FINAL REPORT

ENVIRONMENTAL ASSESSMENT FOR WALLOPS RESEARCH PARK

Prepared for

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

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PREFACE

This *Environmental Assessment for Wallops Research Park* has been developed by URS Group, Inc. (URS) and EG&G Technical Services (EG&G) for the National Aeronautics and Space Administration's (NASA) Goddard Space Flight Center's (GSFC) Wallops Flight Facility (WFF).

URS/EG&G have prepared this report for the exclusive use of WFF and the Wallops Research Park principals in accordance with NASA Procedural Requirement (NPR) 8580.1, *Implementing the National Environmental Policy Act and Executive Order 12114* (NASA, 2001).

ENVIRONMENTAL ASSESSMENT
WALLOPS RESEARCH PARK
WALLOPS FLIGHT FACILITY

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
WALLOPS FLIGHT FACILITY
WALLOPS ISLAND, VIRGINIA 23337

Lead Agency:	National Aeronautics and Space Administration
Proposed Action:	Development of the Wallops Research Park
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ABSTRACT

This Environmental Assessment addresses the development of a research park adjacent to the Main Base of the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Wallops Flight Facility (WFF), which is located on the Eastern Shore of Virginia. The Wallops Research Park (WRP) would be constructed on approximately 82 hectares (ha) (202 acres) of land owned by NASA, Accomack County, and the Marine Science Consortium (MSC). Portions of the proposed WRP site have been previously developed and currently contain a NASA payload processing facility, open space that is periodically mowed, utility and road infrastructure, nature trails, a playground and baseball field, and a closed county-run landfill. Forested areas also occur within the WRP site.

Upon full build out, WRP would consist of a multi-use development dedicated to non-retail commercial and government space and science research, educational facilities, and public recreational areas. Proposed land use categories within WRP include: 1) research and development/industrial use, 2) aviation use, 3) gateway research and development/industrial use,

and 4) an Accomack County recreational park. Construction in each of the WRP land parcels would include the installation of utilities and the establishment of utility easements.

The Proposed Action would not have an adverse impact to environmental or socioeconomic resources with the exception of adverse impacts to vegetation, wildlife and migratory birds due to the permanent conversion of forest to developed land, and adverse impacts to wetlands due to the filling of approximately one acre of wetlands. Any adverse impacts would be minimized and mitigation measures would be implemented as necessary.

PURPOSE AND NEED FOR THE ACTION

The purpose of the proposed project is to create an integrated business park for aerospace research and development programs, scientific research, commercial space industries, and educational centers to expand the United States space program, and to increase economic development within Accomack County. To meet NASA's mission and commercial space industry needs, the proposed project should be close to usable space facilities such as WFF. The proposed project is consistent with NASA's strategic vision for WFF.

ALTERNATIVE DESCRIPTIONS

No Action Alternative

Under the No Action Alternative, NASA would not participate in the funding or construction of a research park, nor would NASA provide utilities, utility easements, or land for the development of a research park.

Proposed Action

The Proposed Action consists of developing a research park adjacent to the WFF Main Base. The research park would be constructed on approximately 82 ha (202 acres) of land; 34.7 ha (85 acres) are owned by NASA, 35.6 ha (88 acres) are owned by Accomack County, and 11.7 ha (29 acres) are owned by the MSC (the 13.4 ha [33-acre] MSC campus site and the 2.2 ha [5.5-acre] Navy-owned parcel where the Cropper Center building is located, which are both surrounded by WRP, are not included in the total WRP acreage). Portions of the proposed WRP site have been previously developed and currently contain a NASA payload processing facility, nature trails, a playground and baseball field, and a closed county-run landfill. Forested areas also occur within the WRP site.

The WRP would consist of a multi-use development dedicated to space and science research, educational facilities, and recreational areas. Proposed land use categories within WRP include: 1) research and development/industrial use, 2) aviation use, 3) gateway research and development/industrial use, and 4) an Accomack County recreational park. Construction in each of the WRP land parcels would include the installation of utilities and the establishment of utility easements.

NASA property would primarily be developed for aerospace activities including payload processing and aircraft operation and maintenance. Hangars are planned for construction on the northwest part of the NASA property.

The MSC property south of Mill Dam Road would be developed for research and development and industrial use. The MSC owns 25 ha (62 acres) within the WRP site boundary; the MSC campus, which is located on the north side of Mill Dam Road, encompasses approximately 13.4 ha (33 acres). The MSC campus and any activities related to MSC campus renewal will occur independently and are not considered part of the WRP development.

Accomack County Property north of Mill Dam Road would be developed to accommodate research and development and industrial land use and would include construction of education facilities, an incubator building with classrooms and office space, and new roads. A baseball field, playground, and nature trails already exist on this property but would be relocated. Playground equipment would be moved across Mill Dam Road to the closed County landfill. The baseball field and nature trails may also be relocated to the landfill or to another County-owned public recreation area. Additional Accomack County property west of the closed landfill and south of Mill Dam Road would be used for recreational activities and maintained as a county park. No WRP development would occur within the 14.2-ha (35-acre) footprint of the closed Accomack County landfill.

Accomack County would provide oversight to WRP tenants including implementation of the WRP Guiding Covenants and Restrictions (NASA, 2008c). A WRP Site Plan Review Committee would review tenant's proposals and site plans, and provide recommendations to the WRP principals regarding potential tenants.

Alternative One

Alternative One includes the same development as described under the Proposed Action on NASA and MSC property. However, approximately 6.1 additional ha (15 acres) of Accomack County property South of Mill Dam Road in the WRP would be developed to include research and development and industrial land use. Other than a road and utility easements, no WRP development would occur within the footprint of the closed Accomack County landfill.

SUMMARY OF ENVIRONMENTAL IMPACTS

Summarized below are potential environmental impacts resulting from the Proposed Action (development of the Wallops Research Park) and Alternative One. No environmental impacts are anticipated as a result of the No Action Alternative.

Topography and Drainage

Under the Proposed Action and Alternative One, land grading and construction activities would take place for the construction of the WRP. Land grading, new building construction, and building replacement would cause land disturbances, including excavation and an increase in impervious surfaces, which have the potential to alter the proposed site topography and drainage patterns of small seeps and ephemeral tributaries to Little Mosquito Creek.

Impacts to topography and drainage under Alternative One would be the same as described under the Proposed Action, but would also include land grading and construction activities on an additional 6.1 ha (15 acres) of Accomack County property south of Mill Dam Road.

Impacts to topography and drainage patterns during construction would be minimized by acquiring Virginia Stormwater Management Program (VSMP) permits and by developing and

implementing site-specific stormwater pollution prevention plans (SWPPPs) and erosion and sediment control (E&SC) plans. To minimize long-term impacts to topography and drainage patterns, permanent stormwater control measures would be implemented in compliance with Virginia Stormwater Management Law and Regulations to provide adequate drainage within the WRP site and to mitigate the effects of increased runoff from impervious surfaces. Therefore, with permanent stormwater management measures incorporated into the site design, and by implementing stormwater control measures during construction, only minor impacts to topography and drainage are anticipated.

Geology and Soils

Under both the Proposed Action and Alternative One, land grading, clearing, filling, and excavation activities would result in ground surface disturbance and would have the potential to cause soil erosion and the subsequent transport of sediment via stormwater. No impacts to geology are anticipated. Impacts to soils under Alternative One would also include land grading and construction activities on an additional 6.1 ha (15 acres) of Accomack County property south of Mill Dam Road.

The WRP would minimize negative impacts to soils by acquiring VSMP permits as necessary, and by developing and implementing site-specific SWPPPs and E&SC Plans prior to ground disturbing activities. The WRP tenants would be required to re-vegetate bare soils and incorporate landscaping measures in areas that would be left as pervious surfaces (not paved) when the project is complete. Site-specific SWPPPs would include best management practices for vehicle and equipment fueling and maintenance, and spill prevention and control measures would be implemented to reduce potential impacts to soils during construction.

The potential exists for an accidental release of contaminants into the soil during routine maintenance and fueling activities or an accident that releases liquid fuels to a permeable surface. Any accidental release of contaminants or liquid fuels would be addressed in accordance with WRP emergency management and response plans.

Land Use

Under the Proposed Action and Alternative One, several hangars, a general aviation facility, administration buildings, and other facilities for research and development and industrial use would be constructed. The entire WRP site is zoned by Accomack County as industrial land use. Therefore, the land uses planned for the WRP are compatible with Accomack County zoning policies. According to the WRP Guiding Covenants and Restrictions (NASA, 2008c), all potential tenants would be required to submit development plans to the WRP Site Plan Review Committee to ensure compatibility with land uses set forth by WRP.

Surface Water

Under both the Proposed Action and Alternative One, construction activities associated with the WRP would avoid surface waters to the greatest extent possible including ephemeral streams and swales, seeps, springs, and tributaries to Wattsville Branch. However, up to 1 acre of wetlands would be adversely affected by development on the NASA property north of Mill Dam Road.

Effects to surface water from construction activities would be minimized by acquiring VSMP permits and by developing and implementing site-specific SWPPPs and E&SC plans. Increased

impervious area due to the construction of buildings, parking lots, roads, sidewalks, etc., would result in an increase in runoff from the WRP site compared to existing conditions. To minimize the effects to surface waters from the increased runoff, permanent stormwater control measures would be implemented by WRP partners and tenants in compliance with Virginia Stormwater Management Law and Regulations. To minimize water quality effects on surface waters from the activities at the WRP, the WRP would obtain Virginia Pollutant Discharge Elimination System (VPDES) industrial activity stormwater permits as required by Virginia regulations and would implement measures to reduce impacts to surface waters. With these measures, no adverse impacts to surface water are anticipated.

Impacts to surface waters under Alternative One would be slightly greater than under the Proposed Action due to the development of an additional 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road.

Wastewater

Wastewater generated under both the Proposed Action and Alternative One would be discharged to the existing WFF wastewater collection system and would be sent to the WFF wastewater treatment plant (WWTP) for treatment. While Alternative One would generate more wastewater than the Proposed Action, the WWTP has the capacity to treat the additional amount of wastewater from the WRP under both the Proposed Action and Alternative One, and development of the WRP would not result in an adverse impact to the WWTP.

Aviation hangars would use fire suppression foam instead of water to put out fires around delicate electronic systems. Each aviation building that utilizes a foam fire suppression system would be equipped with a containment area to treat the foam prior to release to the WFF wastewater treatment plant. Any facility that uses a wash rack for heavy equipment would include an oil/water separator to remove oil from wash water prior to discharge to the wastewater treatment plant.

Stormwater

Under both the Proposed Action and Alternative One, construction activities could result in temporary impacts to stormwater conveyance due to disruptions and changes to the natural drainage. WRP partners and tenants would be required to obtain VSMP construction site stormwater permits and implement site-specific SWPPPs to minimize impacts to stormwater conveyance and stormwater quality during construction.

No long-term impacts are anticipated because WRP partners and tenants would be required to incorporate permanent stormwater control measures into design plans to effectively remove stormwater from the site. All control measures would be designed and constructed in accordance with Virginia Stormwater Management Law and Regulations. Additionally, the WRP Guiding Covenants and Restrictions (NASA, 2008c) state that impervious surfaces should be kept to a minimum, and encourage the addition of new sustainable landscapes that would collect and filter stormwater as well as the use of permeable paving where possible. In addition, Virginia Stormwater Management regulations require the incorporation of measures to protect aquatic resources from the effects of increased volume, frequency, and peak rate of stormwater runoff as well as from increased nonpoint source pollution carried by stormwater runoff.

If required under Virginia regulations because of its activities, WRP would obtain a VPDES industrial stormwater permit, which includes the requirement that a SWPPP be developed for the permitted facility. The SWPPP would identify actual and potential sources of stormwater contamination and would specify structural and non-structural best management practices to reduce the impact of stormwater runoff on receiving streams to the maximum extent practicable and to meet water quality standards.

Groundwater

Water Use

Under both the Proposed Action and Alternative One, NASA would provide potable water to the WRP for drinking water supply, fire suppression, and industrial water use. The estimated potable water demand of the WRP is approximately 991,000 gallons per month under the Proposed Action and 1,098,000 gallons per month under Alternative One.

The combined water demand of WFF and WRP at build-out would be approximately 3,361,000 gallons per month, which is below the 8,153,000 gallons per month limit of WFF's existing ground water withdrawal permit with the Virginia Department of Environmental Quality (DEQ). Therefore, development of the WRP would not result in an adverse impact to ground water resources.

As specified in the Guiding Covenants and Restrictions (NASA, 2008c) the WRP would encourage water use conservation practices in facility design and operation such the use of low consumption water fixtures, the use of native plants in landscaping that are adapted to the local precipitation, and educating employees about water conservation methods.

Water Quality

Operational activities could result in impacts to groundwater if a spill were to occur that contaminated groundwater. The potential for groundwater contamination from spills would be minimized by obtaining VPDES industrial stormwater permits as required under Virginia regulations and by implementing spill response planning, response, and clean-up procedures that are required under the permit. Long-term impacts would also be mitigated by implementing standard operating procedures at all WRP facilities to reduce the likelihood that a spill would occur.

NASA would continue to monitor the water supply wells located at the WFF Main Base to ensure that spills or releases have no adverse effect on the drinking water supply.

Wetlands

Under both the Proposed Action and Alternative One, up to 1 acre of wetlands would be adversely affected due to construction on the northwest side of the NASA property. Current proposals do not directly affect other wetlands. The construction of an aviation hangar would require land grading and the filling of up to 0.4 ha (1 acre) of wetlands associated with the northern-most unnamed tributary to Wattsville Branch.

Prior to construction, WRP would complete a jurisdictional wetland delineation in accordance with the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (USACE, 1987) to determine the location and size of the wetland area that would be adversely affected. To

ensure consistency with Executive Order (EO) 11990 Protection of Wetlands and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), WRP would avoid and minimize impacts to wetlands. If wetland impacts are unavoidable, WRP would provide compensatory mitigation to offset the impacts and to ensure no net loss of wetlands.

WRP partners or tenants would notify the public and coordinate with applicable agencies including the USACE, the Virginia DEQ, the Virginia Marine Resources Commission (VMRC), and the Accomack County Wetlands Board, if impact to wetlands cannot be avoided. WRP would obtain necessary permits including Clean Water Act Section 401 and 404 permits. WRP would implement wetland mitigation measures agreed upon through the DEQ permitting and consultation process to protect and restore the natural and beneficial functions of wetlands.

Floodplains

Under both the Proposed Action and Alternative One, construction of aircraft hangars on the western portion of the NASA parcel would take place within a small area of the 100-year floodplain that is associated with an unnamed tributary to Wattsville Branch. Current proposals do not directly affect other floodplains.

For the construction that would take place within the floodplain, WRP partners and tenants would ensure that the action complies with EO 11988 (Floodplain Management) and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), including notifying the public of actions that would occur within the floodplain. The WRP would obtain any required permits for construction within the floodplain and would minimize floodplain impacts and protect and restore the natural and beneficial functions of floodplains to the maximum extent possible.

Coastal Zone Management

Activities that could affect coastal resources would be consistent with the Coastal Zone Management Act and the Virginia Coastal Resources Management Program (VCP). A Coastal Zone Consistency Determination has been performed for WRP and the Virginia DEQ concurs that the Proposed Action and Alternative One would be consistent with the enforceable policies of the VCP.

Air Quality

Under both the Proposed Action and Alternative One, construction activities have the potential to cause temporary, short-term air quality impacts due to the operation of fossil-fuel burning equipment. Impacts to air quality under Alternative One could be slightly greater than the Proposed Action; however, the increase in air quality impacts due to the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill would be negligible.

Vehicles and equipment used for construction would be maintained in good working order to minimize pollutant emissions. WRP tenants would spray water on construction areas when necessary to reduce fugitive dust emissions. With the implementation of air quality mitigation measures, construction activities would not have an adverse impact to air quality in the project area.

The operation of a payload processing facility (PPF) at the WRP would have the potential to impact air quality because the cleaning of payloads and electronic hardware involves the use of solvents to remove organic contaminants. Small amounts of other chemicals are used in such minor amounts and are of such low toxicity that they present no substantial potential for adverse air quality impacts.

Inadvertent releases of toxic air contaminants are possible as a result of accidents involving hypergolic fuels (such as hydrazine) during payload processing, transportation, and preparation for launch. The magnitude of air releases from payload accidents would be relatively small. Impacts would be temporary and dispersed, and would therefore have no adverse impact to ambient air quality.

The operation of WRP laboratories may include the use of fume hoods. The release of small quantities of toxic gases through laboratory fume hoods may result in temporary minor impacts to local air quality. Laboratory fume hoods would be included in WRP's or its tenant's air permit and would be maintained to meet permit and regulatory requirements.

Paint spray/coatings booths would be located in the WRP facilities. Emissions of criteria pollutants from painting operations would result in minor impacts to local air quality. WRP partners or tenants would obtain necessary permits from the Virginia DEQ to ensure no adverse impacts to air quality would occur as a result of operations within the WRP.

Noise

Under both the Proposed Action and Alternative One, construction activities have the potential to generate temporary increases in noise levels from heavy equipment operations. WRP would comply with local noise ordinances and State and Federal standards and guidelines for potential impacts to humans caused by construction activities. Workers near activities producing unsafe noise levels, both during construction and after the WRP facilities are operational, would be required to wear hearing protection equipment. Therefore, impacts to the occupational health of construction or WRP workers as a result of construction or institutional noise are not expected.

Aircraft operations at the nearby WFF runway (which is located immediately to the north of the WRP site) are a source of noise to the surrounding area. However, airfield activities resulting from the WRP are not expected to increase the number of flights significantly. Flights originating from the WFF runway are expected to be intermittent and noise levels would be temporary. Aircraft using the airfield are prohibited from creating sonic booms over land (NASA, 1999). Therefore, aircraft operations are not expected to result in an adverse impact to human health.

For many of these sources, exposure to noise is either short-term (e.g., fire engines) or can be minimized through use of personal hearing protection. The WRP would be responsible for occupational safety and determining the need for personal hearing protection and would provide oversight to WRP tenants. Additionally, any noise creating activities conducted outside of typical working hours (e.g., nights, weekends, etc.) would be coordinated directly with the persons that would be affected by the planned activity. Impacts to humans due to noise would be slightly greater under Alternative One than the Proposed Action; however, with the implementation of mitigation measures the additional impacts would be negligible.

Hazardous Materials and Hazardous Waste

Under both the Proposed Action and Alternative One, construction activities would include the use of hazardous materials and would result in hazardous waste generation (e.g., solvents, hydraulic fluid, oil, and antifreeze)., Hazardous materials use and the generation of hazardous wastes during construction of the WRP and operation activities of WRP tenants would be slightly greater under Alternative One than under the Proposed Action due to the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill. With implementation of safety measures and proper procedures for the handling, storage, and disposal of hazardous materials and wastes during construction activities and WRP operation, no adverse impacts are anticipated.

The operation of aircraft at the WRP would result in the use of hazardous materials and generation of hazardous wastes. In addition, hazardous materials would likely be used during scientific research operations at the WRP. Hazardous materials would be managed according to standard safety procedures that include proper containment, separation of incompatible and reactive chemicals, worker warning and protection systems, and handling procedures to ensure safe operations. All personnel who transport, fuel, and maintain aircraft at the WRP would receive training in hazardous waste management.

The greatest potential impact to the environment from the release of hazardous materials would result from an accident at a storage location (e.g., leak, fire, or explosion) or, to a lesser degree, from an accidental release during normal operating activities (e.g., spills or human exposure). The short- and long-term effects of an accident on the environment would vary greatly depending upon the type of accident and the substance(s) involved.

The WRP would develop contingency plans in accordance with Federal regulations regarding the storage and use of hazardous materials and the disposal of hazardous wastes. Additionally, WRP would obtain an EPA hazardous waste generator number and comply with all requirements of Federal, State, and local regulations.

Radiation

Under both the Proposed Action and Alternative One, the operation of the PPF could result in potential sources of radiation. Any tenant of the WRP using regulated nuclear material would be required to obtain a Nuclear Regulatory Commission license.

Scientific payloads may carry small quantities of encapsulated radioactive materials for instrument calibration or similar purposes. Prior to allowing a radioactive source on a NASA managed mission, the NASA Nuclear Flight Safety Assurance Manager would certify that preparation and launching of payloads that carry small quantities of radioactive materials would not present a substantial risk to public health or safety.

Lasers may also be used for science instrumentation on payloads. Use of lasers at the WRP would be required to meet applicable safety standards, which would mitigate potential impacts to human health. For visible lasers, the WRP would obtain a letter of non-objection from the Federal Aviation Administration for outdoor scientific use of lasers.

Operators of radio frequency emitting systems would be required to coordinate with the WFF Spectrum Manager and conduct appropriate analyses as needed; these analyses would be

coordinated with any radio frequency system users/owners, including NOAA Wallops Command and Data Acquisition Station, the U.S. Navy, and WRP tenants.

Under Alternative One, the potential impacts to human health due to radiation may be slightly more than under the Proposed Action due to the additional construction and operation activities associated with development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill.

Vegetation

Long-term adverse impacts to vegetation would be anticipated due to the permanent conversion of forest to developed land. In order to minimize impacts to vegetation, a vegetative buffer would be maintained around the perimeter of the WRP site. Although most new construction would occur in existing developed areas where vegetation communities exist as maintained landscaping, short-term adverse impacts to vegetation are anticipated due to clearing and grading. The WRP partners and tenants would be required to re-vegetate bare soils after soil disturbing activities, and incorporate landscaping measures in areas that would be left as pervious surfaces (not paved) when the project is complete. WRP tenants are directed by the WRP Guiding Covenants and Restrictions to preserve as much existing vegetation as possible.

Impacts to vegetation under Alternative One would be greater than under the Proposed Action due to the removal of vegetation associated with development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road.

Terrestrial Wildlife and Migratory Birds

Under both the Proposed Action and Alternative One, long-term impacts to terrestrial wildlife and migratory birds are anticipated due to the loss of habitat to developed land. However, a vegetated buffer would be retained around the WRP western perimeter and tenants would be encouraged to retain native habitat to the greatest extent practicable. Accomack County would further mitigate the impacts to habitat by implementing a gradual reforestation program on available properties. Short-term impacts to wildlife and migratory birds may be anticipated during construction activities due to temporary noise disturbances, especially during spring and fall migrations; however this is no greater than daily operations at the nearby WFF airfield. WFF airfield currently operates an avian deterrent program to keep the aircraft approach zones clear for safety purposes. The program includes the use of sound producing devices and pyrotechnics to discourage birds from congregating near the runways. Any additional noise disruptions caused by WRP operations are expected to be of low frequency, short duration, and comparable to what already exists with the avian deterrent program.

Impacts to terrestrial wildlife and migratory birds under Alternative One would be greater than under the Proposed Action due to the removal of habitat associated with removal of vegetation during development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road

Threatened and Endangered Species

Since no State or Federally listed threatened or endangered species or Federally designated critical habitat occur within the WRP vicinity, no effects to State or Federally threatened endangered species would occur under the Proposed Action or Alternative One.

In accordance with Section 7(a)(2) of the ESA, NASA sent a consultation letter to the U.S. Fish and Wildlife Service (USFWS) requesting concurrence that the Proposed Action and Alternative One would not adversely affect any special status species occurring within the project area. In a letter dated September 4, 2007, the USFWS concurred that the Proposed Actions "will not adversely affect Federally listed species or Federally designated critical habitat because no Federally listed species are known to occur in the project area."

Population

Under the Proposed Action, the number of people that are anticipated to be hired by WRP partners and tenants at complete build-out is approximately 708, with 784 new hires anticipated under Alternative One. Build-out is expected to occur within the next 20 years. The estimated number of people moving to the Lower Delmarva Peninsula as a result of the WRP is approximately 2,190 under the Proposed Action and 2,430 under Alternative One over the 20-year period.

Impacts to population are not likely to occur due to the long time period anticipated for increased employment opportunities with WRP partners and tenants. The largest impact to population would occur in Accomack County; the additional population that would result from the WRP is anticipated to comprise approximately 3 percent of Accomack County's population over the next 20 years. The population growth attributed to the WRP over a 10 year period (1.5 percent) compared to the "background" population growth in Accomack County over a 10 year period (between 1990 and 2000) of 20 percent, does not indicate that the population growth from WRP would result in a significant impact on population within Accomack County. The four other counties where new WRP employees are likely to settle would result in a population increase of less than 1 percent per county over 20 years.

The long-term increase in population created by the WRP would not have an impact to public and private schools within the five counties of the Lower Delmarva Peninsula. New student enrollments are anticipated to occur over a 20-year period. Even if Accomack County schools do not increase student capacity in the school system, the WRP would not likely result in adverse impacts to public and private schools. In addition, the increase in taxes generated by the additional WRP-employed families would add to the county's ability to implement upgrades to schools.

Recreation

Under both the Proposed Action and Alternative One, only short-term impacts to recreation are anticipated during construction of the WRP. Although the existing playground would be rebuilt on the closed County landfill and the baseball field would be moved to the landfill or to a new location, the old baseball field and playground may be temporarily closed to the public while the new ones are being constructed.

Under the Proposed Action, minor impacts to recreation would occur due to increased use of the baseball field, playground, and nature trails on the Accomack County parcels by WRP employees. Increased use would require increased routine maintenance of the facilities and would increase the frequency of unexpected repairs. Residents, employees, and students would benefit from the additional recreational activities that would be provided by the space south of Mill Dam Road and west of the closed Accomack County landfill that would be utilized as a county park and by the relocation of the baseball field and playground.

Under Alternative One, impacts to recreation would be greater than under the Proposed Action due to the development of approximately 6.1 ha (15 acres) located south of Mill Dam Road and west of the closed Accomack County landfill. This space would not be available to residents, employees, and students for recreation. Minor impacts to existing recreational facilities would occur due to increased use of the existing baseball field, playground, and nature trails. Increased use would require increased routine maintenance of the facilities and would increase the frequency of unexpected repairs.

Employment and Income

Construction of the WRP would result in a benefit to the local economy during construction due to increased numbers of people in Accomack County during business hours and the potential increase in the use of local stores and businesses for purchases. Employment opportunities for construction-related work would also increase as a result of development of the WRP site and result in a beneficial impact to employment within Accomack County.

Under both alternatives, no adverse impacts to employment and income would occur. WRP would create between 708 and 784 new jobs, which would bring approximately 411 to 455 new households to the Lower Delmarva Peninsula. Employment opportunities within the WRP would likely result in NASA and Accomack County continuing to be among the top five largest employers in Accomack County.

Average salaries of employees of WRP would likely be similar to the average for NASA civil service employees at WFF. Although Accomack County would likely continue to maintain lower income rates as compared with the Commonwealth of Virginia, the average income of people employed by WRP tenants and partners is expected to be well above the average county per capita median household incomes. The higher-than-average salaries of WRP employees would result in positive effects to the local economy.

Health and Safety

Under both the Proposed Action and Alternative One, construction activities at the WRP site could result in short-term impacts to human health and safety and the increased usage of local fire, police, and medical services. Construction safety procedures and appropriate training would be implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

Under both the Proposed Action and Alternative One, the capability of the medical, fire, and police services to handle the additional people in the area is not anticipated to be exceeded; however, since there is an increased demand on these services, minor impacts to health and safety could occur due to the WRP development. Safety procedures and appropriate training would be

implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

Cultural Resources

No adverse effects to historic properties would occur under the Proposed Action or Alternative One. Although the MSC campus buildings are greater than 50 years old, NASA determined that the buildings are not listed in or eligible for the National Register of Historic Places (NRHP); the Virginia Department of Historic Resources (VDHR) concurred with this determination.

No archaeological sites are known to occur within the WRP project area; therefore, neither the Proposed Action nor Alternative One would have an effect on archaeological resources.

For all existing and future actions that could affect cultural resources or historic properties determined to be listed in or eligible for the NRHP, WRP would be responsible for complying with Section 106 and Section 110 of the National Historic Preservation Act.

Environmental Justice

There are minority and low-income communities within Accomack County but it is not anticipated that disproportionately high or adverse impacts to low-income or minority populations would occur under the Proposed Action or Alternative One because no displacement of residences or businesses would occur as a result of development of the WRP. The creation of new jobs within Accomack County that are directly and indirectly related to WRP likely could benefit low-income and minority populations.

Transportation

Temporary impacts to traffic flow would occur during construction activities due to an increase in the volume of construction-related traffic on roads in the immediate vicinity of the WRP. Although a greater amount of traffic would occur under Alternative One compared to the Proposed Action, the additional volume of traffic is not anticipated to result in adverse impacts to transportation.

Traffic lanes may be temporarily closed or rerouted during construction activities, and construction equipment and staging could interfere with pedestrian and vehicle flow. WRP tenants would implement mitigation measures to minimize potential delays

No long-term adverse impacts to transportation are anticipated because the WRP would implement traffic flow mitigation measures including modifying and upgrading existing roads and intersections, and installing additional traffic devices including signal lights and/or stop signs in the vicinity of the WRP, where necessary.

Summary

Adverse impacts to wetlands, vegetation, and terrestrial wildlife and migratory birds would occur under both the Proposed Action and Alternative One. Any adverse impacts would be minimized and mitigation measures would be implemented as necessary. No other adverse impacts would occur to environmental or socioeconomic resources under either Action Alternative.

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ACCN	Accomack County North (land parcel)
ACCS	Accomack County South (land parcel)
amsl	Above mean sea level
ANSI	American National Standard Institute
ASTM	ASTM International
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CMA	Coastal Management Area
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibel
dBA	Decibel weighted to the A-scale
DEQ	Department of Environmental Quality
DNL	Day-Night Level
DoD	U.S. Department of Defense
E&SC	Erosion and sediment control
EA	Environmental Assessment
EG&G	EG&G Technical Services
EJIP	Environmental Justice Implementation Plan
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GSFC	Goddard Space Flight Center
HERO	Hazard of Electromagnetic Radiation to Ordnance
HERP	Hazard of Electromagnetic Radiation to Personnel
L_{01}	Sound level exceeded 1 percent of the time
L_{10}	Sound level exceeded 10 percent of the time
L_{90}	Sound level exceeded 90 percent of the time
L_{eq}	Time-averaged sound level
MBTA	Migratory Bird Treaty Act
MIST	Maryland Institute of Science and Technology
MSC	Marine Science Consortium
NAAQS	National Ambient Air Quality Standards

NASA	National Aeronautics and Space Administration
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NFSAM	Nuclear Flight Safety Assurance Manager
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
NPR	NASA Procedural Requirements
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
O_3	Ozone
OSHA	Occupational Safety and Health Administration
Pb	Lead
PEL	Permissible Exposure Limit
PM_{10}	Particulate matter less than or equal to 10 microns
Ppm	Parts per million
PPF	Payload processing facility
REC	Recognized Environmental Condition
SHPO	State Historic Preservation Office
SO_2	Sulfur dioxide
SWPPP	Storm Water Pollution Prevention Plan
URS	URS Group, Inc.
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VAC	Virginia Administrative Code
VCRMP	Virginia Coastal Resources Management Program
VDGIF	Virginia Department of Game and Inland Fisheries
VDHR	Virginia Department of Historic Resources
VMRC	Virginia Marine Resources Commission
VOC	Volatile organic compound
VPDES	Virginia Pollutant Discharge Elimination System
VSMP	Virginia Stormwater Management Program
VSM	Vegetation Survey and Mapping for Wallops Research Park Project
WFF	Wallops Flight Facility
WINWR	Wallops Island National Wildlife Refuge
WRP	Wallops Research Park
WWTP	Wastewater Treatment Plant

1.1 WALLOPS RESEARCH PARK MISSION

1.1.1 Site Location

The Wallops Research Park (WRP) site is located in the northeastern portion of Accomack County, Virginia, on the Delmarva Peninsula, adjacent to the National Aeronautics and Space Administration (NASA) Wallops Flight Facility (WFF) Main Base (Figure 1). WFF is comprised of three general areas: the Main Base, which is the location proposed for the WRP, Wallops Mainland, and Wallops Island. The WRP is proposed for construction on land owned by NASA, Accomack County, and the Marine Science Consortium (MSC), which is a nonprofit educational corporation comprised of regional universities and colleges. The WRP is a partnering agreement between these three principals to attract researchers to the area.

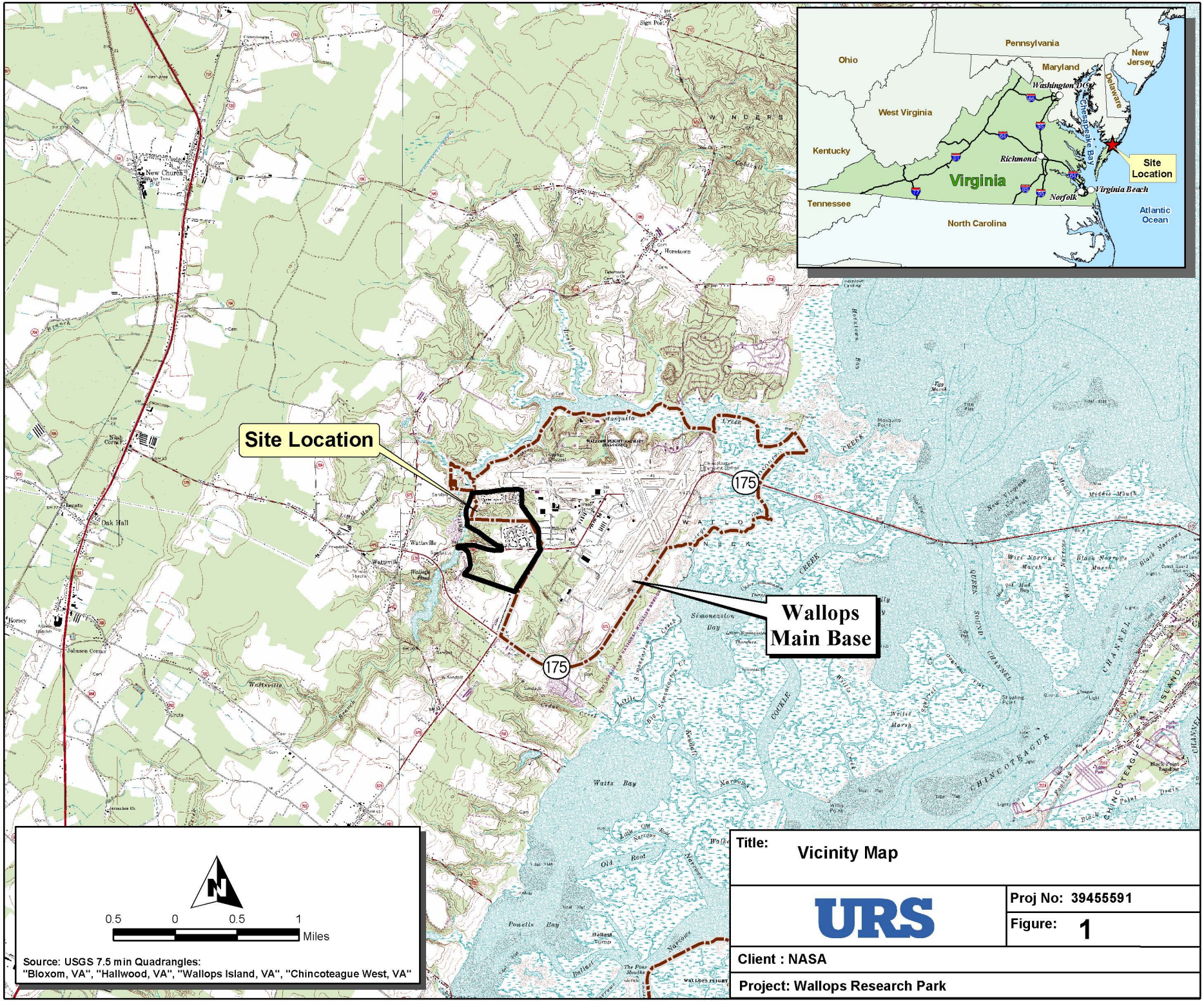
1.1.2 Mission

The mission of the WRP is to provide an environment that attracts and maintains business and academic interests in permanent facilities in the WRP by creating an integrated business park for aerospace research and development programs, scientific research, commercial space industries, and educational centers in order to meet the missions of NASA, Accomack County, and the MSC. The WRP's mission statement includes the following:

- Work with the county and other members of our community on comprehensive planning that protects the value of WFF range from encroachment and enables growth in all sectors;
- Leverage existing Federal facility investment and employment opportunities to spark Wallops area as a regional research and technology area;
- Supplement educational and work force development opportunities on the shore in the scientific and technical fields for increased collaboration, professional development, and outreach;
- Create high tech jobs to retain the (Eastern) Shore's best and brightest and attract others with our quality of life; and
- Promote sustainable development that is compatible with our beautiful and sensitive coastal environment.

