



PEO Ships Brief to NDIA



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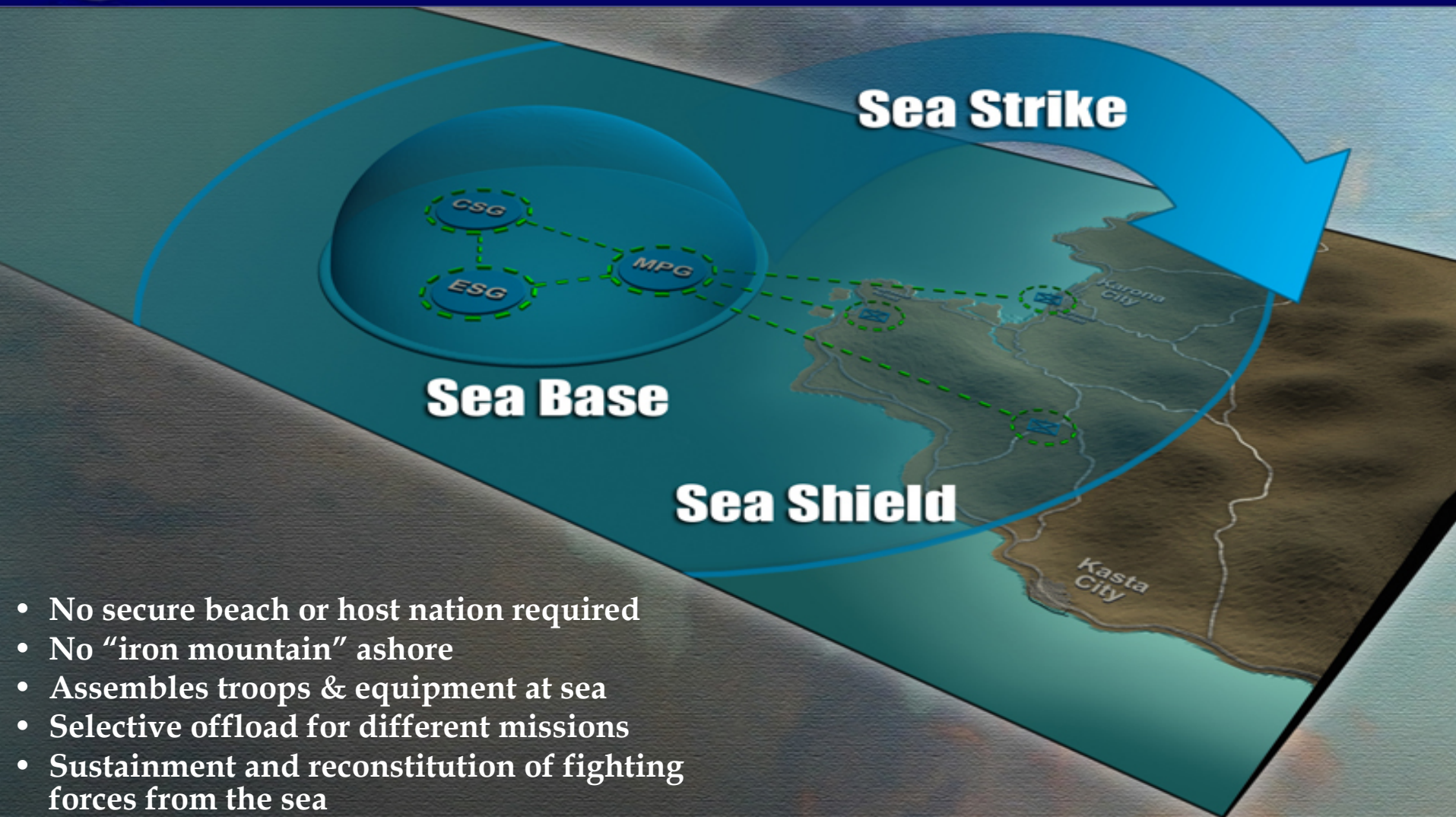


Agenda

- Maritime Prepositioning Force (Future)
 - Concepts, Requirements, and Desirements
 - Research and Development
- LHD-8
- LHA(R)
 - Reviewed Alternatives
 - LHA(R) Flt 0
 - LHA(R) Flt 1



MPF(F) Transformational Capability



Sea Base

Sea Strike

Sea Shield

Karona City

Kasta City

- No secure beach or host nation required
- No "iron mountain" ashore
- Assembles troops & equipment at sea
- Selective offload for different missions
- Sustainment and reconstitution of fighting forces from the sea



Seabasing Joint Integrating Concept (JIC)

- ***Operate without reliance on land bases ... 2–2.5K NM advance base to JOA***
- ***Conduct rapid transfer via Selective offload/ onload... through Sea State 4***
- ***Project and Sustain ... concurrently up to 2 Brigade-sized forces; One organic to sea base and one from CONUS or advanced base***
- ***Conduct C2 ...provide capability for Joint Force Commander to exercise C2 of joint and multi-national forces***
- ***Provide maintenance ... Organizational & Intermediate-level***
- ***Provide medical support ... Level III advanced surgical care facilities***
- ***Posture for rapid reconstitution 30 days response for second MCO***



MPF(F) Squadron Goals

- Seabase a FY2015 MEB on each Squadron
- Support 10/30/30 concept
 - In which, it takes 10 days to seize the initiative, 30 days to defeat the enemy, and 30 days to reconstitute for another conflict
- Provide for
 - At Sea Arrival and Assembly
 - Aviation Deployment Capability
 - Surface Deployment Capability
 - Selective offload
 - At Sea Rehabilitation
 - At Sea Resupply

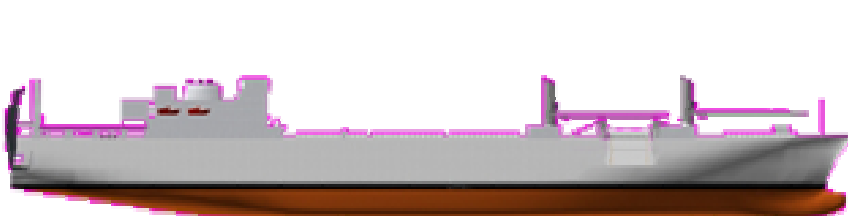
**TROOPS AND AIRCRAFT
ARE NOT CARRIED NOR
SUPPORTED BY
EXISTING SHIPS**

**LEGACY SHIPS ARE
DENSE PACKED – NO
SELECTIVE OFFLOAD**



MPF(F) Options

- FY04 efforts examined variations on the new ship concepts:
 - (1) Distributed Capability (squadrons of 8 or more ships of the same hull form which combined the surface and air launched battalion capabilities)
 - (2) the Family of Ships (squadrons of 4 or more logistic/Roll-On-Roll-Off ships for the surface launched battalion and 3 or more aviation support ships for the air launched battalion).
 - (3) Mixed families of ships which combine military with commercial type ships





MPF(F) Discussions Ongoing

Reviewing the options and potential CONOPS to create real trade space as well as:

- Consider the industrial base:
 - Producibility - Capability and workload
 - Leverage “hot” production lines
 - Provide workload stability
- Fiscal affordability:
 - Leverage existing designs and production lines
 - Maximize use of legacy assets with reasonable modification and appropriate connector selection
 - Use simple, less costly ships designs where possible to reduce overall squadron cost



MPF(F) Discussions Ongoing - Cont'd

Reviewing the options and potential CONOPS to create real trade space as well as:

