

## Executive Summary

With LSD-41 approaching 25 years of an expected 40 year hull service life, it is important to look at potential design concepts for determining an appropriately sized and configured replacement. Additionally, based on the Next Generation Integrated Power System (NGIPS) Technology Development Roadmap released by NAVSEA, the Navy is becoming more focused on the development and use of an Integrated Power System (IPS). As a result of these two motivations, a notional LSD replacement concept (LSX) has been developed.

To examine an all electric amphibious ship, a Medium Volt Alternating Current (MVAC) IPS was designed within a 25,000 LT displacement hull. In addition, this design concept examined the benefit to the expeditionary community by prioritizing reduced fuel use while retaining a high level of amphibious mission capability. These goals were accomplished by selecting 6 diesel generators as prime movers, inserting a well deck capable of housing 3 LCACs, and allocating 35,000 ft<sup>2</sup> of deck space for vehicle storage. Two additional options implemented in this design were a notional rail gun for providing fire support to marines ashore, as well as a the Laser Weapons System (LaWS) for self defense.

The results of this study propose a feasible MVAC IPS ship with appreciable fuel savings under peace time operations. The tradeoff however, is that procurement costs on a per ton basis will be higher than the existing Whidbey Island and Harpers Ferry class ships. This is primarily a result of the high risk of unproven weapon systems and electrical components.

<b>SHIP CHARACTERISTICS</b>	
Displacement, Full Load	26,584 MTON / 26,164 LT
Length Between Perpendiculars (LBP)	240 m / 787.4 ft
Length Overall (LOA)	247.7 m / 812.7 ft
Beam @ DWL	28.5 m / 93.5 ft
Draft @ DWL	7.4 m / 24.3 ft
<b>MISSION CAPABILITIES</b>	
Sustained Speed	24 knots
Surface Fire Support	64 MJ Rail Gun
Troop Berthing	450
Vehicle Storage	3,628.7 m <sup>2</sup> / 39,059 ft <sup>2</sup>
Aviation	Hangar Bay/2 Spots
<b>ORGANIC VEHICLES</b>	
Helicopter	1 CH-53, 2 CH-46, or 2 V-22
Amphibious Craft	3 LCAC
<b>COST</b>	
Total Procurement Cost, FY08 \$	106% of LPD-17 Cost