Accomack County's mission for the WRP is to increase economic development by creating job opportunities. The MSC's mission is commitment to excellence in education and research in the marine and environmental sciences. NASA's mission for the WRP is to enhance NASA's ability to fulfill its mission of low cost access to aerospace and commercial aerospace industry needs.

During its early history, the mission of the NASA Goddard Space Flight Center's (GSFC) WFF was primarily to serve as a test site for aerospace technology experiments. Over the last several decades, the WFF mission has evolved toward a focus of supporting scientific research through carrier systems (i.e., airplanes, balloons, rockets, and uninhabited aerial vehicles) and mission services.



Title: Vicinity Map

URS

Proj No: 39455591

Figure: 1

Client : NASA

Project: Wallops Research Park

The proposed construction of the WRP will supplement economic, educational, and work force development opportunities on the Eastern Shore of Virginia in the scientific and technical fields resulting in increased collaboration, professional development, and outreach.

The WRP principals define business to include only those interests and activities that support Accomack County and MSC interests or research park goals as defined in the WRP agreements between Accomack County, NASA, and MSC. These interests and activities include ancillary commercial and other interests that support WFF but do not include retail and most other general business zoning uses to which the general public requires direct and frequent access.

1.2 BACKGROUND

WFF is a NASA facility under the management of GSFC. WFF is a national resource with the facilities, personnel, core competencies, and low cost of operations to provide world-class, end-to-end services for small to medium-sized missions. It is a fully capable launch range for rockets and balloons, and a research airport. In addition, Wallops personnel provide mobile range capabilities, range instrumentation engineering, range safety, flight hardware engineering, and mission operations support.

NASA is committed to carrying out research and projects at WFF and WRP in an environmentally sustainable manner. The Wallops Environmental Office (Code 250) ensures that the facility obtains the appropriate environmental permits, prepares documentation for the National Environmental Policy Act (NEPA) and other environmental regulations and Executive Orders (EO), conducts employee and supervisor training, and implements the facility's Environmental Management System (EMS), which is a coherent, integrated approach to environmental management. WFF manages environmental risks through the application of the WFF EMS, which covers such topics as pollution prevention, energy and water conservation, maintenance of natural (green) infrastructure, and sustainable building practices. The strategic vision for WFF is that "Wallops Flight Facility will be a national resource for enabling low-cost aerospace-based science and technology research" (NASA, 2005).

The MSC was founded in 1968 by a consortium of three colleges, under a previous name and has expanded to include 15 Pennsylvania member colleges and universities. In 1971, the MSC was established at its current site at Wallops Island. The MSC property is adjacent to the WFF Main Base, west of the WFF Main Gate and consists of two parcels divided by Mill Dam Road. The MSC's core campus is located north of Mill Dam Road on a 13.4-hectare (ha) (33-acre) site that also includes some open space. The MSC site is bounded by Federal property to the north and east, Accomack County land to the west, and Mill Dam Road to the south. MSC land south of Mill Dam Road is 11.3 ha (28 acres), consists primarily of forested area, and is bounded by Mill Dam Road to the north, Atlantic Road to the east, Accomack County land to the west, and private property to the south.

The 2008 Draft Accomack County Comprehensive Plan (Comprehensive Plan) update was presented to the Accomack County Planning Commission on September 5, 2007. The overall purpose of the Comprehensive Plan is to guide the future social, economic and physical development of Accomack County to ensure the provision of adequate, quality, community facilities and services and the maintenance of a healthy, safe, orderly, and harmonious environment. The Comprehensive Plan contains information, policies, and programs for the

county to implement in order to manage development and resources in a manner most beneficial to the citizenry.

Chapter 5, Goals, Objectives, Policies, and Recommended Actions of the 2008 Comprehensive Plan includes Objective 7: Establish a "business friendly" environment that promotes economic development that is compatible with the county's adopted objectives and vision for the future. To meet Objective 7, the Comprehensive Plan incorporates Policy 7-4: Support development of the Wallops Research Park at the NASA Wallops Island facility.

1.3 TENANTS AND OTHER ON-SITE ORGANIZATIONS

Planned tenants of the WRP in addition to the three WRP principals currently include Empire Development and BaySys Technologies, with a potential for other unidentified tenants to join the WRP in the future. Other proposed on-site organizations and regional WRP stakeholders are listed below by state affiliation:

Virginia

- Virginia Department of Housing and Community Development
- Virginia Economic Development Partnership
- Town of Chincoteague
- Old Dominion University
- University of Virginia
- Eastern Shore Community College
- Virginia Space Grant Consortium
- Virginia Space Flight Academy

Maryland

- University of Maryland Eastern Shore
- Salisbury University
- WorWic Community College
- Maryland Space Grant Consortium
- Maryland Institute of Science and Technology (MIST)
- Worcester County Economic Development Administration

Pennsylvania

- Marine Science Consortium (15 Public Universities)

1.4 PURPOSE AND NEED

The purpose of the proposed project is to create an integrated business park for aerospace research and development programs, scientific research, commercial space industries, and educational centers to expand the United States space program, and to increase economic development within Accomack County. To meet NASA's mission and commercial space industry needs, the proposed project should be close to usable space facilities such as WFF. The proposed project is consistent with NASA's strategic vision for WFF.

1.5 SCOPE OF THE ENVIRONMENTAL ASSESSMENT

This Environmental Assessment (EA) has been prepared to describe the potential impacts from the Proposed Action, no action, and one alternative. The No Action Alternative provides a baseline for comparing the Proposed Action and alternatives with the existing conditions. This EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and the NASA Procedural Requirement (NPR) for implementing NEPA (NPR 8580.1).

Pursuant to NEPA, as implemented by the CEQ regulations and NASA's NPR, NASA has prepared this EA for the Wallops Research Park. After the EA is completed and the environmental and socioeconomic impacts have been analyzed, a determination will be made whether NASA must prepare an Environmental Impact Statement or may issue a Finding of No Significant Impact.

1.6 RELATED ENVIRONMENTAL DOCUMENTATION

Final Site-Wide Environmental Assessment and Finding of No Significant Impact, Wallops Flight Facility, Goddard Space Flight Center. 2005. Prepared by URS-EG&G. January.

Environmental Resources Document. NASA GSFC WFF, Wallops Island, Virginia. 1999. Prepared by Occu-Health, Inc. October.

2.1 NO ACTION ALTERNATIVE

Under the No Action Alternative, NASA would not participate in the funding or construction of a research park, nor would NASA provide utilities, utility easements, or land for the development of a research park.

2.2 PROPOSED ACTION

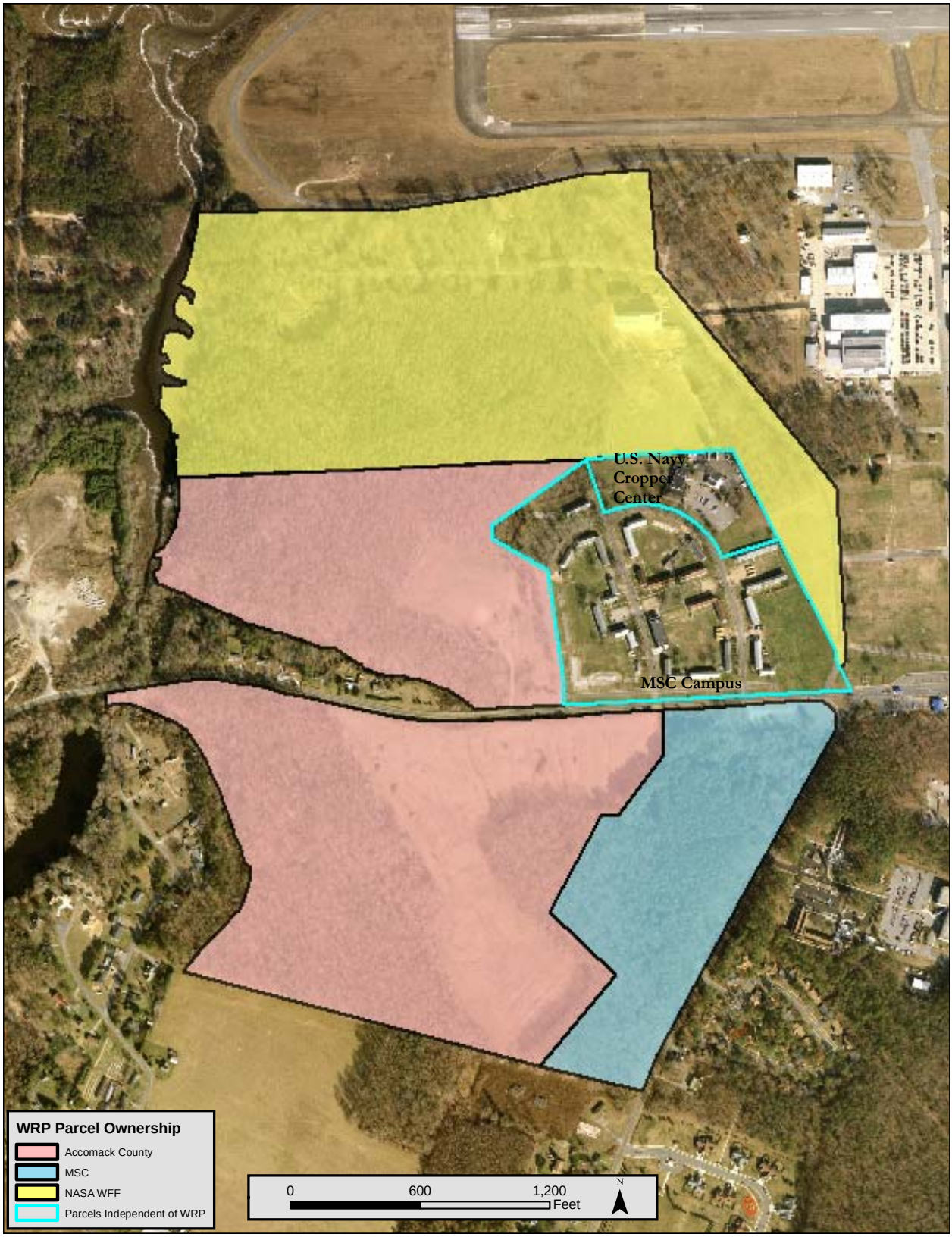
The Proposed Action consists of developing a research park adjacent to the WFF Main Base. The research park would be constructed on approximately 82 ha (202 acres) of land; 34.7 ha (85 acres) are owned by NASA, 35.6 ha (88 acres) are owned by Accomack County, and 11.7 ha (29 acres) are owned by the MSC (the 13.4 ha [33-acre] MSC campus site and the 2.2 ha [5.5-acre] Navy-owned parcel where the Cropper Center building is located, which are both surrounded by WRP, are not included in the total WRP acreage) (Figure 2). Portions of the proposed WRP site have been previously developed and currently contain a NASA payload processing facility (PPF), MSC campus buildings, open space that is periodically mowed, utility and road infrastructure, nature trails, a playground and baseball field, and a closed county-run landfill. Forested areas also occur within the WRP site.

The WRP would consist of a multi-use development dedicated to space and science research, educational facilities, and recreational areas. Proposed land use categories within WRP include: 1) research and development/industrial use, 2) aviation use, 3) gateway research and development/industrial use, and 4) an Accomack County recreational park (Figure 3). Construction in each of the WRP land parcels would include the installation of roads and utilities and the establishment of utility easements. Full build-out of the WRP is anticipated to take approximately 20 years.

Once developed, land owned by NASA within the WRP would be used primarily for aerospace activities including payload processing and aircraft operation and maintenance. Hangars are planned for construction on the northwest part of the NASA parcel. A PPF has been constructed on the NASA property in an area north of the MSC campus. The PPF houses a vertical payload integration and assembly facilities, clean rooms, and project support space.

The MSC property south of Mill Dam Road would be developed for research and development and industrial use. The MSC owns 25 ha (62 acres) within the WRP site boundary; the MSC campus, which is located on the north side of Mill Dam Road, encompasses 13.4 ha (33 acres). The MSC campus and any activities related to MSC campus renewal are independent and not considered part of the WRP development.

Accomack County Property north of Mill Dam Road would be developed to accommodate research and development and industrial land use and would include construction of education facilities, an incubator building with classrooms and office space, and new roads. A baseball field, playground, and nature trails already exist on this property but would be relocated. Playground equipment would be moved across Mill Dam Road to the closed County landfill. The baseball field and nature trails may also be relocated to the landfill or to another County-owned public recreation area. Additional Accomack County property west of the closed landfill and south of Mill Dam Road would be used for recreational activities and maintained as a county park. No WRP development would occur within the 14.2-ha (35-acre) footprint of the closed Accomack County landfill.



TITLE **WRP Owners**

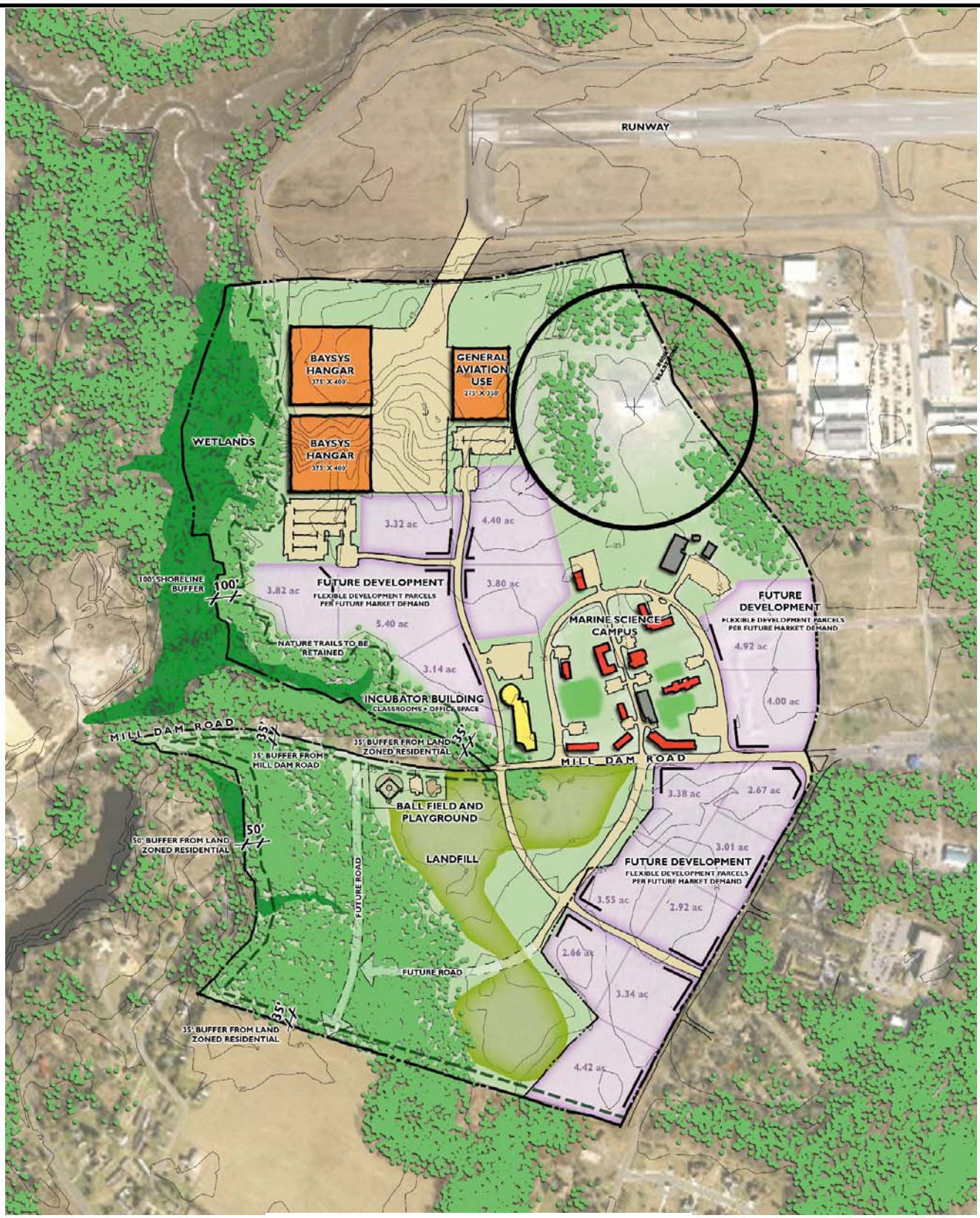
EG&G

URS PROJECT 39455591

FIGURE **2**

CLIENT: NASA

PROJECT: WALLOPS RESEARCH PARK



TITLE **WRP Proposed Action**	
EG&G	URS PROJECT 39455591
	FIGURE **3**
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

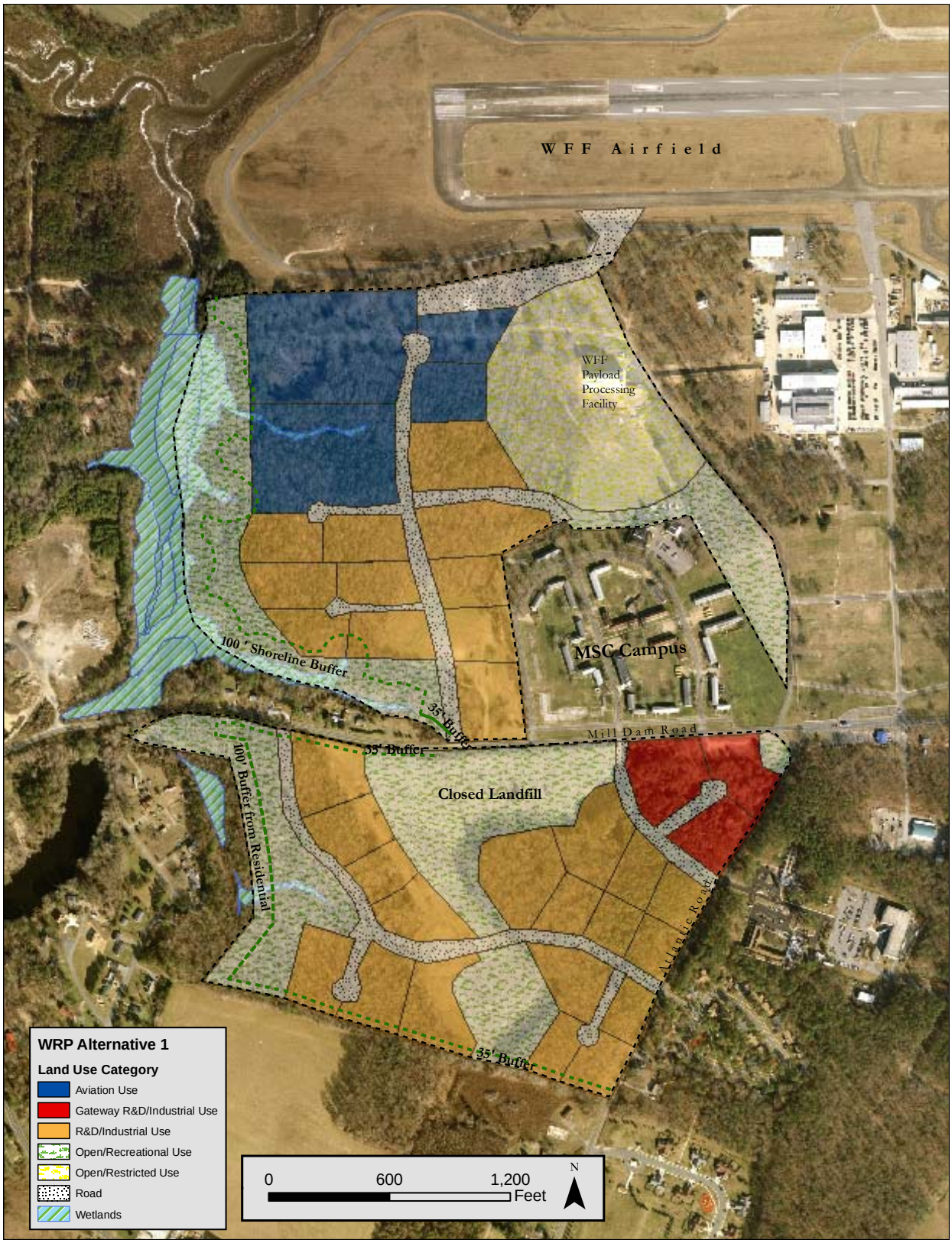
Accomack County would provide oversight to WRP tenants including implementation of the WRP Guiding Covenants and Restrictions (NASA, 2008c). A WRP Site Plan Review Committee would review tenant's proposals and site plans, and provide recommendations to the WRP principals regarding potential tenants.

2.3 ALTERNATIVE ONE

Alternative One includes the same development as described under the Proposed Action on NASA and MSC property. However, approximately 6.1 additional ha (15 acres) of Accomack County property in the WRP would be developed to include research and development and industrial land uses (Figure 4). Additional Accomack County property west of the closed landfill and south of Mill Dam Road would be used for recreational activities and maintained as a county park. Other than a road and utility easements, no WRP development would occur within the footprint of the closed Accomack County landfill.

2.4 ALTERNATIVES CONSIDERED AND DISMISSED

An alternative to developing the WRP adjacent to the WFF Main Base includes using existing research/industrial parks with Accomack County for research and educational facilities. However, this alternative does not meet NASA's strategic vision for WFF that states, "Wallops Flight Facility will be a national resource for enabling low-cost aerospace-based science and technology research" because it would locate facilities related to the WFF's mission away from WFF. In addition, this alternative does not meet the purpose and need of the project to develop the WRP close to space facilities, and the movement of aircraft from the runway into the hangars would not be possible if the WRP was located away from the WFF Main Base runway. Therefore, this alternative was considered but dismissed.



TITLE	**WRP Alternative One**
EG&G	URS PROJECT 39455591
	FIGURE **4**
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

3.1 INTRODUCTION

Section 3 describes existing resources at the proposed WRP site that may be affected by the Proposed Action and Alternative One. This section contains discussions on resources under three main categories: Physical Environment, Biological Environment, and Social and Economic Environment.

3.2 PHYSICAL ENVIRONMENT

3.2.1 Land Resources

Topography and Drainage

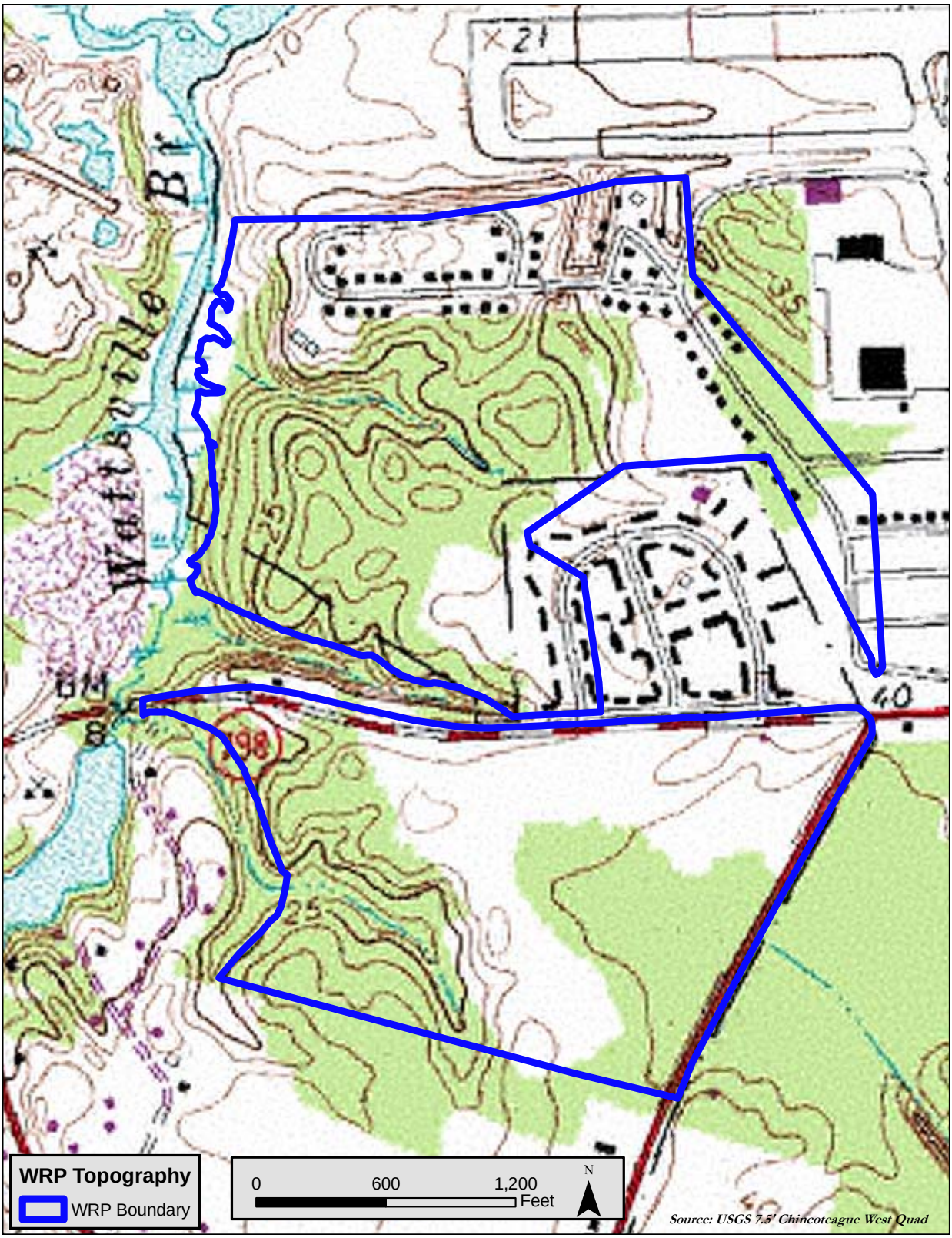
The topography of the WRP site area is relatively flat in the currently developed areas. However, elevations change rapidly immediately to the west of the proposed development, dropping from 12 meters (40 feet) above mean sea level (amsl) on the MSC campus to sea level at Wattsville Branch on the west portion of the WRP site (Figure 5).

The parcel of land north of Mill Dam Road that is owned by Accomack County and referred to as Accomack County North (ACCN), and the NASA parcel are bounded by Wattsville Branch to the west. Wattsville Branch is a tributary of Little Mosquito Creek, which is located north of the WRP area, and is surrounded by wetlands in the low-lying portions. Elevations rapidly reach a high of approximately 11 meters (35 feet) amsl moving east across the ACCN and NASA properties. There are seeps and small ephemeral streams in both the ACCN and NASA parcels, and the elevation drops to approximately 3 meters (10 feet) amsl near these streams and seeps.

The parcel of land to the south of Mill Dam Road that is owned by the MSC is relatively flat and is between 11 meters (35 feet) and 12 meters (40 feet) amsl. The parcel of land to the south of Mill Dam Road that is owned by Accomack County, referred to as Accomack County South (ACCS), is characterized by relatively rapid changes in elevation from approximately 3 meters (10 feet) amsl near an unnamed tributary of Wattsville Branch on the western side of the ACCS parcel to approximately 9 meters (30 feet) amsl in the relatively flat area east of the unnamed tributary (Figure 5).

Geology

The WRP area is located within the Atlantic Coastal Plain Physiographic Province. This area is underlain by approximately 2,130 meters (7,000 feet) of sediment that lies on top of crystalline basement rock. The sedimentary section, ranging in age from Cretaceous to Quaternary, consists of a thick sequence of terrestrial, continental deposits overlain by a much thinner sequence of marine sediments. These sediments are generally unconsolidated and consist of clay, silt, sand, and gravel.



TITLE	**WRP Site Topography**
EG&G	URS PROJECT 39455591
	FIGURE 5
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

The regional dip of the underlying geology is to the east. The two uppermost geologic units at WRP are the Yorktown Formation and the Columbia Group, which is not subdivided into formations. The Yorktown Formation generally consists of fine to coarse, glauconite quartz sand, which is greenish gray, with clay, silt, and shells. The Yorktown Formation occurs at depths of 18 meters (60 feet) to 43 meters (140 feet) below the ground surface in Accomack County (NASA, 1999).

Soil Types

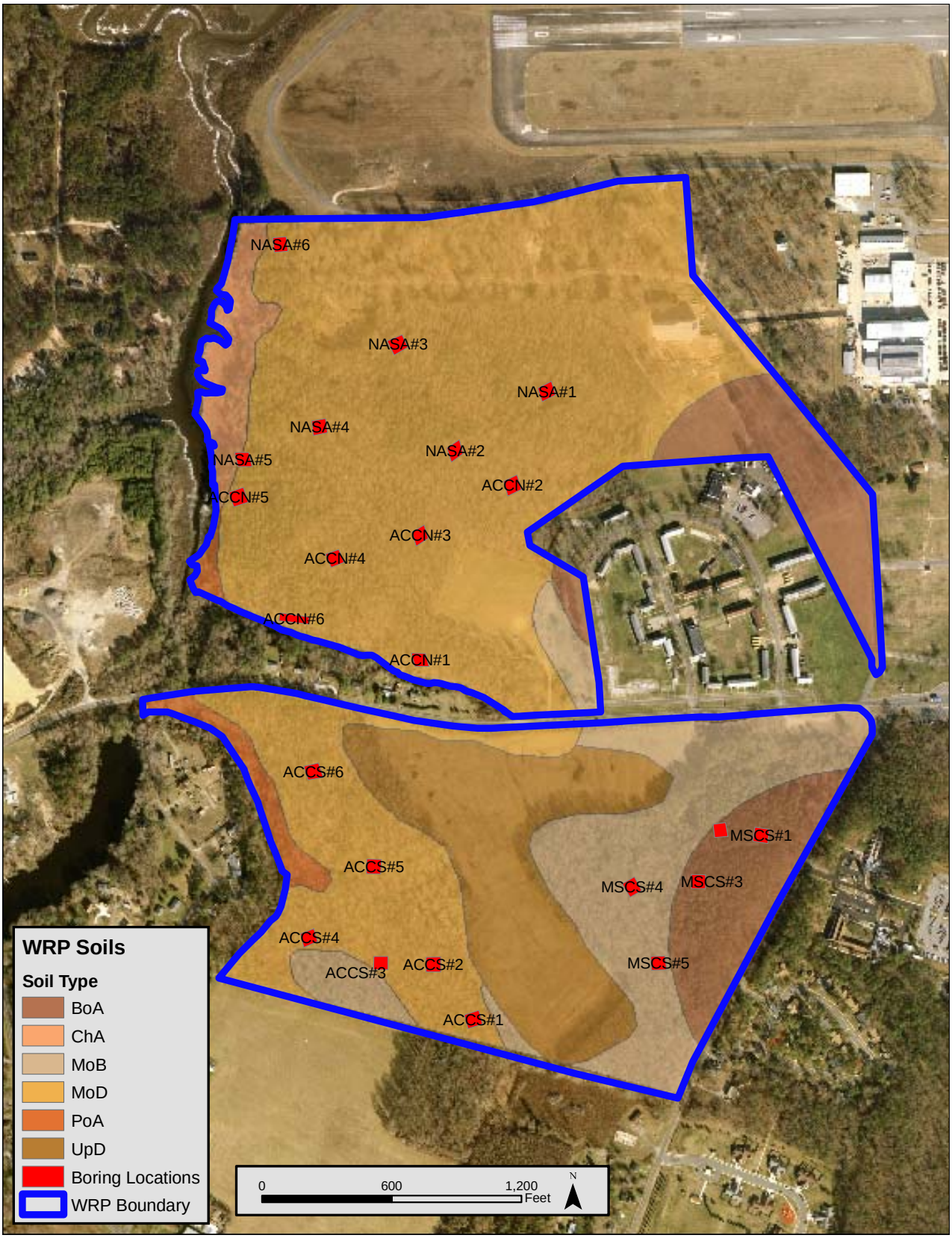
A Custom Soil Resource Report was generated for the WRP area through the use of an interactive U.S. Department of Agriculture (USDA) Web site and soils database for Accomack County, Virginia (USDA, 2007). Soil types that occur within the WRP area are shown on Figure 6 as 3-letter Map Unit Symbols. Table 1 includes descriptions of the soil types that occur within the WRP area.

