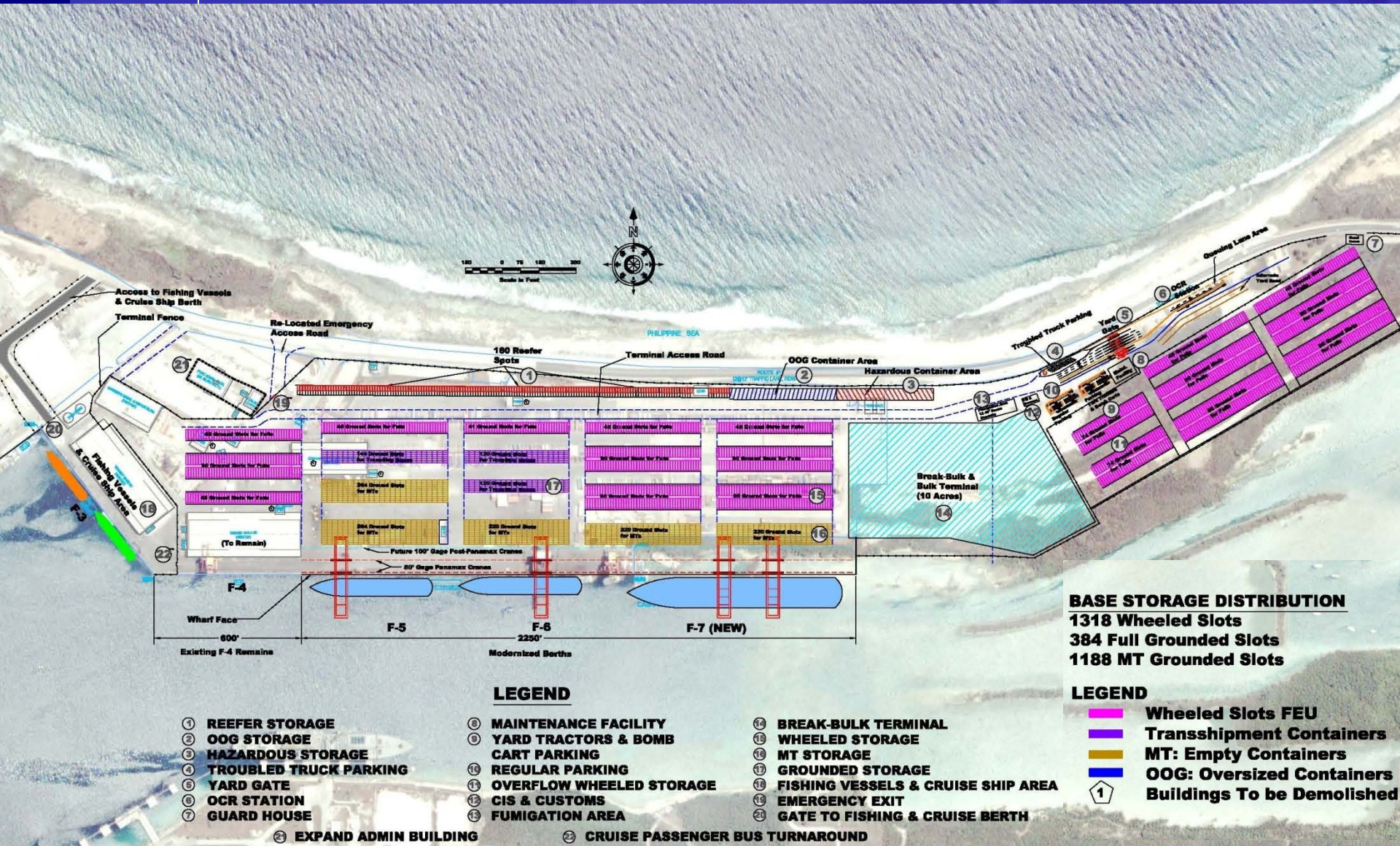
| Classification       | TEU   | LOA<br>(Feet) | Draft<br>(Feet) | Beam<br>(Feet) | Width<br>(Container) | DWT    |
|----------------------|-------|---------------|-----------------|----------------|----------------------|--------|
| Handy Size           | 2,200 | 640           | 33              | 93             | 11                   | 25,000 |
| Maunawili            | 2,600 | 712           | 41              | 105.6          | 13                   | 37,752 |
| Horizon Hunter       | 2,824 | 729           | 39              | 98             | 12                   | 39,266 |
| LMSR Military Vessel | N/A   | 950           | 37              | 105.6          | N/A                  | 34,000 |

