

EXECUTIVE SUMMARY

What is a joint land use study (JLUS)?

There are many positive interactions between a military installation and the local jurisdiction. However, the activities of either can have unintended impacts on the other. Changes in military operations may increase noise, dust or safety concerns on the surrounding areas, while new residential or commercial development may restrict the military's ability to operate or train. Determining compatible development patterns on and around the installation is needed to protect the long-term, viable relationship between the installation and the local community.

A Joint Land Use Study (JLUS) is a project that brings local officials, military installation officials and the community together, in a collaborative effort, to discuss current and future needs, and to identify and promote compatible land use development patterns that are mutually beneficial to the military installation, the county and towns, and the citizens. Their findings, results, and recommendations are produced in a JLUS report.

Why was the Accomack County, VA JLUS initiated?

In 2010, the Navy conducted an internal encroachment study for Navy missions and operations at NASA Wallops Flight Facility (WFF) in Accomack County, Virginia. The study was conducted to determine if any non-Navy activities were impeding the performance of Navy operations. The study recommended that a JLUS be undertaken to further explore existing and future land use compatibility issues associated with Navy missions at the WFF. As JLUS initiatives typically involve communities around military installations, this JLUS is unique, as it involves Navy and other Department of Defense (DOD) organizations that operate as tenants at WFF, a NASA (non-DOD) facility.

Funding for the JLUS was provided by the DOD Office of Economic Adjustment (OEA) with the purpose to engage NASA, the Navy and Accomack County in ongoing collaborative efforts to preserve the mission capabilities of the Surface Systems Combat Center (SCSC) in its current strategic location as a primary tenant onboard WFF. NASA, Navy, and other DOD and Federal agencies onboard or operating from WFF are valuable assets to Accomack County, just as there

is great value in the location and facilities of WFF for the federal agencies. The partnership between NASA and the Navy has a particularly long history, and it is the desire of NASA, the Navy, and Accomack County to continue and preserve this arrangement.

The encroachment study also noted the lack of an Air Installation Compatible Use Zone (AICUZ) study for the Navy's use of the WFF airfield. The AICUZ Program is a planning tool developed and used by DOD to assist in compatible development analysis with respect to potential impacts from noise and accident potential. While the AICUZ Program is not formally applicable to other federal agencies such as NASA and consequently Wallops Flight Facility, its applicable APZ layout and noise zones were among several factors considered for this study, since the majority of current flight operations at WFF are DOD.

What are the primary goals of this JLUS?

The outcome of the collaborative efforts involved in development of this JLUS is to provide a planning tool for Accomack County. This planning tool includes recommended actions and strategies to inform future County policy-making decisions regarding compatible land use in order to accomplish the following primary goals:

- Protect the health, safety, and welfare of Accomack County residents living or working in potentially impacted areas surrounding the installation.
- Sustain the economic vitality of the Accomack County community.
- Promote a cooperative land use planning process where Accomack County collaborates with NASA, Navy and other DOD and Federal agencies onboard or operating from WFF to safeguard their mission capabilities, and in doing so, retain their critical economic value to the County.