Table 1. Soils in the WRP Area

Map Unit Symbol	Map Unit Name	Approximate Hectares (Acres) Within WRP	Percent of Area Within WRP
BoA	Bojac fine sandy loam, 0 to 2 percent slopes	18.2 ha (45 acres)	19.2%
ChA	Chincoteague silt loam, 0 to 1 percent slopes, frequently flooded	2 ha (5 acres)	2.3%
MoB	Molena loamy sand, 0 to 6 percent slopes	13.8 ha (34 acres)	14.8%
MoD	Molena loamy sand, 6 to 35 percent slopes	47 ha (116 acres)	49.8%
PoA	Polawana mucky sandy loam, 0 to 2 percent slopes, frequently flooded	2.8 ha (7 acres)	3.2%
UpD	Udorthent and Udipsamment soils, 0 to 30 percent slopes	9.3 ha (23 acres)	10.0%
W	Water	0.8 ha (2 acres)	0.8%
	Total[1]	93.9 ha (232 acres)	100%

[1]Includes the MSC campus

The Molena loamy sand (both MoB and MoD map units) is the predominant soil within the WRP area. MoD can extend very deep from the surface and is somewhat excessively drained. There is severe erosion potential with this type of soil, especially where steep slopes exist (greater than 10 percent slope). Chincoteague silt loam (ChA) and Polawana mucky sandy loam (PoA) soils are associated with wetlands because they are poorly drained. The Bojac fine sandy loam (BoA), which generally occurs in flat areas, is located within the MSC-owned land, particularly near the current MSC campus. BoA is a nearly level, very deep, and well-drained soil. Udorthent and Udipsamment (UpD) soils, which are characterized by weakly developed horizons, occur in the open space land within the ACCS parcel. Soils in the forested or maintained open space (mowed) portions of the WRP area are generally well drained (USDA, 2007). Although the ChA, PoA, and UpD soils are classified as hydric soils, there was little evidence that the meadow in the ACCS open space area held water for a prolonged period during the year (NASA, 2008a).



TITLE **WRP Project Area USDA Soil Types**

EG&G

URS PROJECT 39455591

FIGURE **6**

CLIENT: NASA

PROJECT: WALLOPS RESEARCH PARK

Soil Chemistry and Texture

Complete information about the chemical and physical characteristics of the soils found on the WRP project area is provided in the Custom Soils Report for the project area (USDA, 2007).

A vegetation survey of the WRP project area that included soil sampling and analysis was conducted on April 5, 2007 and from May 14-16, 2007 (NASA, 2008a). Soil pH values were generally consistent with the published pH values typical of the corresponding soil types with the exception of the Molena loamy sand, which had a slightly lower field pH than the approximated value published by the USDA (NASA, 2008a). Overall, field measurements of soil texture were within the range of expected values.

Land Use

The entire area of the WRP site is zoned by Accomack County as industrial land use. Portions of the proposed WRP site have been previously developed and currently contain a NASA payload processing facility, open space that is periodically mowed, utility and road infrastructure, nature trails, a playground and baseball field, and a closed county-run landfill. Forested areas also occur on both sides of Mill Dam Road within the WRP site.

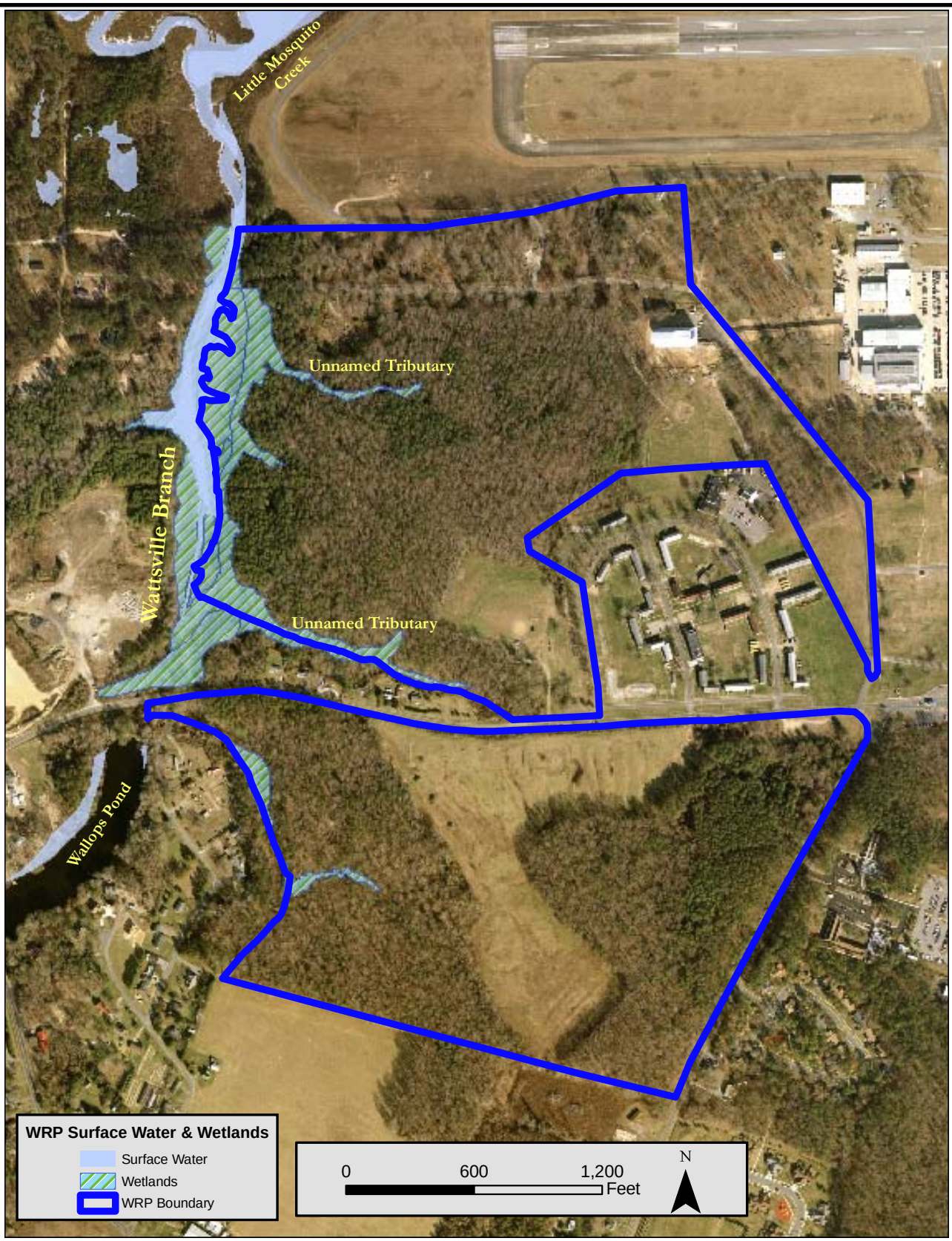
3.2.2 Water Resources

The entire WRP site is located within the Chincoteague Bay watershed. Fresh water within the Chincoteague Bay watershed mixes with Atlantic Ocean water through two inlets. Surface water in the WRP area eventually flows to Chincoteague Bay, which is enclosed by two coastal barriers, Assateague Island and Wallops Island. Ocean water enters the bay through the Ocean City inlet in Maryland and the Chincoteague inlet in Virginia. Since the Chincoteague Bay watershed has a relatively small population, with an average density of less than 40 people per square mile, little topographic relief, and a high water table, a large area of the watershed is comprised of tidal wetlands.

Surface Waters

Little Mosquito Creek is located north of the WRP site and also forms the northern boundary of WFF. The western side of the WRP site is bounded by a tributary to Little Mosquito Creek named Wattsville Branch (Figure 7). Little Mosquito Creek flows east through Mosquito Creek to Simoneaston Bay, then to Chincoteague Bay and out to the Atlantic Ocean. Several unnamed ephemeral tributaries of Wattsville Branch occur within the western portion of the WRP site. An unnamed tributary to Wattsville Branch that is located on NASA property was observed during a vegetation survey in July 2007 (NASA, 2008a); it was found to be relatively dry and did not contain flowing water.

The Virginia Department of Environmental Quality (DEQ) regulates surface waters in Virginia and has established water quality criteria including limits for minimum dissolved oxygen concentrations, pH, maximum temperature for various surface water classifications, and numerical limits for various potentially toxic parameters.



TITLE	**WRP Project Area Surface Waters**
EG&G	URS PROJECT 39455591
	FIGURE 7
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

The Virginia DEQ designated the waters around the WRP as Class II – Estuarine Waters (NASA, 1999), for which the saltwater numerical criterion applies. The surface waters of Little Mosquito Creek downstream of the WRP site are listed on Virginia 303(d) list as an impaired water body (Virginia DEQ, 2006). Little Mosquito Creek is listed as impaired for beneficial uses including aquatic life, recreation, and shellfish harvesting due to low dissolved oxygen, elevated enterococcus levels, and elevated fecal coliform levels, respectively.

Wastewater

NASA owns and operates a state-of-the-art 300,000-gallon-per-day wastewater treatment plant (WWTP). The WWTP currently treats flows of approximately 60,000 gallons per day.

Treated wastewater from the WWTP is discharged via a single outfall to an unnamed freshwater tributary to Little Mosquito Creek under Virginia Pollutant Discharge Elimination System (VPDES) permit VA0024457 issued by the Virginia DEQ. The WFF Environmental Office tests the wastewater discharge on a daily basis to ensure discharges do not exceed permitted limits.

Stormwater

Stormwater runoff at the WRP site is discharged directly into Wattsville Branch via overland flow, or is collected on-site by an existing system of storm drains, stormwater lines, ditches, and swales that are currently maintained and permitted by NASA. Runoff then discharges to Little Mosquito Creek via an outfall to the west of the WFF runway that is located north of the WRP site.

The Environmental Protection Agency (EPA) created the National Pollutant Discharge Elimination System (NPDES), which regulates discharges associated with industrial activities. The Virginia DEQ is authorized to carry out NPDES permitting under VPDES. Neither Accomack County nor the MSC currently have VPDES permits for industrial discharges. NASA currently holds a VPDES permit for industrial stormwater discharges (permit number VA0024457) for 12 outfalls located on the WFF Main Base. NASA's VPDES permit requires a Storm Water Pollution Prevention Plan (SWPPP) for WFF that includes best management practices for construction and aerospace-related activities to prevent impacts to soils and water quality.

Virginia stormwater management regulations require that land development activities incorporate measures to protect aquatic resources from the effects of increased volume, frequency, and peak rate of stormwater runoff and from increased nonpoint source pollution carried by stormwater runoff.

Groundwater

The Virginia DEQ manages groundwater through a program regulating the withdrawals in certain areas called Groundwater Management Areas under the Groundwater Management Act of 1992. The WRP site lies within the Eastern Shore Groundwater Management Area, which includes Accomack and Northampton counties. Any person or entity wishing to withdraw 300,000 or more gallons per month or more in a declared management area must obtain a permit from Virginia DEQ.

Hydrology

The Virginia DEQ has identified four major aquifers on the Eastern Shore of Virginia: the Columbia aquifer and the three aquifers that comprise the Yorktown-Eastover aquifer system.

The Columbia aquifer is known as the water table aquifer, and primarily consists of Pleistocene sediments of the Columbia Group (Richardson, 1992). It is unconfined and typically overlain by wind-deposited beach sands, silts, and gravel. The aquifer occurs between the depths of 1.5 and 18.3 meters (5 and 60 feet) below the ground surface, with the water table ranging between the depths of 0 and 9.1 meters (30 feet) below the ground surface. Groundwater generally flows east and north toward local tributaries and streams at the WRP site, and also toward a marsh area that separates Chincoteague Island from the Eastern Shore mainland to the northeast of the WRP site and WFF.

The Yorktown-Eastover system is a multiaquifer unit consisting of late Miocene and Pliocene deposits and is composed of the sandy layers of the Yorktown and Eastover Formations (Meng and Harsh, 1988). The top of the shallowest confined Yorktown-Eastover aquifer in the area of the proposed WRP is found at a depth of approximately 30.5 meters (100 feet) below the ground surface. It is separated from the overlying Columbia aquifer by a 6.1- to 9.1-meter-thick (20- to 30-foot-thick) confining layer (aquitard) of clay and silt. The Yorktown-Eastover aquifers are classified as the upper, the middle, and the lower Yorktown-Eastover aquifers. Correspondingly, each Yorktown-Eastover aquifer is overlain by the upper, middle, and lower Yorktown-Eastover aquitards.

In general, the water table (Columbia) aquifer on the Delmarva Peninsula is recharged by surface waters or infiltration of precipitation. The confined aquifers are recharged by the same process, but from areas located beyond the immediate vicinity of the WRP site.

Groundwater Appropriation

Groundwater from the Columbia and Yorktown-Eastover Multiaquifer System is the sole source of potable water for the vicinity of the WRP. No major streams or other fresh surface water supplies are available as alternative sources of water for human consumption. The Columbia and Yorktown-Eastover Multiaquifer System is designated and protected by the EPA as a sole source aquifer (EPA, 2003). A sole source aquifer is a drinking water supply located in an area with few or no alternative sources to the groundwater resource, and where if contamination occurred, using an alternative source would be extremely expensive. The designation protects an area's groundwater resource by requiring the EPA to review any proposed projects within the designated area that are receiving Federal financial assistance. All proposed projects receiving Federal funds are subject to review to ensure they do not endanger the water source. Additionally, the Accomack-Northampton Planning District Commission has established a groundwater management program for the entire Eastern Shore that includes a Groundwater Committee, established in 1990, that monitors usage and ensures that an optimal balance exists between groundwater withdrawals and recharge rates. This balance helps to minimize the problems of water quality due to saltwater intrusion, aquifer de-watering, and well interference in the general area (NASA, 1999).

NASA operates five supply wells on the WFF Main Base that are several hundred feet deep. Four wells withdraw water from the Middle Yorktown-Eastover aquifer and one well withdraws

water from the Upper Yorktown-Eastover aquifer. The potable water system for the WRP site would be supplied by NASA.

WFF is permitted by Virginia DEQ to withdraw up to 8,153,000 gallons per month. Currently, WFF withdraws approximately 2,370,000 gallons per month (Bundick, 2008).

Groundwater Quality

WFF's chemical laboratory performs routine analytical sampling of WFF's water systems in accordance with Federal and State requirements and submits the results to the State for review. Recent sampling of the drinking water system found that lead concentrations are above regulatory limits. These contaminants are from corrosion of the supply pipes rather than contaminants present in the groundwater.

In February 2008, NASA notified users of the drinking water system that monitoring had detected lead levels above the action level and provided them with guidance on reducing their exposure to lead. NASA has instituted a comprehensive treatment program to reduce lead and copper concentrations and will continue monitoring the drinking water system. If the treatment program does not successfully reduce the lead concentrations, then NASA is required to replace components of the distribution system that contribute to lead concentrations of more than 15 parts per billion (ppb).

Past contamination at three sites on the Main Base has affected groundwater quality at WFF. Chemical releases at the Former Fire Training Area, Waste Oil Dump, and Old Aviation Fuel Tank Farm resulted in contaminant plumes that have locally affected groundwater quality in the Columbia aquifer. Water quality in the underlying Yorktown aquifer has not been affected by contamination due to the presence of a geologic layer that prevents groundwater movement from the Columbia aquifer downward into the Yorktown aquifer. The principal chemicals in the contaminant plumes included components of fuels and oils (in all three plumes) and solvents (chiefly in the Former Fire Training Area plume) (NASA, 2005).

The water supply wells located at WFF Main Base that supply the WRP have not been affected by the contaminant plumes. All of the supply wells are located in the Yorktown aquifer, which is isolated from the overlying contamination. NASA regularly samples the water supply wells and area groundwater to ensure that the contaminant plumes are not expanding and that there is no adverse affect on the drinking water supply. NASA is working with Federal and State environmental agencies to ensure that the plumes do not expand and to restore groundwater to natural conditions.

Wetlands

EO 11990 (Wetland Protection) directs Federal agencies to minimize the destruction, loss, and degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetland communities. In accordance with the Clean Water Act (CWA) (33 U.S.C. §1251 et seq.), projects at the WRP that involve dredging or filling wetlands would require Section 404 permits from the U.S. Army Corps of Engineers (USACE). NASA is also directed to minimize wetland impacts under 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management).

In addition, activities that occur in Virginia wetlands require State permits from the Virginia DEQ, which administers the Virginia Water Protection Permit program and Section 401 of the CWA, and from the Virginia Marine Resources Commission (VMRC), which administers the Virginia Tidal Wetlands Act of 1972. The Accomack County Wetlands Board also oversees activities that occur in or affect tidal wetlands (it does not oversee non-tidal wetlands).

In order to define the extent and quality of wetlands, a preliminary wetland delineation of the WRP property was performed during a 2007 vegetation survey (NASA, 2008a). Tidal marsh wetlands occur in conjunction with Wattsville Branch on the west side of the WRP site (Figure 7). Nontidal wetlands also occur both north and south of Mill Dam Road within and around unnamed tributaries to Wattsville Branch.

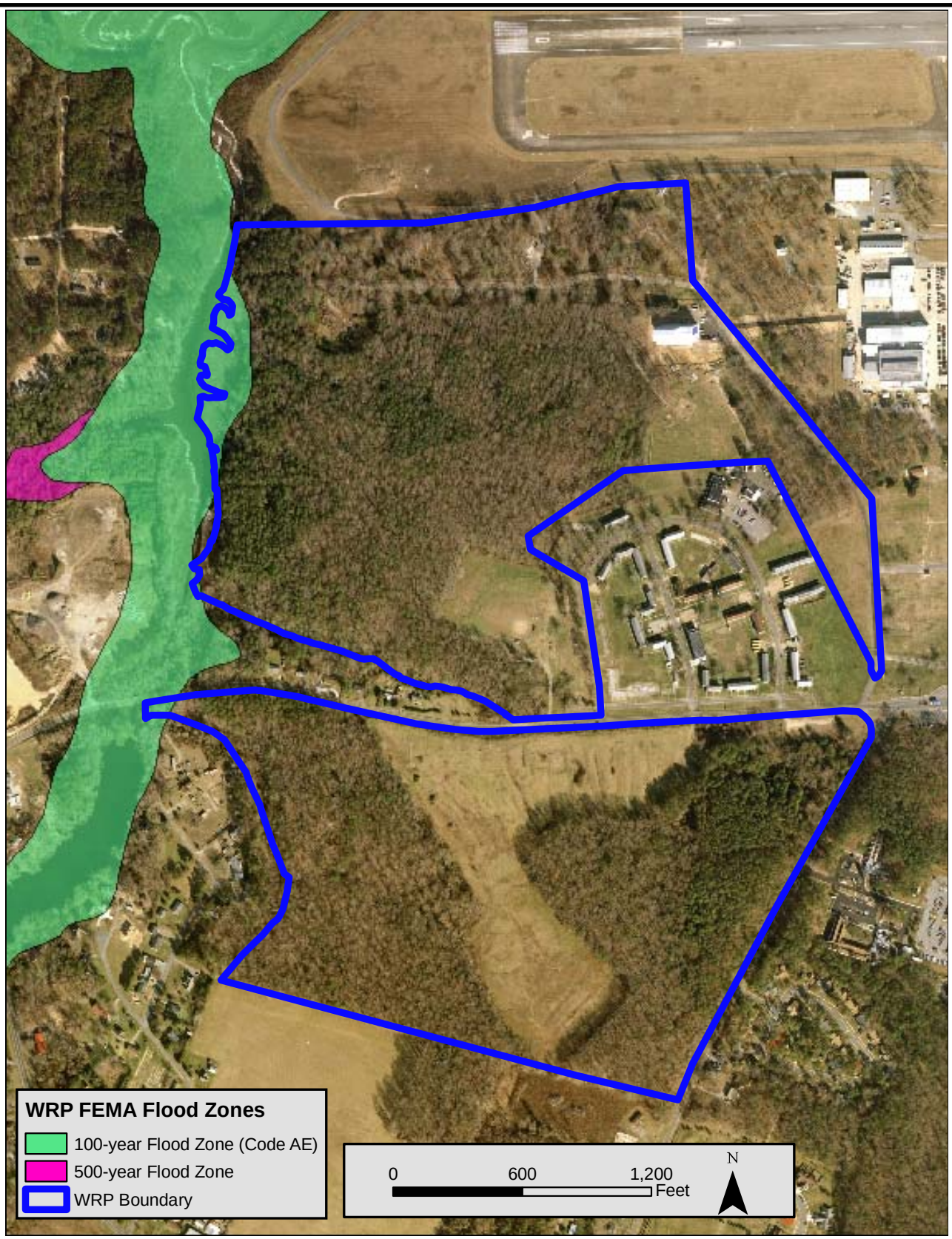
Floodplains

EO 11988 (Floodplain Management) requires Federal agencies to take action to minimize occupancy and modification of the floodplain. Specifically, EO 11988 prohibits Federal agencies from funding construction in the 100-year floodplain unless there are no practicable alternatives. As shown on the Flood Insurance Rate Maps (FIRMs) produced by the Federal Emergency Management Agency (FEMA), the 100-year floodplain designates the area inundated during a storm having a 1 percent chance of occurring in any given year. The 500-year floodplain designates the area inundated during a storm having a 0.2 percent chance of occurring in any given year.

FIRM Community Panels 5100010070B (FEMA, 1984) and 5100010100C (FEMA, 1992) show that the western part of the WRP site is included in the 100-year floodplain and the 500-year floodplain, as shown on Figure 8. The floodplain extends upstream along some of the unnamed tributaries to Wattsville Branch within the WRP site.

Coastal Zone Management

The Virginia DEQ is the lead agency for the Virginia Coastal Resources Management Program (VCP), which is authorized by the National Oceanic and Atmospheric Administration, to administer the Coastal Zone Management Act of 1972. Although Federal lands are excluded from Virginia's Coastal Management Area (CMA), any Federal agency development that has reasonably foreseeable effects to Virginia's CMA must be consistent with the enforceable policies of the VCP (Virginia DEQ, 2008a).



TITLE	**WRP Project Area Floodplain**
EG&G	URS PROJECT 39455591
	FIGURE **8**
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

Enforceable policies of the VCP that must be considered when making a Coastal Zone Consistency Determination include:

- Fisheries Management – Administered by the VMRC, this program stresses the conservation and enhancement of shellfish and finfish resources and the promotion of commercial and recreational fisheries
- Subaqueous Lands Management – Administered by the VMRC, this program establishes conditions for granting permits to use State-owned bottomlands
- Wetlands Management – Administered by the VMRC and the DEQ, the wetlands management program preserves and protects tidal wetlands
- Dunes Management – Administered by the VMRC, the purpose of this program is to prevent the destruction and/or alteration of primary dunes
- Non-point Source Pollution Control – Administered by the Virginia Department of Conservation and Recreation, the Virginia Erosion and Sediment Control Law is intended to minimize non-point source pollution entering Virginia's waterways
- Point Source Pollution Control – Administered by the State Water Control Board, the VPDES permit program regulates point source discharges to Virginia's waterways
- Shoreline Sanitation – Administered by the Department of Health, this program regulates the installation of septic tanks to protect public health and the environment
- Air Pollution Control – Administered by the State Air Pollution Control Board, this program implements the Federal Clean Air Act through a legally enforceable State Implementation Plan
- Coastal Lands Management – Administered by the Chesapeake Bay Local Assistance Department, the Chesapeake Bay Preservation Act guides land development in coastal areas to protect the Chesapeake Bay and its tributaries.

3.2.3 Air Quality

The Clean Air Act (CAA), as amended, requires the EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The CAA established two types of NAAQS, primary and secondary standards. Primary standards set limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

The EPA has set NAAQS for six principal pollutants that are called "criteria" pollutants. They include: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), particulate matter less than or equal to 10 microns (PM_{10}), and sulfur dioxide (SO_2). The Ambient Air Quality Standards published by the Commonwealth of Virginia must be equal to or more stringent than the NAAQS. The Virginia DEQ implements air quality standards established by the State Air Pollution Control Board. Virginia's standards are contained in Section 9 VAC 5-30 for the Control and Abatement of Air Pollution. Primary standards for protection of human health, and secondary standards for protection of public welfare, are included in Section 9 VAC 5-30 for criteria pollutants.

Section 176(c) of the CAA requires Federal agencies to ensure that actions undertaken in non-attainment or maintenance areas are consistent with the CAA and with Federally enforceable air quality management plans. The Commonwealth of Virginia defines an Air Quality Maintenance Area as "any area which, due to current air quality or projected growth rate or both, may have the potential for exceeding any ambient air quality standard (for criteria pollutants) within a subsequent 10-year period" (Virginia DEQ, 2008b). Aircraft are exempt from the Commonwealth of Virginia regulations that govern emissions standards for mobile sources (9 VAC 5-40-5680).

The WRP area is located in an attainment area for all criteria pollutants as regulated under Virginia's Ambient Air Quality Standards. Accomack County is not designated as an Air Quality Maintenance Area. Because the Virginia DEQ considers the Eastern Shore of Virginia to be an attainment area for ozone, indicating compliance with primary and secondary standards, it does not currently perform ambient air quality monitoring in the vicinity of the WRP site. WFF currently holds a permit from the Virginia DEQ that allows it to maintain emissions for criteria pollutants and hazardous air pollutants below major source thresholds.

Paint Spray/Coatings Booths

Paint booths are regulated by the Virginia DEQ through a permitting process and cannot exceed 9.1 metric tonnes (10 tons) of volatile organic compound (VOC) emissions per year. Activities in paint booths at WRP would be similar or identical to painting activities currently performed at NASA WFF. In 1990, WFF submitted data to the Virginia DEQ regarding operations of the NASA paint booth facilities, including paint usage information. The Virginia DEQ found, through modeling, that WFF emits 33 non-criteria toxic air pollutants. Of those pollutants, 21 are exempt from regulations. The remaining 12 non-criteria pollutants are subject to regulation. A summary of Virginia DEQ's findings for WFF is presented in Tables 2 and 3.

Table 2. Summary of Emissions from Paint Spray Booths for Exempt Non-Criteria Air Pollutants

Pollutant Name	CAS Number	Uncontrolled Emission Rate kg/hr (lb/hr)	Exempting Rate kg/hr (lb/hr)
n-Butyl acetate	123-86-4	2.4 (5.2)	57.5 (126.77)
n-Butyl alcohol	71-63-3	2.9 (6.4)	5.8 (12.90)
Ethyl benzene	100-41-4	0.4 (0.8)	28.8 (63.51)
Ethyl benzene	107-21-1	0.5 (1.1)	5.8 (12.9)
Ethylene glycol monopropyl ether	2807-30-9	2.1 (4.7)	28.8 (63.51)
Isobutyl acetate	110-19-0	0.2 (0.4)	57.5 (126.7)
Isobutyl alcohol	78-83-1	0.1 (0.2)	5.8 (12.90)
Isopropyl alcohol	67-63-0	4.7 (10.3)	57.5 (126.77)
Magnesium naphthenate	1336-93-2	0.05 (0.1)	0.34 (0.76)
Methyl ethyl ketone	78-93-3	0.2 (0.5)	57.5 (126.77)
Methyl isobutyl ketone	108.10-1	1.72 (3.8)	5.85 (12.90)
Mica	12003-38-2	0.05 (0.1)	0.34 (0.76)
Nitroethane	79-24-3	0.54 (1.2)	28.8 (63.51)
2-Nitropropane	79-46-9	1.04 (2.3)	2.98 (6.58)
Polypropylene glycol monomethyl ether	107-98-2	0.77 (1.7)	28.8 (63.51)
Polypropylene glycol monomethyl ether acetate	108-65-6	1.54 (3.4)	57.5 (126.77)
Stoddard solvent	8052-41-3	0.14 (0.3)	57.5 (126.77)

Table 2. Summary of Emissions from Paint Spray Booths for Exempt Non-Criteria Air Pollutants			
Pollutant Name	**CAS Number**	**Uncontrolled Emission Rate kg/hr (lb/hr)**	**Exempting Rate kg/hr (lb/hr)**
Toluene	108-88-3	2.4 (5.3)	28.8 (63.51)
Trimethyl benzene	25551-13-7	0.14 (0.3)	5.85 (12.90)
VM&P naphtha	8032-32-4	5.49 (12.1)	57.5 (126.77)
Xylene	1330-20-7	4.98 (10.8)	28.8 (63.51)

CAS Number = Chemical Abstract System identification number.
Uncontrolled Emission Rate = Emission rate of facility modeled.
Exempting Rate = Maximum allowable emission rate.
VM&P = Varnish Maker's and Painter's
Source: NASA, 1999

Table 3. Summary of Emissions from Paint Spray Booths for Regulated Non-Criteria Air Pollutants				
Pollutant Name	**CAS Number**	**Emission Rate kg/day (lb/day)**	**Predicted Ambient Concentration (µg/m^3)**	**Significant Ambient Concentration (µg/m^3)**
Aluminum oxide	1344-28-1	34.9 (77.0)	14.9	166.7
Aluminum silicate	1335-30-4	8.3 (18.4)	3.6	166.7
Barium metaborate monohydrate	13701-59-2	4.0 (8.8)	1.7	8.3
Calcium carbonate	13 17-65-3	14.0 (30.8)	6.0	166.7
Cobalt naphthenate	61789-51-3	0.45 (1.0)	0.2	1.7
Iron oxide	1309-37-1	4.35 (9.6)	1.9	83.3
Magnesium silicate	14807-96-6	5.99 (13.2)	2.6	166.7
Phosphoric acid	7664-38-2	8.3 (18.3)	3.6	16.7
Silica, amorphous (fused)	60676-86-0	1.8 (4.0)	0.8	1.7
Silica, diatomaceous (earth)	68855-54-9	12.6 (27.9)	5.4	166.7
Titanium dioxide	13463-67-7	17.4 (38.4)	7.5	166.7
Zinc borate	1332-07-5	3.9 (8.7)	1.7	166.7

Predicted Ambient Concentration – Concentration of toxic pollutant in ambient air based on modeling and emission rate data.
Significant Ambient Concentration – Concentration of a toxic pollutant in the ambient air which if exceeded may have the potential to injure human health.
µg/m^3 – micrograms per cubic meter
Source: NASA, 1999

3.2.4 Noise

The EPA's Noise Control Act of 1972 and as amended by the Quiet Communities Act of 1978, states that it is the policy of the United States to promote an environment for all Americans free from noise that jeopardizes their health or welfare.

Noise Standards and Criteria

Noise is defined as any loud or undesirable sound. The standard measurement unit of noise is the decibel (dB), generally weighted to the A-scale (dBA), corresponding to the range of human hearing. Since sounds in the outdoor environment are usually not continuous, a common unit of measurement is the $L_{eq,}$ which is the time-averaged sound energy level. The L_{10} is the sound level exceeded 10 percent of the time and is typically used to represent peak noise levels. Similarly, the L_{01} and L_{90} are the noise levels exceeded 1 percent and 90 percent of the time, respectively. The 1-hour L_{eq} is the measurement unit used to describe monitored baseline noise levels in the vicinity of WFF. It conforms to the requirements in 23 CFR, Part 772, and is a descriptor

recommended by the Federal Highway Administration for describing noise levels during peak traffic periods.

EPA guidelines state that outdoor sound levels in excess of 55 dB day night level (DNL) are "normally unacceptable" for noise-sensitive land uses such as residences, schools, or hospitals. The MSC campus, the Navy Cropper Center, and residences within 2 miles of the WRP are potential noise-sensitive receptors.

Aircraft operations are a source of noise to the surrounding area. A variety of military and non-military aircraft use the NASA airfield and its airspace. Some examples of the types of aircraft that use the facility and their associated noise levels are included in Table 4. The aircraft using the airfield are prohibited from creating sonic booms (NASA, 1999).

Table 4. Aircraft Noise Levels

AIRCRAFT TYPE	TAKEOFF		LANDING	
	dBA	(EPNdB)	dBA	(EPNdB)
727, 737, DC9, BAC1 11	94-100	92-96	85-90	97-104
707, 720, DC8	100-105	--	94-100	--
F-18	155	--	--	--
DC10, L1011	90	95-106	84	99-108
DC3, Propeller	8 5-90	--	75-82	--
Single-Engine Propeller	76-90	77-78	67-77	87-88
Multipropeller	79-93	--	70-80	--
Executive Jet	93-97	83-94	81-87	92-101
OH58 (Ranger Helicopter)	84	--	72	--
UH1 (Huey Helicopter)	77	--	77	--
C141 (Cargo Plane)	134	--	117	--
C-5 Galaxy Class	106.2	--	98.4	--

EPNdB: Effective Perceived Noise Level
Source: NASA, 1999

The total number of flights at WFF is approximately 530 per month, or approximately 6,400 per year (NASA, 2005). Aircraft operations from the WFF airfield are intermittent. In many cases, flight patterns are over marshland or farmland, and primary periods of use are during daylight hours. Personnel exposed to aircraft noise during airfield operations are required to wear hearing protection.

3.2.5 Hazardous Materials and Hazardous Waste

Hazardous Materials

The Federal regulations that govern hazardous materials at a facility are found at 29 CFR 1910, Subpart H. Hazardous materials may exist in the form of explosives, flammable and combustible substances, poisons, and radioactive materials that are most often released as a result of transportation or chemical plant accidents (FEMA, 2008).

Environmental concerns or issues are referred to as "recognized environmental conditions" (RECs) in accordance with the ASTM International (ASTM) Standard E1527-05, which includes EPA's standards for All Appropriate Inquiries. A REC is defined by the ASTM as, "The presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, groundwater or surface water of the property" (ASTM, 2005).

LandMark Design Group performed a Phase I Environmental Site Assessment for proposed project site (LandMark, 2001). The objective of the Phase I Environmental Site Assessment was to evaluate environmental concerns that may be associated with the WRP site. LandMark determined that there are no known hazardous wastes and/or hazardous materials within the WRP site that could result in an REC.

Hazardous Waste Management

The regulations that govern hazardous waste management are found at 40 CFR 2 60-270 (Federal) and 9 VAC 20-60 (Commonwealth of Virginia). The WFF Environmental Office manages NASA's hazardous waste generation, including inspection, onsite transportation, storage, and shipment of all hazardous waste. This office is responsible for tracking manifests and certificates of disposal for hazardous wastes that leave WFF. The WFF Environmental Office also provides annual hazardous waste training to all contractor and civil service employees that handle hazardous wastes.

3.2.6 Radiation

Radiation-emitting materials and equipment are used in space flight research, earth sciences research, atmospheric research, testing, and integration of space flight hardware, and communications. Radiation-emitting materials and equipment can be classified as either ionizing or non-ionizing radiation. Ionizing radiation is any type of radiation capable of directly or indirectly producing ions as it passes through a medium. In general, ionizing radiation has considerably greater kinetic energy than non-ionizing radiation. Non-ionizing radiation is not strong enough to produce free ions as it passes through media.

Ionizing Radiation

The Federal Nuclear Regulatory Commission (NRC) licenses the use and storage of ionizing source material, special nuclear material, and byproduct material. Source material is any radioactive material that contains at least 0.05 percent by weight of uranium and/or thorium, excluding special nuclear material. Special nuclear material is plutonium, uranium 233, or uranium-enriched in the isotope 233 or 235. Byproduct material is any radioactive material derived from production or use of special nuclear material.

Sources of ionizing radiation include radioactive materials for science instruments and experiments and for instrument calibration.

