

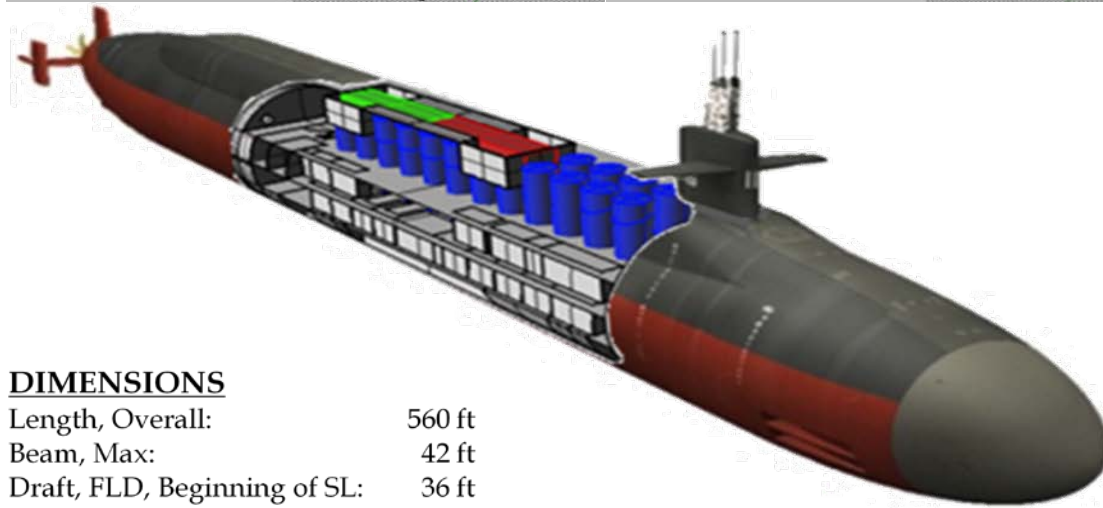
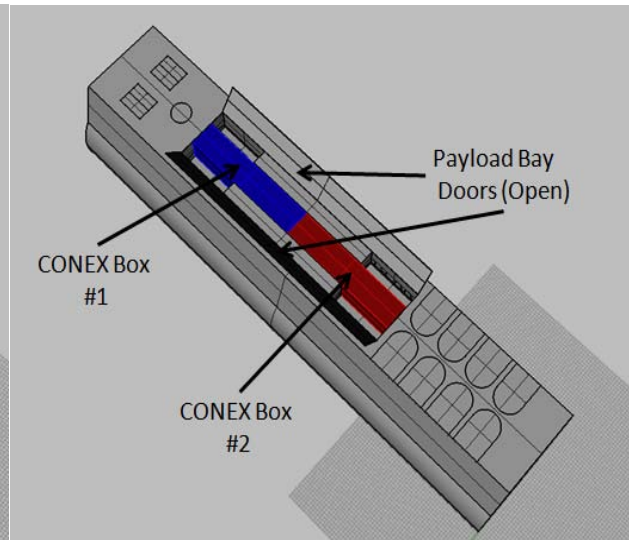
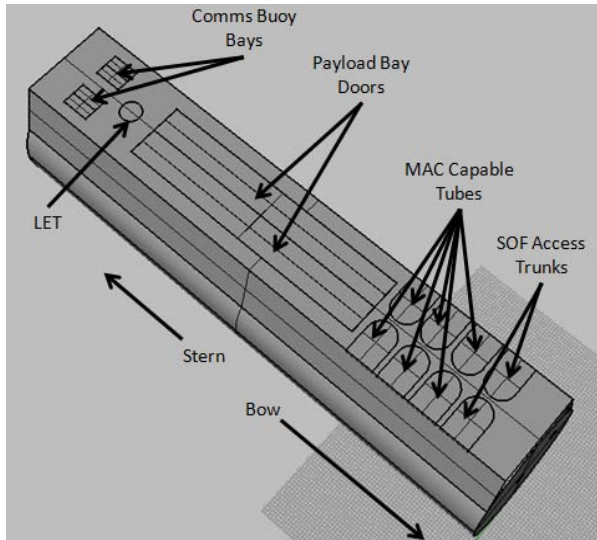
***Ohio* Class SSGN Very Large Modular Payload Submarine (VLMPS) Conversion**

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Delivery of Special Operations Forces (SOF) and their equipment, employment of covert intelligence gathering sensors, and the release of anti-surface, anti-submarine, and strike weapons have been the traditional missions conducted by attack submarines; their covert operating nature makes them the perfect base platform. The tools and payloads for conducting these missions have been limited to the dimensions of the hull penetrations or significant reconfigurations of topside layouts resulting in significant speed reductions. For the newest *Virginia* SSN's, the hull penetration limit is a 21 inch torpedo tube or a 30 inch diameter hatch; for the *Ohio* SSGN's, the limit increases to the D-5 missile tube diameter of 87 inches. Due to the dimension limitations, neither of these platforms is capable of carrying the modern CONEX box sized mission modules around which ships like LCS were designed. To ensure the submarine force can compete in the increasingly modularized Navy, the VLMPS is proposed.

This conversion study examines the concept of inserting a large payload facility into an SSBN undergoing conversion to an SSGN class submarine. The study focused on using current SSGN data, arrangements, weights, and drawings as a starting point. From there, several design variants were analyzed and the unique and most cost effective model that maintained the inherent attack submarine capabilities while opening new opportunities for modular payload transportation was chosen. Modifications were made as necessary to the arrangements, structure, and weights of the original SSGN to transform her into the top-load, horizontally oriented payload variant capable of transporting up to two 40 ft CONEX boxes. This affordable design reuses many of the SSBN components such as missile tubes, hinges, and hydraulics.

While the modifications remained feasible during this study, additional research is recommended, particularly in the areas of watertight integrity, shock, and structural reinforcement of a modular payload bay located within the hull envelope.



DIMENSIONS

Length, Overall: 560 ft
 Beam, Max: 42 ft
 Draft, FLD, Beginning of SL: 36 ft
 Displacement: 18770 LT

PERFORMANCE

Sustained Speed: 20.0+ knots
 Test Depth: > 500 ft
 Endurance on Station > 90 Days
 Service Life: > 40 Years

ACCOMMODATIONS

Submarine Accommodation Standards

Crew (155)
 Officer 15
 Enlisted 140

Mission (66)
 Passengers 66

TOTAL 221

HULL STRUCTURE

Navy Design Standards
 Hull: HY-80

MISSILE COMPARTMENT FACILITIES

Payload Bay:
 Length, Overall: 80 ft
 Width, Max: 18 ft
 Width, Min: 8.5 ft
 Depth 8.75 ft

Special Operations:
 Modified Lock-in/out chambers: 2

ARMAMENT

Torpedo Tubes: (21 inch) 4
 VLS Tubes: 6 MACs X 7 AURs