- Must consider jointness:
 - Investigating interfaces that support Jointness
 - Recent merger of Army TSV and Navy HSC programs
 - ILP interface with LCACs, JHSV's, LCUs
 - MLP interface potential with Army LMSRs and LSVs, LCACs, LCU's, MPF(E)
- Must consider CONOPS opportunities to leverage ESG and CSG capabilities



MPF(F) Discussions Ongoing - Cont'd

- MPF(F) Squadrons of Distributed Capability
 - Large, multi-purpose ships
 - Aviation
 - Logistics
 - Personnel
 - Ships are unaffordable without reducing original concept requirements
 - Producibility concerns for today's commercial shipyards.
- A Family of Ships
 - Less expensive
 - Spread loads production across multiple yards.
 - Logistics/RORO ships for troop support, and selective offload
 - If aviation capability MPF(F) ship is an LHD or LHA(R) :
 - Avoids bulk of non-recurring costs
 - Leverages learning within an active production line



MPF(F) Way Ahead

- Complete studies required to support assessment of MPF(F) options
 - Requirements creep (JCC(X)), Hospital ship, TAVB)
 - Broader system of systems
 - Connectors
 - Amphibs
- Detailed report to Congress to be provided in May 2005
- Release of FY05 MPF(F) funds critical to support program decisions
 - FY05 RDT&E investment is required regardless of which MPF(F) ship and squadron configuration is selected
 - Interface systems require R&D effort for informed decision



MPF(F) Research and Development (Halted)

- Integrated Landing Platform (ILP)
- Mobile Landing Platform (MLP)
- Interface Evaluations of ILP and MLP
- Skin to Skin Transfer
- Automated Cargo Handling
- Heavy Lift UNREP



Integrated Landing Platform (ILP)

Organic, self-deploying system that provides the interface between the MPF(F) and the variety of connectors used for surface delivery.

Why?

- Offload ships quicker than well deck
- Maximizes ship cargo volume



Way ahead

- Develop and validate an external surface craft interface to permit at-sea arrival, assembly and deployment of forces and equipment.
- Notional system includes the platform and deployment, retrieval, mooring, fendering, cargo transfer, personnel transfer and surface craft support systems
- Provide phased design and demonstration to reduce schedule and cost risk





Integrated Landing Platform



- Develop organic, self-deploying system
- Operate in Sea State 3 – 4
- Provide cargo transfer between ship and surface craft
- Provide interface for variety of surface craft
- Utilize ship roll mitigation system





Key Integrated Landing Platform Elements (continued)





PROGRAM EXECUTIVE OFFICE SHIPS

PEO Ships-M

LCAC Operations on Concept Demo Platform (Aug. 2004)





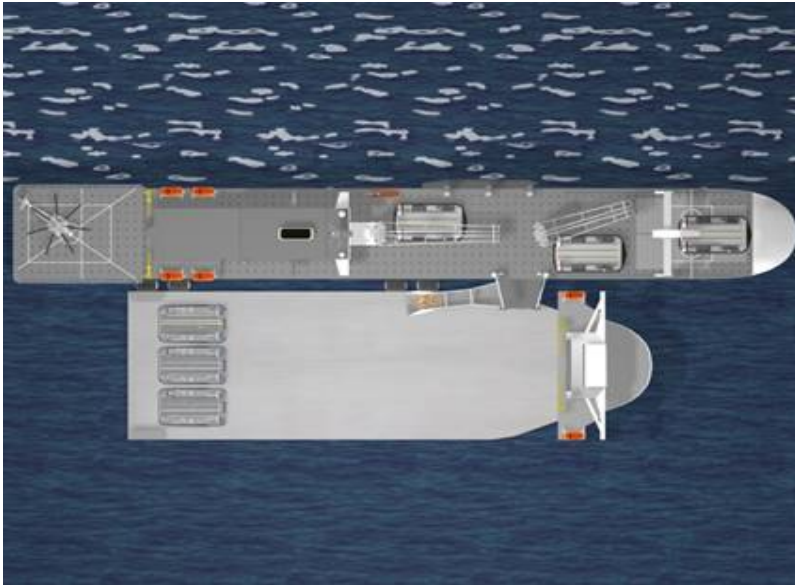
Integrated Landing Platform

- Use dynamic positioning
- Facilitate personnel transfer
- Provide surface craft services





Mobile Landing Platform (MLP)



- A large heavy lift ship (also known as float on/float off (FLO/FLO) design)
- Potential universal interface for Navy and Army ships and small craft
- Provides Flexibility - could transport causeway sections, berthing barges, containers, more LCACs, etc.

- Existing ship technology
- Affordable
- Displacement craft interface
- Leverages current capabilities





PROGRAM EXECUTIVE OFFICE SHIPS

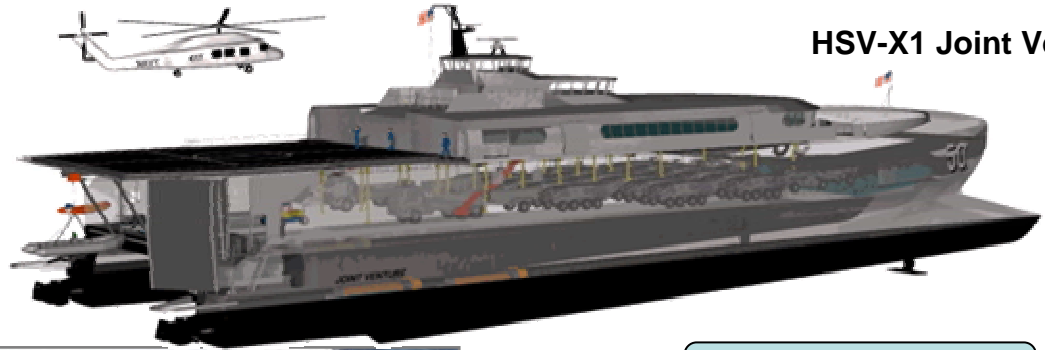
PEO Ships-M

Surface Craft to Interface with the MLP/ILP



LCAC

Landing Craft, Air Cushioned



HSV-X1 Joint Venture

**Future Force
Surface Craft**



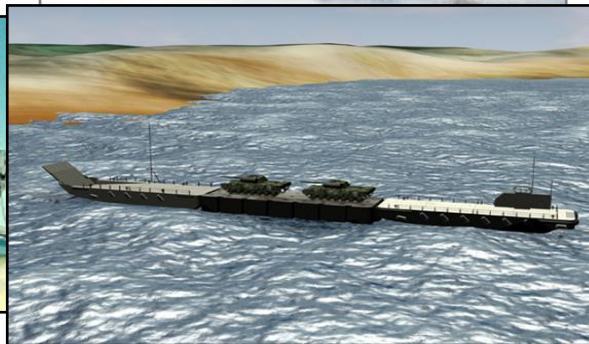
EFV

(Expeditionary Fighting Vehicle)



LSV

(Logistics Support Vessel)



INLS

(Improved Navy Lighterage System)



**LCU 2000
(Landing Craft, Utility)**



Skin-to-Skin Mooring and Cargo Transfer

Provides capability for at-sea mooring and transfer of cargo (containers, vehicles, fuel) and personnel between inter-theater shuttle ships and MPF(F) ships.