Non-Ionizing Radiation

Lasers, radars, microwaves, and ultraviolet and high-intensity lamps produce non-ionizing radiation. Laser radiation sources include pulsed or continuous wave systems capable of

producing laser light from ultraviolet to the far infrared. Lasers produce an intense, coherent, directional beam of light by stimulating electronic or molecular transitions to lower energy levels. The lasers may be used for research and testing, as well as communication and atmospheric research. Laser devices may also be used in a variety of experiments in both laboratories and payloads.

Per the United States Occupational Safety and Health Administration (OSHA) Directive STD 01-05-001 - PUB 8-1.7 “Guidelines for Laser Safety and Hazard Assessment” and Chapter 6 “Laser Hazards” of Section III “Health Hazards” of OSHA Technical Manual TED 01-00-015 (TED 1-0.1 5A), all laser operators must be trained in the proper use of the class of lasers they use. All lasers can be classified into one of four categories based on use and light intensity in compliance with the American National Standard Institute (ANSI) standard 7136.6:

- Class I lasers are considered exempt and are typically enclosed in a protective device. Control measures are not required for the operation of a Class I laser
- Class II lasers are low-power visible continuous wave and high pulse-rate frequency lasers. These lasers are incapable of producing eye injury within the duration of a blink. If a user stares directly into the laser beam, eye injury can occur
- Class III lasers are medium-power lasers. These lasers can cause serious eye injury if the user looks directly into the beam
- Class IV lasers are high-power lasers and are usually only found in controlled research laboratory settings. These lasers can present serious skin and eye hazards and can ignite flammable targets, create hazardous airborne contaminants, and have a potentially lethal, high-current, high-voltage power supply.

Other sources of non-ionizing radiation include high-intensity light sources such as compact arc lamps, tungsten-halogen lamps, and electronic flash lamps. Some high-intensity light sources may produce ultraviolet, visible, and/or infrared radiation.

Sources of radio-frequency radiation that produce power densities greater than 100 milliwatts per square centimeter are also potentially hazardous. Sources of radio frequency at NASA facilities (and likely to be at WRP) that may fall into this category often include radar units, microwave ovens, diathermy units, induction heating devices, and radio-frequency generators.

The U.S. Department of Defense (DoD) establishes permissible exposure limits (PEL) for personnel exposed to radiation based on international standards. The DoD radio frequency Safety Standard (DoD Instruction 6055.11), which is in agreement with the general industry consensus standard (IEEE C95.1-1999), assumes worst case conditions in developing the frequency dependent PELs used to determine potential Hazards of Electromagnetic Radiation to Personnel (HERP) limits.

Potential Hazards of Electromagnetic Radiation to Ordnance (HERO) are determined for radio frequency emitting systems at WFF because Electro-Explosive Devices may be accidentally initiated or their performance degraded by exposure to radio frequency environments. Some of the systems at Wallops Island have been qualified as HERO safe or HERO susceptible by Navy or Air Force testing. Navy criteria for HERO are established in Ordnance Publication 3565, based on average radiated power density over a relatively short time period as opposed to the

longer time periods used for HERP. Both HERO and HERP analyses would be performed for WRP activities on an as-needed basis.

3.3 BIOLOGICAL ENVIRONMENT

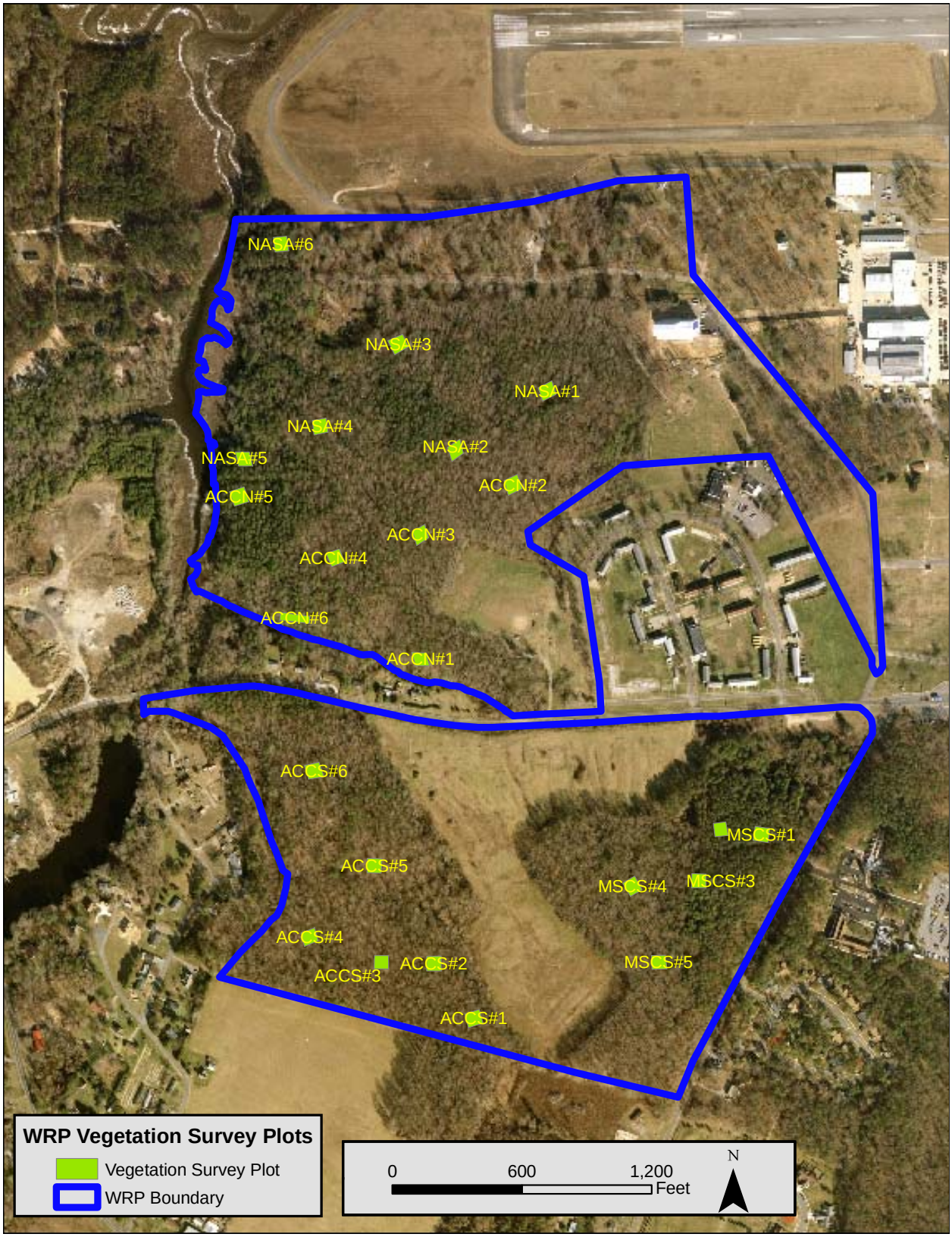
The WRP site is characterized by a diverse ecosystem with a range of habitats due to the mixing of Atlantic Ocean water with fresh water from the Chincoteague Bay watershed, including the fresh waters of Wattsville Branch (Figure 8).

3.3.1 Vegetation

A vegetation study was conducted at the WRP site to provide information on plant species and plant community inventory and location (Vegetation Survey and Mapping [VSM] for Wallops Research Park Project) (NASA, 2008a). The VSM project included 23 survey plots across the WRP site (Figure 9). The WRP site includes land that is currently developed, land that was previously developed and is now maintained by mowing, and natural habitats.

Results of the survey revealed that the WRP site supports a diverse variety of plant species within several distinguishable plant communities (Figures 10 and 11). Plant species were identified and grouped into four different habitat or plant community categories: 1) wetlands, 2) mesic forest, 3) dry forest, and 4) meadow. These 4 plant communities are further broken down into 11 different community types as shown on Figures 10 and 11.

According to the VSM project, the WRP site contains approximately 46.5 ha (115 acres) of mixed forest (mesic and dry forest combined), 33.2 ha (82 acres) of developed land, 9.7 ha (24 acres) of meadow, and 4 ha (10 acres) of wetlands.



TITLE **WRP Site Vegetation Survey Plots**

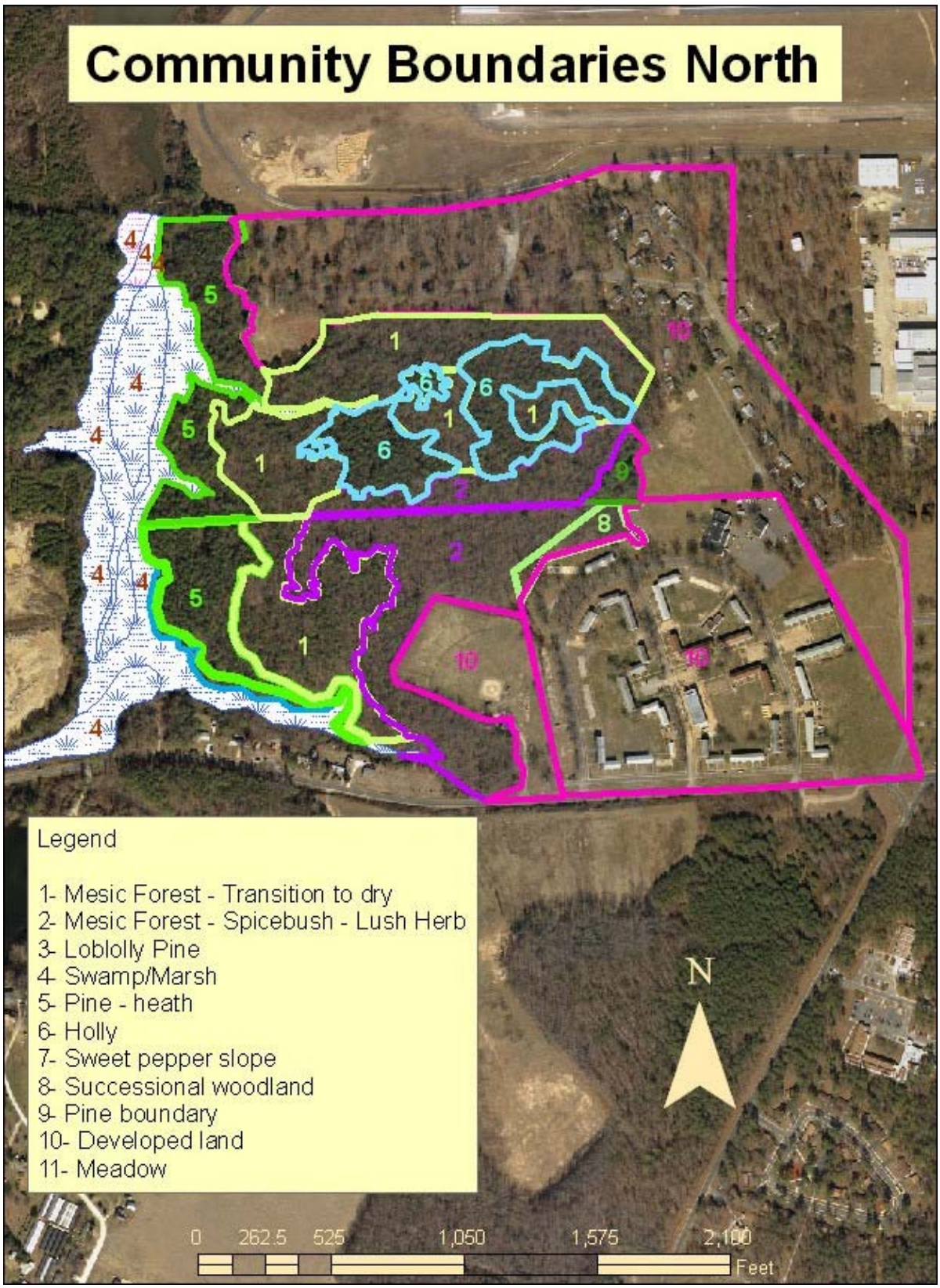
EG&G

URS PROJECT 39455591

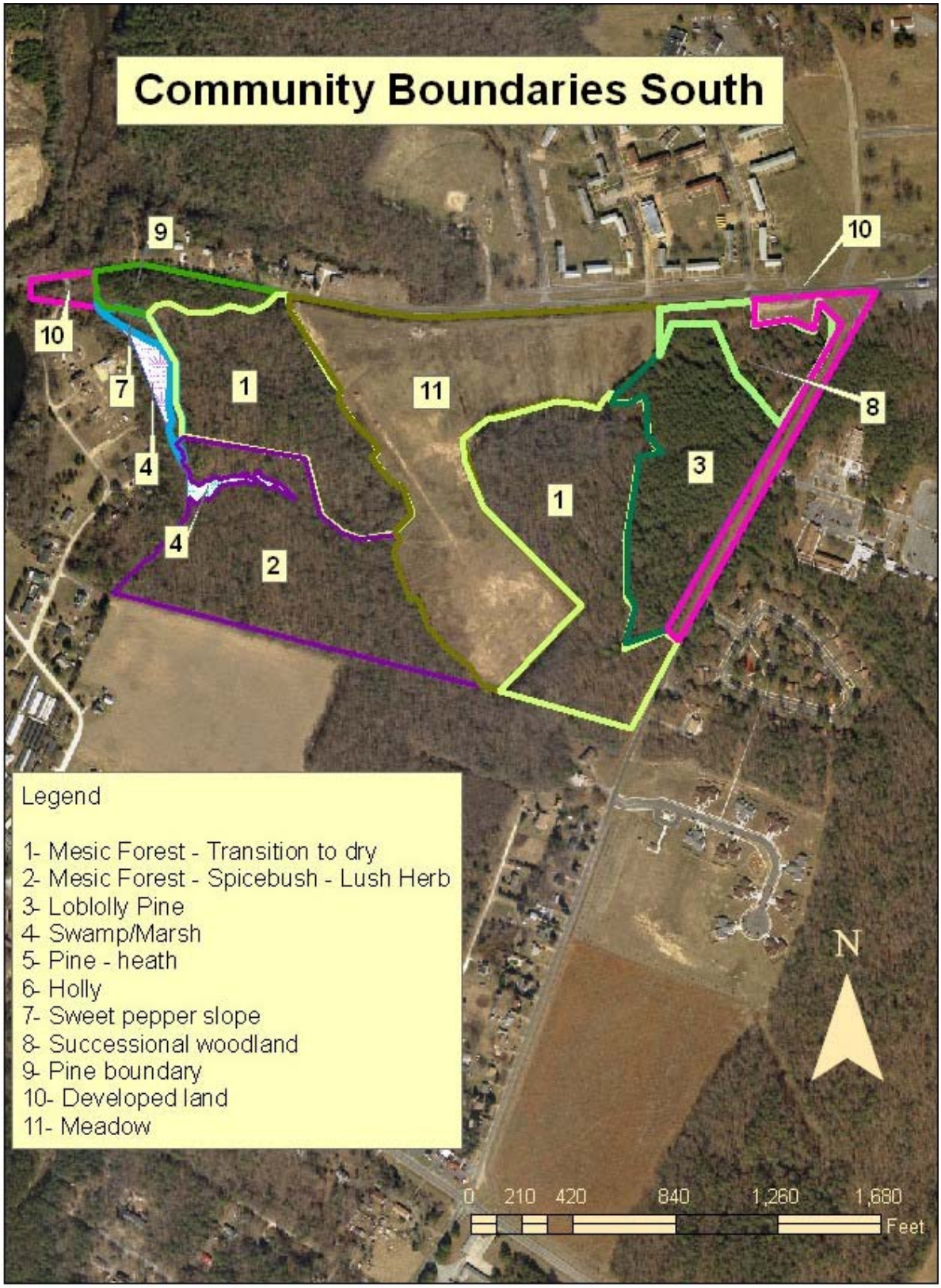
FIGURE **9**

CLIENT: NASA

PROJECT: WALLOPS RESEARCH PARK



TITLE	**WRP Project Area Plant Communities North**
EG&G	URS PROJECT 39455591
	FIGURE **10**
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	



TITLE	**WRP Project Area Plant Communities South**
EG&G	URS PROJECT 39455591
	FIGURE **11**
CLIENT: NASA	
PROJECT: WALLOPS RESEARCH PARK	

The wetland habitat includes marshes dominated by herbaceous vegetation and swamps and seeps that include both herbaceous and woody plants. The mesic forest is characterized by a rich herb layer that includes mayapple *(Podophyllum peltatum)* and a shrub layer with abundant spicebush *(Lindera benzoin).* Wetlands were identified in the marsh area of Wattsville Branch in the ACCS, ACCN, and NASA parcels (Figure 7). Meadows include areas that are occasionally mowed.

The dry forest habitat is dominated by oak and pine, and in some areas includes shrubs in the heath family, or has little to no shrub or herb layer. The forest communities represent a mature ecosystem that is evidenced by a fully developed forest structure including canopy, subcanopy, shrub, and herb layers, and the presence of mature trees of many species. The forest and wetland communities within the WRP site are representative of mature communities that were once common on the Eastern Shore, but now are unusual for their maturity and intact condition.

No Federally or State-protected plant species were identified by the VSM project team during visits to the project area in April and May 2007.

Currently, the vegetation communities are disturbed to some degree by human activities including the use of all-terrain-vehicles along trails, particularly in the ACCN parcel, and the use of the forested area adjacent to the ball field as a dumping ground for trash by residents of Accomack County. Hikers also use the nature trails on Accomack County property.

3.3.2 Terrestrial Wildlife and Migratory Birds

Several vertebrate species are common to the WRP area, including the species that were noted during the VSM project which are shown in Table 5. Both living specimens and empty shells of eastern box turtle *(Terrapene carolina carolina)* were seen on seven occasions. The team observed a five-lined skink and individuals of two species of snake. White tailed deer were seen on several occasions.

Table 5. Vertebrate Species Observed during Vegetation Survey and Mapping Project, 2007

Species	Common Name	Occurrences	Alive	Dead
Terrapene carolina carolina	Eastern box turtle	7	5	2
Odocoileus virginianus	White-tailed deer	9	8	1
Elaphe obsoleta obsoleta	Black rat snake	1	--	1
Coluber constrictor constrictor	Black racer	2	2	--
Eumeces fasciatus	Five lined skink	1	1	--

The Migratory Bird Treaty Act (MBTA) was enacted to ensure the protection of shared migratory bird resources. The MBTA prohibits the take and possession of any migratory bird, their eggs, or nests, except as authorized by a valid permit or license. A migratory bird is any species that lives, reproduces, or migrates within or across international borders at some point during its annual life cycle.

On July 10, 1975, the U. S. Fish and Wildlife Service (USFWS) and NASA developed the Wallops Island National Wildlife Refuge (WINWR), comprising approximately 151 ha (373 acres) of salt marsh, grassland, brush habitat, and woodlands. WINWR is located approximately 1.9 kilometers (1.2 miles) east of the WRP site, and contains habitat for a variety of migratory birds (snow geese, black ducks, snowy egrets, black-crowned night herons, dunlin, dowichers,

shorebirds, northern harriers, osprey, and great horned owls). Additionally, an agreement between NASA and USFWS allows USFWS access to approximately 1,214 ha (3,000 acres) of the NASA-owned portion of Wallops Island proper for research and management of declining wildlife in need of protection (USFWS, 2008). Some of the migratory bird species that find refuge in these areas may utilize the wetlands at the WRP site.

3.3.3 Threatened and Endangered Species

Under Section 7 of the Federal Endangered Species Act (ESA), as amended, Federal agencies, in consultation with the USFWS and the National Marine Fisheries Service, are required to evaluate the effects of their actions on special status species of fish, wildlife, and plants, and their habitats, and to take steps to conserve and protect these species. Special status species are defined as plants or animals that are candidates for, proposed as, or listed as sensitive, threatened, or endangered by the USFWS.

The Virginia Endangered Species Act (VAC, Sections 29.1-563 – 29.1-570) is administered by the Virginia Department of Game and Inland Fisheries (VDGIF) and prohibits the taking, transportation, processing, sale, or offer for sale of any State or Federally listed threatened or endangered species. As a Federal agency, NASA voluntarily complies with Virginia's Endangered Species Act.

Table 6 shows the State and Federally listed threatened or endangered species in the WFF area.

Table 6. Threatened and Endangered Species in the WFF Area

Scientific Name	Common Name	Status
Dermochelys coriaces	Leatherback Sea Turtle	Federally Endangered
Eretmochelys imbricate	Hawksbill Sea Turtle	Federally Endangered
Lepidechelys kempi	Kemp's Ridley Sea Turtle	Federally Endangered
Charadrius melodus	Piping Plover	Federally Endangered
Caretta caretta	Loggerhead Sea Turtle	Federally Threatened
Chelonia mydas	Atlantic Green Sea Turtle	Federally Threatened
Charadrius wilsonia	Wilson's Plover	State Endangered
Falco peregrinus	Peregrine Falcon	State Endangered
Bartramia longicauda	Upland Sandpiper	State Threatened
Sterna nilotica	Gull-billed Tern	State Threatened

No individuals or populations of plant species that are listed on the State or Federal threatened and endangered species lists were found during the three visits to the project area in April, May, and July. The turtle species listed in Table 6 do not occur in the immediate vicinity of the WRP site because they utilize beach habitat types, which are located east of the WRP site. Additionally, the piping plover and its designated critical habit do not occur within the immediate vicinity of the WRP site; the piping plover occurs on Wallops Island and utilizes beach and dune habitats.

3.4 SOCIAL AND ECONOMIC ENVIRONMENT

3.4.1 Population

The WRP site is located in Accomack County, Virginia, approximately 5 miles west of the town of Chincoteague. In 2000, the U.S. Census Bureau reported that the population of the Commonwealth of Virginia was about 7.1 million and Accomack County's population was 38,305, with a population density of 84.1 people per square mile (U.S. Census Bureau, 2000). The population growth rate in Accomack County between 1990 and 2000 was approximately 20 percent (SSDAN, 2008).

Wattsville and Horntown are the closest residential communities to WFF and are located approximately 0.75 miles west and 2 miles north of the WRP site, respectively. There are no specific census data available for these communities because they are unincorporated residential areas. Chincoteague is the most densely populated area in Accomack County. According to the U.S. Census Bureau, in 2000 the year-round population of Chincoteague was 4,317 people (U.S. Census Bureau, 2000). The population increases during the summer months due to tourism and vacationers, with daily populations reaching up to 15,000 people and special events drawing crowds of up to 40,000.

Table 7 lists the 2000 U.S. Census population of towns in Accomack County.

Table 7. Town Population and Housing Units in Accomack County

Location	Population	No. of Housing Units
Accomack Town	547	234
Atlantic Town	539	272
Belle Haven Town	480	257
Bloxom Town	395	180
Chincoteague Town	4,317	3,970
Hallwood Town	290	120
Keller Town	173	87
Melfa Town	450	210
Onancock Town	1,525	725
Onley Town	496	273
Painter Town	246	114
Parksley Town	837	404
Saxis Town	337	194
Tangier Town	604	272
Wachapreague Town	236	229

Source: U.S. Census Bureau, 2008

The MSC contributes to seasonal population increases through educational sessions. During the spring and fall, educational sessions average two to three days in length, while summer educational sessions average two to three weeks. In total, approximately 4,000 students per year participate in educational sessions at MSC from March through November.

In 2007, WFF employed a total of 1,574 people; 998 of those supported NASA (including 245 civil service personnel and 753 contractors), and the remainder worked for either the National Oceanic and Atmospheric Administration or the U.S. Navy (NASA, 2007a). WFF employees live within three Virginia counties and two Maryland counties that make up the Lower Delmarva Peninsula. Fifty-eight percent of WFF employees live in Accomack County, 2 percent in Northampton County, 14 percent in Wicomico County, 5 percent in Somerset County and 20 percent in Worcester County (Silbert, 2008).

3.4.2 Recreation

Many tourists and vacationers visit Accomack County throughout the late spring, summer, and early fall. Regional attractions include the Assateague Island National Seashore and Chincoteague National Wildlife Refuge. Winter hunting season draws people to hunt local game including dove, quail, deer, fox, and many types of geese and ducks. The coast of Virginia is a popular area for recreational and sport fishing as well.

Accomack County also offers an assortment of recreational opportunities. Three county park facilities support many recreation activities, including basketball, football, golf, soccer, softball, and volleyball. Tennis courts, public beaches, a roller rink, and indoor movie theaters also provide sources of recreation and entertainment throughout the area.

The Accomack County property in the WRP contains a baseball field, playground, and nature trails. Currently, the MSC and NASA properties do not provide on-site recreation facilities.

3.4.3 Employment and Income

This section provides general background information on employment and income data for the Commonwealth of Virginia, Accomack County, and town of Chincoteague. This includes Census 2000 data on the employment, unemployment, income, and poverty characteristics of the region and data complied by the Virginia Employment Commission (2008) and by the Virginia Polytechnic Institute (2007).

The unemployment rate in Virginia was 3.0 percent in 2006 (Virginia Employment Commission, 2008). In 2006, Accomack County had an unemployment rate of 4.1 percent. Employment fluctuates seasonally in Accomack County and Chincoteague with decreased unemployment occurring from June through October (Virginia Employment Commission, 2008). Overall, the unemployment rates in Virginia and Accomack County have been declining since 2000.

Table 8 lists the distribution by broad occupational categories for Virginia, Accomack County, and Chincoteague, as reported by the U.S. Census Bureau.

Table 8. Occupational Distribution (percent)			
Category	**Virginia**	**Accomack County**	**Chincoteague**
Management, professional, and related occupations	38	24	26
Sales and office occupations	26	22	26
Production, transportation, and material moving occupations	13	20	9
Service occupations	14	17	17
Construction, extraction, and maintenance occupations	10	11	15
Farming, fishing, and forestry occupations	1	6	7

Source: U.S. Census Bureau, 2000

Table 9 shows the income and poverty rates of the Commonwealth of Virginia, Accomack County, and Chincoteague. Accomack County and Chincoteague both have a higher percentage of families below the poverty level and a lower per capita income than Virginia as a whole; however, Accomack County and Chincoteague do not include major urban centers.

Table 9. Income and Poverty			
Region	**Median Household Income (1999)**	**Per Capita Income (1999)**	**Percent of Families Below Poverty Level (1999)**
Virginia	$46,667	$23,975	7.0
Accomack County	$30,250	$16,309	13.0
Chincoteague	$33,425	$20,367	9.7

Source: U.S. Census Bureau, 2000

By 2004, Accomack County's per capita income had risen to approximately $22,256, and the median household income was $31,256, compared to a median household income for the Commonwealth of Virginia in 2004 of $51,130 (Virginia Tech, 2007). The mean salary of NASA civil service employees in January 2008 was $83,462 (NASA, 2008b). The higher-than-average salaries of WFF employees create positive contributions to the local economy.

The Accomack County property in the WRP site supports part-time employment for grounds maintenance. NASA employment categories at WFF consist largely of managerial, professional, and technical disciplines with salaries higher than the regional average. WFF employed 1,574 people in 2007. The Virginia Employment Commission reported that in 2006 NASA was the fifth largest employer in Accomack County and Accomack County was the fourth largest employer (Virginia Employment Commission, 2008).

3.4.4 Health and Safety

Health Facilities

Three local emergency health services are located in the vicinity of the WRP. WFF has its own health unit with a full-time nursing staff and a full-time physician to provide first aid and immediate assistance to patients in emergency situations. The WFF Health Unit operates from

8:00 a.m. to 4:30 p.m. After-hours emergency medical care is provided by Emergency Medical Services staff of the WFF Fire Department. The Chincoteague Community Health Center on Chincoteague Island and the Atlantic Community Health Center in Oak Hall, Virginia, also provide emergency assistance, and both are located within 8 kilometers (5 miles) of the WRP site. The nearest hospital is the Peninsula Regional Medical Center in Salisbury, Maryland, which is located about 48 kilometers (30 miles) north of the WRP site. If additional trauma care is needed, Sentara Norfolk General Hospital is 19 minutes away (by helicopter) from the Shore Memorial Hospital in Nassawadox, Virginia, which is located approximately 69 kilometers (43 miles) south of the WRP site. Accomack County Health Departments offer clinical services.

Fire and Police Protection

Local fire companies that are closest to the WRP site include the Fire Departments of WFF, Atlantic, and New Church, and the Fire and Police Department associated with Chincoteague. The WFF Fire Department has a Mutual Aid Agreement with the Accomack-Northampton Fireman's Association for any outside assistance needed at the facility. Fire company personnel are housed in two buildings on the facility, one on Wallops Island and one on the Main Base.

There is 24-hour fire protection, and personnel are trained as first responders for hazardous materials, waste, and oil spills.

Police protection for the surrounding areas is supplied by town, county, and State personnel. The Commonwealth of Virginia's police force employs 23 officers in the area, while the Accomack County Sheriff's Office has approximately 34 officers. Several towns also have their own police forces, including Chincoteague (Eastern Shore Chamber of Commerce, 2004).

3.4.5 Cultural Resources

Cultural resources include: historic buildings and structures; archaeological and historical objects, sites, and districts; cultural landscapes; and sites and resources important to Native American and other ethnic groups. The National Historic Preservation Act (NHPA) of 1966, as amended (16 U.S.C. 470), outlines Federal policy to protect historic or cultural resources in cooperation with State, local, and native tribal governments. In addition, regulations implementing NEPA stipulate that Federal agencies consider the consequences of their undertakings on historic and cultural resources (40 CFR Part 1502.16[g]). Section 106 of the NHPA requires Federal agencies to consider the effects of their actions on historic resources that are listed, or eligible for listing, in the National Register of Historic Places (NRHP; 30 CFR Part 60.4). Section 110 of the NHPA outlines the obligations Federal agencies have with regard to historic resources under their ownership. Regulations for the Protection of Historic Properties (36 CFR Part 800) implement the NHPA by defining a process for demonstrating consideration of the effects of an undertaking through consultation with State Historic Preservation Office (SHPO), Tribal Historic Preservation Office, the Advisory Council on Historic Preservation, and other interested parties.

In November 2003, WFF prepared a *Cultural Resources Assessment of Wallops Flight Facility, Accomack County, Virginia* (NASA, 2003). The study was completed to assist WFF in meeting its obligations under Sections 106 and 110 of the NHPA. The study resulted in an assessment of historic structures and selective reconnaissance level survey of structures on the WFF. In addition, a predictive model was developed to identify areas of archaeological potential at WFF.

Historic Structures

The MSC campus is comprised of several buildings that are greater than 50 years old. Initially named the Toms Cove Apartments 306 Title Housing Units Naval Auxiliary Air Station, the MSC buildings originally served as U.S. Navy and NASA housing and transitioned to use as part of the University of Virginia system in the 1960s, and were transferred to the MSC in 1971. Originally there were thirty-seven buildings in the MSC complex. Twenty-eight of the original buildings remain in situ, with 13 of the 28 retaining the original exterior envelope; 8 of the 13 buildings have had substantial interior rehabilitation. The MSC plans on demolishing these buildings over the next five years.

Archaeology

The portion of the WRP project area that falls within the WFF was subject to predictive modeling during the 2003 study (NASA, 2003). Using this predictive model, areas of the WRP site that fall outside of the WFF boundary were assessed for their potential to contain archaeological resources. Of the 93.9-ha (232-acre) project area (which includes the MSC campus), 40.5 ha (100 acres) were determined to have moderate to high potential for prehistoric and historic archaeological resources. Based on this predictive model, James River Institute for Archaeology, Inc. (NASA, 2007b) conducted a Phase I archaeological survey of the 40.5-ha (100-acre) archaeologically sensitive area. JRI excavated 1,698 shovel test pits and identified three historic isolated finds (brick, rusted iron fragment, and whiteware shard) in the vicinity of the former landfill. These isolated finds were determined to be associated with landfill activities and were not associated with a historic domestic site. Because these are isolated finds and not archaeological sites, they were not eligible for consideration for the NRHP.

3.4.6 Environmental Justice

The goal of environmental justice from a Federal perspective is to ensure fair treatment of people of all races, cultures, and economic situations with regard to the implementation and enforcement of environmental laws and regulations, and Federal policies and programs. EO 12898, “Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations,” (and the February 11, 1994 Presidential Memorandum providing additional guidance for this EO) requires Federal agencies to develop strategies for protecting minority and low-income populations from disproportionate and adverse effects of Federal programs and activities. The EO is “…intended to promote non-discrimination in Federal programs substantially affecting human health and the environment.”

WFF has prepared an Environmental Justice Implementation Plan (EJIP) to comply with EO 12898 (NASA, 1996). The percentage of minority, low-income, and poverty in Accomack County are shown in Table 10. The EJIP defined minority communities as exceeding a 50 percent minority population.

Table 10. Environmental Justice Data for Census Tracts in the WFF Area, Accomack County, VA				
Tract	**Location**	**Percent Minority 2000**	**Percent Low-Income 2000**	**Percent Poverty 2000**
9901	MD/VA line south including Fisher's Point.	1.97 percent	51.53 percent	12.80 percent
9902	MD/VA line south including Wallops Island to Assawoman Inlet.	41.75 percent	49.96 percent	16.38 percent
9903	West of 9902 and 9904, MD/VA line south to Ann's Cove Road.	24.66 percent	55.94 percent	19.28 percent
9904	East of Mears Station Road, south of 9902 south to Horseshoe Lead.	59.14 percent	51.61 percent	27.14 percent

Source: U.S. Census 2004

Low-income and minority communities occur in the vicinity of WRP. Although Census Tract 9902, which includes the WRP site, does not include minority or low-income communities, low-income and minority communities do occur within Accomack County to the south of the WRP site in Census Tract 9904. No nursing homes, hospitals, or schools are located within a 2-mile radius of the WRP site.

3.4.7 Transportation

The Eastern Shore of Virginia is connected to the rest of the state by the Chesapeake Bay Bridge-Tunnel. The primary north-south route that spans the Delmarva Peninsula is U.S. Route 13, a four-lane divided highway. Local traffic travels by arteries branching off U.S. Route 13. Access to WFF is provided by Route 175, a two-lane secondary road.

The WRP site is located around a portion of Mill Dam Road, which intersects with Route 175 approximately 0.8 kilometer (0.5 mile) west of the WRP site. Mill Dam Road runs east-west and approximately bisects the WRP site into northern and southern portions (Figure 3). Mill Dam Road is the main ingress/egress route to the WRP and also for the WFF Main Base. Because Mill Dam Road connects directly to the WFF main gate, it receives WFF traffic, including employees and all visitors to WFF.

Traffic in the region varies with the seasons. During the winter and early spring, traffic is minimal; during the summer and early fall, traffic increases due to the number of tourists in the area.

NASA and most organizations at WFF own and maintain a variety of vehicles ranging from sedans and vans to trucks; however, there is no organized transportation. Many WFF employees carpool to and from the facility.