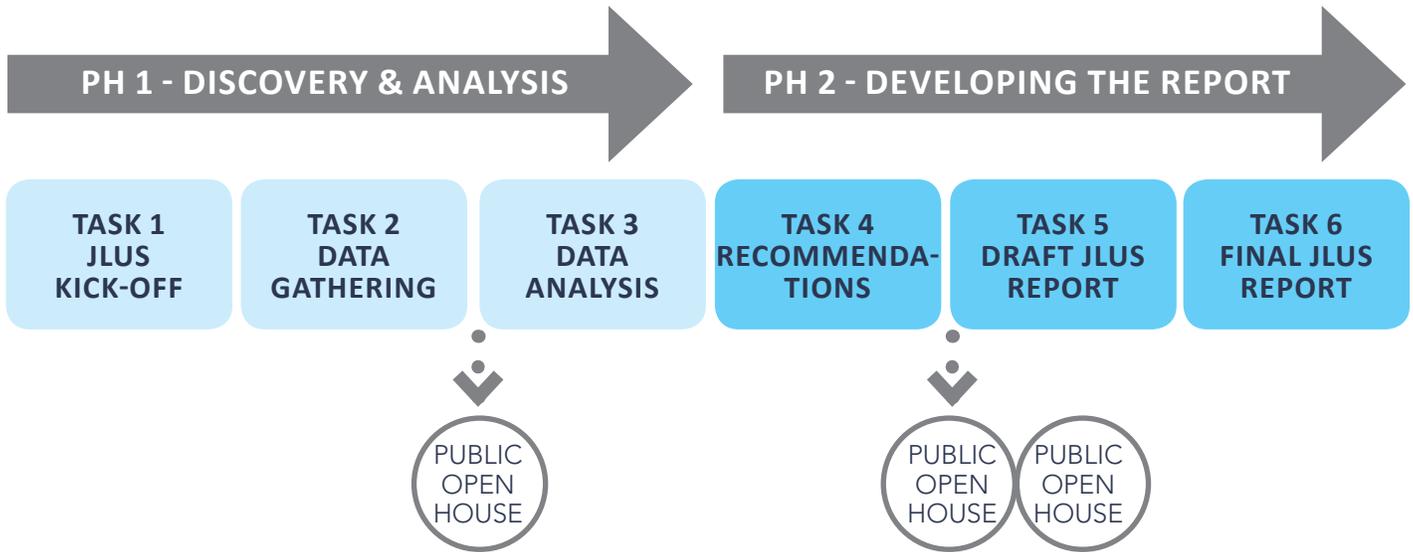


Figure. ES.1 - JLUS Development Process

- Ensure engagement of local private property owners in the land use planning process.

How was this JLUS conducted and who was involved?

Figure ES.1 depicts the JLUS development process.

A wide range of participants represented various stakeholder organizations and agencies as follows:

- Elected officials, Planning Commissioners, and staff for Accomack County and the Town of Chincoteague
- The Navy/SCSC and other DOD officials (including OEA representatives) and military installation personnel
- NASA WFF officials
- Local, regional, and state planning regulatory agencies, as well as land and water management agencies
- Environmental advocacy organizations
- Non-governmental organizations (e.g., Eastern Shore Defense Alliance)

- Other special interest groups
- Public landowners and other interested persons

Guiding committees included the Policy Steering Committee (PSC) and the Technical Advisory Committee (TAC). The PSC, comprised of various executive-level personnel, provided overall direction for the development of the JLUS (including approval of recommendations and the Draft and Final JLUS Reports) and is ultimately responsible for the document. The TAC consisted of local subject matter experts in installation planning and operations, local planners, community staff, local business and professional representatives, town and neighborhood representatives and others. This committee worked closely with the consultant, providing expertise in the development of the JLUS documentation.

The Accomack County community was brought into the process by means of three public information meetings, the JLUS website, and three published brochures. Those brochures are:

- An Informational Brochure to engage the public early in the JLUS process
- A Findings Brochure, identifying the incompatible land use issue discovered of the project team’s research and the analysis results

- A Recommendations Brochure, identifying proposed solutions and strategies to address existing and potential future incompatible land uses

What are the primary findings of this study?

As joint land use studies have been conducted in recent years, approximately 24 potential impact factors/issues have been identified, not all of which apply to each specific study. Of the broad range of potential issues, the Accomack JLUS project team identified a total of five for exploration and analysis, plus general recommendations. These five issues, plus general recommendations, are depicted by the following icons:



Three of the analyzed issues helped shape the overall operational footprint, where the potential conflicts exist between WFF operations and the surrounding Accomack County communities. Figure ES.2 depicts this WFF overall operational footprint, reflecting the three predominant issues - Aircraft Accident Potential Zones, Aircraft Noise Zones, and Rocket Range Hazard Area.

• Aircraft Accident Potential Zones

The Department of Defense (DOD) provides guidance for land use and population density at its air installations and in communities surrounding these installations. Considering public safety with respect to the potential for an accident, this guidance suggests land uses considered compatible with aircraft operations. Accident Potential Zones (APZs) are the areas where the greatest potential for aircraft accidents exists based on historical accident data, and the type and mission of the aircraft in use. See Figure ES.3, where the clear zones (shown in red), located immediately beyond the runways present the highest risk. Further from the end of the runway the risk diminishes in APZ 1 (orange) and diminishes further in APZ 2 (yellow). It is important to note that while APZ mapping is based on statistical evidence for the specific aircraft and mission,

accidents can occur outside the mapped APZs. The latest APZ mapping reflects changes since the publication of the 2008 Accomack County Comprehensive Plan. The clear zones have remained virtually unchanged; however the APZ1 & APZ2 zones have increased and cover just over 2,000 additional acres. This is due to the 2013 addition of Navy E2/C2 aircraft operations since the current APZ mapping is based on aircraft-specific data. Accomack County will ultimately determine if it wishes to adopt DOD APZ guidance.

Since the completion of the existing land use analysis phase of this study in May, 2014, site clearing and roadway construction at the WRP commenced and is nearing completion. This has the effect on the Existing Land Use mapping (refer to Appendix "F") of changing some areas shown as "Forestry" to "Undeveloped". However, since no buildings or structures have been completed at this time, the effect on the analysis with respect to land use compatibility is negligible.