- Builds on commercial tanker lightering practice. Includes mooring & fendering, cargo, and personnel transfer systems
- Commercial practice initiates STS in low sea states
- Concept tested with two T-ACS Ships in October of 2003
- Concept refinement through series of high sea state tests using concept ship in FY05 and FY06





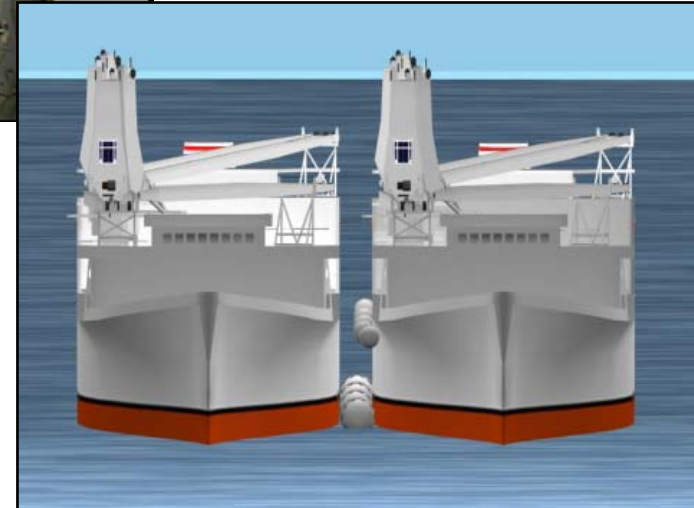
PROGRAM EXECUTIVE OFFICE SHIPS

PEO Ships-M

Skin-to-Skin Mooring and Cargo Transfer



- Operate in Sea State 3 - 5
- Investigate ship motion prediction system
- Use ship roll mitigation system
- Develop organic mooring system

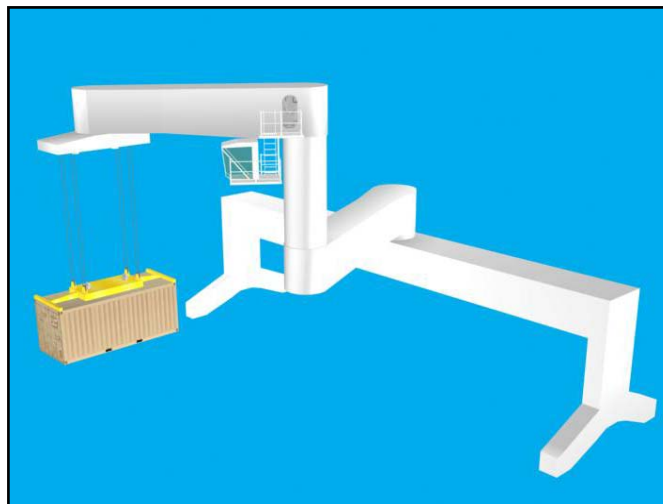




Skin-to-Skin Mooring and Cargo Transfer

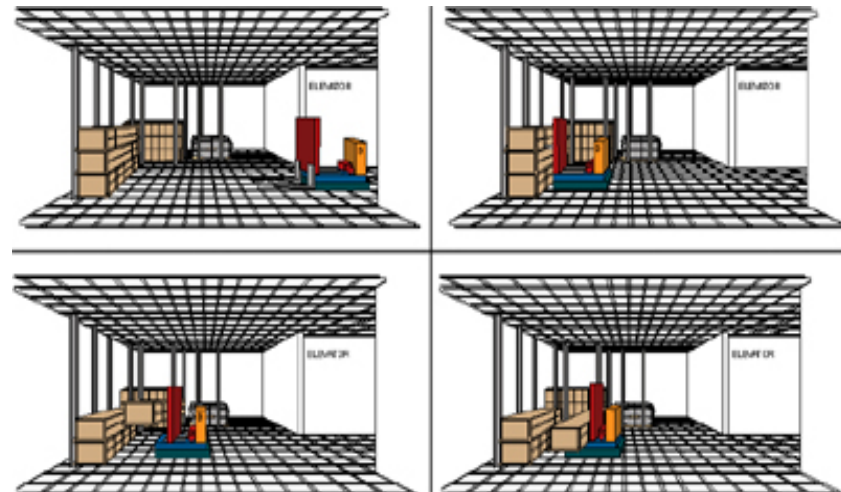
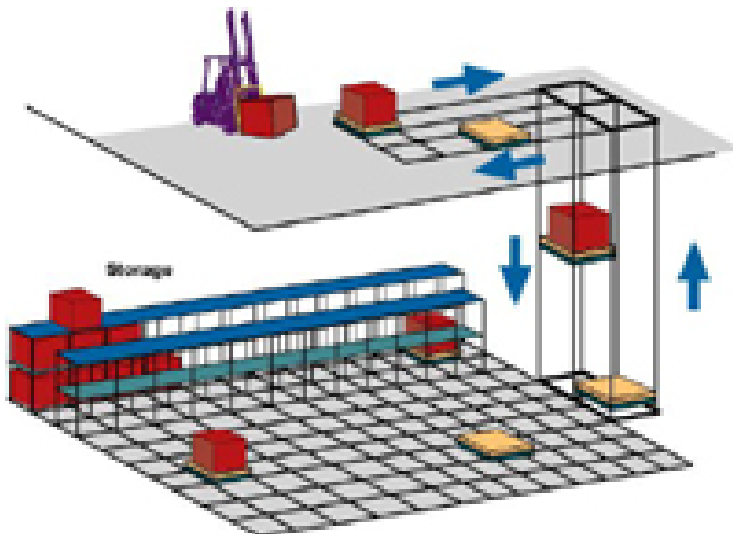


- Provide ISO container and vehicle transfer between ships
- Facilitate personnel transfer
- Accomplish series of at-sea demonstrations to validate systems and prove operational procedures
- Develop crane load motion control system



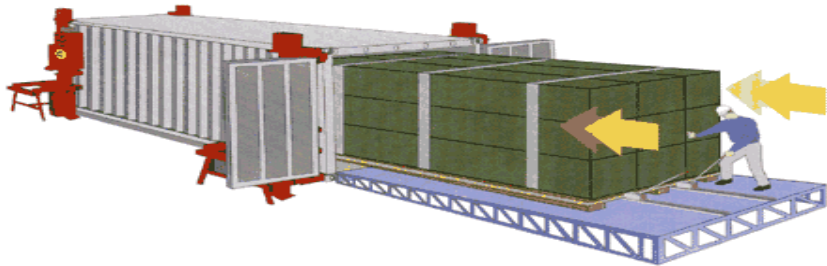
Automated Cargo Handling

- Automated Cargo Handling will provide a capability to selectively offload mission-specific packages for transfer ashore or within the sea base.
 - Notional system includes automated systems to store, unpack and repack cargo containers and pallets
 - Need to examine how we package stores
 - Includes systems to move cargo to air and surface transfer interface locations





Automated Cargo Handling



- Facilitate selective offload of cargo
- Operate in Sea State 5
- Develop 20 foot ISO container stuff/ unstuff





Automated Cargo Handling

- Accomplish at-sea demonstrations to validate systems and prove operational procedures