A traffic impact assessment of the WRP area was conducted during August 2007 in order to obtain information on existing traffic operations and volumes. Existing and historical traffic volumes in the WRP area were assessed by performing vehicle counts in the study area at the intersections of Chincoteague Road and Route 13, Chincoteague Road and Fleming Road,

Chincoteague Road and Mill Dam Road, Chincoteague Road and Atlantic Road, and Mill Dam Road and Atlantic Road during peak traffic periods in the middle of the summer. Peak traffic hours on Mill Dam Road are 7:15 to 8:15 a.m. and 4:00 to 5:00 p.m., Monday through Friday. There is minimal pedestrian and bicycle traffic in the area.

According to the traffic impact analysis, data dating back to 2001 indicates that traffic volumes have grown by 3 percent each year (Vanasse Hangen Brustlin, Inc., 2007). The traffic study conducted analysis for a 20-year future growth period in order to assess traffic operations in the WRP vicinity after construction of WRP is complete.

4.1 INTRODUCTION

Section 4 presents the potential impacts to existing resources at the WRP that may be affected by the Action Alternatives. This section discusses potential impacts to resources under the three main categories of Physical Environment, Biological Environment, and Social and Economic Environment.

4.2 PHYSICAL ENVIRONMENT

4.2.1 Land Resources

4.2.1.1 Topography and Drainage

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to topography and drainage.

Proposed Action

Construction Impacts

Under the Proposed Action, land grading and construction activities would take place for the construction of the WRP. Land grading, new building construction, and building replacement would cause land disturbances, including excavation and an increase in impervious surfaces, which have the potential to alter the proposed site topography and drainage patterns of small seeps and ephemeral tributaries to Little Mosquito Creek. Construction of hangars on the western side of the NASA property would involve filling of a tributary to Wattsville Branch; the area would be drained, filled, and then graded, which would result in a change to the topography and drainage of that area.

The WRP would minimize impacts to topography and drainage patterns by acquiring Virginia Stormwater Management Program (VSMP) permits and by developing and implementing site-specific SWPPPs and erosion and sediment control (E&SC) plans prior to land disturbing activities.

The entire WRP site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site layout, etc. would require approval from the WRP Site Plan Review Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department of Forestry Area Forester.

Operational Impacts

Permanent stormwater control measures would be implemented in compliance with Virginia Stormwater Management Laws and Regulations to provide adequate drainage within the WRP site and to mitigate the effects of increased runoff from impervious surfaces. Therefore, with

permanent stormwater measures incorporated into site design, only minor impacts to topography and drainage are anticipated.

Alternative One

Impacts to topography and drainage would be the same as described under the Proposed Action, but would also include land grading and construction activities on approximately 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. Implementation of site-specific SWPPPs, E&SC Plans, and permanent stormwater control measures would minimize impacts to topography and drainage. Therefore, Alternative One would result in minor impacts to topography and drainage.

4.2.1.2 Geology and Soils

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to geology and soils.

Proposed Action

Construction Impacts

Under the Proposed Action, land grading and construction activities would take place at the WRP site. Grading, clearing, filling, and excavation activities would result in disturbance of the ground surface and would have the potential to cause soil erosion and the subsequent transport of sediment via stormwater. Since the uppermost geologic layer occurs at a depth of 18.3 meters (60 feet) below the ground surface, and excavation would not occur below a depth of 9.1 meters (30 feet) below ground surface, no impacts to geology are anticipated.

The WRP would minimize negative impacts to soils by acquiring VSMP permits as necessary, and developing and implementing site-specific SWPPPs and E&SC Plans prior to ground disturbing activities. The WRP tenants would be required to re-vegetate bare soils and incorporate landscaping measures in areas that would be left as pervious surfaces (not paved) when the project is complete.

Other possible impacts to soils during construction include spills or leaks of pollutants from vehicles or equipment. Site-specific SWPPPs would include best management practices for vehicle and equipment fueling and maintenance, and spill prevention and control measures would be implemented to reduce potential impacts to soils during construction.

The entire WRP site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site layout, etc. would require approval from the WRP Site Plan Review Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department of Forestry Area Forester.

Operational Impacts

Once the WRP is constructed, it would support payload processing, piloted aircraft use, scientific research, and educational programs. These proposed activities are not expected to adversely impact soils at the project area because they would take place on impervious surfaces (i.e., concrete, tarmac, asphalt). There is potential for an accidental release of contaminants into the soil resulting from routine maintenance and fueling activities or an accident that releases liquid fuels to a permeable surface. Any accidental release of contaminants or liquid fuels would be addressed in accordance with WRP emergency management and response plans.

Alternative One

Impacts to soils and geology would be the same as described under the Proposed Action, but would also include land grading and construction activities on approximately 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. The WRP would minimize negative impacts to soils by acquiring VSMP permits as required, and developing and implementing site-specific SWPPPs and E&SC Plans prior to ground disturbing activities.

4.2.1.3 Land Use

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no changes to or impacts to land use.

Proposed Action

Under the Proposed Action, several hangars, a general aviation facility, administration buildings, and other facilities for research and development and industrial use would be constructed. The construction of these facilities on undeveloped land would result in a change to current land use in the project area.

The entire area of the WRP site is zoned industrial; therefore, the land uses planned for the WRP are compatible with Accomack County zoning policies. Before WRP partners and tenants would be approved to implement land use changes, WRP would consult the Accomack County Department of Building, Planning, and Zoning regarding appropriate measures for WRP to be in compliance with county zoning policy, and would review the WRP Guiding Covenants and Restrictions (NASA, 2008c) to ensure compatibility with land uses set forth by the WRP.

Alternative One

Impacts to land use would be the same as described under the Proposed Action, but would also include land use changes to approximately 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. Before WRP partners and tenants would be approved to implement land use changes, WRP would consult the Accomack County Department of Building, Planning, and Zoning regarding appropriate measures for WRP to be in compliance with county zoning policy, and would review the WRP Guiding Covenants and Restrictions (NASA, 2008c) to ensure compatibility with land uses set forth by the WRP.

4.2.2 Water Resources

4.2.2.1 Surface Water

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, no impacts to surface waters would occur.

Proposed Action

Construction Impacts

Under the Proposed Action, construction activities associated with the WRP would avoid surface waters to the greatest extent possible including ephemeral streams and swales, seeps, springs, and tributaries to Wattsville Branch. Under the Proposed Action up to 0.4 ha (1 acre) of wetlands would be adversely affected by development on NASA property north of Mill Dam Road. Impacts to wetlands are discussed in Section 4.2.2.4, Wetlands.

Operational Impacts

Increased impervious area due to construction of buildings, parking lots, roads, sidewalks, etc., would result in an increase in runoff from the WRP site compared to existing conditions. To mitigate the effects on surface waters due to increased runoff from impervious surfaces, permanent stormwater control measures would be implemented by WRP partners and tenants. To minimize water quality impacts to surface waters, the WRP and WRP tenants would obtain VPDES industrial activity stormwater permits as required and would implement pollution prevention best management practices in compliance with the permits. With these measures, no adverse impacts to surface water are anticipated.

Alternative One

Impacts to surface water may be the slightly more under Alternative One than under the Proposed Action due to development of an additional 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. However, it is not anticipated that any additional wetlands would be affected under Alternative One compared to the Proposed Action.

4.2.2.2 Wastewater

Proposed Action

Wastewater generated by WRP would discharge to existing WFF wastewater collection lines and would be sent to the WFF WWTP for treatment. The estimated volume of wastewater that would be discharged to the WWTP from the WRP is 28,000 gallons per day. The permitted maximum capacity of the wastewater facility is 300,000 gallons per day. The amount of wastewater that is currently treated is approximately 60,000 gallons per day (Bundick, 2008); therefore, the WWTP has the capacity to treat the additional amount of wastewater from the WRP and development of the WRP would not result in an adverse impact to the WWTP.

Aviation hangars would use fire suppression foam instead of water to put out fires around delicate electronic systems. The fire suppression foam includes chemicals that are harmful to aquatic systems and must be treated to remove contaminants prior to being discharged into the wastewater discharge lines. Each building that uses a foam fire suppression system would be equipped with a containment area to treat the foam prior to release to the WWTP.

Any facility that uses a wash rack for heavy equipment would include an oil/water separator to remove oil from wash water prior to discharge to the wastewater treatment plant. Accumulated oil in the oil/water separators would be removed from the site according to guidelines outline in Section 4.2.5 Hazardous Materials and Hazardous Wastes and in accordance with the VPDES permit for the WWTP.

Alternative One

The amount of wastewater generated under Alternative One would be greater than under the Proposed Action due to development of an additional 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. The estimated volume of wastewater that would be discharged to the WWTP from the WRP under Alternative One is 31,000 gallons per day. The maximum capacity of the wastewater facility is 300,000 gallons per day. The amount of wastewater that is currently treated is approximately 60,000 gallons per day (Bundick, 2008); therefore, the WWTP has the capacity to treat the additional amount of wastewater from the WRP under Alternative One and development of the WRP would not result in an adverse impact to the WWTP.

4.2.2.3 Stormwater

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to stormwater conveyance.

Proposed Action

Construction Impacts

Under the Proposed Action, construction activities could result in temporary impacts to stormwater conveyance due to disruptions and changes to the natural drainage. WRP partners and tenants would be required to obtain VSMP construction site stormwater permits and implement site-specific SWPPPs to minimize impacts to stormwater conveyance and stormwater quality during construction.

Operational Impacts

No long-term impacts are anticipated because WRP partners and tenants would be required to incorporate permanent stormwater control measures into design plans to effectively remove stormwater from the site. All control measures would be designed and constructed in accordance with VSMP laws and regulations. Additionally, the WRP Guiding Covenants and Restrictions (NASA, 2008c) state that impervious surfaces should be kept to a minimum, and encourage the addition of new sustainable landscapes that would collect and filter stormwater as well as the use of permeable paving where possible. In addition, Virginia Stormwater Management Law and

Regulations require the incorporation of measures to protect aquatic resources from the effects of increased volume, frequency, and peak rate of stormwater runoff and from increased nonpoint source pollution carried by stormwater runoff.

WRP partners and tenants would be required to obtain a VPDES industrial stormwater permit, which includes the requirement that a SWPPP be developed for the permitted facility. The SWPPP would identify all stormwater discharges at the facility, actual and potential sources of stormwater contamination, and would require the implementation of both structural and non-structural best management practices to reduce the impact of stormwater runoff on the receiving stream to the maximum extent practicable, and to meet water quality standards.

Alternative One

Impacts to stormwater conveyance would be slightly greater than under the Proposed Action due to development of an additional 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill.

4.2.2.4 Groundwater

No Action Alternative

Under the No Action Alternative, NASA would not provide potable water for use by WRP partners and tenants and development of the WRP would not occur; therefore, there would be no impacts to groundwater.

Proposed Action

Construction Impacts

Construction activities could result in temporary impacts to groundwater if a spill were to occur that contaminated groundwater. WRP partners and tenants would implement SWPPPs that would include spill prevention, control, and cleanup measures related to construction activities.

Operational Impacts

Water Use

Under the Proposed Action, NASA would provide potable water to the WRP partners and tenants for drinking water supply, fire suppression, and industrial water use. The estimated potable water demand of the WRP is approximately 991,000 gallons per month.

Because WFF would supply all of the potable water to the WRP, water demand for the WRP would be covered under WFF's existing groundwater withdrawal permit with the Virginia DEQ. WFF's groundwater withdrawal permit allows WFF to withdraw up to 8,153,000 gallons per month from the Columbia and Yorktown-Eastover Multiaquifer System. Currently, WFF withdraws approximately 2,370,000 gallons per month (Bundick, 2008). The combined water demand of WFF and WRP would be approximately 3,361,000 gallons per month, which is below the 8,153,000 gallons per month limit. Therefore, development of the WRP would not result in an adverse impact to groundwater resources.

The WRP Guiding Covenants and Restrictions (NASA, 2008c) encourages water use conservation practices in facility design and operation such the use of low consumption water fixtures, the use of native plants in landscaping that are adapted to the local precipitation, and educating employees about water conservation methods, etc.

Water Quality

Operational activities could result in impacts to groundwater if a spill were to occur that contaminated groundwater. WRP would require tenants to obtain a VPDES industrial stormwater permit as necessary and implement a SWPPP that would include spill prevention, and response planning procedures and spill clean-up procedures. Long-term impacts would be mitigated by implementing procedures at all WRP facilities to reduce the likelihood that a spill would occur.

NASA would continue to monitor the water supply wells located at the WFF Main Base to ensure that spills or releases do not have an adverse effect on the drinking water supply. NASA would continue working with Federal and State environmental agencies to ensure that the existing plumes do not expand and to restore groundwater to natural conditions. If the potable water supply was found to be contaminated, NASA would notify users of the drinking water system that monitoring had detected contaminant levels above the action level, would provide them with guidance on reducing their exposure to the contaminants, and pursue corrective actions.

Alternative One

Construction Impacts

Construction activities could result in temporary impacts to groundwater if a spill were to occur that contaminated groundwater. WRP partners and tenants would implement SWPPPs that would include spill prevention, control, and cleanup measures related to construction activities.

Operational Impacts

Water Use

Ground water withdrawal rates would increase compared to the Proposed Action due to the additional potable water demand from development of approximately 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. The estimated total potable water demand for the WRP under Alternative One is 1,098,000 gallons per month.

Because WFF would supply all of the potable water to the WRP, water demand for the WRP would be covered under WFF's existing ground water withdrawal permit with the Virginia DEQ. Currently, WFF withdraws approximately 2,370,000 gallons per month (Bundick, 2008). The combined water demand of WFF and WRP would be approximately 3,468,000 gallons per month, which is below the 8,153,000 gallons per month limit. Therefore, development of the WRP would not result in an adverse impact to ground water resources.

The WRP Guiding Covenants and Restrictions (NASA, 2008c) encourages water use conservation practices in facility design and operation such the use of low consumption water fixtures, the use of native plants in landscaping that are adapted to the local precipitation, and educating employees about water conservation methods, etc.

Water Quality

Under Alternative One, the potential for a spill to occur (construction and operational) that could contaminate ground water is greater than the Proposed Action due to the additional development of approximately 6.1 ha (15 acres) of Accomack County land that is located south of Mill Dam Road and west of the closed Accomack County landfill. WRP partners and tenants would be required to obtain construction and industrial stormwater permits, and implement construction and industrial SWPPPs as necessary that would include spill prevention and response measures.

4.2.2.5 Wetlands

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to wetlands.

Proposed Action

Construction Impacts

Under the Proposed Action, up to 0.4 ha (1 acre) of wetlands would be adversely affected due to construction on the northwest side of the NASA property. Currently, no other proposals impact wetlands in the WRP. The construction of an aviation hangar would require land grading and the filling of up to 1 acre of wetlands associated with the northern-most unnamed tributary to Wattsville Branch that is shown on Figure 7.

Prior to construction, WRP would complete a jurisdictional wetland delineation in accordance with the USACE 1987 Wetland Delineation Manual (USACE, 1987) to determine the location and size of the wetland area that would be adversely affected. In accordance with EO 11990 and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), WRP partners and tenants would avoid and minimize impacts to wetlands. If wetland impacts are unavoidable, WRP would provide compensatory mitigation to offset the impacts and to ensure no net loss of wetlands.

WRP would notify the public and coordinate with applicable agencies including the USACE, the Virginia DEQ, and the VMRC. The Accomack County Wetlands Board would be notified of potential impacts to wetlands at WRP by the VMRC through the Joint Permit Application process – if any jurisdictional tidal wetlands would be affected, WRP would be required to coordinate with the Accomack County Wetlands Board. WRP would obtain necessary permits including Section 404 and/or Section 10 permits. WRP would implement wetland mitigation measures agreed upon through the USACE and Virginia DEQ consultation process to protect and restore the natural and beneficial functions of wetlands.

Loss of vegetation during construction activities may cause soil erosion and subsequent leaching of sediments, particulate matter, and nutrients that may eventually discharge into wetland areas, causing a potential negative impact to benthic species in the wetland system (NASA, 1999). To avoid potential impacts to surface waters including wetlands, a 30-meter (100-foot) vegetative buffer would be maintained around the perimeter of the existing wetland shoreline within the WRP site. WRP tenants are directed by the WRP Guiding Covenants and Restrictions to preserve as much existing vegetation as possible (NASA, 2008c).

Operational Impacts

There would be no impacts to wetlands as a result of operational activities at WRP. A 30-meter-wide (100-foot-wide) vegetative buffer would be maintained around the perimeter of wetland shorelines in order to protect wetlands within the WRP site.

Alternative One

Impacts to wetlands would be the same as described under the Proposed Action. The development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill is not anticipated to result in additional impacts to wetlands. However, if wetlands would be impacted by the development south of Mill Dam Road and west of the closed Accomack County landfill, WRP would follow the consultation, coordination, and mitigation measures described under the Proposed Action.

4.2.2.6 Floodplains

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to the floodplain.

Proposed Action

Construction Impacts

Under the Proposed Action, construction of aerospace facilities and hangars would take place within a small area of floodplain associated with an unnamed tributary to Wattsville Branch on the western portion of the NASA property. No other construction activities are currently proposed to occur within the floodplain.

For the construction that would take place within the floodplain, WRP would ensure that the action complies with EO 11988 (Floodplain Management) and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), including notifying the public of actions that would occur within the floodplain. The WRP would obtain any required permits and would minimize floodplain impacts and protect and restore the natural and beneficial functions of floodplains to the maximum extent possible.

Operational Impacts

There would be no impacts to the floodplain a result of operational activities at WRP.

Alternative One

Impacts to the floodplain would be the same as described under the Proposed Action. The development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill is not anticipated to result in additional impacts to the floodplain. However, for any development that would occur within the floodplain, WRP would follow the consultation, coordination, and mitigation measures described under the Proposed Action.

4.2.2.7 Coastal Zone Management

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to the coastal zone.

Proposed Action

The WRP site occurs within the Coastal Management Zone as designated by the VCP. It is not anticipated that the Proposed Action would result in negative impacts to the coastal zone or be inconsistent with current VCRMP laws. A letter was sent to the Virginia DEQ requesting review of NASA's determination that the WRP is consistent with the VCP; the Virginia DEQ concurred with NASA's determination that the Proposed Action would be consistent, to the greatest practicable, with the enforceable policies of the VCP.

Alternative One

Alternative One is not anticipated to result in adverse impacts to the coastal zone or be inconsistent with current VCP laws. A letter was sent to the Virginia DEQ requesting review of NASA's determination that the WRP is consistent with the VCP; the Virginia DEQ concurred with NASA's determination that the Proposed Action would be consistent, to the greatest practicable, with the enforceable policies of the VCP.

4.2.3 Air Quality

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to air quality.

Proposed Action

Construction Impacts

Construction activities have the potential to cause temporary, short-term air quality impacts due to the operation of fossil-fuel burning equipment. Vehicles and equipment used for construction would be maintained in good working order to minimize pollutant emissions. WRP tenants would water down construction areas when necessary to reduce dust emissions. With the implementation of air quality mitigation measures, construction activities would not have an adverse impact to air quality in the project area.

The WRP site is located in an attainment area for all criteria pollutants as regulated under Virginia's Ambient Air Quality Standards; therefore, WRP is not required to complete the CAA conformity process for the WRP site.

Operational Impacts

Increased air emissions could result from the use of landscaping equipment, including mechanical vehicles (riding lawn mowers), fuel-powered chainsaws, weed-eaters, etc., and increased volumes of vehicular traffic in the WRP area. Equipment would be maintained in good

working order to minimize emissions. Landscaping activities would generate a small amount of emissions and would not have a negative impact to air quality. The emissions generated by an increase in vehicular traffic to the WRP site would be negligible to the overall air quality of the attainment area; therefore, no adverse impacts are anticipated as a result.

The application of herbicides could increase emissions of VOCs, Federally listed hazardous air pollutants, or State toxic air contaminants. Use of EPA-approved herbicides in accordance with manufacturer specifications would result in negligible emissions.

Aircraft operating from the WRP would generally have reciprocating, turbo-prop, or jet engines. These aircraft would use JP-5 fuel and small amounts of 100-octane low-lead gasoline (NASA, 1999). A portion of those emissions may contain VOCs, which are associated with the generation of ground-level ozone. The operation of aircraft out of the WRP site is anticipated to be relatively small, and the area is considered to be an attainment area for ozone levels (NASA, 1999). Therefore, no impacts to air quality as a result of operation of aircraft are anticipated.

The operation of a PPF at the WRP would have the potential to impact air quality because the cleaning of payloads and electronic hardware involves the use of solvents to remove organic contaminants. The standard solvent used is isopropyl alcohol, and approximately 55 gallons are used per mission. Ethyl alcohol may also be used for optical surfaces, but in very small quantities. Small amounts of other chemicals are used in such minor amounts and are of such low toxicity that they present no substantial potential for adverse air quality impacts.

Loading of hypergolic propellants (such as hydrazine) is performed either in the principal PPF or an auxiliary facility. If necessary, a portable air scrubber would be used at the PPF during hazardous fueling operations to ensure that fumes from fueling do not harm WRP staff or the local air quality. If small leaks occur during propellant loading, immediate steps would be taken to stop loading, correct the leakage, and clean up leaked propellant with approved methods before continuing. Propellant vapors left in the loading system would be routed to air emission scrubbers. Liquid propellant left in the loading system would be either drained back to supply tanks or into waste drums for disposal as hazardous waste.

Although some fuels are classified as hazardous air pollutants, the National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations under Title III of the CAA have not yet established control standards. The packed bed scrubber systems usually used are considered Best Available Control Technology and should be considered acceptable when NESHAP regulations are promulgated (NASA, 2002).

Inadvertent releases of toxic air contaminants are possible as a result of accidents involving hypergolic fuels during payload processing, transportation, and preparation for launch. The largest releases would result from the spillage of the entire quantity of liquid propellants. Lesser releases would result from fires or explosions that would consume significant fractions of the propellants. Safety procedures would be implemented at the WRP PPF to ensure that these events are unlikely to occur. In addition, spill response planning procedures are in place to minimize spill size and duration, as well as possible exposure to harmful air contaminants. The magnitude of air releases from payload accidents would be relatively small. Impacts would be temporary and disperse, and therefore have no adverse impact to ambient air quality.

The operation of WRP laboratories would include the use of fume hoods. The release of small quantities of toxic gases through laboratory fume hoods may result in temporary minor impacts

to local air quality. Laboratory fume hoods would be included in the WRP's air permit and would be maintained to meet permit and regulatory requirements.

The WRP may contain welding or other work/maintenance shops. Operations at these shops could potentially result in emissions of regulated pollutants; however, these emissions would occur in such minor amounts that they present no substantial potential for adverse air quality impacts.

Paint spray/coatings booths would be located in the WRP hangars on NASA property. Paint booths are regulated by the Virginia DEQ through a permitting process and cannot exceed 10 tons of VOC emissions per year. Activities in these booths would be similar or identical to painting activities currently performed at NASA WFF. In 1990, WFF submitted data to the Virginia DEQ regarding operations of the NASA paint booth facilities, including paint usage information. The Virginia DEQ found, through modeling, that WFF emits 33 non-criteria toxic air pollutants. Of those pollutants, 21 are exempt from regulations. The remaining 12 non-criteria pollutants are subject to regulation. Emissions of criteria pollutants from painting operations would result in minor impacts to local air quality.

If other WRP facilities utilize paint spray/coating booths, WRP would consult with the Virginia DEQ to ensure no adverse impacts to air quality would occur as a result of operations within the WRP.

Alternative One

Impacts to air quality could be slightly greater than those described under the Proposed Action; however, the increase in air quality impacts due to the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill would be negligible. Therefore, Alternative One would result in temporary and minor impacts to local and regional air quality with implementation of mitigation measures described under the Proposed Action.

4.2.4 Noise

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no increase in noise levels at the WRP site, and no impacts to humans or wildlife from noise.

Proposed Action

Construction Impacts

Under the Proposed Action, construction activities have the potential to generate temporary increases in noise levels from heavy equipment operations. Special precautions may be required when construction occurs near housing or occupied facilities in the WRP site, including the MSC Campus and the Navy Cropper Center, such as noise suppression systems for heavy equipment. WRP partners and tenants would comply with local noise ordinances and State and Federal standards and guidelines for potential impacts to humans caused by construction activities to mitigate potential impacts on nearby residences, businesses, and the MSC and Cropper Center.

No significant noise-producing activities would be routinely conducted between the hours of 9:00 p.m. and 7:00 a.m. Any activities outside of typical work hours that could create disruptive noise levels would be coordinated directly with the persons affected by the planned activity.

OSHA limits noise exposure for workers to 115 dBA for a period of no longer than 15 minutes in an 8-hour work shift and to 90 dBA for an entire 8-hour shift. Workers near activities producing unsafe noise levels, both during construction and after the WRP facilities are operational, would be required to wear hearing protection equipment. Therefore, impacts to the occupational health of construction workers as a result of construction noise are not expected.

Operational Impacts

Aircraft operations at the nearby WFF runway (which is located immediately to the north of the WRP site) are a source of noise to the surrounding area. The WRP is expected to add approximately 15 flights per year to the existing WFF runway volume of approximately 6,400 flights per year; the additional WRP flights would have a negligible increase in noise that is generated by the existing volume of aircraft using the WFF runway. In addition, flights originating from the WFF runway are expected to be intermittent and noise levels would be temporary. The aircraft using the airfield are prohibited from creating sonic booms (NASA, 1999). However, if deviations are expected, WRP and/or WFF would coordinate directly with the persons that would be affected by the planned activity. Therefore, aircraft operations are not expected to result in an adverse impact to human health.

For many of these sources, exposure to noise is either short-term (e.g., fire engines) or can be minimized through use of personal hearing protection. The WRP would be responsible for occupational safety and determining the need for personal hearing protection and would provide oversight and services to WRP tenants. The WRP would conduct baseline surveys for new operations, and conduct walk-through surveys to monitor and evaluate noise hazards, and would work with WRP tenants to provide recommendations to workers regarding appropriate means of controlling noise exposures.

Alternative One

Impacts to humans due to noise would be slightly greater than those described under the Proposed Action; however, the increase in noise levels due to the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill would be negligible when compared to the Proposed Action. Therefore, human health and safety would not be adversely affected by noise with implementation of mitigation measures described under the Proposed Action.

4.2.5 Hazardous Materials and Hazardous Waste

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no effects from hazardous materials and generation of hazardous waste.

Proposed Action

Construction Impacts

Under the Proposed Action, construction activities would include the use of hazardous materials and hazardous waste generation (i.e., solvents, hydraulic fluid, oil, and antifreeze).

With implementation of safety measures and proper procedures for the handling, storage, and disposal of hazardous materials and wastes during construction activities, no adverse impacts are anticipated during construction. In addition, WRP would require site-specific SWPPPs to be developed prior to the start of construction activities that would contain best management practices related to spill prevention and clean-up procedures for hazardous materials and wastes.

Any WRP actions that would result in ground disturbance of the closed County landfill would be coordinated with VDEQ.

Operational Impacts

Aircraft fueling operations would be a potential source of hazardous waste and materials. Mobile tankers would be used to fuel some aircrafts. The largest tanker has a capacity of 7,000 gallons; if a tanker were to rupture on the apron, a potential release of 7,000 gallons of fuel oil could enter surface waters in the vicinity of WFF via the stormwater inlets that would be located in the WRP. A study by the WFF Environmental Office that simulated spill exercises on the WFF runway immediately north of the WRP site concluded that spill recovery operations may be implemented within a reasonable response time in order to diminish or eliminate the likelihood of a spill impacting State waters (NASA, 2005).

The operation of aircraft at the WRP would result in the use of hazardous materials and generation of hazardous wastes. Hazardous materials in use as part of flight operations include solvents, hydraulic fluid, oil, antifreeze, and paint. In addition, hazardous materials would likely be used during scientific research operations at the WRP. Hazardous materials would be managed according to standard safety procedures that include proper containment, separation of incompatible and reactive chemicals, worker warning and protection systems, and handling procedures to ensure safe operations. All personnel who transport, fuel, and maintain aircraft at the WRP would receive training in hazardous waste management.

The greatest potential impact to the environment due to the release of hazardous materials would result from an accident at a storage location (e.g., leak, fire, or explosion) or, to a lesser degree, from an accidental release during normal operating activities (e.g., spills or human exposure). The short- and long-term effects of an accident on the environment would vary greatly depending upon the type of accident and the substance(s) involved.

NASA has implemented various controls to prevent or minimize the effects of an accident involving hazardous materials on NASA property, including the following:

- Preparation of an Integrated Contingency Plan
- Preparation of emergency plans and procedures designed to minimize the effect an accident has on the environment

- Maintenance of an online database (MSDSPro®) of hazardous materials and the associated buildings where they are stored or used that would be updated to include WRP facilities
- Providing annual training for all users of hazardous materials

Similar emergency response plans and management practices would be developed and implemented by WRP.

Sources of hazardous wastes have the potential to adversely impact the environment and would be stored in accumulation areas for less than 90 days. NASA uses licensed contractors to transport and dispose of hazardous waste at permitted off-site facilities. The WRP would require tenants to implement various controls to prevent or minimize the potential for and effect of an accident involving hazardous waste. NASA and WRP tenants on NASA property (performing airfield activities, for example) would implement the following list of controls for actions occurring on NASA property:

- Storing wastes in closed containers, and only using accumulation areas that have the capability of containing a leak or spill;
- Inspecting containers for leaks on a scheduled basis;
- Providing (and attending) training for all civil service and contractor personnel who handle hazardous waste as part of their job;
- Using the communication/alarm system that is in place to provide immediate emergency instructions to facility personnel in the event of an accident;
- Employing fire extinguishers and fire control equipment that are available on site; and
- Following the Integrated Contingency Plan to control and/or mitigate the release of hazardous waste.

Fully fueled spacecraft or any other potentially hazardous material that would be transported by WRP partners or tenants would be appropriately placarded and transported following Federal and state transportation regulations.

Each WRP tenant that uses hazardous materials or generates hazardous waste would be required to develop a contingency plan and an employee training program in accordance with Federal regulations regarding the storage and use of hazardous materials and the disposal of hazardous wastes. Each WRP tenant that generates hazardous wastes would be required to obtain an EPA hazardous waste generator number and comply with all requirements in accordance with Federal, State, and WFF regulations.

WRP tenants would be subject to the Virginia DEQ Storage Tank Program regulations and would be required to register all portable ASTs with DEQ, to report any spills/releases from temporary or permanent USTs/ASTs immediately, and to properly characterize and dispose of contaminated soils and/or groundwater. In addition, WRP tenants would be subject to state and Federal laws and regulations for asbestos containing materials and lead based paint including Virginia Solid Waste Management Regulations (9 VAC 20-80-640), OSHA, and Virginia Lead Based Paint Activities Rules and Regulations.

Additionally, WRP would coordinate with the WFF Manager of Environmental Restoration for information concerning any CERCLA obligations at or near areas adjacent to WFF CERCLA sites, and the USACE Remediation Project Manager for Wallops Formerly Used Defense Sites (FUDS) for information concerning CERCLA obligations at or near Wallops FUDS sites.

Alternative One

Under Alternative One, hazardous materials and hazardous wastes during construction of the WRP and operation activities of WRP tenants would be used slightly more than under the Proposed Action due to the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill. Each WRP tenant that uses hazardous materials or generates hazardous waste would be required to develop a contingency plan and an employee training program in accordance with Federal regulations regarding the storage and use of hazardous materials and the disposal of hazardous wastes. Each WRP tenant that generates hazardous wastes would be required to obtain an EPA hazardous waste generator number and comply with all requirements in accordance with Federal, State, and WFF regulations. As under the Proposed Action, any WRP actions that would result in ground disturbance of the closed County landfill would be coordinated with VDEQ.

With implementation of safety procedures, training, and mitigation measures, including spill prevention and response, no adverse impacts to human and environmental health due to hazardous materials and wastes are anticipated.

4.2.6 Radiation

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no effects from radiation.

Proposed Action

Construction Impacts

Construction activities are not anticipated to result in a potential source of radiation; therefore no impacts to human health or the environment from radiation are expected to occur during construction.

Operational Impacts

Operation of the PPF and handling of payloads could result in a potential source of radiation. Any tenant of the WRP using regulated nuclear material would be required to obtain an NRC license.

Payloads may carry small quantities of encapsulated radioactive materials for instrument calibration or similar purposes. The amount and type of radioactive material that can be carried on NASA missions is strictly limited by the approval authority level delegated to the NASA Nuclear Flight Safety Assurance Manager (NFSAM) (NASA, 2005). The NFSAM would certify that preparation and launching of payloads that carry small quantities of radioactive materials would not present a substantial risk to public health or safety.

Lasers may be used for science instrumentation on payloads. Admissible safety analysis techniques are well established based on ANSI standards. According to ANSI standard Z136.6-2000, the maximum permissible exposure values are below known injury levels; therefore, use of lasers at the WRP would be required to meet the safety standards set forth by ANSI, which would mitigate potential impacts to human health. Since the energy threshold for skin damage exceeds that for eye injury, any system found to be eye-safe would not present a substantial hazard to skin, structures, or plants.

In addition, ANSI standard Z136.6-2000 also requires visible lasers that are used outdoors not to cause interference with spacecraft and aircraft operations. For visible lasers, WRP would obtain a letter of non-objection from the Federal Aviation Administration for outdoor scientific use of lasers.

The WRP Guiding Covenants and Restrictions require tenants that would have radio frequency-emitting systems to coordinate with the WFF Spectrum Manager and as such would conduct analyses (e.g., HERP, HERO, etc.) as needed; these analyses would be coordinated with any radio frequency system users/owners, including NOAA Wallops Command and Data Acquisition Station, the U.S. Navy, and WRP tenants.

Alternative One

Under Alternative One, the potential impacts to human health due to radiation may be slightly more than under the Proposed Action due to the additional construction activities and operations activities associated with development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill. With implementation of safety procedures, training, and mitigation measures associated with the use of materials containing radiation, no adverse impacts to human health are anticipated.

4.3 BIOLOGICAL ENVIRONMENT

4.3.1 Vegetation

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to vegetation.

Proposed Action

Construction Impacts

Although most new construction would occur in existing developed areas where vegetation communities exist as maintained landscaping, short-term adverse impacts to vegetation are anticipated due to clearing and grading. The WRP partners and tenants would be required re-vegetate bare soils after soil disturbing activities, and incorporate landscaping measures in areas that would be left as pervious surfaces (not paved) when the project is complete. WRP partners and tenants are directed by the WRP Guiding Covenants and Restrictions to preserve as much existing vegetation as possible (NASA, 2008c).

Long-Term Impacts

Long-term adverse impacts to vegetation would be anticipated due to the permanent conversion of forest to developed land. The current proposed construction of the WRP would result in the removal of approximately 20.2 to 40.5 ha (50 to 100 acres) of trees. WRP would mitigate the impacts to forest resources through a combination of maintaining a vegetated buffer, promoting preservation of existing native vegetation through a rigorous site plan review process, implementation of BMPs during land clearing activities, and gradual reforestation on available Accomack County property.