## Long Term (Technology Driven - to be Deferred)

| Classification     | TEU   | LOA<br>(Feet) | Draft<br>(Feet) | Beam<br>(Feet) | Width<br>(Container) | DWT     |
|--------------------|-------|---------------|-----------------|----------------|----------------------|---------|
| Post Panamax       | 4,800 | 900           | 45              | 135            | 16                   | 90,000  |
| Super Post Panamax | 8,000 | 1,150         | 48              | 150            | 18                   | 100,000 |



# Analyzed Alternatives & Selected Concept for Implementation





# Selected for Implementation

- Considered Alternatives & Selected for Implementation
- Modernize & Expand 2,250 of Wharf & Dredge:
  - Existing Berth: -37' As Is
  - New Berth: -42' Now & -51' Future
- Apron & Container Crane:
  - Near Term: 50' PANAMAX Crane
  - Long Term: 100' Gage Post-PANAMAX
- Retain/Save Most Existing Buildings
- Minimize Disruption to Existing Operations
- Secure Yard per ISPS
- High-mount Yard Lighting, Paving & Utilities
- Expand Terminal for Peak Storage Demands

# Selected Concept

## Features (Cont'd)

- New, Efficient Truck Gates
  - Target: 3 Min. In / 1 Min. Out
  - Paperless Semi-automated Gates (OCR?, Cameras..)
  - Optimize Manning
- Break Bulk Storage Yard for Construction Peak
  - Rebar, Pipe & non-Containerized Project Cargo
  - Use for Military Deployment Exercises in Out Years
- Plan for Customs, Agriculture Inspection, Fumigation Etc.
- Cement: Dredging by Port / Other Private Sector