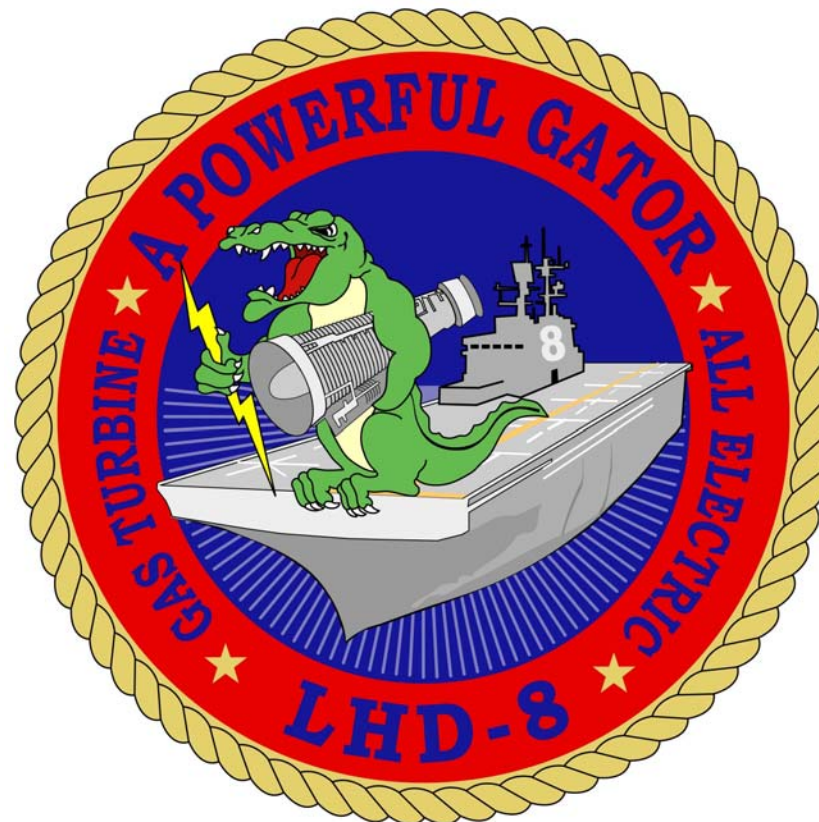
Heavy Underway Replenishment

- Increased system throughput & capacity
 - Up to four times today's throughput
 - Lift capacity increased from 5,700 lbs to 12,000 lbs
- Decreased Unrep manning
- Increased ship separation (safety)
- Legacy interoperability