In order to minimize impacts to vegetation, a vegetative buffer would be maintained around the perimeter of the WRP site. Vegetative buffers would consist of: 30 meters (100 feet) on the western edge of the WRP, 10.7 meters (35 feet) on the southern edge of the WRP, and a minimum of 10.7 meters (35 feet) on both sides of Mill Dam Road. In addition, no construction or development would be allowed in a 30-meter (100-foot) vegetative buffer surrounding wetlands. WRP partners and tenants are directed by the WRP Guiding Covenants and Restrictions to preserve as much existing vegetation as possible (NASA, 2008c).

All land clearing activities would be performed in accordance with applicable laws and regulations and would utilize appropriate BMPs; timber harvesting operations would be designed and overseen by a professional forester to ensure BMP effectiveness.

Reforesting efforts would occur in open areas within Accomack County or on existing Accomack County properties such as school grounds, public recreation areas, etc. Replanting would be performed over many years with actual replanted acreage being a function of property disposition and resource availability. WRP would engage its principals and tenants, local civic and environmental organizations, and members of the community to voluntarily plant trees as part of several Arbor Day and Earth Day celebrations in order to offset the timber that would be removed in phases by WRP development. WRP would work closely with the VDF Area Forester during future reforesting activities.

Alternative One

Impacts to vegetation under Alternative One would be greater than under the Proposed Action due to the removal of vegetation associated with development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill.

Long-term adverse impacts to vegetation would be anticipated due to the permanent conversion of forest to developed land. In order to minimize impacts to vegetation, the mitigation measures developed for the Proposed Action would be employed to the greatest extent practicable.

4.3.2 Terrestrial Wildlife and Migratory Birds

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to terrestrial wildlife or migratory birds.

Proposed Action

Construction Impacts

Short-term impacts to wildlife and migratory birds may be anticipated during construction activities due to temporary noise disturbances, especially during spring and fall migrations; however this is no greater than daily operations at the nearby WFF airfield. Most of the area surrounding the WRP site is developed and is currently affected by human-related noise. The WFF property located adjacent to the north side of the WRP site carries out launch and flight operations, which causes noise disruption; however, any noise disruption caused by WFF operations are of low frequency and short duration and already exist.

Operational Impacts

Under the Proposed Action, long-term adverse impacts to terrestrial wildlife or migratory birds may be anticipated due to the loss of habitat to developed land. Impacts would be greatest on migratory birds during spring and fall migrations. The construction of the WRP would result in the removal of approximately 20.2 to 40.5 ha (50 to 100 acres) of trees. Terrestrial wildlife and/or migratory birds may be permanently displaced from this area. Up to 30.4 ha (75 acres) of forested land, but no less than 10.1 ha (25 acres), within the WRP site would remain upon completion of the WRP and would continue to provide habitat for terrestrial wildlife and migratory bird species. Accomack County would mitigate the impacts to habitat by implementing a gradual reforestation program on available properties.

Most of the area surrounding the WRP site is developed and is currently affected by human-related noise. The WFF airfield located adjacent to the north side of the WRP site currently operates an avian deterrent program to keep the aircraft approach zones clear for safety purposes. The program includes the use of sound producing devices and pyrotechnics to discourage birds from congregating near the runways. Any additional noise disruptions caused by WRP operations are expected to be of low frequency, short duration, and comparable to what already exists with the avian deterrent program.

A vegetated buffer would be retained around the WRP western perimeter and tenants would be encouraged to retain native habitat to the greatest extent practicable. The WRP would discourage any features such as stormwater retention ponds, reflective ponds, fountains, or other ornamental water features that might attract waterfowl to the WRP site because of its proximity to an active aircraft operating area.

Alternative One

Short-term impacts to wildlife and migratory birds from construction activities would be the same as described under the Proposed Action.

Long-term impacts to terrestrial wildlife and migratory birds under Alternative One would be greater than under the Proposed Action due to the removal of habitat associated with removal of vegetation for the development of approximately 6.1 ha (15 acres) on Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill.

4.3.3 Threatened and Endangered Species

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur, therefore, no impacts to State or Federally listed threatened or endangered species or federally designated critical habitat would occur.

Proposed Action

Since no State or Federally listed threatened or endangered species or Federally designated critical habitat occur within the WRP vicinity, no effects to State or Federally threatened endangered species would occur.

In accordance with Section 7(a)(2) of the ESA, NASA sent a consultation letter to the USFWS requesting concurrence that the Proposed Actions of the WRP would not adversely affect any special status species occurring within the project area. In a letter dated September 4, 2007, the USFWS concurred that the "Proposed Action will not adversely affect Federally listed species or Federally designated critical habitat because no Federally listed species are known to occur in the project area" (Appendix A).

Because the 2007 WRP vegetation survey (that involved reviewing existing natural heritage studies, coordinating with the Virginia Department of Conservation and Recreation, Department of Natural Heritage (DNH), and performing intensive field inventories (using DNH techniques)) did not identify any threatened or endangered plant species in the project area, WRP would not require tenants to conduct additional pre-construction vegetation surveys. However, to aid the in the protection of the state rare species, WRP principals would ensure that tenants are made aware of the potential for the occurrence of Sheep-laurel (*Kalmia angustifolia*) on WRP property prior to any land clearing activities. If Sheep-laurel were discovered on WRP property, tenants would be required to halt work in the immediate vicinity and WRP would consult with the DNH to develop appropriate mitigation measures.

Alternative One

Since no State or Federally listed threatened or endangered species or Federally designated critical habitat occur within the WRP vicinity, no effects to State or Federally threatened endangered species would occur.

The USFWS concurred with NASA's determination that Proposed Actions of the WRP "will not adversely affect Federally listed species or Federally designated critical habitat because no Federally listed species are known to occur in the project area" (Appendix A). As with the Proposed Action, pre-construction Sheep-laurel awareness would be implemented under Alternative One to ensure adequate protection of the state rare plant species.

4.4 SOCIAL AND ECONOMIC ENVIRONMENT

4.4.1 Population

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur, therefore, there would be no impacts to population.

Proposed Action

Under the Proposed Action, the number of people that are anticipated to be hired by WRP partners and tenants is approximately 708. Using the Census 2000 estimate of 3.04 people per household in Virginia and 3.12 people per household in Maryland (U.S. Census Bureau, 2000), the estimated number of people ultimately moving to the Lower Delmarva Peninsula at full build-out of the WRP is approximately 2,190. Full build-out of the WRP is anticipated to be obtained over the next 20 years.

Table 11 lists the estimated number of people moving to the area over the next 20 years as a result of WRP, by county, along with county populations. The distribution of WRP employees by county was assumed to be similar to the distribution of WFF employees in the 5-county area (see Section 3.4.1).

Table 11. WRP Employees and People Anticipated to Move to the Lower Delmarva Peninsula Under the Proposed Action

County	Population[1]	Distribution of WRP Employees by Percent[2]	No. of Employees Moving to County	No. of People Moving to County (Percent of County Population)[1,3]
Accomack	38,305	58	411	1,250 (3.3 %)
Northampton	13,093	2	14	41 (<1 %)
Wicomico	84,644	14	99	319 (<1 %)
Worcester	24,747	5	35	116 (<1 %)
Somerset	46,453	21	149	466 (1 %)
TOTAL	207,242	100	708	2,191 (1 %)

[1]Source: U.S. Census Bureau, 2000
[2]Source: Silbert, 2008
[3]Includes entire household and is based on 3.04 people per household in Virginia, 3.12 people per household in Maryland

The largest impact to population would occur in Accomack County, with approximately 1,250 people relocating to the county over time (3 percent of the population) as a result of 708 jobs created by the WRP. The four other counties where WRP employee households are likely to settle would result in a population increase of less than 1 percent per county.

New student enrollments are anticipated to occur over a 20-year period. To determine the impact to schools within Accomack County since it receives approximately 58 percent of the new households, an average of one child per household (Silbert, 2008) was used and the total of 411 children was equally divided among four age groups; preschool, elementary school, middle school, and high school, resulting in approximately 103 new student enrollments for each age group. Not all children attend preschool, so impacts to preschools were not determined but are not expected to be significant.

Accomack County has five elementary schools, two middle schools, and six high schools. There is also one private school in the county that could receive a few new students. Accomack County elementary schools would receive approximately 20 new students per school, middle schools would receive approximately 51 students per school, and high schools would receive 17 new students per school over a 20-year period. Therefore, even if Accomack County schools do not increase student capacity, the WRP would not result in adverse impacts to public and private schools. In addition, the increase in taxes generated by the additional WRP-employed families would add to the county's ability to implement upgrades to schools.

Impacts to population are not likely to occur due to the long lead time anticipated for increased employment opportunities with WRP partners and tenants. Additionally, the population growth attributed to the WRP over a 10 year period (1.5 percent) compared to the "background" population growth in Accomack County over a 10 year period (between 1990 and 2000) of, does not indicate that the population growth from WRP would result in a significant impact on population within Accomack County.

Alternative One

Under the Alternative One, the number of people that are anticipated to be hired by WRP partners and tenants is approximately 784 over the next 20 years. Using the Census 2000 estimates of 3.04 people per household in Virginia and 3.12 people per household in Maryland (U.S. Census Bureau, 2000), the estimated number of people moving to the Lower Delmarva Peninsula as a result of the WRP is approximately 2,430.

Table 12 lists the estimated number of people moving to the area over a 20 year period as a result of Alternative One, by county, along with county populations. The distribution of WRP employees by county was assumed to be similar to the distribution of WFF employees in the 5-county area (see Section 3.4.1).

Table 12. WRP Employees and People Anticipated to Move to the Lower Delmarva Peninsula Under Alternative One

County	Population[1]	Distribution of WRP Employees by Percent[2]	No. of Employees Moving to County	No. of People Moving to County (Percent of County Population)[1,3]
Accomack	38,305	58	455	1,385 (3.6 %)
Northampton	13,093	2	16	45 (<1 %)
Wicomico	84,644	14	110	354 (<1 %)
Worcester	24,747	5	39	128 (<1 %)
Somerset	46,453	21	165	516 (1 %)
TOTAL	207,242	100	784	2,427 (1 %)

[1]Source: U.S. Census Bureau, 2008
[2]Source: Silbert, 2008
[3]Includes entire household and is based on 3.04 people per household in Virginia, 3.12 people per household in Maryland

The number of people estimated to relocate to the Lower Delmarva Peninsula as a result of employment opportunities of the WRP is slightly greater for Alternative One than the Proposed Action. Because Accomack County is anticipated to receive approximately 58 percent of the households that relocate due to a family member becoming employed by WRP, the greatest impacts would occur within Accomack County. Approximately 3.6 percent of the county's

population, 1,385 people, would be attributed to WRP-related households. Over a 5-year period, Accomack County elementary schools would receive approximately 22 new students per school, middle schools would receive approximately 57 new students, and high schools would receive approximately 19 new student enrollments per school.

The development of approximately 6.1 ha (15 acres) of Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill would increase the numbers of new employees and thus households and new students to the Lower Delmarva Peninsula; however, the impacts would be similar to the Proposed Action, therefore, no adverse impacts to population are likely to occur due to increased employment opportunities with WRP partners and tenants under Alternative One. In addition, the increase in taxes generated by the additional WRP-employed families would add to the county's ability to implement upgrades to schools.

4.4.2 Recreation

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to recreation.

Proposed Action

Construction Impacts

Only short-term impacts to recreation are anticipated during construction of the WRP. Although the existing playground would be rebuilt on the closed County landfill and the baseball field would be moved to the landfill or to a new location, the old baseball field and playground would likely be closed to the public while the new ones are being constructed. The existing nature trails would be left undisturbed where possible; in areas where the nature trails would require relocation, the relocation would be completed as quickly as possible in order to minimize temporary trail closure. Exact locations where the trail would require relocation would not be identified until individual tenant's site plans are known; the WRP Site Plan Review Committee would review site-specific plans that would result in impacts to trails and require mitigation measures as necessary.

Long-Term Impacts

Under the Proposed Action, minor impacts to recreation would occur due to increased use of the baseball field, playground, and nature trails by employees and students associated with the WRP, Accomack County and the MSC. Increased use would require increased routine maintenance of the facilities and increase the frequency of unexpected repairs. Residents, employees, and students would benefit from the additional recreational activities associated with the space south of Mill Dam Road and west of the closed Accomack County landfill that would be utilized as a county park and by the relocation of a new baseball field and playground.

Alternative One

Under Alternative One, impacts to recreation would be greater than under the Proposed Action due to the development of approximately 6.1 ha (15 acres) located south of Mill Dam Road and

west of the closed Accomack County landfill that would reduce the space available for the relocated county park and baseball field.

Minor impacts to existing recreational facilities would occur due to increased use of the existing baseball field, playground, and nature trails. Increased use would require increased routine maintenance of the facilities and increase the frequency of unexpected repairs.

4.4.3 Employment and Income

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no impacts to employment and income.

Proposed Action

Construction Impacts

Construction of the WRP would result in a long-term benefit to the local economy during construction due to increased numbers of people in Accomack County during business hours and the potential increase in the use of local stores and businesses for purchases. Employment opportunities for construction-related work would also increase as a result of development of the WRP site and result in a beneficial impact to employment within Accomack County.

Operational Impacts

Under the Proposed Action, no adverse impacts to employment and income would occur. WRP would create 708 new jobs, which would bring approximately 411 new households and approximately 2,200 people over the next 20 years to the Lower Delmarva Peninsula. Employment opportunities within the WRP would result in NASA and Accomack County continuing to be among the top five largest employers in Accomack County.

Average salaries of employees of WRP would likely be similar to the 2008 average NASA WFF salary of $83,462 (NASA, 2008b). Although Accomack County would likely continue to maintain lower income rates as compared with the Commonwealth of Virginia, the average income of people employed by WRP tenants and partners is expected to be well above the 2004 average county per capita income of $22,256 and median household income of $31,256 (Virginia Tech, 2007). Due to greater average salaries of WRP employees, the WRP would contribute positively to the local economy.

Alternative One

Construction Impacts

Construction-related impacts are the same as for the Proposed Action.

Operational Impacts

The impacts under Alternative One are similar to the Proposed Action - no adverse impacts to employment and income would occur. Under Alternative One, WRP would create 784 new jobs, which would bring approximately 455 new households and approximately 2,430 people to the

Lower Delmarva Peninsula over the next 20 year time period. Employment opportunities within the WRP would result in NASA and Accomack County continuing to be among the top five largest employers in Accomack County.

Beneficial impacts to average salaries of Accomack County residents would occur, and the WRP would contribute positively to the local economy, as described under the Proposed Action.

4.4.4 Health and Safety

No Action Alternative

Under the No Action Alternative, no impacts to health and safety would occur. The development and use of the Accomack County and MSC properties is not anticipated to increase the demand for medical services or fire and police protection services.

Proposed Action

Construction Impacts

Construction activities at the WRP site could result in short-term impacts to human health and safety and the increased usage of local fire, police, and medical services. Construction safety procedures and appropriate training would be implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

Operational Impacts

Under the Proposed Action, the estimated number of people moving to the Lower Delmarva Peninsula as a result of the WRP is approximately 2,200 over 20 years. According to current distributions of WFF employee households among the five counties of the Lower Delmarva Peninsula, the 2,200 people anticipated to move to the Lower Delmarva Peninsula would be distributed as follows: 1,250 in Accomack County, 41 in Northampton County, 319 in Wicomico County, 116 in Somerset County, and 466 in Worcester County.

The capability of the medical, fire, and police services to handle the additional people in the area is not anticipated to be exceeded; therefore, since the increased demand on these services is anticipated over a 20 year time period, no impacts to health and safety would occur due to the WRP development. Safety procedures and appropriate training would be implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

Alternative One

Under Alternative One, the estimated number of people moving to the Lower Delmarva Peninsula as a result of the WRP is approximately 2,430 over a 20 year period. According to current distributions of WFF households among the five counties of the Lower Delmarva Peninsula, the 2,430 people anticipated to move to the Lower Delmarva Peninsula would be distributed as follows: 1,385 in Accomack County, 45 in Northampton County, 351 in Wicomico County, 128 in Somerset County, and 516 in Worcester County.

Although more people would be relocated to the Lower Delmarva Peninsula compared to the Proposed Action, the additional number of people is not anticipated to result in a large increase

on the demand for medical services or fire and police protection over the Proposed Action. The capability of the medical, fire, and police services to handle the additional people in the area is not anticipated to be exceeded; therefore, since the increased demand on these services is anticipated over a 20 year time period, no impacts to health and safety could occur due to the WRP development. Safety procedures and appropriate training would be implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

4.4.5 Cultural Resources

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no effects on cultural resources, and NASA would not be required to undertake Section 106 consultation.

Proposed Action

Because construction of new industrial facilities for the WRP would occur all around the MSC campus, NASA examined the MSC campus buildings and reviewed available documentation to determine whether or not the remaining buildings or landscape of the MSC campus are eligible for the NRHP. NASA determined that the MSC buildings, although greater than 50 years of age, are not historically significant and are ineligible for listing in the NRHP. The buildings and landscape do not meet the National Register Criteria for Evaluation, nor are they associated with a significant event or individual at the local, state, or national level. The buildings and landscape, although representative of a post-war building typology, do not remain as a unique example. Though locally significant to the Lower Delmarva Peninsula, the architecture of the buildings and landscape neither represents a work of a master nor possesses high artistic values. Moreover, the buildings and landscape do not have the potential for providing additional information on the history or prehistory of the area.

In a letter dated February 22, 2008, the Virginia Department of Historic Resources (VDHR) concurred with NASA's determination that the Proposed Action will have no adverse effect on historic properties (Appendix A).

The Phase I archaeological survey (NASA, 2007b) identified no archaeological sites within the WRP project area; therefore, NASA determined that the Proposed Action would have no effect on archaeological resources. In a letter dated February 22, 2008, the VDHR stated that they did not have any concerns with regard to archaeological properties for the WRP site (Appendix A).

However, if unanticipated archaeological remains are identified during construction of the WRP, the WFF Facility Historic Preservation Officer would consult with the VDHR to determine the significance of the resource and the effects of the undertaking on the resource, and to identify the appropriate avoidance or mitigation measures, as appropriate.

Alternative One

Under Alternative One, impacts to historic properties and archaeology would be the same as the Proposed Action.

4.4.6 Environmental Justice

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, there would be no disproportionately high or adverse impacts to low-income or minority populations.

Proposed Action

There are minority and low-income communities within Accomack County but it is not anticipated that disproportionately high or adverse impacts to low-income or minority populations would occur under the Proposed Action, because no displacement of residences or businesses would occur as a result of development of the WRP. The creation of new jobs within Accomack County that are directly and indirectly related to WRP would benefit low-income and minority populations.

In addition, the Proposed Action would include similar activities as those conducted at WFF, and the EJIP found that current WFF actions do not disproportionately affect low-income or minority populations (NASA, 1996).

Alternative One

The impacts under Alternative One are the same as for the Proposed Action.

4.4.7 Transportation

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, no impacts to transportation would occur.

Proposed Action

The WRP development would occur north and south of Mill Dam Road, and on both sides of a new road that would be built approximately 61 meters (200 feet) west of Kearsage Circle (which provides access off Mill Dam Road to the MSC campus). The new road west of Kearsage Circle would run north-south to provide access to NASA property north of Mill Dam Road and to Accomack County property south of Mill Dam Road. The new road would connect to Atlantic Road, which serves as the eastern boundary of the WRP site south of Mill Dam Road. Small driveways and spur roads would be constructed off of new roads to provide direct access to specific buildings.

Construction Impacts

Temporary impacts to traffic flow would occur during construction activities due to an increase in the volume of construction-related traffic on roads in the immediate vicinity of the WRP. Traffic lanes may be temporarily closed or rerouted during construction, and construction equipment and staging could interfere with pedestrian and vehicle flow. WRP would coordinate all transportation activities including closures, traffic control, safety issues, etc. with Accomack County and the Virginia Department of Transportation Accomac Residency Office prior to their implementation. To mitigate potential delays, WRP would:

- Provide adequate advance notification of upcoming activities for all areas that would be affected by construction-related traffic, temporary closures, or re-routing;
- Coordinate any traffic lane or pedestrian corridor closures with all appropriate officials;
- Place construction equipment and vehicle staging so as to not hinder traffic and pedestrian flow; and
- Minimize the use of construction vehicles in residential areas.

Long-Term Impacts

Under the Proposed Action, no long-term adverse impacts to transportation are anticipated because WRP would implement traffic flow mitigation measures including modifying and upgrading existing roads and intersections, and installing additional traffic devices including signal lights and/or stop signs in the vicinity of the WRP, where necessary. WRP would coordinate all transportation activities including closures, traffic control, safety issues, etc. with Accomack County and the Virginia Department of Transportation Accomac Residency Office prior to their implementation.

The WRP development would generate an increase in traffic on Mill Dam Road. However, the WRP traffic analysis concluded that effective traffic operations in the WRP area would be maintained once the development is completed (Vanasse Hangen Brustlin, Inc., 2007).

In addition, existing traffic operations are projected to operate more efficiently upon completion of WRP with implementation of signals with optimal signal timings at currently unsignaled intersections (Vanasse Hangen Brustlin, Inc., 2007).

Alternative One

Under Alternative One, the difference in impacts to transportation due to the development of approximately 6.1 ha (15 acres) of Accomack County property south of Mill Dam Road and west of the closed Accomack County landfill would be negligible when compared to impacts to transportation under the Proposed Action.

Although an increase in traffic would occur compared to the Proposed Action, the additional volume of traffic is not anticipated to result in adverse impacts to transportation with implementation of the mitigation measures described under the Proposed Action.

4.5 CUMULATIVE EFFECTS

The Council on Environmental Quality defines cumulative effects as the “impact on the environment which results from the incremental impact of the action(s) when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 CFR 1500).

Within the boundary of the WRP site, the MSC is planning on completing a campus renewal project that would include demolition of existing buildings, construction of new facilities (maintenance building and yard, pre-college dorms, staff and instructor housing, laboratories, an administration building, and a campus parking lot), and updates to existing facilities. Demolition that would occur for the MSC campus renewal would not change the land use because facilities with similar functions and needs (i.e., laboratory and housing facilities) would be reconstructed.

The MSC campus renewal project started in 2007 and is projected to continue through the year 2012.

Several residential developments are planned for construction or being constructed within Accomack County. The closest development to the WRP site is a 81-ha (201-acre), 99-lot subdivision called Olde Mill Pointe that is located on the opposite side of Little Mosquito Creek to the northwest of the WRP site. Other residential projects include Historic Corbin Hall at Chincoteague Plantation that is located on Chincoteague Bay approximately 1.6 kilometers (1 mile) north of the WRP site and encompasses approximately 60.1 ha (150 acres), and Captain's Cove that is also located on Chincoteague Bay and is approximately 4.8 kilometers (3 miles) north of the WRP.

With implementation of the minimization and mitigation measures described in Section 4, the following resource areas would not be adversely affected by cumulative impacts resulting from development of the WRP along with the MSC campus renewal activities and on-going development within Accomack County and the Chincoteague Bay watershed: topography and drainage, geology and soils, land use, surface water, stormwater, coastal zone management, noise, hazardous materials and hazardous waste, radiation, threatened and endangered species, recreation, employment and income, cultural resources, environmental justice, and transportation.

Below is a description of the potential cumulative impacts for each resource area that could be adversely impacted by the development of the WRP when combined with the potential impacts from the MSC campus renewal activities and the on-going development within Accomack County and the Chincoteague Bay watershed.

Groundwater

The projected potable water demand of the MSC campus is 34,000 gallons per day, based on proposed future wastewater flows of WRP Study Area from County of Accomack Water and Wastewater Feasibility Study (Accomack County, 2006). The WFF is currently permitted to withdraw 8,153,000 per month from the Columbia and Yorktown-Eastover Multiaquifer System sole source aquifer. The combined WRP, WFF, and MSC water demand rates under the Alternative One scenario would be approximately 3,502,000 gallons per month. The combined water demands of the Town of Chincoteague, WFF, MSC, WRP, and other public and private entities can only be estimated, however, it is not anticipated that the WRP, the MSC and WFF would contribute to significant adverse impacts to the sole source aquifer. WFF would monitor groundwater withdrawal rates to ensure continued compliance with WFF's Virginia DEQ groundwater withdrawal permit.

Wetlands

If other projects within the Chincoteague Bay watershed would result in the loss of wetlands, adverse impacts to wetlands could occur as a result of the cumulative impacts of the WRP project combined with other wetland losses. The MSC campus renewal activities would not result in any impacts to wetlands. No other projects that would result in a loss of wetlands within the Chincoteague Bay watershed are known at this time. The Virginia Water Protection Permit Program Regulation (9 VAC 25-210) includes a "no net loss" policy that states: "The plan of mitigation for impacts to wetlands must include, in accordance with current federal regulations:

the means by which compensation will be accomplished to achieve no net loss of wetland acreage and functions or stream functions and water quality benefits." If wetland losses cannot be avoided, they shall be mitigated by creation or restoration of wetlands at a 1:1 ratio as geographically close to and within the same watershed as the original wetland that is being affected.

The WRP would notify the public and coordinate with applicable agencies including the USACE, the Virginia DEQ, and the VMRC, and would obtain necessary permits including Section 404 and/or Section 10 permits for the disturbance of 0.4 ha (1 acre) of wetlands. The WRP would implement wetland mitigation measures agreed upon through the USACE and Virginia DEQ consultation process to protect and restore the natural and beneficial functions of wetlands in order to minimize the potential for adverse impacts to wetlands within the Chincoteague Bay watershed.

Floodplains

The MSC campus renewal activities would not result in construction within a floodplain. Cumulative impacts to the floodplain could result from the combination of the WRP floodplain development (anticipated to impact approximately 1 acre within the floodplain) along with development of other floodplains within Accomack County. No other projects that involve development within the floodplain of the Chincoteague Bay watershed are known at this time.

For the construction that would take place within the floodplain, WRP would ensure that the action complies with EO 11988 (Floodplain Management) and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), including notifying the public of actions that would occur within the floodplain. The WRP would minimize floodplain impacts and protect and restore the natural and beneficial functions of floodplains to the maximum extent possible.

Air Quality

Construction activities have the potential to cause temporary, short-term air quality impacts due to the operation of fossil-fuel burning equipment. When combined with other air quality impacts as a result of construction activities within the attainment area, the WRP development could contribute to temporary impacts to air quality.

Depending on the air quality of the area surrounding the WRP site, the operational activities of WRP partners and tenants could result in short-term adverse impacts to air quality due to inadvertent releases of toxic air contaminants as a result of accidents involving hypergolic fuels or operation of fume hoods. Impacts would be temporary and would disperse, and therefore are not anticipated to result in long-term adverse impacts to ambient air quality.

Paint spray/coatings booths that would be located in the WRP would result in minor impacts to local air quality and could contribute to cumulative impacts when combined with other air pollutants resulting from other facilities and activities within Accomack County. WRP would consult with the Virginia DEQ to ensure no significant adverse impacts to air quality would occur as a result of operations of the WRP.

Vegetation, Terrestrial Wildlife, and Migratory Birds

Long-term adverse impacts to vegetation and terrestrial wildlife and migratory birds are anticipated due to the permanent conversion of forest to developed land within the WRP. In addition, water features are discouraged at the WRP site so that waterfowl are not attracted to an active aircraft area.

The residential developments described above would likely result in losses of vegetation and habitat in the foreseeable future. However, additional loss of vegetation and habitat in the surrounding areas may occur in small amounts and cannot be accurately estimated (especially on private property). As such, cumulative impacts to vegetation as a result of future development within Accomack County, when combined with the WRP, are unknown at this time but are not expected to be significant.

To offset cumulative impacts to vegetation and habitat, vegetative buffers would be maintained around the perimeter of the WRP site and around streams and wetlands. In addition, WRP tenants are directed by the WRP Guiding Covenants and Restrictions to preserve as much existing vegetation as possible.

Population

Minor impacts to population would occur due to increased employment opportunities within the WRP. Addition of new residences and businesses within Accomack County and additional staff and students at the MSC campus would result in an increase in the population of Accomack County and the surrounding areas; when combined with the WRP population impacts, the regional population would increase within the Lower Delmarva Peninsula; however such impacts are not expected to be significant.

Health and Safety

Due to an increase on the demand for medical, fire and police services from development of the WRP along with additional staff and students at the MSC and population and employment increases within Accomack County, adverse cumulative impacts to human health and safety could occur if existing capacity of medial, fire, and police services are exceeded. However, the increase in taxes generated by the additional residents would add to the county's ability to implement upgrades to emergency services. Also, safety procedures and appropriate training would be implemented at the WRP to ensure that events that have the potential to adversely impact human health and safety are minimized.

4.5.1 Climate Change

The U.S. government has established a comprehensive policy to address climate change including the establishment of major government-wide programs to advance climate technologies and improve climate science. WRP would comply with Federal climate change policy including EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, which instructs Federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. EO 13423 also directs Federal agencies to implement sustainable practices for energy efficiency and reductions in greenhouse gas emissions, and for the use of

renewable energy. The Federal Energy Policy Act requires Federal agencies to increase the usage of renewable sources by 3 percent between 2007 and 2009, 5 percent between 2010 and 2012, and by 7.5 percent for 2013 and beyond.

Although WRP tenants would likely obtain their power on an individual basis and would utilize local utility companies to meet their energy needs, WRP tenants performing work within WFF would be required to follow WFF's Environmental Management System, which includes the following goals that meet WFF's mission while complying with climate change policy including EO 13423 and the Federal Energy Policy Act, and promoting environmental stewardship and accountability:

- Reducing impacts on the natural environment by consuming energy from a source that provides zero greenhouse gas emissions,
- Reducing WFF's annual operating cost by consuming continual, low-cost power from a renewable and sustainable natural resource, and
- Setting an example for responsible stewardship of natural resources by a Federal agency.

WFF is currently evaluating a project that would utilize wind and/or solar energy to reduce greenhouse gas emissions by reducing the use of fossil fuels to generate electricity. Although the WRP would result in additional energy demands at WFF, the implementation of the WFF alternative energy project would offset the area's overall greenhouse gas emissions.

WRP is committed to complying with all of the Federal policies that address climate change and as such would implement measures to reduce greenhouse gas emissions and promote sustainable energy and resource use practices; therefore, significant cumulative impacts to the global climate from the Proposed Action or Alternative One (when added to other known and foreseeable regional actions) are not anticipated.

4.6 PERMITS, LICENSES, AND APPROVALS

The following list of potential permits, licenses, and approvals for the Proposed Actions is preliminary. The agency responsible for each is included after the identified permit, license, or required consultation. Any required permits, licenses, or approvals would be obtained prior to construction.

No Action Alternative

Under the No Action Alternative, development of the WRP would not occur; therefore, no permits, licenses, or approvals would be required.

Proposed Action and Alternative One

- Clean Water Act Section 404 Permit, USACE
- Virginia Water Protection Permit (Section 401 Permit), Virginia DEQ
- Virginia Marine Resources Commission Permits for activities disturbing wetlands, VMRC

- Accomack County Wetlands Board (if wetlands are determined to be tidal)
- Virginia Department of Historic Resources Consultation
- VSMP Stormwater General Permit for Construction Activities, Virginia Department of Conservation and Recreation
- Erosion and Sediment Control Permit, Accomack County
- VPDES Permit for Industrial Stormwater Discharges, Virginia DEQ
- EPA Hazardous Waster Generator Identification Number, Virginia DEQ
- Virginia Air Pollution Control Board permits, Virginia DEQ Division of Air Quality

List of URS and EG&G Preparers:

EG&G

Shari Silbert, Wallops Environmental Office, EG&G

URS

Suzanne Richert, Senior Environmental Scientist, URS Co-Project Manager

Janet Frey, Senior Environmental Scientist, URS Co-Project Manager

Emily Smith, Environmental Scientist

Kristine Sinkez, Environmental Scientist

Elizabeth Vashro, Biologist

Kathy Furgerson, Senior Archaeologist

Fred Holycross, Senior Principal Historian

Linda Mackey, Architectural Historian

Jeffrey Reidenauer, Internal Technical Reviewer

Initial coordination letters were sent to the following agencies:

Federal Agencies:

U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

State Agencies:

Office of Environmental Impact Review
Virginia Department of Environmental Quality
629 East Main Street, Room 631
Richmond, VA 23219

Virginia Department of Historic Resources
Federal Review and Compliance Coordinator
2801 Kensington Avenue
Richmond, VA 23221

The following organizations were sent copies of the Draft EA for Wallops Research Park:

Federal Agencies:

National Oceanic and Atmospheric Association
Attn: Mr. Doug Crawford
35663 Chincoteague Road
Wallops Island, VA 23337

Surface Combat Systems Center
Attn: Dr. Marilyn Ailes
Ecologist
30 Battlegroup Way Bldg. Q-29
Wallops Island, VA 23337

U.S. Army Corps of Engineers
Attn: Mr. Nick Konchuba
Eastern Shore Supervisor
803 Front Street
Norfolk, VA 23510

U.S. Coast Guard
Attn: Lt. Jennifer Adams
3823 Main Street
Chincoteague, VA 23336

U.S. Fish and Wildlife Services
Attn: Mr. Eric Davis
Assistant Field Supervisor
6669 Short Lane
Gloucester, VA 23061

State Agencies:

Virginia Department of Agriculture and Consumer Services
Office of Plant and Pest Services
Attn: Mr. Keith Tignor, Scientist II
1100 Bank Street
Richmond, VA 23219

Virginia Department of Conservation and Recreation
Attn: Mr. Robert S. Munson
Planning Bureau Manager
203 Governor Street
Richmond, VA 23219

Virginia Department of Environmental Quality
Office of Environmental Impact Review
Attn: Ms. Ellie Irons
629 East Main Street, Room 631
Richmond, VA 23219

Virginia Department of Environmental Quality
Attn: Mr. Paul Herman, P.E.
Waste Division Environmental Review Coordinator
629 East Main Street
Richmond, VA 23219

Virginia Department of Environmental Quality
Tidewater Regional Office
Attn: Michelle Hollis
5636 Southern Boulevard
Virginia Beach, VA 23462

Virginia Department of Forestry
Attn: Mr. Todd Groh
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903

Virginia Department of Game and Inland Fisheries
Attn: Ms. Amy M. Ewing
Environmental Services Biologist
4010 West Broad Street
Richmond, VA 23230

Virginia Department of Health
Division of Drinking Water
Attn: Ms. Susan E. Douglas, P.E.
Field Service Engineer
1500 East Main Street, Room 109
Richmond, VA 23219

Virginia Department of Historic Resources
Attn: Mr. Roger Kirchen
2801 Kensington Avenue
Richmond, VA 23221

Virginia Department of Mines, Minerals, and Energy
Attn: Mr. Matt Heller
P.O. Box 3667
Charlottesville, VA 22903

Virginia Department of Transportation
Attn: Ms. Mary T. Stanley
Environmental Engineer
1401 East Broad Street
Richmond, VA 23219

Virginia Marine Resources Commission
Attn: Mr. George H. Badger III
Environmental Engineer
P.O. Box 756
2600 Washington Avenue, 3rd Floor
Newport News, VA 23607

County Offices:

Accomack County Administration
Attn: Mr. Steve Miner
County Administrator
P.O. Box 388
Accomack, VA 23301

Accomack County Board of Supervisors
Attn: Mr. Ronald S. Wolff
Chair
30403 Thornton Road
Atlantic, VA 23303

Accomack-Northampton Planning District Commission
Attn: Mr. Paul F. Berge
P.O. Box 417
Accomack, VA 23301

Local Government:

Chincoteague Town Council
Attn: Dr. Glenn Wolfe
Council Member
6150 Community Drive
Chincoteague, VA 23336

Town of Chincoteague
Attn: Mr. John H. Tarr
Mayor
6150 Community Drive
Chincoteague, VA 23336

Town of Chincoteague
Attn: Mr. Robert G. Ritter, Jr.
Town Manager
6150 Community Drive
Chincoteague, VA 23336

Other Organizations:

BaySys Technologies, Inc.
Attn: Mr. Nick Olmsted
Vice President Operations
27 Market Street
Onancock, VA 23417

Chincoteague Chamber of Commerce
Attn: Ms. Suzanne Taylor
Executive Director of Marketing and Tourism
6733 Maddox Blvd
Chincoteague, VA 23336

Citizens for a Better Eastern Shore
Attn: Mr. Denard Spady
Executive Director
16388 Courthouse Road
Eastville, VA 23347

Eastern Shore Chamber of Commerce
Attn: Ms. Amy Savona
Vice President
P.O. Box 460
Melfa, VA 23410

Marine Science Consortium
Attn: Mr. John Callander
Executive Director
7278 Enterprise Street
Wallops Island, VA 23337

Trails End Campground
Attn: Mr. Randy Fox
Property Coordinator
PO Box 240
Horntown, VA 23395

NASA is the lead Federal agency for conducting the NEPA compliance process for this EA. The lead agency's goal is to expedite the preparation and review of NEPA documents while meeting the intent of NEPA and complying with all NEPA provisions including NHPA, EO 12114, EO 11988, EO 11990, Clean Air Act, Clean Water Act, and Resource Conservation and Recovery Act.

