Instrumentation Tower on Wallops Island
Draft Environmental Assessment

PURPOSE AND NEED

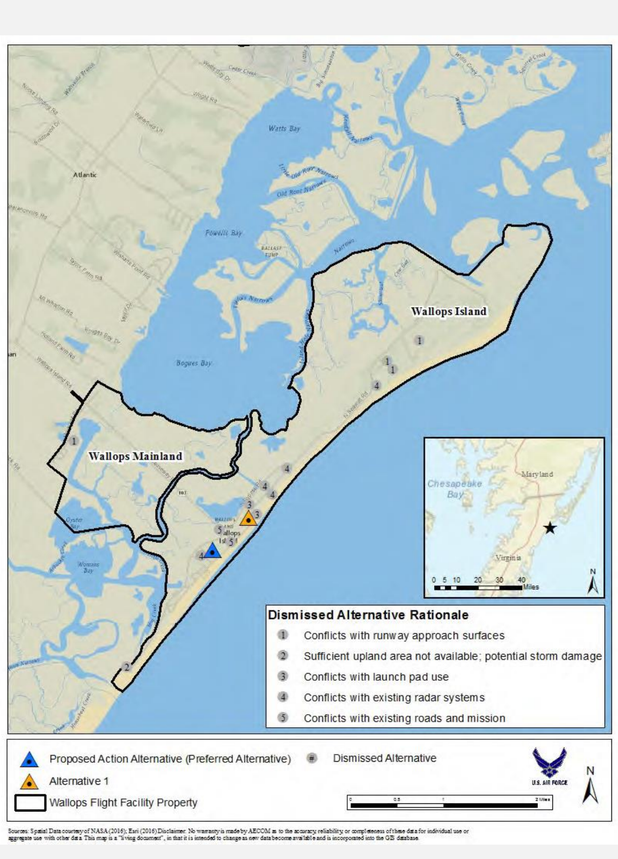
To support mission needs, the USAF has identified the need to develop a larger RDT&E footprint in the Virginia Capes Range Complex. These new capabilities would minimize the usage of costly airborne and surface instrumentation systems currently in use. In addition, extending the range of communication coverage would enable UAS to operate farther offshore, thereby minimizing the risk of crashes or other incidents over land and corresponding risks to human safety and personal property. Through preliminary analysis of testing and technology requirements, the USAF has determined that stationary instrumentation with an elevation of 750 feet located in a coastal setting would provide the extended communication coverage necessary to fulfill RDT&E mission requirements.

Instrumentation mounted at a lower elevation and located at an inland area would not provide sufficient coverage and thus, would fail to meet the USAF's need. Mounting instrumentation at heights between 100 and 200 feet AGL would result in a coverage range between 17 and 23 miles, respectively, for an offshore surface target of about 6 feet in height. In contrast, mounting instrumentation as proposed on the new tower would result in coverage to approximately 41 miles offshore for a similarly-sized target. Thus, in comparison to a 100-foot tall structure, a tower of the height proposed by the USAF would enable an estimated 20 additional nautical miles of coverage when tracking aircraft at typical flight test altitudes (between 10,000 and 20,000 feet AGL).

PROPOSED ACTION

The proposed tower would be 750 feet tall and would be a three-sided lattice structure built of galvanized steel, 42 inches wide on each side. Guy wires would be required along the tower's vertical height to provide structural support and would tie into nine anchor points on the ground. The tower would require 12 steel guy wires on each of three sides, installed along radii extending horizontally out from the tower at angles of 120 degrees from each other and anchored in three groups. The three outermost anchor points would be located approximately 590 feet out from the tower base, three intermediate anchor point will be located approximately 530 feet from the tower base, and the three innermost anchor points would be approximately 430 feet from the tower base (all measurements indicate horizontal distances). Anchor points for the guy wires would consist either of concrete slabs measuring 14 by 14 by 5 feet or helical piles, which consist of one to three bearing plates attached to a central shaft and installed by rotation, similar to a screw. A conceptual rendering of the proposed tower as it would appear on the Proposed Action Alternative site is shown on the right. The tower would support, at appropriate elevations, a variety of equipment including ultra-high frequency (UHF)/very high frequency (VHF) radios, telemetry dishes, global positioning system (GPS) antennas, spectrum-monitoring antennas, a flight termination system, and meteorological instrumentation.

ALTERNATIVES SELECTION PROCESS



The USAF developed criteria in the early stages of project planning to guide the identification and selection of alternative sites on which to build and operate the proposed tower. To be considered a reasonable alternative, the location for the proposed instrumentation tower must meet the following criteria:

1) Within 10 nautical miles of the Atlantic coast in the region of southern Maryland or northern Virginia, with sites closer to the coast preferred;
2) On a guarded military or other government-owned facility to meet security requirements;
3) On a site that provides vehicular access and is served by existing electrical and communications infrastructure, and does not require substantial site preparation and/or additional infrastructure investment;
4) In an open area that accommodates the approximately 590-foot radius of the required guy wire footprint (i.e., approximately 25 acres, at minimum);
5) Outside of an established or proposed aircraft flight corridor, thereby enabling the construction of a 750-foot tower; and
6) Result in no or manageable impacts on uses and activities adjacent to or near the tower site.

Based on the site selection and alternatives review process, the USAF identified sixteen potential sites at Wallops Flight Facility. One of the sites was located on Mainland and the remainder were located on Wallops Island. The USAF, in coordination with NASA and NAVSEA SCSC, reviewed each site for compatibility with mission operations, range safety, constructability, and natural resources. Based on this analysis, the Mainland site and 13 of the potential Wallops Island sites were rejected from further consideration due to encroachment upon aircraft approaches and rocket launches; interference with radar systems; safety considerations; and susceptibility to storm damage. The two remaining alternative sites are located on mid-Wallops Island and were the subject of further analysis in the Draft EA. The USAF has determined that these two sites best meet the selection criteria and would fulfill the purpose and need for the Proposed Action. The Proposed Action Alternative site is located northwest of Building X-015 and the Alternative 1 site is located northwest of Building X-079. These and other Wallops Island sites considered, but rejected, are shown on the left.