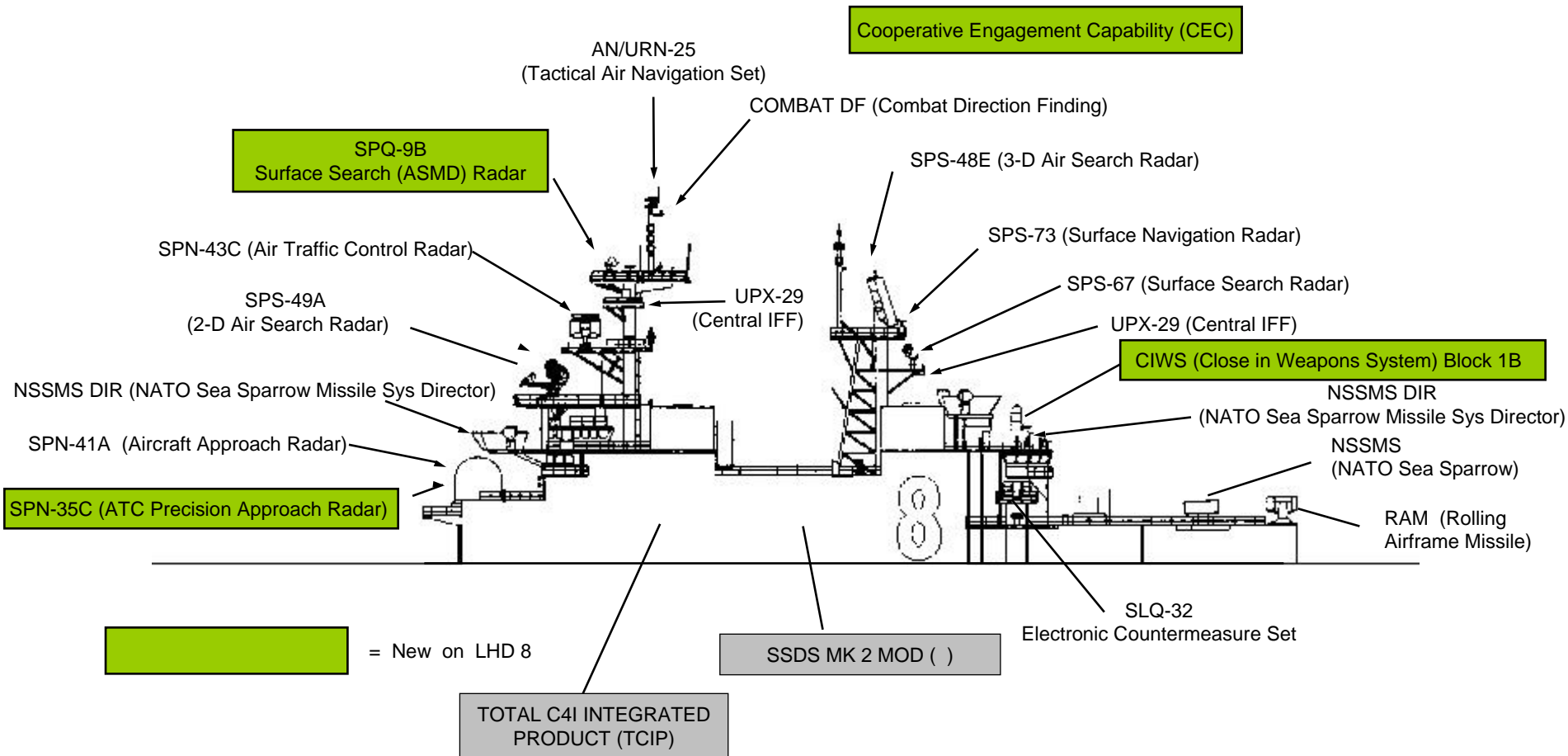


LHD-8





LHD 8 Combat Suite

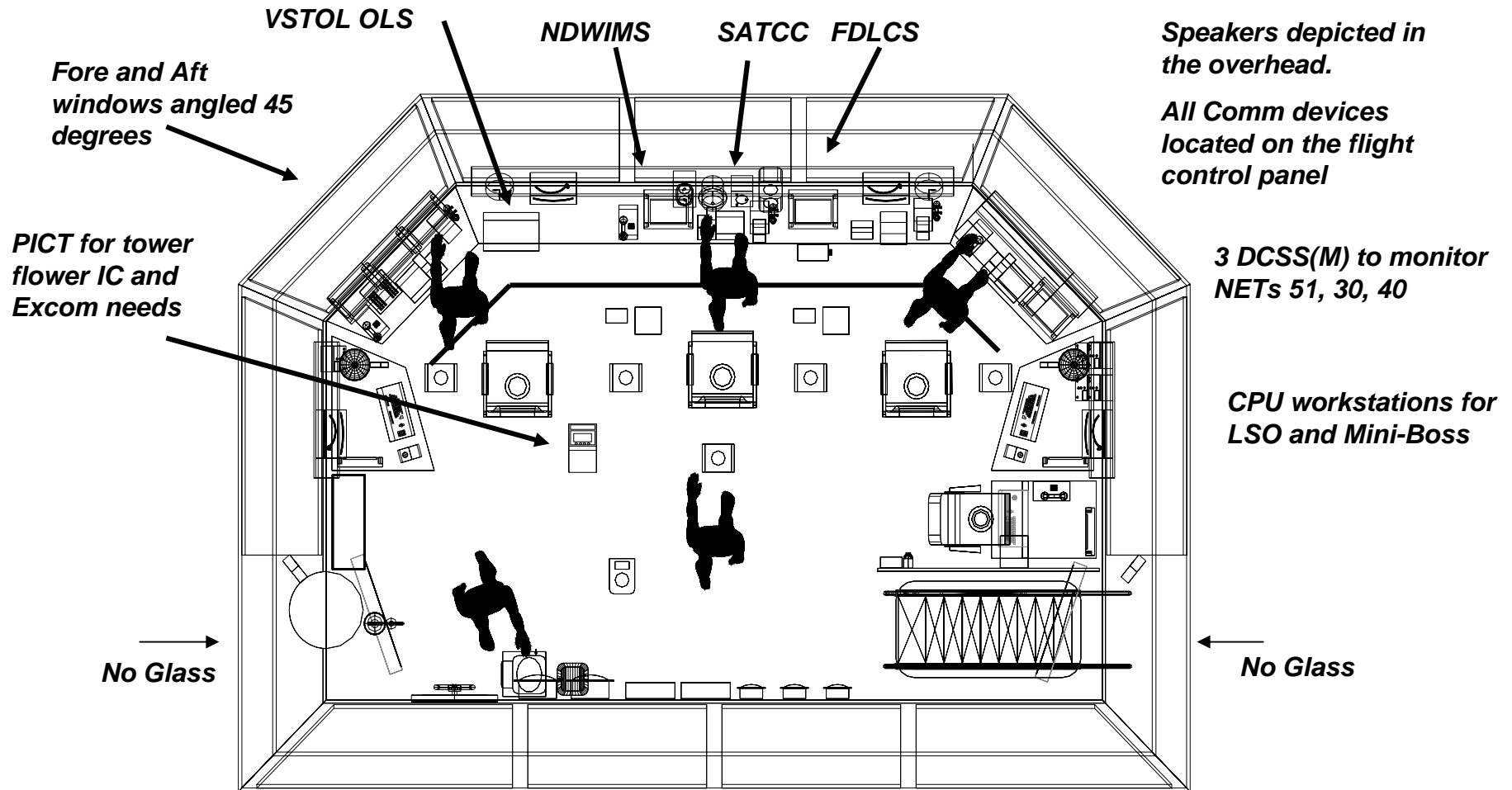




PROGRAM EXECUTIVE OFFICE SHIPS

PEO Ships-M

LHD 8 Pri-Fly





LHA(R)





LHA(R) Program History

- CNA MAA Nov 2000
- PMS377 designated Program Manager: 20 November 2000
- Mission Need Statement (MNS): 5 March 2001
- MS A Acquisition Decision Memorandum (ADM): 20 July 2001
- AoA Report completed by CNA: September 2002
- ASN(RD&A) directed additional cost vs. capability studies: 23 January 2004
- EXCOMM for LHA(R) Flight 0; chaired by ASN(RD&A), CMC and VCNO to clarify requirements: 29 March 2004
- Required Capabilities Letter for LHA(R) Flight 0 issued by ASN(RD&A), CNO and CMC: 30 April 2004
- Feasibility Design completed; results briefed to ASN (RD&A): 17 June 2004
- LHA(R) CDD formally entered into JCIDS review process: 05 August 2004
- FY05 Defense Appropriations Act added \$150M FY05 SCN for Advance Procurement for Flight 0: 06 August 2004 (Funds have now been released to the Program Office)



Spot Factor Comparison Current VS Future ACE

CURRENT AIRCRAFT	SF	FUTURE AIRCRAFT	SF	# OF A/C	CURRENT SF	FUTURE SF
CH-46E	1	MV-22	2.22	12	12	26.64
AH-1W	0.83	AH-1Z	0.92	4	3.32	3.68
UH-1N	0.93	UH-1Y	0.94	3	2.79	2.82
CH-53E	2.68	N/A	2.68	4	10.72	10.72
AV-8B	1.53	JSF	2	6	9.18	12
				TOTALS	40.01	57.6
				PERCENTAGE INCREASE		144%
				NEARLY A 45% INCREASE IN DECK MULTIPLE		

NOTE: SPOT FACTO IS A METHOD OF SIZING AIRCRAFT ON A PARTICULAR PLATFORM USING THE CH-46E AS THE UNITY (SF=1) AIRCRAFT FOR MORE INFORMATION, SEE NAEC-ENG-7604 REV U MAXIMUM DENSITY AIRCRAFT SPOTTING



LHA(R) AoA Design Category Dual Tram Line

DIMENSIONS

Length, LBP: 909 ft.
Length, Overall: 960 ft.
Beam, DWL: 139 ft.
Beam, Flight Deck: 249 ft.
Design Draft: 30.5 ft.
Displacement (FL) 67,915LT

PERFORMANCE

Sustained Speed: 22 knots
Shaft Power: 56,000 kW
Service Life: 40 Years

AMPHIBIOUS SYSTEMS

Vehicle Square (net): 2,657 m²/28,600 ft²
Cargo Cube (net): 4,587 m³/162,000 t³
Cargo Fuel, JP-5: 1,000K gal
Landing Craft: 3 x LCAC or 2 x LCU
Well Deck Operations: Wet/Dry
Troop Accommodations: 1830

AVIATION

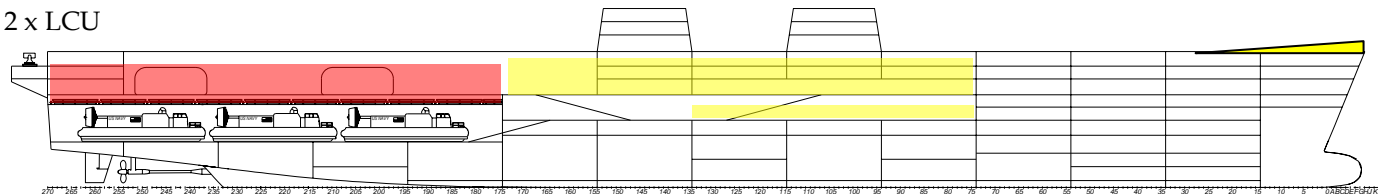
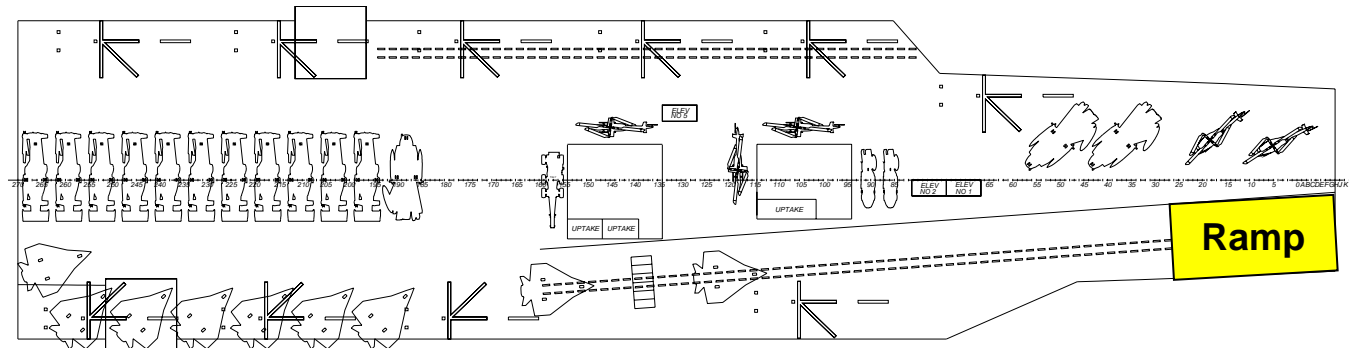
Aircraft: 10 x JSF 12 x MV-22
4 x CH-53E 6 x AH-1Z
3 x UH-1Y 2 x H-60(SAR)