NASA published a public notice in the Eastern Shore News and the Chincoteague Beacon advertising the availability of this EA on April 16, 2008. The EA was available at the following locations:

NASA WFF Technical Library
Building E-105
Wallops Island, Virginia 23337
(757) 824-1065
Hours: Mon – Fri: 8 a.m. - 4:30 p.m.

Island Library
4077 Main Street
Chincoteague, Virginia 23336
(757) 336-3460
Hours: Mon: 10 a.m. - 2 p.m.
Tues: 10 a.m. - 5 p.m.
Wed, Fri, Sat: 1 p.m. - 5 p.m

Eastern Shore Public Library
23610 Front Street
P.O. Box 360
Accomac, VA. 23301
Hours: Mon, Tues, Wed, Fri.: 9 a.m. - 6 p.m.
Thurs.: 9 a.m. - 9 p.m.
Sat.: 9 a.m. - 1 p.m.

NASA solicited public and agency review and comment on the environmental impacts of the action alternatives through:

1. A notice of availability of the draft EA published in the Eastern Shore News and the Chincoteague Beacon;
2. Publication of the draft EA on the WFF Environmental Office Web site;
3. Consultations with local, State, and Federal agencies; and
4. Direct mailing of the draft EA to interested parties.

Comments received were taken into consideration in the final EA. Public comments on the Draft EA and WRP's responses are shown in Appendix B. The Final EA can be viewed on the WFF Environmental Office website: http://sites.wff.nasa.gov/code250/docs/WRP_FEA.pdf
A limited number of copies of the final EA are available by contacting:

Joshua A. Bundick
NEPA Program Manager
Wallops Flight Facility, Code 250.W
Wallops Island, VA 23337
Phone: (757) 824-2319
Fax: (757) 824-1819

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NASA. 2003. Cultural Resources Assessment of Wallops Flight Facility, Accomack County, Virginia. Report prepared for the National Aeronautics and Space Administration Goddard Space Flight Center Wallops Flight Facility, Wallops Island, Virginia by URS Group, Inc. and EG&G Technical Services, Inc., Gaithersburg, Maryland.

NASA. 2005. Final Site-Wide Environmental Assessment, Wallops Flight Facility, Virginia. Prepared for NASA Goddard Space Flight Center. Prepared by URS-EG&G. January.

NASA. 2007a. Wallops Research Park. Powerpoint presentation dated July 9, 2007. PowerPoint file titled *WRPVDEP7-1 7-07Final.ppt*. 19 slides.

NASA. 2007b. Phase I Cultural Resources Survey of Approximately 150 Acres for a Proposed Research Park at Wallops Island in Accomack, Virginia. VDHR File Number 2007-1229. Draft report prepared Goddard Space Flight Center Wallops Flight Facility, Wallops Island, Virginia by James River Institute for Archaeology, Inc., Williamsburg, Virginia.

NASA. 2008a. Vegetation Survey and Mapping Project for Wallops Research Park. Draft Vegetation Survey Report. Prepared by Hu, S.; L. Klotz; and C.F. Sacchi. Prepared for Wallops Flight Facility Environmental Office.

NASA. 2008b. Microsoft Excel spreadsheet titled "Wallops Employees as of 011108 for Richard B." Received by URS on January 29, 2008 from Shari A. Silbert, NASA Wallops Flight Facility Environmental Office.

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Virginia Employment Commission. 2008. Accomack Community Profile. Economic Information Services Division. Updated February 1, 2008. http://www.alex.vec.virginia.gov/lmi/pdfs/communityprofiles/5 104000001 .pdf

Virginia Tech. 2007. Community Economic Development for the Eastern Shore: Summit Report. Department of Outreach and International Affairs, Office of Economic Development. 702 University City Boulevard, Blacksburg, Virginia 24061-0162. Prepared by Mike Potter, John Provo, Ph.D., Sibel Atasoy, Eric Howard, Charlotte Anders. August, 2007.

Appendix A
Agency Coordination

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address P.O. Box 1105, Richmond, Virginia 23218
Fax (804) 698-4500 TDD (804) 698-4021
www.deq.virginia.gov

L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

August 14, 2007

Mr. Joshua A. Bundick
NEPA Program Manager
NASA Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337-5099

RE: Proposed Wallops Research Park, Request for Scoping Comments for the Preparation of an Environmental Assessment

Dear Mr. Bundick:

This is in response to your August 10, 2007 letter (received August 13) announcing the preparation of an Environmental Assessment for the proposed Wallops Research Park at the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center, Wallops Flight Facility (WFF), at Wallops Island, Virginia, and soliciting comments on the scope of the document.

Project Description

According to your letter, the EA will evaluate the Proposed Action, which consists of grading land and constructing a 232-acre research park on properties owned by WFF, Accomack County, and the Marine Science Consortium (MSC). The properties currently contain the WFF's payload processing facility, MSC buildings, open land, forested areas, and a closed county-run landfill. The first stages of development would be the construction of new educational facilities for the MSC and the creation of utility easements for future development. Several hangars and a new payload processing facility are also proposed for immediate construction on the WFF portion of the WRP. The Master Plan for the MSC campus proposes to revitalize the campus. Phase I consists of new housing and administration building construction. Future plans include the demolition and reconstruction of laboratory and housing facilities.

Environmental Review

The roles of the Virginia Department of Environmental Quality (DEQ) in relation to the project under consideration are as follows. First, DEQ's Office of Environmental Impact Review (this Office) will coordinate Virginia's review of any environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and comment to NASA on behalf of the Commonwealth. A similar review process will pertain to the federal consistency determination that must be provided pursuant to the Coastal Zone Management Act (CZMA). If the federal consistency determination is included as part of the EA, there can be a single review.

Federal Consistency under the Coastal Zone Management Act

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities affecting Virginia's coastal resources or coastal uses must be consistent with the Virginia Coastal Resources Management Program (VCP) (see section 307(c)(1) of the Act and the Federal Consistency Regulations, 15 CFR Part 930, sub-part C). NASA must provide a consistency determination which involves an analysis of the activities in light of the Enforceable Policies of the VCP (first enclosure), and a commitment to comply with the Enforceable Policies. In addition, we invite your attention to the Advisory Policies of the VCP (second enclosure). The federal consistency determination may be provided as part of the NEPA documentation or independently, depending on your agency's preference; we recommend, in the interests of efficiency for all concerned, that it be provided together with the NEPA document and that 60 days be allowed for review in keeping with the Federal Consistency Regulations (see section 930.41(a)). Section 930.39 of the Federal Consistency Regulations and Virginia's Federal Consistency Information Package at http://www.deq.virginia.gov/eir/federal.html give content requirements for the consistency determination.

Project Scoping

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA documents for the proposed project. Therefore, we are sharing your letter with selected state and local Virginia agencies, which are likely to include the following (note: starred (*) agencies administer one or more of the Enforceable Policies of the Virginia Coastal Resources Management Program; see "Federal Consistency...," below):

- Department of Environmental Quality:
  - Office of Environmental Impact Review
  - Tidewater Regional Office*
  - Air Division*
  - Waste Division
- Department of Game and Inland Fisheries*

- Department of Conservation and Recreation:
  - Division of Soil and Water Conservation*
  - Division of Planning and Recreation Resources
- Marine Resources Commission*
- Department of Agriculture and Consumer Services
- Department of Health
- Department of Transportation
- Department of Mines, Minerals, and Energy
- Department of Forestry
- Department of Historic Resources
- Virginia Institute of Marine Science
- Accomack-Northampton Planning District Commission
- Accomack County.

In order to ensure an effective coordinated review of the Environmental Assessment and the consistency determination, we will require 18 copies of the document when it is published. The document should include a U.S. Geological Survey topographic map as part of its information. We recommend, as well, that project details unfamiliar to people outside NASA be adequately described.

If you have questions about the environmental review process or the federal consistency review process, please feel free to call me at (804) 698-4325 or John Fisher of this Office at (804) 698-4339.

I hope this information is helpful to you.

Sincerely,

Ellie L. Irons
Program Manager
Office of Environmental Impact Review

cc: Michelle Hollis, DEQ-TRO
Kotur S. Narasimhan, DEQ-Air
Paul Kohler, DEQ-Waste
Andrew K. Zadnik, DGIF
Robbie Rhur, DCR
Tony Watkinson, MRC
Susan Douglas, VDH
Mary Stanley, VDOT
Matt Heller, DMME
Todd Groh, VDF
Ethel R. Eaton, DHR
Keith Tignor, VDACS
Paul Berge, Accomack-Northampton PDC
Steven Miner, Accomack County

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr
Secretary of Natural Resources

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P. O. Box 10009, Richmond, Virginia 23240
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David K. Paylor
Director

(804) 698-4000
1-800-592-5482

Attachment 1

Enforceable Regulatory Programs comprising Virginia's Coastal Resources Management Program (VCP)

a. Fisheries Management - The program stresses the conservation and enhancement of finfish and shellfish resources and the promotion of commercial and recreational fisheries to maximize food production and recreational opportunities. This program is administered by the Marine Resources Commission (VMRC); Virginia Code 28.2-200 to 28.2-713 and the Department of Game and Inland Fisheries (DGIF); Virginia Code 29.1-100 to 29.1-570.

The State Tributyltin (TBT) Regulatory Program has been added to the Fisheries Management program. The General Assembly amended the Virginia Pesticide Use and Application Act as it related to the possession, sale, or use of marine antifoulant paints containing TBT. The use of TBT in boat paint constitutes a serious threat to important marine animal species. The TBT program monitors boating activities and boat painting activities to ensure compliance with TBT regulations promulgated pursuant to the amendment. The VMRC, DGIF, and Virginia Department of Agriculture Consumer Services (VDACS) share enforcement responsibilities; Virginia Code 3.1-249.59 to 3.1-249.62.

b. Subaqueous Lands Management - The management program for subaqueous lands establishes conditions for granting or denying permits to use state-owned bottomlands based on considerations of potential effects on marine and fisheries resources, tidal wetlands, adjacent or nearby properties, anticipated public and private benefits, and water quality standards established by the Department of Environmental Quality (DEQ). The program is administered by the Marine Resources Commission; Virginia Code 28.2-1200 to 28.2-1213.

c. Wetlands Management - The purpose of the wetlands management program is to preserve wetlands, prevent their despoliation, and accommodate economic development in a manner consistent with wetlands preservation.

(1) The tidal wetlands program is administered by the Marine Resources Commission; Virginia Code 28.2-1301 through 28.2-1320.

(2) The Virginia Water Protection Permit program administered by DEQ includes protection of wetlands --both tidal and non-tidal; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

d. Dunes Management - Dune protection is carried out pursuant to The Coastal Primary Sand Dune Protection Act and is intended to prevent destruction or alteration of primary dunes. This program is administered by the Marine Resources Commission; Virginia Code 28.2-1400 through 28.2-1420.

e. Non-point Source Pollution Control – (1) Virginia's Erosion and Sediment Control Law requires soil-disturbing projects to be designed to reduce soil erosion and to decrease inputs of chemical nutrients and sediments to the Chesapeake Bay, its tributaries, and other rivers and waters of the Commonwealth. This program is administered by the Department of Conservation and Recreation; Virginia Code 10.1-560 et.seq.).

(2) Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater (see i) Virginia; Virginia Code §10.1-2100 –10.1-2114 and 9 VAC10-20 et seq.

f. Point Source Pollution Control - The point source program is administered by the State Water Control Board (DEQ) pursuant to Virginia Code 62.1-44.15. Point source pollution control is accomplished through the implementation of:

(1) the National Pollutant Discharge Elimination System (NPDES) permit program established pursuant to Section 402 of the federal Clean Water Act and administered in Virginia as the Virginia Pollutant Discharge Elimination System (VPDES) permit program.

(2) The Virginia Water Protection Permit (VWPP) program administered by DEQ; Virginia Code §62.1-44.15:5 and Water Quality Certification pursuant to Section 401 of the Clean Water Act.

g. Shoreline Sanitation - The purpose of this program is to regulate the installation of septic tanks, set standards concerning soil types suitable for septic tanks, and specify minimum distances that tanks must be placed away from streams, rivers, and other waters of the Commonwealth. This program is administered by the Department of Health (Virginia Code 32.1-164 through 32.1-165).

h. Air Pollution Control - The program implements the federal Clean Air Act to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards. This program is administered by the State Air Pollution Control Board (Virginia Code 10-1.1300 through §10.1-1320).

(i) Coastal Lands Management is a state-local cooperative program administered by the DCR's Division of Chesapeake Bay Local Assistance and 84 localities in Tidewater, Virginia established pursuant to the Chesapeake Bay Preservation Act; Virginia Code §10.1-2100 –10.1-2114 and Chesapeake Bay Preservation Area Designation and Management Regulations; Virginia Administrative Code 9 VAC10-20 et seq.

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

a) Wetlands
b) Aquatic Spawning, Nursery, and Feeding Grounds
c) Coastal Primary Sand Dunes
d) Barrier Islands
e) Significant Wildlife Habitat Areas
f) Public Recreation Areas
g) Sand and Gravel Resources
h) Underwater Historic Sites.

b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:

i) Highly Erodible Areas
ii) Coastal High Hazard Areas, including flood plains.

c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:

i) Commercial Ports
ii) Commercial Fishing Piers
iii) Community Waterfronts

Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCRMP is encouraged. Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCRMP recognizes two broad classes of priority uses for waterfront development APC:

i) water access dependent activities;
ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Advisory Policies for Shorefront Access Planning and Protection

a Virginia Public Beaches - Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to allow public access to recreational resources.

b. Virginia Outdoors Plan - Planning for coastal access is provided by the Department of Conservation and Recreation in cooperation with other state and local government agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to identify future needs of the Commonwealth in relation to the provision of recreational opportunities and shoreline access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

c Parks, Natural Areas, and Wildlife Management Areas - Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the citizens of the Commonwealth and the nation by local, state, and federal agencies. The recreational values of these areas should be protected and maintained.

d Waterfront Recreational Land Acquisition - It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth

e. Waterfront Recreational Facilities - This policy applies to the provision of boat ramps, public landings, and bridges which provide water access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and maintained to provide points of water access when and where practicable.

f Waterfront Historic Properties - The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas The protection and preservation of historic shorefront properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures, and sites of historical, architectural, and/or archaeological interest are significant resources for the citizens of the Commonwealth It is the policy of the Commonwealth and the VCRMP to enhance the protection of buildings, structures, and sites of historical, architectural, and archaeological significance from damage or destruction when practicable.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

Date: September 4, 2007

Project name: WALLOPS RESEARCH PARK

Project number: 2007-TA-0491 City/County ACCOMACK Co., VA

The U.S. Fish and Wildlife Service (Service) has reviewed your request for information on federally listed or proposed endangered or threatened species and designated critical habitat for the above referenced project The following comments are provided under provisions of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*)

✓ We have reviewed the information you have provided and believe that the proposed action will not adversely affect federally listed species or federally designated critical habitat because no federally listed species are known to occur in the project area Should project plans change or if additional information on listed and proposed species becomes available, this determination may be reconsidered

_____ We recommend that you contact **both** of the following State agencies for site specific information on listed species in Virginia Each agency maintains a different database and has differing expertise and/or regulatory responsibility:

Virginia Dept of Game & Inland Fisheries
Environmental Services Section
P O. Box 11104
Richmond, VA 23230
(804) 367-1000

Virginia Dept of Conservation and Recreation
Division of Natural Heritage
217 Governor Street, 2nd Floor
Richmond, VA 23219
(804) 786-7951

If either agency indicates a federally listed species **is present**, please resubmit your project description with letters from both agencies attached

_____ If **appropriate habitat may be present**, we recommend surveys within appropriate habitat by a qualified surveyor Enclosed are county lists with fact sheets that contain information the species' habitat requirements and lists of qualified surveyors. If this project involves a Federal agency (Federal permit, funding, or land), we encourage the Federal agency to contact this office if appropriate habitat is present and if they determine their proposed action may affect federally listed species or critical habitat

_____ Determinations of the presence of waters of the United States, including wetlands, and the need for permits are made by the U.S. Army Corps of Engineers. They may be contacted at: Regulatory Branch, U.S. Army Corps of Engineers, Norfolk District, 803 Front Street, Norfolk, Virginia 23510, telephone (757) 441-7652.

Our website http://virginiafieldoffice.fws.gov contains many resources that may assist with project reviews. Point of contact is Mike Drummond at (804) 693-6694, ext 114.

Sincerely,

Karen L. Mayne

Karen L. Mayne
Supervisor
Virginia Field Office

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Historic Resources
2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick
Director

Tel: (804) 367-2323
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www.dhr.virginia.gov

September 12, 2007

Mr. Joshua A. Bundick
NEPA Program Manager
NASA
Goddard Space Flight Center, Wallops Flight Facility
Wallops Island, VA 23337-5099

Re: Proposed Wallops Research Park, Wallops Flight Facility
Goddard Space Flight Center, NASA
Wallops Island, VA
DHR File No. 2007-1229

Dear Mr. Bundick:

We have received your office's request for our comments on the scoping process for the upcoming Wallops Research Park Environmental Assessment to be prepared in fall 2007. We understand that NASA proposes to construct a 232-acre research park adjacent to the Wallops Flight Facility. We are delighted to see this project as a partnership with Accomack County and the Marine Science Consortium, as it will undoubtedly have a very positive impact upon the local community.

The federal agency is responsible for determining the Area of Potential Effect for an undertaking, which is defined as the area within which an undertaking may directly or indirectly affect historic properties. With regard to direct effects, we understand that NASA has already completed a Phase I archaeological survey. We look forward to receipt of the report for our review and comment. Please forward two bound copies at your convenience. We further understand that the structures within the project area were determined to be not historic during surveys conducted pursuant to development of NASA's Integrated Cultural Resource Management Plan for the Wallops facility.

With respect to assessing the indirect (visual) effects of the proposed property, we encourage NASA to evaluate any potential effects to historic properties that may exist adjacent to the project area. The current aerial photographs indicate significant tree cover to the west and south of the proposed site. Will this wooded area be preserved to any extent? If construction activities result in removal of this vegetation, the viewsheds of adjacent historic properties may be affected. We request that both the identification of historic properties and the potential for affects to their viewsheds be considered as part of the EA.

If you have any questions, please do not hesitate to contact me at: tonia.horton@dhr.virginia.gov, or by phone, (804) 367-2323, extension 137. We hope to see you at Wallops Island in the near future for a long overdue site visit!

Sincerely,

Tonia W. Horton

Tonia W. Horton
Office of Review and Compliance

Cc: Shari Silbert,
Paul Neidinger, NASA

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February 22, 2008

Ms. Shari Silbert
NASA/Wallops Flight Facility
Code 250
Wallops Island, VA 23337

Re: Wallops Research Park
DHR File # 2007-1229

Dear Ms. Silbert:

We have received for review a copy of the report *Phase I Cultural Resources Survey of Approximately 100 Acres for a Proposed Research Park at Wallops Island, Accomack County, Virginia* (JRIA 2007) as well as information regarding several existing architectural properties located adjacent to the proposed research park. We are pleased to inform you that the report meets the Secretary of the Interior's *Standards and Guidelines for the Documentation of Archaeological Sites* (48 FR 44734-44742) and our Department's *Survey Guidelines* (in revision).

Archaeological survey of the project area resulted in the identification of three isolated finds. Such finds are, by definition, not eligible for inclusion in the National Register of Historic Places. We further understand that a large portion of the project area is occupied by a former landfill, and that the landforms generally exhibit varying degrees of disturbance associated with construction, logging and clearing. Based upon the information provided, we have no further concerns with regard to archaeological properties.

With regard to architectural properties, we are unable to provide you with recommendations regarding the Marine Science Consortium buildings (formerly the Toms Cove Apartments) based upon the information provided. Please complete reconnaissance-level survey of the complex to DHR standards. This survey should include a site plan and photographs of all extant buildings, as well as completed Data Sharing System forms. For more information regarding survey standards, please contact Amanda Lee, Architectural Historian, at 804-367-2323 x. 122/amanda.lee@dhr.virginia.gov. For information about our DSS, please contact Jeff Smith, Data Manager, at extension 118/jeff.smith@dhr.virginia.gov. We will complete our review upon receipt of this information.

If you have any questions about our comments or the Section 106 process, please call me at (804) 367-2323, Ext. 140.

Sincerely,

Joanna Wilson, Archaeologist
Office of Review and Compliance

Administrative Services
10 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 863-1624
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave.
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way, 2nd Floor
Newport News, VA 23608
Tel: (757) 886-2807
Fax: (757) 886-2808

Roanoke Region Office
1030 Penmar Ave., SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7031
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February 22, 2008

Ms. Shari Silbert
NASA/Wallops Flight Facility
Code 250
Wallops Island, VA 23337

Re: Wallops Research Park
DHR File # 2007-1229

Dear Ms. Silbert:

We have received additional information regarding the Marine Science Consortium/Toms Cove Apartments buildings. Our comments are as follows.

We understand that the proposed 232-acre Wallops Research Park (WRP) is adjacent to NASA Wallops Flight Facility (WFF) and is planned to be constructed on properties owned by NASA, Accomack County, and the Marine Science Consortium (MSC). While NASA, the County, and the MSC are participating in the development of WRP, the land owned by the MSC is private property and that organization will execute its Master Plan independent of WRP activities. The information regarding the architectural resources on the MSC property was provided to DHR for review for potential effect to an adjacent resource.

Upon a review of the additional information regarding adjacent architectural resources, DHR concurs that the Tom Cove Apartments, located on the MSC property, do not appear to be eligible for inclusion in the National Register of Historic Places. While the buildings are over fifty years of age, the complex as a whole no longer appears to retain integrity of design, setting, materials, workmanship, or feeling due to the loss of buildings, ball fields and recreation areas, designed landscaping, and architectural details and materials (doors, windows, siding) to name a few. Based upon the information provided, and with reference to our comments provided on February 22, 2008, we concur with NASA's determination that the project will have No Adverse Effect upon historic properties.

If you have any questions about our comments or the Section 106 process, please call me at (804) 367-2323, Ext. 140.

Sincerely,

Joanna Wilson, Archaeologist
Office of Review and Compliance

Administrative Services
10 Courthouse Avenue
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Fax: (540) 857-7588

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7031
Fax: (540) 868-7033

Appendix B

Public Comments on Draft EA and Responses to Comments

APARTMENTS

BELLE HAVEN - 2Br, LR, DR, W/D, C/AC, Non-smoking. No pets. $675/mo. Avail. 05/08.757-442-3727

EASTVILLE - 2BR, appliances, furnished, all electric, W/D hookup, $550/per mo. Bagwell Apts. **(757)678-5806**

APARTMENTS

NASSAWADOX - Deluxe 2 BR, LR, DR, Fully equipped Kitchen, AC/Heat, No Hud, Non smoking, No Pets $630 per mo. 1 year lease, 1 mo. sec. dep. (757)787-7640

BELLE HAVEN - 2BR, 1BA, W/D, $625 + sec. 717-564-5460 leave clear message.

APARTMENTS

ONANCOCK - Deluxe 2 BR, LR, DR, Fully equipped Kitchen, AC/Heat, No Hud, Non smoking, No Pets $630 per mo. 1 year lease, 1 mo. sec. dep. (757)787-7640

Delmarva Classifieds Work!

PUBLIC NOTICE

Notice of Availability

DRAFT WALLOPS RESEARCH PARK ENVIRONMENTAL ASSESSMENT WALLOPS FLIGHT FACILITY

This Environmental Assessment (EA) addresses the development of a research park adjacent to the Main Base of the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center's (GSFC) Wallops Flight Facility (WFF), which is located in Accomack County on the Eastern Shore of Virginia. The purpose of the proposed project is to 1) create employment and economic development opportunities to further expand the Wallops area as a regional research and technology center; and 2) supplement educational and workforce development opportunities on the Eastern Shore in the scientific and technical fields.

The Wallops Research Park (WRP) would be constructed on approximately 202 acres of land owned by NASA, Accomack County, and the Marine Science Consortium (MSC). Portions of the proposed site have been previously developed by each of the landowners including a NASA Payload Processing Facility and a closed Accomack County landfill.

The WRP may consist of non-retail commercial and government space and science research, educational facilities, and public recreational areas. Proposed land use categories within the WRP include: 1) research and development, 2) aerospace/industrial use, 3) mixed use commercial, 4) educational, and 5) recreational.

The Proposed Action would not have an adverse impact to environmental or socioeconomic resources with the exception of minor adverse impacts to vegetation, wildlife, and migratory birds due to the permanent conversion of forest to developed land; and adverse impacts to wetlands due to the filling of approximately one acre of wetlands. All adverse impacts would be minimized and mitigation measures would be implemented as necessary.

The draft EA is available for review between April 16, 2008 and May 16, 2008.
Comments must be submitted by May 16, 2008.

Written comments should be submitted to:

Joshua A. Bundick
NASA Wallops Flight Facility
Code 250.W/WRP EA
Building F-160, Room W-160
Wallops Island, VA 23337
Fax – 757-824-1819

Comments may also be sent electronically to Joshua.A.Bundick@nasa.gov;
Subject: WRP EA.

The draft EA may be viewed on-line at
http://sites.wff.nasa.gov/code250/docs/WRP_DEA.pdf

The draft EA is available for review at the following locations:

NASA WFF Technical Library
Building E-105
Wallops Island, Virginia 23337
(757) 824-1065
Hours: Mon – Fri:
8 a.m. - 4:30 p.m.

Eastern Shore Public Library
23610 Front Street
Accomack, Virginia 23301
(757) 787-3400
Hours: Mon, Tues, Wed, Fri:
9 a.m.- 6 p.m.
Thurs: 9 a.m. - 9 p.m.
Sat: 9 a.m. - 1 p.m.

Island Library
4077 Main Street
Chincoteague, Virginia 23336
(757) 336-3460
Hours: Mon: 10 a.m. - 2 p.m.
Tues: 10 a.m. - 5 p.m.
Wed, Fri, Sat: 1 p.m. - 5 p.m.

For further information contact Keith Koehler with the Wallops Flight Facility Public Affairs Office at (757) 824-1579.

Copies of the draft EA are available by contacting Joshua

DEPARTMENT OF THE NAVY
SURFACE COMBAT SYSTEMS CENTER
30 BATTLE GROUP WAY
WALLOPS ISLAND, VIRGINIA 23337-5000

5090
Ser X31/ 288
14 May 2008

MEMORANDUM

From: Surface Combat Systems Center, Wallops Island
To: NASA Wallops Flight Facility, Environmental
ATTN: Shari Silbert

Subj: REVIEW OF DRAFT ENVIRONMENTAL ASSESSMENT FOR WALLOPS RESEARCH PARK OF APRIL 2008

1. The following observations, comments, and questions regarding Wallops Research Park Environmental Assessment are submitted pr consideration.

a. There is no mention of Cropper Center, which is located within the area boundaries.

b. Would the entire site be graded and cleared before specific users were identified, or would each site be cleared as needed?

c. Will there be any attempt to develop the wetlands and floodplains last?

d. What is the enforcement tool for compliance to proper procedures for the industries resident at the Research Park?

e. What are the covenants or controls? Such items should be included.

f. What role will WFF play? Will there be oversight on such internal affairs as training, hazardous materials use, boiler maintenance, sound levels, and permit compliance? What force will require compliance? Will NASA include WRP in such compliance as ICP, air permits, discharge permits, etc. Will NASA Fire Company respond to spills, accidents, and fires? If each tenant needs an EPA generator number, why are NASA hazmat controls relevant?

g. Will fully fueled rockets be transported over public roads presenting a significant safety hazard?

i. There will be a number of impacts on the local support economy, not only for the businesses but for the new residents. Positive aspects of these impacts will be historically exceeded

by negative economic impact of development. What is the plan to support county funding for road improvement, better emergency services, additional school students, and new medical demands?

j. Page v - What is the cumulative impact of all parking lots on Mosquito Creek? What sort of landscape filtering would be required, as opposed to 'encouraged'?

k. Page vii - Will vehicle maintenance be enforced on contractors?

l. Page viii - Many minor impacts to the air - what is the cumulative impact of all the solvents? There are homes in the area, which could not reasonably be expected to use hearing protection at all times. Will any of these activities impact those homes?

m. Page x - Much depends on the covenants. These should be an appendix. What are the considerations for aquatic species, both commercial and non-commercial? Parking lots will have a significant negative impact on aquatic life in an area heavily used by both recreational and commercial watermen.

n. Page xi - The population increase will have significant impact, since the largest community in Accomack is only 4,000 people. The WRP would be the second largest community in the county. What about the water? Wallops is located on a sole-source aquifer. Will there be enough for all that industry plus the people? Roads aren't built for heavy traffic. Is there land already available? Does the County Parks & Recreation agree? Where would the money come from to rebuild?

o. Page xii - According to your Cultural Resources Assessment (2003), this area has high sensitivity for prehistoric, and moderate sensitivity for historic resources. Who is conducting the survey for historical artifacts before bulldozers move earth for each facility. Or does the James River Institute study suffice? (p. 37).

p. Page viii - Will upgrading the local state roads be included in development plans? The local roads are already busy; adding this many new employees will be significant.

q. 1.1.1 - Cropper Center is not included.

r. 3.2.1 - Land use ignores both the Cropper Center and the Marine Science Consortium.

s. Figure 7 - Include the 100-year floodplain.

t. 3.2.4 - Noise sensitive land uses within or adjacent to the project area are the homes along the adjacent roads and the Marine Science Consortium. There are many homes within 4.5 miles.

u. 3.2.5 - Would WFF provide HW pickup and training to the WRP businesses?

v. 4.2.1.2 - How would WRP tenants be required to revegetate, use natural landscaping, or anything else?

w. 4.2.2.3 - How is cumulative impact being handled? If each facility is a small increase in storm-carried pollutants and storm surge, the overall impact of the WRP could still be a significant increase not addressed anywhere.

x. 4.2.3 - How will vehicle maintenance be enforced on contractors who do not work for NASA. How will watering down to prevent dust be enforced.

y. 4.2.5 - Are hazardous wastes handled through NASA? Would NASA's ICP be expanded to include the WRP? Would hazardous materials be included in NASA's database?

z. 4.3.1 - Is bulldozing and clearing happening in hopes of attracting tenants, or specifically for a given tenant?

aa. 4.4.2 - How will recreational facilities be rebuilt? What is the source of the funding? Does the County agree to moving their park? Under Alternative One, doesn't the county lose the park entirely? Wouldn't that be a significant impact?

bb. 4.4.4 - Will there be funds available to help local emergency response agencies beef up to support an industrial park and for the extra residents? Local agencies, especially the volunteer agencies, are stretched thin. Need to determine how many persons these agencies can handle.

cc. 4.4.7 - Did the county concur that they would improve the roads in this area? Are there funds for roads?

dd. p. 65 - Groundwater. Chincoteague already experiences some drawdown during the summer tourist season. If any of the industries at WRP are intensive water-consumers, there could be a significant problem. Establish maximum allowed gallons/day removal for the Park.

ee. 4.5 - Could tenants be asked to put solar panels on roofs or make use of other generative technologies?

2. For addition information and discussion, please contact Dr. Marilyn Ailes (x2082) or Adrianna Ortiz (x2083).

G. D. HERMAN
Commander, U.S. Navy
Executive Officer
By direction of the
Commanding Officer

From: Marianne Simko
To: Bundick, Joshua A. (GSFC-250.0);
Subject: WRP EA
Date: Friday, May 16, 2008 8:10:52 AM

Mr. Bundick,
After reading the Environmental Assessment (EA) for Wallops Research Park (WRP), dated April 2008, I would like to express my concern for the preservation of Wallops Park.

Wallops Park is a unique resource in Accomack county. The nature trails and wooded area to the west of the ballfield could not be replicated in another area. As stated in the EA, "The forest and wetland communities within the WRP site are representative of mature communities that were once common on the Eastern Shore, but now are unusual for their maturity and intact condition."

Have you ever walked on the trails in this area? A brief stroll through woods in unlike anything else in the area. The hills and ravines are not only a popular training area for cross country runners but seem to take the casual stroller to another place and time.

The EA is not very consistent in its protection of the wooded area to the southwest, west, and northwest of the ballfield. Although the maps (Figure 3) show a 100-foot buffer, which appears to extend to the edge of the tree line, the woods are deeper than 100 feet. This figure also includes a note "nature trails to be retained," but the proposed action states that the nature trails would be relocated.

