

## Executive Summary

In an effort to protect the irreplaceable lives of sailors, marines, and soldiers, the military is seeking to install unmanned vehicles into daily operations. These unmanned vehicles, aerial, surface and underwater, present a fighting platform with reduced manning requirements, reduce fuel requirements, and risk-reduced mission capabilities.

Technologically, advancements are being made every day to bring these drone platforms up to speed with their manned counterparts. In the fleet already, unmanned aerial vehicles (UAV) are being launched from the ground by marines to gather intelligence; unmanned surface vehicles (USV) are being tested on the littoral combat ship for intelligence, surveillance, and reconnaissance, ISR, as well as mine countermeasures; and unmanned underwater vehicles (UUV) are being designed to be fitted on submarines. With these advancements, the US Navy needs a cheap, feasible platform in which to launch these vehicles. That solution is the Unmanned Aerial and Surface Vehicle Carrier (CVU).

The CVU concept developed in this report converts a baseline Whidbey Island class dock landing ship (LSD 41) into an unmanned vehicle platform to launch UAV and USV. The CVU will launch and recover UAV conducting missions such as ISR, anti-submarine warfare (ASW), and power and projection (long and short range bombing) from an upgraded LSD flight deck. Simultaneously, the carrier will be able to support USV operations from the large well-deck and USV platform. This project will incorporate UAV and USV capabilities; however, UUV integration would be possible as well.

Table 1 provides the CVU general characteristics and Figure 1 depicts the overall CVU.

CVU Characteristics	Value	Units
Length Overall	610	ft
Beam	84	ft
Draft (Full Load)	17.6	ft
Installed Power	6500	kW
Light Ship Displacement	11,041	LT
Full Load Displacement	14,255	LT
Sustained Speed	23	kts
Maximum Speed	25	kts
Endurance	18	kts
Number of UAV	20	
Type of UAV	MQ-9 Reaper	
Number of USV	9	
Type of USV	Spartan Scout	
$C_p$	0.604	
$C_B$	0.571	
$C_x$	0.946	

Table 1: CVU Characteristics.

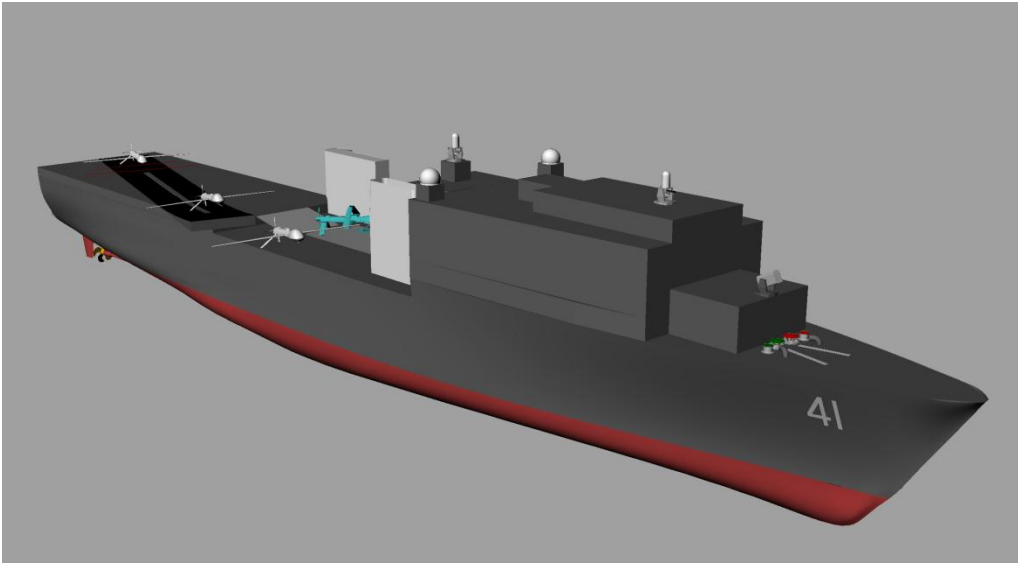


Figure 1: Overall CVU drawing.