AUXILIARY SYSTEMS

All-Electric

MEDICAL FACILITIES

Medical Operating Rooms: 6
Bed Hospital Ward: 72



•10+ JSF, 6 AH-1
•Concurrent flight ops
•Larger hangar
•30,000 sq.ft. vehicles

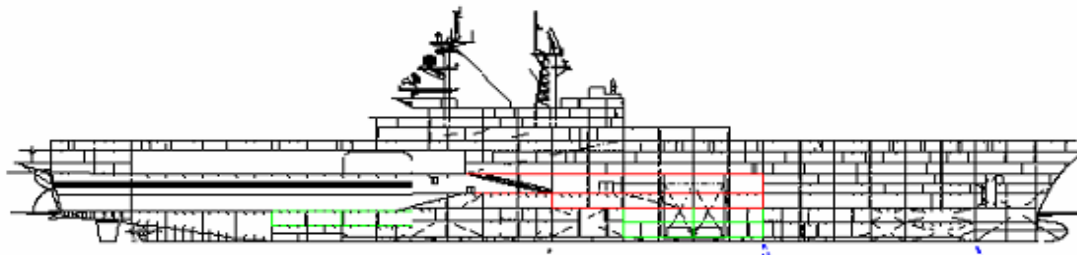
	<u>DTL</u>	<u>LHD</u>
Length, overall (ft)	960	847
Beam, DWL (ft)	139	106
Width flight deck (ft)	220	118
Displacement (LT)	69,000	42,000



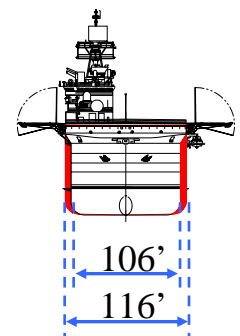
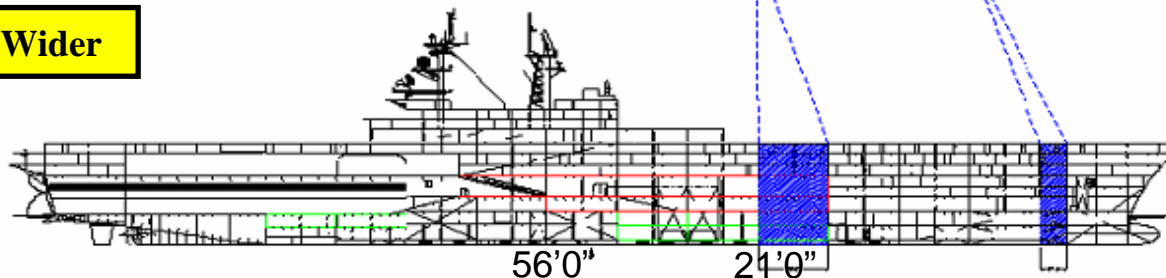
AoA Design Category LHD 8 Plug Plus

Expanded Hull LHD (77-foot length increase and 10-foot beam increase)

- Additional vehicle, cargo, aircraft, and JP-5 capacity (compared to LHD)
- Gas turbine propulsion & all-electric auxiliaries - LHD 8 modified
- LHA(R) 1 repeats LHD 8 Warfare System
- Vulnerability improvements
- Full Service Life Allowance (7.5% displacement, 2.5 ft KG)
- Habitability improvements (meets OPNAV standards)
- 31 - 33 aircraft; no significant improvements in flight operations (1 more helo spot)



Longer and Wider





LHD Plug Plus





Issues with Plug-plus

DoN Leadership

- Value Added
- Transformation
- Current Operations

Navy

- Schedule risk
- Shipyard workload
- Cost

Marine Corps

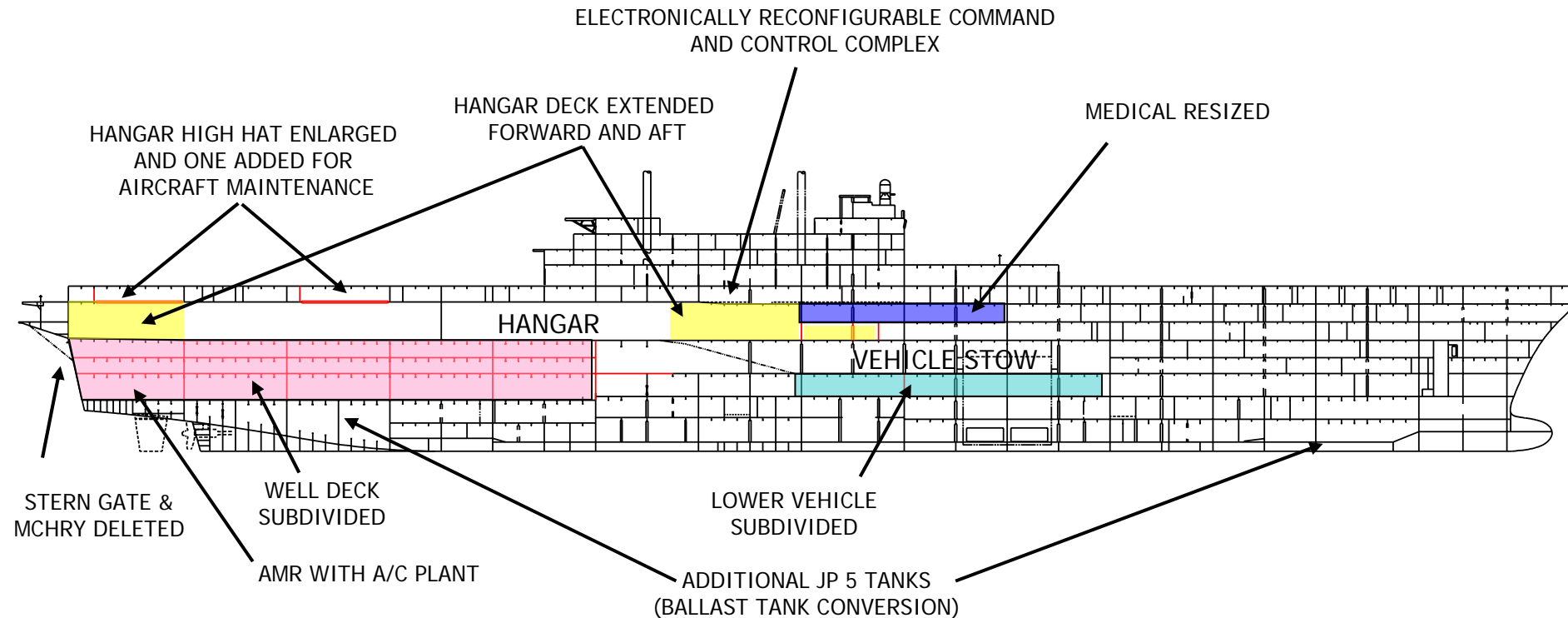
- Future Aviation capability
- Shipyard workload
- Budget instability