# Cargo Terminal Budget Estimates

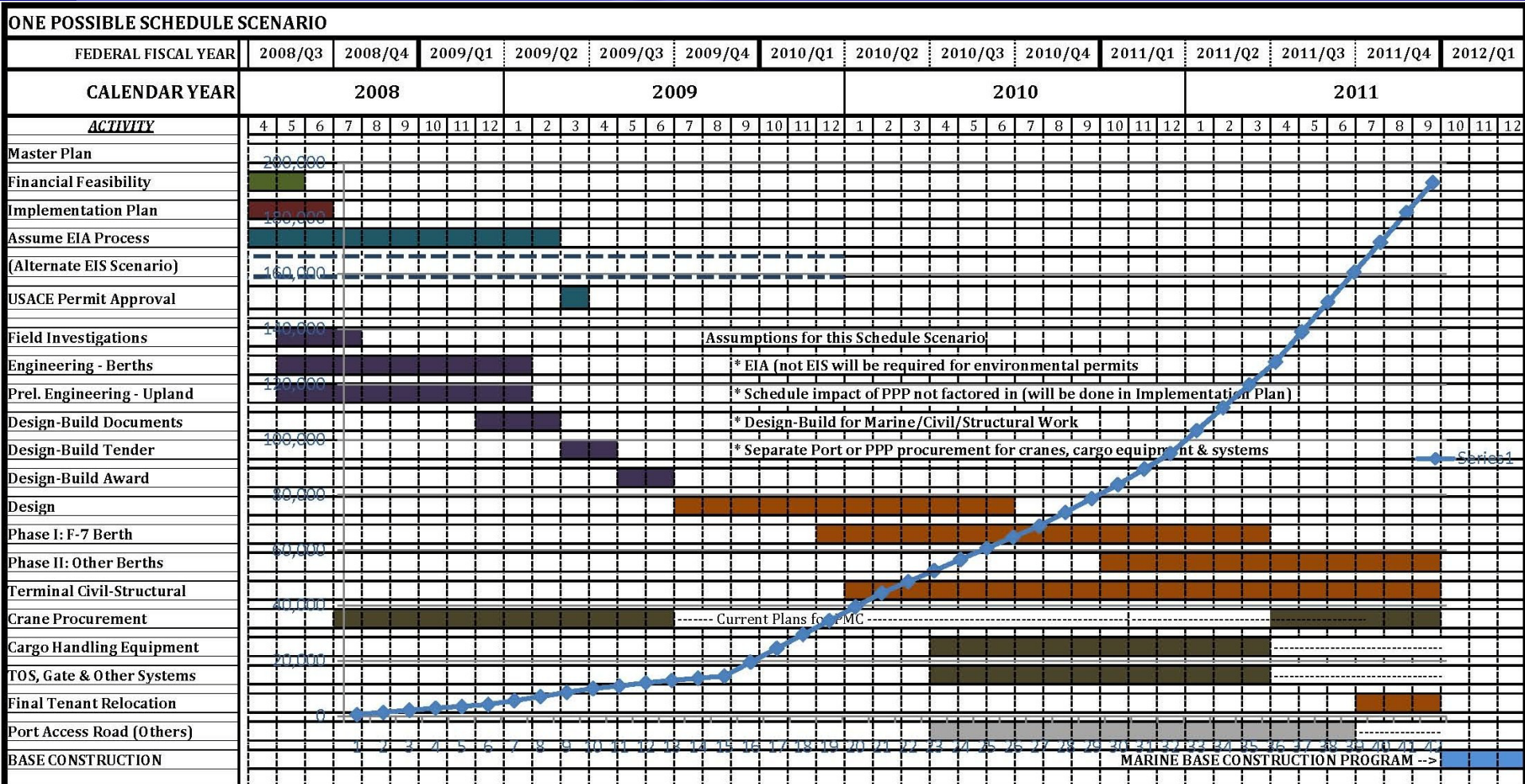
| ITEM DESCRIPTION                          |            | Budget Estimate       |
|---|------------|-----------------------|
| Mobilization and Demobilization           |            | \$ 6,530,000          |
| Miscellaneous Construction Excluded Below |            | \$ 2,180,000          |
| Demolition                                |            | \$ 7,510,000          |
| Berth F-5 to F-7 Modernization            |            | \$ 34,290,000         |
| Buildings                                 |            | \$ 7,950,000          |
| Terminal Paving                           |            | \$ 14,600,000         |
| Power, Lighting & Electrical              |            | \$ 8,990,000          |
| Site Utilities                            |            | \$ 20,110,000         |
| Security                                  |            | \$ 7,740,000          |
| Container Cranes                          |            | \$ 14,500,000         |
| Top-Picks & Spreaders                     |            | \$ 2,900,000          |
| Side-Picks                                |            | \$ 1,500,000          |
| Other Yard Equipments                     |            | \$ 3,700,000          |
| Terminal Operating System                 |            | \$ 2,500,000          |
| Gates                                     |            | \$ 2,500,000          |
|   |            | \$ -                  |
|   |            |                       |
| <b>SUBTOTAL Direct Costs</b>              |            | <b>\$ 137,500,000</b> |
| <b>Contingency</b>                        | <b>25%</b> | <b>\$ 34,500,000</b>  |
| <b>Engineering/Permits/CM</b>             | <b>15%</b> | <b>\$ 21,000,000</b>  |
|   |            |                       |
| <b>TOTAL</b>                              |            | <b>\$ 193,000,000</b> |



# Immediate & Near Term Steps

- Identify Funding for Critical Near Term Activities
- Perform Financial Feasibility Assessment & Identify Alternative Financial Scenarios
- Alternative Implementation Plans & Delivery Scenarios
- Site Characterization Program
- Environmental Analysis & Permitting
- Preliminary Engineering of Wharf Concurrent with Above
- Put in Place Mix of Financing/Funding/Tariff/Investment etc.
- Port Crane Procurement (in Progress as PMC due to Immediate Need)