• Aircraft Noise Zones

The DOD air installation guidance also covers aircraft noise. Noise is unwanted sound measured in decibels. Noise contours, or the areas of various noise levels are described in "decibels DNL." DNL is a term to represent the average sound level generated by all aviation-related operations during a 24-hour period. Below the threshold of 65 decibels DNL, noise is considered relatively low. For example residential uses are not suggested in areas where aircraft noise is expected to exceed 65 decibels DNL, while recreational activities are not discouraged unless the noise exceeds 75 decibels DNL. Warehousing, agriculture, forestry, and fishing are considered compatible. The mapping of expected noise levels shown in Figure ES.4 is based on acoustic modeling. However, given variables such as weather, actual flight paths, etc., actual noise levels/locations may vary. Accomack County will ultimately determine if it wishes to adopt DOD aircraft noise guidance.

• Rocket Range Hazard Area

The rocket launches at WFF Wallops Island are not only a major catalyst to bring Government, academia and industry business and economic development to the Wallops area, but are also an attraction for both tourists and residents alike. Yet, these types of operations are inherently hazardous. As such, NASA develops and implements

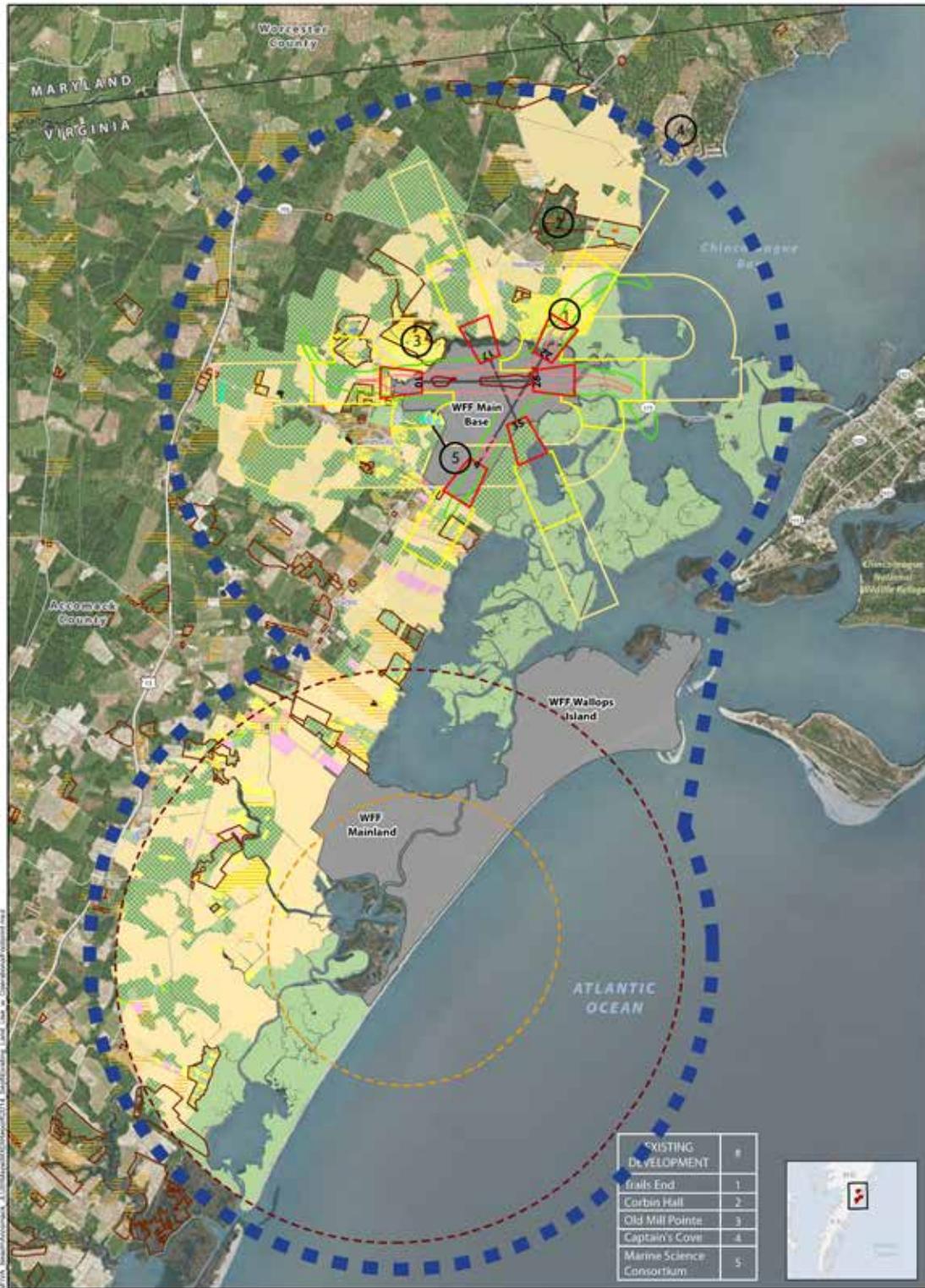
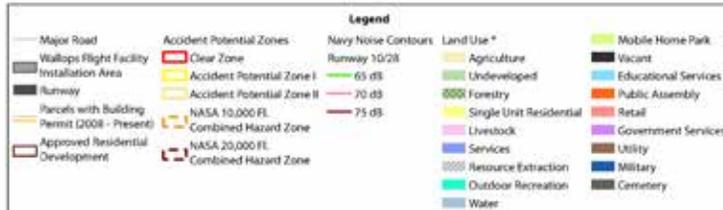