LHA(R) Flight 0



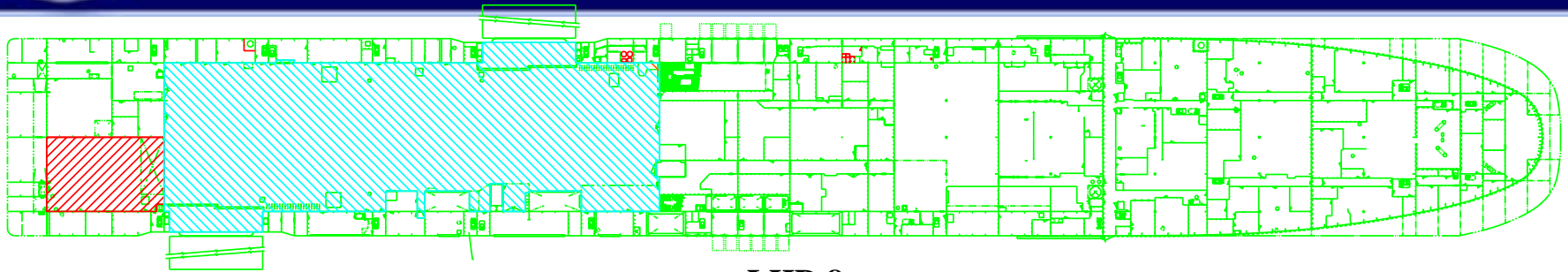
LHA(R) Flight 0 Inboard Profile



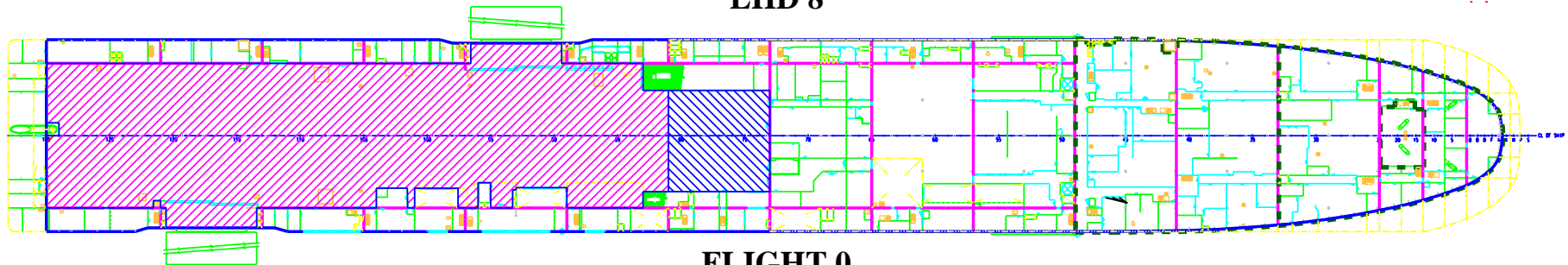
- Increased aircraft spotting factors for future Marine Corps aircraft as well as larger logistic footprint required hangar deck expansion and subsequent relocation of AVCAL (aviation test equipment, tools, parts etc.) and maintenance shops to the former well deck area
- Removal of well deck allowed for increased aviation fuel capacity through conversion of ballast tanks to JP-5 tanks



LHD/LHA(R) Flight 0 Hangar Comparison



LHD 8



FLIGHT 0

LHD 8 HANGAR
21480 SQ FT



FRAMES 83-121
20 FT DK HGHT

BOAT POCKET
2500 SQ FT



FRAMES 121-130
19-20 FT DK HGHT

FLIGHT 0 HANGAR
27254 SQ FT



FRAMES 81-130
20 FT DK HGHT

FLT 0 HANGAR BAY FWD
3136 SQ FT



FRAMES 73-81
19 FT DK HGHT

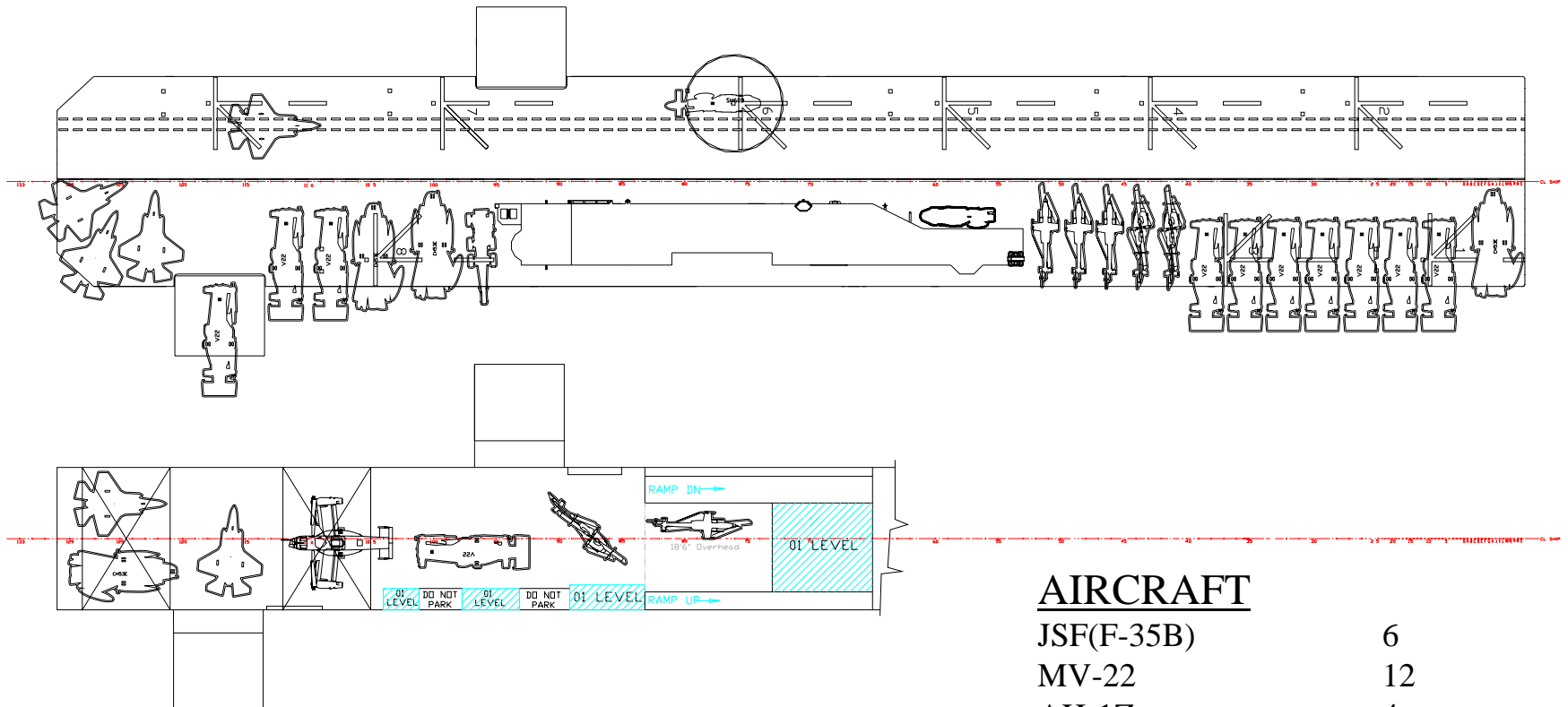
Total LHD Hangar Area (w/o Boat Pocket) = 21,480 ft²
Total LHD Hangar Area (with Boat Pocket) = 23,980 ft²

Total LHA(R) Flight 0 Hangar Area = 30,390 ft² (42/27% area increase, respectively)