# Preliminary Cash Flow Based on One Notional Schedule & Delivery Method



# Preliminary Cash Needs Based on One Notional Schedule & Delivery Method

| CF - BASED ONE POSSIBLE SCHEDULE SCENARIO (\$1,000) |         |   |   |   |   |    |          |    |   |   |   |   |   |   |   |   |   |    |          |    |   |   |   |   |   |   |   |   |   |    |           |    |   |   |   |   |   |   |   |           |   |   |  | TOTAL |
|---|---------|---|---|---|---|----|----------|----|---|---|---|---|---|---|---|---|---|----|----------|----|---|---|---|---|---|---|---|---|---|----|-----------|----|---|---|---|---|---|---|---|-----------|---|---|--|-------|
| CALENDAR YEAR                                       | 2008    |   |   |   |   |    | 2009     |    |   |   |   |   |   |   |   |   |   |    | 2010     |    |   |   |   |   |   |   |   |   |   |    | 2011      |    |   |   |   |   |   |   |   |           |   |   |  |       |
|   | 4       | 5 | 6 | 7 | 8 | 10 | 11       | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11       | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11        | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |           | 8 | 9 |  |       |
| FEDERAL FISCAL YEAR                                 | 2008    |   |   |   |   |    | 2009     |    |   |   |   |   |   |   |   |   |   |    | 2010     |    |   |   |   |   |   |   |   |   |   |    | 2011      |    |   |   |   |   |   |   |   |           |   |   |  |       |
| Planning  | \$1,986 |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0       |    |   |   |   |   |   |   |   | \$1,986   |   |   |  |       |
| AEE&M   | \$2,250 |   |   |   |   |    | \$7,376  |    |   |   |   |   |   |   |   |   |   |    | \$5,895  |    |   |   |   |   |   |   |   |   |   |    | \$3,492   |    |   |   |   |   |   |   |   | \$19,014  |   |   |  |       |
| Traffic   | \$0     |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$2,500   |    |   |   |   |   |   |   |   | \$2,500   |   |   |  |       |
| Security  | \$0     |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$1,548  |    |   |   |   |   |   |   |   |   |   |    | \$6,192   |    |   |   |   |   |   |   |   | \$7,740   |   |   |  |       |
| Marine  | \$0     |   |   |   |   |    | \$8,164  |    |   |   |   |   |   |   |   |   |   |    | \$22,859 |    |   |   |   |   |   |   |   |   |   |    | \$9,797   |    |   |   |   |   |   |   |   | \$40,820  |   |   |  |       |
| Upland  | \$0     |   |   |   |   |    | \$1,878  |    |   |   |   |   |   |   |   |   |   |    | \$10,589 |    |   |   |   |   |   |   |   |   |   |    | \$48,874  |    |   |   |   |   |   |   |   | \$61,340  |   |   |  |       |
| Operational   | \$0     |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$2,500   |    |   |   |   |   |   |   |   | \$2,500   |   |   |  |       |
| Equipment   | \$0     |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$22,600  |    |   |   |   |   |   |   |   | \$22,600  |   |   |  |       |
| Contingency AEE&M                                   | \$0     |   |   |   |   |    | \$4,571  |    |   |   |   |   |   |   |   |   |   |    | \$0      |    |   |   |   |   |   |   |   |   |   |    | \$0       |    |   |   |   |   |   |   |   | \$4,571   |   |   |  |       |
| Contingency Capital                                 | \$0     |   |   |   |   |    | \$3,325  |    |   |   |   |   |   |   |   |   |   |    | \$13,302 |    |   |   |   |   |   |   |   |   |   |    | \$13,302  |    |   |   |   |   |   |   |   | \$29,929  |   |   |  |       |
| TOTAL   | \$4,236 |   |   |   |   |    | \$25,314 |    |   |   |   |   |   |   |   |   |   |    | \$54,193 |    |   |   |   |   |   |   |   |   |   |    | \$109,257 |    |   |   |   |   |   |   |   | \$193,000 |   |   |  |       |



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# Questions ?