Figure ES.2
WFF Operational
Footprint

SOURCE: Accomack County 2007, 2014, (revised) 2014; Ecology and Environment 2012, 2014; ESW 2010, 2013; NASA (revised) 2014; Wolf/Wharfe Solutions Inc. 2007.
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* Note: Existing Land Use designations that are depicted in this figure were verified by an Ecology and Environment, Inc. field team.



Figure. ES.3 - WFF Accident Potential Zones



Figure. ES.4 - WFF Aircraft Noise Zones

mission-specific safety plans to ensure the protection of both members of the public and their property for all of its launches. As shown in Figure ES.5, the Rocket Range Hazard Areas consist of concentric rings (arcs) centered on the two current and one future planned orbital launch pads. The smaller arc, at 10,000 feet, is NASA's planning level estimate for the area potentially requiring the most stringent controls, including clearing the zone of all people prior to launch, to protect the safety of the public and for the ability to launch. The actual hazard area requiring clearance is defined for each launch based on the specific hazards of that launch and historically have not exceeded 9,000 feet for Antares and Minotaur launches. The larger arc, at 20,000 feet, depicts an area that may be susceptible to range hazards that are largely dictated by atmospheric conditions on launch day. In contrast to the 10,000 foot arc, the 20,000 foot arc would not likely require complete clearance, rather select areas within it could require special consideration, such as ensuring that large groups of people are not present or that building occupants are not in front of single-pane windows at launch. NASA coordinates all hazard area information with local law enforcement officials, and those officials are responsible for any notification and evacuations that may be necessary to protect the safety of the public. The 10,000 and 20,000 feet arcs depict NASA's best estimate of the extent of launch hazard areas required for current planned and future missions. Recently the validity of these areas and the hazards experienced have been verified by the actual events and lessons learned from the ORB-3 rocket mishap October 28, 2014.

What are the Recommendations deriving from this study?

The following 15 recommendations and strategies were endorsed by the project leadership to address the five land use issues facing Accomack County, the Navy and NASA. They address both existing and future potential incompatible land uses.

SHORT TERM RECOMMENDATIONS

-  Establish an Accomack-Wallops Working Group.
-  Amend/Update the Accomack County Comprehensive Plan to incorporate information contained in this study.



-  Pursue available grants and/or supplemental funding sources for JLUS recommendations implementation.
-  Establish a process for mitigating existing incompatibilities within the WFF aircraft clear zones.
-  Establish a collaborative review process for requests relating to development of commercial wind turbines, cell towers, radio frequency emitters or structures.
-  NASA and/or Navy notify Accomack County and Working Group of offshore energy development to identify potential operational interference.

SHORT-TO-MID-TERM RECOMMENDATIONS

-  Establish a Rocket Range Hazard notification area and provide notifications of hazards associated with rocket launches.

MID TERM RECOMMENDATIONS

-  Establish a WFF Aircraft Operations Overlay District and amend the Accomack County Zoning Ordinance and Subdivision Ordinance for compatible land use in Clear Zone, APZ 1, and APZ 2, and other affected areas.
-  Adopt measures for early and full real estate disclosure with respect to properties located within aircraft accident potential and noise zones.

Pursue Commonwealth of Virginia legislation to amend 55-517/55-519 (Required disclosures) to include military aircraft operations on non-military airfields.



Provide information regarding incentives for retrofits to windows on existing buildings within the Rocket Range Hazard Area.



Encourage the application of noise attenuation measures within the aircraft noise zones as part of the permitting process for new construction.

LONG TERM RECOMMENDATIONS



Develop a plan for mitigating and/or accommodating the effects of recurrent flooding, storm surge events, and sea level rise for the Navy, NASA, and Mid-Atlantic Regional Spaceport (MARS)/VCSFA facilities on WFF Wallops Island.



Develop a plan for mitigating and/or accommodating the effects of recurrent flooding, storm surge events, and sea level rise for the coastal areas of Accomack County within the study area.

ON-GOING RECOMMENDATIONS



Provide an annual update to the Accomack County Board of Supervisors regarding JLUS implementation progress.



Update the Accomack County GIS database with JLUS Report data following adoption by the County Board of Supervisors.