LHA(R) Pre-launch MEU ACE

16

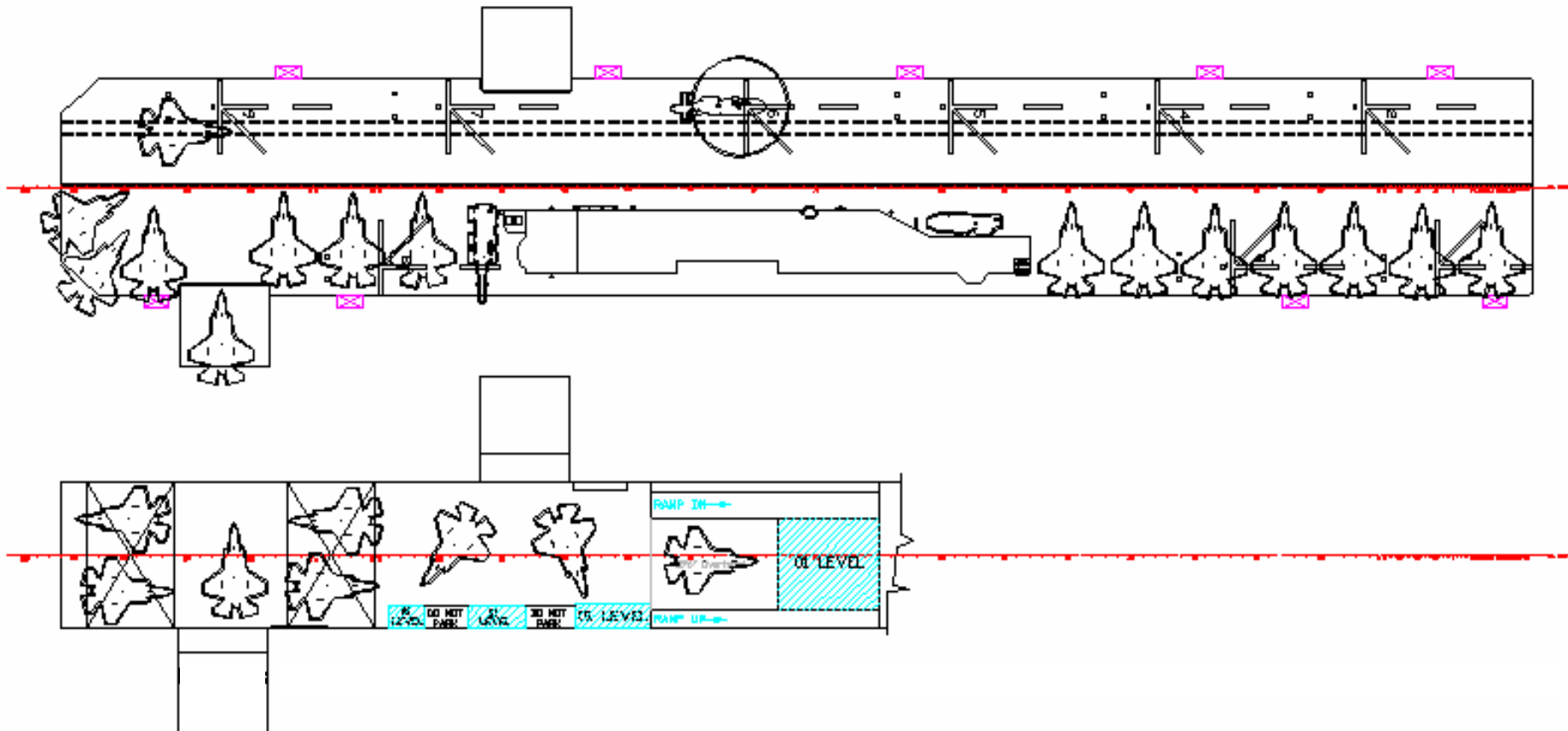


AIRCRAFT

JSF(F-35B)	6
MV-22	12
AH-1Z	4
UH-1Y	3
CH-53E	4
MH-60S (NAVY)	2
TOTAL	31



LHA(R) Pre-launch 23 JSF (F35B)





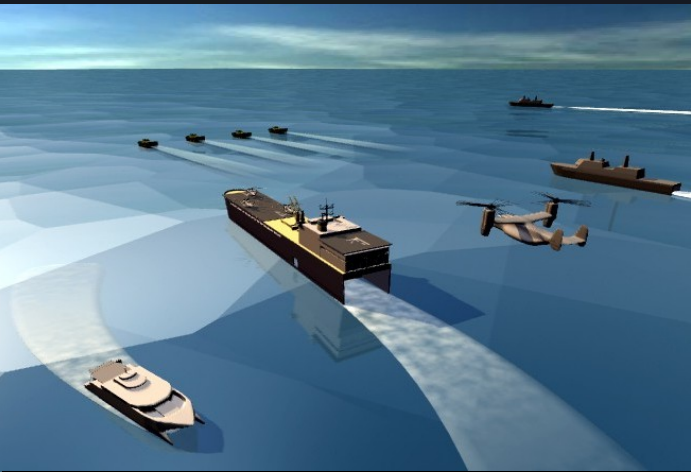
Capability Comparison

Requirements	LHA	LHD	LHA(R) Plug Plus	LHA(R) Flt 0
Aviation: JSF	0	19	21	23
Aviation Maint (MV22)	Limited	Limited	Full (1 MV22)	Full (2MV22)
Cargo (K cubic ft)	109	125	140	160
Vehicle (K square ft)	25.4	20.9	25.4	11.6
Troops	1,713	1,686	1,686	1,686
Well Deck (LCAC)	1	3	2-3	0
JP-5 (K gallons)	400	617	900	1,300
Sustained Speed (kts)	22	22	22	22
Service Life Allowance:				
Disp	None	2.5%	7.5%	5%
KG	remains	+0.5 ft	+ 2.5 ft	+1.0 ft
Survivability (armor)	None	Limited	Add'l	Add'l

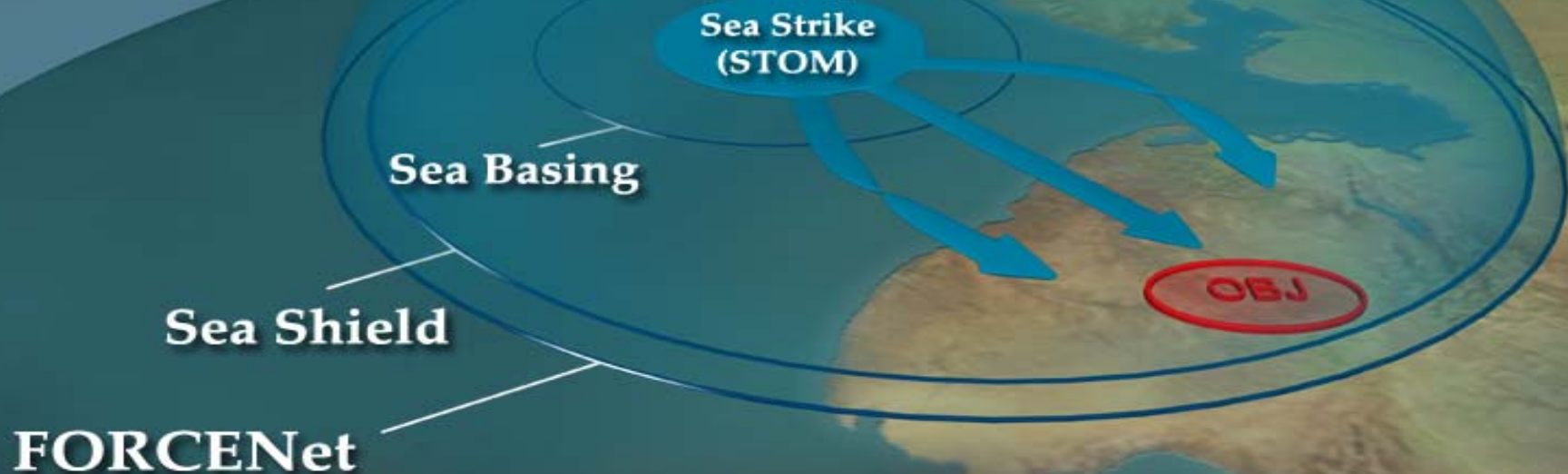
CAPABILITY VALIDATED BY CDD APPROVAL AT JROC



Wrap Up



- Tying the picture together
 - MPF(F)
 - Connectors
 - Amphibs
 - Linking the pillars





Questions

The background of the slide is an aerial photograph of a naval fleet. Several large aircraft carriers are visible, moving in a formation across the ocean. The water is a deep blue, and the sky is a lighter blue with some wispy clouds. The carriers are leaving white wakes behind them, indicating their direction of travel.