Accomack county has very few park or playground areas available to its residents. We live in an area of vast natural beauty, but with very few public areas to access it. Accomack county does not have nor could they build a wooded paradise which would offer comparable recreation and natural beauty as does the wooded area which buffers the wetlands of Wallops Park.

I urge Accomack county, NASA Wallops Flight Facility, and the Wallops Research Park to preserve the forested area buffering the wetlands, through stronger and more consistent language in its EA and resulting agreements.

Sincerely,
Marianne Simko
Atlantic, VA

Silbert, Shari A. (GSFC-200.C)[EGG]

From: Ailes, Marilyn CIV SCSC, M221 [marilyn.ailes@navy.mil]
Sent: Thursday, May 22, 2008 11:05 AM
To: Silbert, Shari A. (GSFC-200.C)[EGG]
Cc: Herman, Gerald D CDR SCSC; Ortiz, Adrianna CIV SCSC, PW
Subject: EA

First, I asked Josh to slip the list of Indian Head contacts under your door, so it should welcome you when you return.

Second, the XO had a good idea. You might want to include in the research park EA either an historical map showing the extent of the old landfill boundary, or some drill sample results if you have them. There is one memory that we had considered building the houses just across the road from our base, but in doing the soil borings, we found old cars. The houses, as you know, weren't built there. Dottie, who was the housing officer at the time, doesn't remember the soil boring problems, so there may be some confusion in the story. I know they are looking to build somebody's headquarters right across from our main gate now, so they may have found clean soil, but no one here seems to know. Nonetheless, there must be a line somewhere between the old dump and clean soil. It would be good to include that line so that planners know what they will be getting into.

Hope you're having a nice trip!
Marilyn

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE, DATA
AND INFORMATION SERVICE
WALLOPS COMMAND AND DATA ACQUISITION STATION
WALLOPS, VIRGINIA 23337

May 27, 2008

Joshua A. Bundick
NEPA Program Manager
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

Dear Mr. Bundick:

The National Oceanic and Atmospheric Administration (NOAA) has reviewed the Draft Environmental Assessment (EA) document for an industrial, recreational, research, and scientific development center, referred to as the Wallops Research Park (WRP)[1] being planned for a parcel of land adjacent to the National Aeronautics and Space Administration (NASA) Goddard Space Flight Center (GSFC) Wallops Flight Facility (WFF). The WRP will be located on approximately 202 acres of land just south of the west end of runway 10/28. NOAA's Wallops Command and Data Acquisition Station (WCDAS) is located toward the east end of the same runway at approximately a 1 mile minimum distance separation. The draft EA did not address the impact of radio frequency (RF) emissions on the existing WCDAS either in terms of socioeconomic consequences or performance degradation. The EA also does not address potential hazards of electromagnetic radiation to ordnance and fuel, although it does address potential hazards of electromagnetic radiation to personnel.

This letter is intended to provide an overview of WCDAS concerns with potential WRP tenants regarding the proposed installation of new equipment, construction of new facilities, and use of communications systems and data links. This letter is provided to improve the EA and to help the appropriate authorities at WFF understand WCDAS concerns. Toward that end, the mission of the WCDAS, along with mission critical usage of radio frequencies and possible impacts to that usage by new radio transmitters and industrial processes, are briefly described.

The mission of WCDAS includes ensuring scheduled flow of accurate weather and climate data from NOAA satellites to designated user subsystems. Its mission includes executing spacecraft (satellite) commands and schedules, acquiring, maintaining, and distributing a continuous flow of meteorological satellite data via two-way RF data links, and managing, operating, and maintaining the station. Consequently, the WCDAS is an extensive user of the RF spectrum employing numerous frequency bands for multiple purposes. Studies and analyses have been performed in the past to ensure protection

Consequently, the WCDAS is an extensive user of the RF spectrum employing numerous frequency bands for multiple purposes. Studies and analyses have been performed in the past to ensure protection of the WCDAS and similar NOAA facilities, and these studies include descriptions of spectrum usage and assessments of RF Interference (RFI).[2,3,4,5,6] It is in the nature of satellite links that they are sensitive to RFI due to the requirement to detect very low power signals from distant satellites. Geostationary and low earth orbiting, national and international, satellite systems are accessed and the station uses two-way microwave and domestic satellite data links to fulfill its mission.

The use of RF spectrum is critical to fulfilling the mission of WCDAS. NOAA is concerned that increasing levels of RFI resulting from industrial/commercial/scientific expansion in the vicinity of the WFF could degrade the Station's ability to accomplish its mission. Spectrum usage is protected and regulated by the Code of Federal Regulations (CFR). The two primary agencies that manage the spectrum are the Federal Communications Commission (FCC) for civilian and state/local government users and the National Telecommunications and Information Administration (NTIA) for federal government and military usage. As currently regulated, all areas of the usable radio spectrum are now allocated and used by various "services" (categories of usage such as TV broadcast, fixed microwave links, etc.).

RF interference that may result from development of the WRP can be caused by radio transmitters – devices that intentionally radiate electromagnetic signals – or by devices that unintentionally radiate "radio noise."[7] WCDAS antennas can be subjected to RFI from unintentional radiators such as arc welders and motor-driven landscaping and construction equipment and also from intentional radiators such as high powered radar transmitters or even low-powered personal communications systems (such as cell phones). RFI from intentional radiators includes antenna coupled interactions: co-channel (in the same frequency band), adjacent channel (close enough in frequency to affect signal reception), high-powered/co-site effects (amplifier saturation, harmonic signal generation, intermodulation, etc). Unintentional radiators create RF "noise" due to physical processes (such as rotating electrical machinery, and discharge of static buildups caused by rubbing together of electrically dissimilar materials) and as a side effect due to intentional use of RF for purposes other than communications (heating materials by diathermy, and RF-controlled welding processes, for example). In addition, RF radiation from transmitters can pose hazards to personnel, ordnance and fuel. The draft EA (Reference 1) should identify these concerns in section 3.2.6 under the Non-Ionizing Radiation heading. RF emissions are not predictable before WRP tenants are identified.

In summary, coordination and planning for the WRP will be an important issue for the WCDAS. The draft EA (Reference 1) should identify the concerns for WCDAS from RF emissions as outlined above including potential RFI and hazards of electromagnetic radiation to ordnance and fuel in addition to personnel. Each WRP tenant will bring unique elements that should be evaluated for potential impact on WCDAS operations. To the extent possible, construction locations, heights, industrial machines, and RF usage for purposes such as communications with personnel in the field, data links to aircraft, and security functions should be described. Information to allow system overview should include model

number(s), frequencies and power levels as applicable. The WCDAS considers it imperative that WRP future tenants coordinate all potential transmitters and radiating systems to preclude expensive mitigation processes to legally operate.

Respectfully,

Van D. Crawford
Manager, Wallops CDA Station

REFERENCES

[1] *Environmental Assessment Wallops Research Park; Draft Report*, Gaithersburg, MD: URS Group, Inc., April 2008.

[2] Lloyd Apirian, *Summary Report - The Electromagnetic Environment and Radio Frequency Interference Assessment for FCDAS,* JSC-CR-00-034A, Annapolis, MD: DoD Joint Spectrum Center, March 2001.

[3] Lloyd Apirian and Lee Wilk, *Impact of the FCC 1710-1755 MHz Frequency Band Reallocation on the NOAA Polar-Satellite Downlinks*, SEG-07-011, Annapolis Junction, MD: Alion Science and Technology, August 2007.

[4] Lloyd Apirian, *RFI to NOAA Antennas from a Proposed Prince George's County Office of Homeland Security Antenna Tower*, SEG-07-009, Annapolis Junction, MD: Alion Science and Technology, April 2007.

[5] Lloyd Apirian, *NOAA GOES Sensor Data Downlink Coordination Zones for Proposed Transmitters in the 1670 to 1675-MHz Frequency Band*, JSC-CR-05-122, Annapolis, MD: DoD Joint Spectrum Center, December 2005.

[5] Lloyd Apirian, *Effects Of Oil Drilling Operations On NOAA Satellite Operations At Barrow, AK*, JSC-PR-02-014, Annapolis, MD: DoD Joint Spectrum Center, July 2002.

[7] Edward N. Skomal, *Man-made Radio Noise*, Van Nostrand Reinhold.

COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
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L. Preston Bryant, Jr.
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

June 5, 2008

National Aeronautics and Space Administration
Attn: 250.W
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337-5099

RE: Draft Environmental Assessment and Federal Consistency Determination for the Wallops Research Park, National Aeronautics and Space Administration, Accomack County, (DEQ 08-086F).

Dear Sirs:

The Commonwealth of Virginia has completed its review of the April 2008 Draft Environmental Assessment (EA) (received April 18, 2008) and Federal Consistency Determination (FCD) (received April 22, 2008) for the above referenced project. The Department of Environmental Quality is responsible for coordinating Virginia's review of federal environmental documents and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating Virginia's review of FCDs submitted pursuant to the Coastal Zone Management Act (CZMA) and providing the state's response. The following agencies and locality participated in the review of this proposal:

Department of Environmental Quality
Department of Conservation and Recreation
Department of Game and Inland Fisheries
Marine Resources Commission
Department of Agriculture and Consumer Services
Department of Forestry
Department of Mines, Minerals and Energy
Department of Health
Department of Historic Resources
Department of Transportation
Accomack County

The Accomack-Northampton Planning District Commission was also invited to comment on the proposal.

Public notice of the proposed action was published on DEQ's web site from April 25, 2008 to May 21, 2008. No public comments were received in response to the notice.

PROJECT DESCRIPTION

The National Aeronautics and Space Administration (NASA) Goddard Space Flight Center proposes to construct the Wallops Research Park (WRP) in Accomack County. The research park would be constructed on approximately 202 acres of land; 85 acres are owned by NASA, 88 acres are owned by Accomack County, and 29 acres are owned by the Marine Science Consortium (MSC) (the 33-acre MSC campus site is not included in the total WRP acreage). Portions of the proposed WRP site have been previously developed and currently contain a NASA payload processing facility, nature trails, a playground and baseball field, and a closed county-run landfill. Forested areas also occur within the WRP site.

The WRP would consist of a multi-use development dedicated to space and science research, educational facilities, and recreational areas. Proposed land use categories within WRP include:

1) research and development/industrial use;
2) aviation use;
3) gateway research and development/industrial use; and
4) Accomack County recreational park.

Construction in each of the WRP land parcels would include the installation of utilities and the establishment of utility easements.

CONCLUSION

Based on the information provided in the Draft Environmental Assessment, Federal Consistency Determination and comments from reviewers, the Commonwealth of Virginia has no objection to the proposal as presented, provided NASA complies with all applicable laws and regulations.

Provided activities are performed in accordance with the recommendations which follow, this project is unlikely to have significant effects on ambient air quality, water quality, important farmland, wetlands, historic structures, and wildlife resources. It will not affect species of plants, animals, or insects listed by state agencies as rare, threatened, or endangered.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Water Quality & Wetlands. According to the EA (page 44), construction activities associated with the WRP would avoid surface waters to the greatest extent possible including ephemeral streams and swales, seeps, springs, and tributaries to Wattsville Branch. The WRP and WRP tenants would obtain VPDES industrial activity stormwater permits as required and would implement pollution prevention best management practices in compliance with the permits. The EA (page 46) states that the construction of an aviation hangar would require land grading and the filling of up to 1 acre of wetlands associated with the northern-most unnamed tributary to Wattsville Branch. The WRP would complete a jurisdictional wetland delineation in accordance with the USACE 1987 Wetland Delineation Manual (USACE, 1987) and coordinate with applicable agencies including the U.S. Army Corps of Engineers (Corps), DEQ, and the Virginia Marine Resources Commission (VMRC).

1(a) Agency Jurisdiction. The State Water Control Board (SWCB) promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit, Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the Virginia Water Protection Permit (VWPP). The VWPP is a State permit which governs Wetlands, Surface Water, and Surface Water Withdrawals/Impoundments It also serves as § 401 certification of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the U.S. The VWPP Program is under the Office of Wetlands and Water Protection/Compliance, within the DEQ Division of Water Quality Programs. In addition to central office staff that review and issue VWP permits for transportation and water withdrawal projects, the seven DEQ regional offices perform permit application reviews and issue permits for the covered activities.

1(b) Agency Comments.

> ***VWPP.*** According to the DEQ Tidewater Regional Office (TRO), the extent to which wetlands have been identified and the methods by which these investigations were conducted is unclear in the EA. This is due, in part, from the use of descriptions such as "a non-jurisdictional wetlands characterization of the WRP property was performed…"
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> ***VPDES.*** DEQ-TRO indicates that the document appears to accurately reflect wastewater permitting requirements under the authority of the Virginia Pollutant Discharge Elimination System. Industrial stormwater general permits may be required depending on the kinds of industries to be located at the site and the exposure of materials that could cause contamination in stormwater runoff.

1(c) Requirements. Since wetland impacts are anticipated as a part of this project, an official wetland delineation utilizing methods outlined in the 1987 Corps delineation manual should be prepared and confirmed by the Corps. Both the delineation and the subsequent confirmation by the Corps should clearly identify the presence of all wetlands, not just those deemed "jurisdictional" under the Clean Water Act. A completed Joint Permit Application (JPA) should then be prepared that fully justifies the need for any wetland impacts. No work with the potential to impact surface water and/or wetland areas should commence until all required permits, including a Virginia Water Protection Permit issued by DEQ-TRO, are obtained.

1(d) State Wetlands Policy. The Commonwealth does not support the filling of wetlands, particularly when alternative sites have been identified. It is the policy of the Commonwealth of Virginia to first avoid impacts to wetlands before considering other mitigation measures such as minimization and compensation. The Virginia Water Protection Permit regulations state that "mitigation means sequentially avoiding and minimizing impacts to the extent practicable, and then compensating for remaining unavoidable impacts of a proposed action" (9 VAC 25-210-10). According to State Water Control Law § 62.1-44.15:5D, "...except in compliance with an individual or general Virginia Water Protection Permit issued in accordance with this subsection, it shall also be unlawful to conduct the following activities in a wetland: (i) new activities to cause draining that significantly alters or degrades existing wetland acreage or functions, (ii) filling or dumping, (iii) permanent flooding or impounding, or (iv) new activities that cause significant alteration or degradation of existing wetland acreage or functions. Permits shall address avoidance and minimization of wetland impacts to the maximum extent practicable. A permit shall be issued only if the Board finds that the effect of the impact, together with other existing or proposed impacts to wetlands, will not cause or contribute to a significant impairment of state waters or fish and wildlife resources."

1(e) Federal Wetlands Policy. Federal wetlands mitigation policy is guided by a Memorandum of Agreement between the U.S. Army Corps of Engineers (Corps) and the U.S. Environmental Protection Agency that clarify a three-step approach to avoiding, minimizing, and compensating for unavoidable impacts (see Clean Water Act Section 404 (b)(1) *Guidelines Mitigation Memorandum of Agreement*, February 1990). The Corps first makes a determination that potential impacts have been avoided to the maximum extent practicable; remaining unavoidable impacts will then be mitigated to the extent appropriate and practicable by requiring steps to minimize impacts and, finally, compensate for aquatic resource values. This sequence is considered satisfied where the proposed mitigation is in accordance with specific provisions of a Corps and EPA approved comprehensive plan that ensures compliance with the compensation requirements of the 404(b)(1) Guidelines (examples of such comprehensive plans may include Special Area Management Plans, Advance Identification areas (Section 230.80), and State Coastal Zone Management Plans).

1(f) Recommendations. In accordance with Virginia Code § 62.1-44.15:21 and the § 404 (b) (1) guidelines of the Clean Water Act, Alternative Site 2 is the preferred alternative site for the facility because wetland impacts would be significantly less than at Alternative Site 1.

In general, DEQ recommends that stream and wetland impacts be avoided to the maximum extent practicable. To minimize unavoidable impacts to wetlands and waterways, DEQ recommends the following practices:

- Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable.
- Preserve the top 12 inches of trench material removed from wetlands for use as wetland seed and root-stock in the excavated area.
- Erosion and sedimentation controls should be designed in accordance with the most current edition of the *Virginia Erosion and Sediment Control Handbook*. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to state waters. The controls should remain in place until the area is stabilized.
- Place heavy equipment, located in temporarily impacted wetland areas, on mats, geotextile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable.
- Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub, or forested). The applicant should take all appropriate measures to promote revegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed.
- Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands, on mats, geotextile fabric in order to prevent entry in State waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within thirty days following removal of the stockpile, and restored to the original vegetated state.
- All non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading, or filling activities should be clearly flagged or marked for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur.
- Measures should be employed to prevent spills of fuels or lubricants into state waters.

2. Subaqueous Lands Impacts. The FCD (page 4) states that implementation of WRP would not result in impacts to state-owned bottomlands.

2(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC), pursuant to Section 28.2-1200 et seq. of the Code of Virginia, has jurisdiction over any encroachments in, on, or over any state-owned rivers, streams, or creeks in the Commonwealth. For any development that involves encroachments channelward of ordinary high water along natural rivers and streams, a Joint Permit Application (JPA) must be submitted to VMRC for review and approval.

The VMRC serves as the clearinghouse for the JPA used by the:

- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands;
- U.S. Army Corps of Engineers (Corps) for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection Permit; and
- local wetlands board for impacts to wetlands.

Application for a permit for subaqueous lands impacts may be made by submitting a JPA (form MRC 30-300) to VMRC.

2(b) Agency Comments. Based on the information provided in the EA, VMRC staff finds that it does not appear that a VMRC permit will be required.

For additional information, contact George Badger, VMRC at (757) 414-0710.

3. Erosion and Sediment Control and Stormwater Management. According to the EA (page 39), the WRP would minimize impacts to topography and drainage patterns by obtaining Virginia Stormwater Management Program permits and by developing and implementing site-specific stormwater pollution prevention plans and erosion and sediment control plans prior to land disturbing activities.

3(a) Agency Jurisdiction. DCR's Division of Soil and Water conservation administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R).

3(b) Erosion and Sediment Control and Stormwater Management Plans. According to the Department of Conservation and Recreation (DCR), federal agencies and their authorized agents conducting regulated land-disturbing activities on private and public lands in the state should undertake these activities in a manner consistent with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R),

Virginia Stormwater Management Law and Regulations (VSWML&R), and other applicable federal nonpoint source pollution mandates (e.g., Clean Water Act Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, or other structures, soil or dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or more would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. Accordingly, NASA should prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. NASA is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites, and/or other mechanisms, consistent with agency policy. NASA is encouraged to contact the appropriate Regional Office and/or the local Accomack County ESC and SWM authorities to obtain plan development, implementation assistance and to ensure project conformance during and after active construction. [Reference: VESCL §10.1-567; VSWML §10.1-603.15]

3(c) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities. DCR is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities (previously known as Virginia Pollutant Discharge Elimination System (VPDES) General Permit for Stormwater Discharges from Construction Activities) related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program.

Therefore, for projects involving land-disturbing activities equal to or greater than one acre, NASA or its authorized agent is required to apply for registration coverage under the General Permit for Discharges of Stormwater from Construction Activities. General information and registration forms for the General Permit are available on DCR's website at http://www.dcr.virginia.gov/sw/vsmp.htm#geninfo.

4. Floodplain Management. According to the EA (page vii), for the construction that would take place within the floodplain, WRP partners and tenants would ensure that the action complies with EO 11988 (Floodplain Management) and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), including notifying the public of actions that would occur within the floodplain. The WRP would obtain any required permits for construction within the floodplain and would minimize floodplain impacts and protect and restore the natural and beneficial functions of floodplains to the maximum extent possible.

4(a) Agency Jurisdiction. In accordance with Virginia Code 10.1-602 (Floodplain Code), DCR's Floodplain Management Program (FMP) staff is charged with: developing a flood protection plan for the Commonwealth; serving as the coordinator of all flood protection programs and activities in the Commonwealth; making available flood and flood damage reduction data to localities for planning purposes; assisting localities in their management of flood plain activities; ensuring that the management of flood plains will preserve the capacity of the flood plain to carry and discharge a hundred year flood; making periodic inspections to determine the effectiveness of local flood plain management programs; coordinating with the United States Federal Emergency Management Agency; establishing guidelines which will meet minimum requirements of the National Flood Insurance Program (NFIP); and providing financial and technical assistance to localities.

4(b) Agency Comments. According to DCR-FMP, the western edge of the project area contains a designated floodplain on the flood map consisting of an AE zone (floodplain land subject to a one or greater percent chance of flooding in any given year (100-year flood)). The AE zone is designated along Wattsville Branch and Little Mosquito Creek and has a base flood elevation (BFE, the 1%, "100-year" flood) of seven feet. The majority of the project area is above the 5-foot elevation, based on the topographic map for the area.

Based on the principles of floodplain management, DCR-FMP has no objections to this project.

4(c) Requirements. All applicable floodplain permits for the project must be obtained and evidence of such provided to the NFIP-participating community (Accomack County) prior to commencement of construction.

For additional information, contact Bill Browning, DCR-FMP at (804)786-3914.

5. Air Pollution Control. The EA (page 48) states that the WRP site is located in an attainment area for all criteria pollutants as regulated under Virginia's Ambient Air Quality Standards; therefore, WRP is not required to complete the Clean Air Act (CAA) conformity process for the WRP site. Construction activities have the potential to cause temporary, short-term air quality impacts due to the operation of fossil-fuel burning equipment. According to the document (page 48), with the implementation of air quality mitigation measures, construction activities would not have an adverse impact to air quality in the project area.

5(a) Agency Jurisdiction. DEQ's Air Quality Division, on behalf of the State Air Pollution Control Board, is responsible to develop regulations that become Virginia's Air Pollution Control Law. DEQ is charged to carry out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as

amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issue of necessary permits to construct and operate all stationary sources in the region as well as to monitor emissions from these sources for compliance. As a part of this mandate, the environmental documents of new projects to be undertaken in the State are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

5(b) Ozone Nonattainment Area. The DEQ Air Division agrees with the EA that the project site is located in an ozone attainment area.

5(c) Fugitive Dust. During construction, fugitive dust must be kept to a minimum by using control methods outlined in 9 VAC 5-50-60 et seq. of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

5(d) Open Burning. If project activities include the burning of construction or demolition material, this activity must meet the requirements under 9 VAC 5-40-5600 et seq. of the Regulations for open burning, and it may require a permit. The Regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. NASA should contact Accomack County officials to determine what local requirements, if any, exist. Some applicable provisions of the regulation include, but are not limited to:

- All reasonable effort shall be made to minimize the amount of material burned, with the number and size of the debris piles.
- The material to be burned shall consist of brush, stumps and similar debris waste and clean burning demolition material.
- The burning shall be at least 500 feet from any occupied building unless the occupants have given prior permission, other than a building located on the property on which the burning is conducted.

- The burning shall be conducted at the greatest distance practicable from highways and air fields.
- The burning shall be attended at all times and conducted to ensure the best possible combustion with a minimum of smoke being produced.
- The burning shall not be allowed to smolder beyond the minimum period of time necessary for the destruction of the materials.
- The burning shall be conducted only when the prevailing winds are away from any city, town or built-up area.

5(e) Stationary Source Permit. According to DEQ-TRO, the paint spray/coatings booths referenced in the EA (page vii) are subject to *State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution* (9 VAC 5 Chapter 80), Permits for Stationary Sources (Part II Article 6), Permits for New and Modified Stationary Sources (9 VAC 5-80-1320 Permit Exemption Levels). NASA must submit information relevant to the booths to DEQ-TRO for the determination of any required permitting.

5(f) Fuel Burning Equipment. Should the center require the installation of fuel burning equipment (e.g. boilers and generators), a permit may be required prior to beginning construction of the facility. The provisions of 9 VAC 5 Chapter 50 (9 VAC 5-50-10 et seq.) and 9 VAC 5 Chapter 80 (9 VAC 5-80-10 et seq.) apply. NASA should review those provisions and contact DEQ-TRO for guidance on whether those provisions apply.

6. Solid and Hazardous Wastes and Hazardous Materials. According to the EA (page 51), with implementation of safety measures and proper procedures for the handling, storage, and disposal of hazardous materials and wastes during construction activities, no adverse impacts are anticipated during construction. Hazardous materials would be managed according to standard safety and handling procedures to ensure safe operations (EA, page 52). The EA (page ii) states that Accomack County property north of Mill Dam Road and east of the closed Accomack County landfill would be developed to accommodate research and development and industrial land use. Other than a road and utility easements, no improvements would be built within the footprint of the closed Accomack County landfill.

6(a) Database and Data File Review. DEQ's Waste Division staff determined that only hazardous waste issues were addressed in the report. A geographic information system (GIS) database search did not reveal any waste sites within a half mile radius that would impact or be impacted by construction activities at the subject site.

Staff performed a cursory review of Waste Division data files and determined that the facility is under DEQ's Federal Facilities Installation Restoration Program

(VA2800005033). The following websites may prove helpful in locating additional information for this identification number:

- http://www.epa.gov/superfund/sites/cursites/index.htm or
- http://oaspub.epa.gov/enviro/ef_home2.waste.

6(b) Federal Facilities Restoration Program. According to the DEQ Federal Facilities Restoration (FFR) Program, the proposed construction of the Wallops Research Park would be in an area adjacent to the NASA Wallops Flight Facility (WFF) or Wallops Formerly Used Defense Sites (FUDS). There are no Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) sites in the vicinity of the area proposed for the WRP.

6(c) Closed County Landfill. According to the DEQ-TRO Waste Program, information TRO has received regarding groundwater contamination and methane gas generation in the area of the county landfill should be addressed by NASA in the project development plans.

6(d) Waste Management. Any soil that is suspected of contamination or wastes that are generated during construction-related activities must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations.

6(e) Asbestos-containing Material and Lead-based Paint. All structures being demolished, renovated, or removed, should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9 VAC 20-80-640 for ACM and 9 VAC 20-60-261 for LBP must be followed.

6(f) Recommendations.

CERCLA. Prior to initiating any construction and/or demolition activities on property adjacent to the NASA WFF or Wallops FUDS, or on property to be managed by the installation where soil, groundwater, surface water, or sediment will be disturbed, the FFR Program recommends the Wallops Research Park Project Manager contact the NASA WFF Manager of Environmental Restoration for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites, and the U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS for information concerning CERCLA obligations at or near Wallops FUDS sites.

County Landfill. An evaluation of potential gas migration into adjacent structures should be conducted and efforts taken to protect landfill cap should be identified. However, this facility was closed prior to the effective date of the

Virginia Solid Waste Management Regulations and would only be subject to regulation if found to be an open dump, hazard or nuisance.

Pollution Prevention. DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

7. Petroleum Storage Tanks.

7(a) Compliance and Inspections. DEQ-TRO Storage Tank Program finds that the Wallops Island Flight Facility (CEDS Facility # 5000411) currently operates 34 underground storage tanks (USTs) and 32 aboveground storage tanks (ASTs) for the storage and dispensing of various types of petroleum products including, jet fuel, diesel fuel, gasoline, heating oil and lubricating oils. Based on the proposed development plan, some of the currently active USTs/ASTs may be located in the NASA Payload Processing Facility (PPF) area and could be impacted by the construction described in the EA. The disturbance, removal and/or closure of petroleum storage tanks should be reported to DEQ-TRO.

7(b) Petroleum Storage Tank Cleanups. Twenty-three petroleum releases have been reported at the Wallops Flight Facility, three of which are currently active cases. There have been no petroleum releases reported at or adjacent to the proposed research park. The two closest releases to the proposed site are closed cases located more than 2,000 feet east (PC#s 1993-1193 and 1996-2241). The first case is associated with the NOAA operations at the Wallops Flight facility and the second is associated with the new fuel farm at Wallops. Petroleum contaminated soils or groundwater generated during construction of this project must be characterized and disposed of properly.

7(c) Requirements. NASA must comply with the following requirements of the Storage Tank Program.

- If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ-TRO.
- If the construction of this project will include the use of portable ASTs (>660 gallons) for equipment fuel, these tank(s) must be registered with DEQ-TRO using AST Registration form 7540-AST. This form is available at the DEQ web site at www.deq.virginia.gov.

8. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective

in controlling the target species should be used. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

9. Natural Heritage Resources. According to the EA (page 27), the WRP site is characterized by a diverse ecosystem with a range of habitats due to the mixing of Atlantic Ocean water with fresh water from the Chincoteague Bay watershed, including the fresh waters of Wattsville Branch. No federal- or state-protected plant species were identified by the VSM project team during visits to the project area in April and May 2007 (EA, page 31).

9(a) Agency Jurisdiction The mission of the Virginia Department of Conservation and Recreation is to conserve Virginia's natural and recreational resources. DCR supports a variety of environmental programs organized within seven divisions including the Division of Natural Heritage. The Natural Heritage Program's (DCR-DNH) mission is conserving Virginia's biodiversity through inventory, protection, and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened, and endangered species, significant natural communities, geologic sites, and other natural features).

9(b) Findings. DCR-DNH searched its Biotics Data System for occurrences of natural heritage resources in the project area and identified the following resources:

> ***Bald Eagle.*** According to the information currently on file, a Bald Eagle nest site (*Haliaeetus leucocephalus*, G5/S2S3B,S3N/NL/LT) has been documented in the project vicinity. Bald Eagle nest sites are often found in the midst of large wooded areas near marshes or other bodies of water (Byrd, 1991). Bald Eagles feed on fish, waterfowl, seabirds (Campbell et. al., 1990), various mammals and carrion (Terres, 1980). Threats to this species include human disturbance of nest sites (Byrd, 1991), habitat loss, biocide contamination, decreasing food supply and illegal shooting (Herkert, 1992). This species is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).
>
> ***Sheep-laurel.*** There is potential for Sheep-laurel (*Kalmia angustifolia,* G5/S2/NL/NL) to be present within the project limits. Sheep-laurel is a state rare plant found primarily in acidic soils. Its range stretches from Newfoundland and Labrador to Virginia, and as far west as Michigan and Ontario. This plant blooms from May to July. While common across the eastern seaboard, sheep-laurel is

very rare and imperiled in Virginia (Gleason and Cronquist, 1991), with 12 remaining local occurrences.

9(c) State-listed Plant and Insect Species. The Endangered Plant and Insect Species Act of 1979, Chapter 39 §3.1-1020 through 1030 of the Code of Virginia, as amended, authorizes the Virginia Department of Agriculture and Consumer Services (VDACS) to conserve, protect, and manage endangered and threatened species of plants and insects. The VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. Fish and Wildlife Service (USFWS), DCR-DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by USFWS, are available, adherence to the order and tasks outlined in the plans are followed to the extent possible.

Under a Memorandum of Agreement established between VDACS and DCR, DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. DCR finds that the current activity will not affect any documented State-listed plants or insects. Furthermore, based on information in VDACS' database, no listed threatened and/or endangered plan and insect species are documented to occur in the vicinity of the project area. VDACS does not anticipate that the proposal would have a significant adverse effect as it relates to VDACS' responsibilities for the protection of listed endangered and threatened plant and insect species.

For additional information, contact Keith Tignor, VDACS at (804) 786-3515.

9(d) State Natural Area Preserves. DCR files do not indicate the presence of any State Natural Area Preserves under the agency's jurisdiction in the project vicinity.

9(e) Recommendations. DCR recommends the following:

- Conduct an inventory for Sheep-laurel in the project area due to the potential for the project site to support populations of the resource. With the survey results DCR-DNH can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.
- Coordinate with the Department of Game and Inland Fisheries to ensure compliance with protected species legislation, due to the legal status of the Bald Eagle.
- Contact DCR-DNH, Rene Hypes at (804) 371-2708 for an update on natural heritage information if a significant amount of time passes before the project is initiated since new and updated information is continually added to Biotics.

10. Wildlife Resources and Protected Species. According to the EA (page 32), no individuals or populations of plant species that are listed on the state or federal threatened and endangered species lists were found during the three visits to the project area.

10(a) Agency Jurisdiction. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species, but excluding listed insects (*Virginia Code* Title 29.1). The DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 et seq.), and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts.

10(b) Agency Comments. According to DGIF records, the state-listed Threatened bald eagle has been documented in the project area. However the nest location is approximately one mile from the proposed research park boundary and falls outside of the management zone for this species. Therefore, DGIF does not anticipate adverse impacts upon this species to result from the proposed work.

DGIF generally does not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor do they support the creation of in-stream stormwater management ponds.

10(c) Recommendations. DGIF offers the following recommendations for WRP development:

- adhere to a time-of-year restriction that is protective of migratory and resident songbird nesting from March 15 through July 31 of any year for all land clearing of forested areas;
- avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable to minimize overall impacts to wildlife and our natural resources;
- maintain undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams;
- maintain wooded lots to the fullest extent possible;
- design stormwater controls to replicate and maintain the hydrographic condition of the site prior to the change in landscape, including:
    - utilization of bioretention areas; and
    - minimization of curb and gutter in favor of grassed swales.

Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

DGIF is available to assist NASA in developing a plan that includes open-space, wildlife habitat, and natural stream channels which retain their wooded buffers.

10(d) Conclusion. Assuming NASA adheres to appropriate erosion and sedimentation controls, DGIF finds the proposal consistent to the maximum extent practicable with the fisheries management enforceable policy of the Virginia Coastal Resources Management Program.

Contact Amy Ewing, DGIF at (804) 367-2733, for additional information regarding these comments.

11. Forest and Agricultural Resources. According to the EA (pages 54 & 55), long-term adverse impacts to vegetation would be anticipated due to the permanent conversion of forest to developed land. The current proposed construction of the WRP would result in the removal of approximately 50 to 100 acres of trees. In order to minimize impacts to vegetation, a vegetative buffer would be maintained around the perimeter of the WRP site.

11(a) Agency Comments. The Virginia Department of Forestry (VDF) finds that this project will have a significant impact on the forest resources of the Commonwealth. VDACS does not anticipate that the proposal would have a significant adverse effect as it relates to VDACS' responsibilities for the preservation of agricultural lands.

11(b) Recommendations. VDF recommends that the proposed clearing of between 50 to 100 acres of forestland on a 202-acre parcel to create an integrated business park for aerospace research and development programs be mitigated. Potential opportunities for mitigation include but are not limited to:

1. Working with VDF to develop a cost share program to assist private landowners within the Accomack, Northampton county area or statewide to reforest harvested timberlands or plant open lands with pine or hardwood seedlings. This potential program would be funded through mitigation funding from this project.
2. Working with VDF or other Virginia conservation agency or group to create a forest land conservation fund that would be used for the purchase of conservation easements or property acquisitions of forestlands. These

purchases could be within the two county areas or statewide and would ensure that the forested lands are managed and retained as working forest lands for perpetuity.

In light of Governor Kaine's, goal of conserving 400,000 acres of land in the Commonwealth by the end of his administration, the year 2010, and the fact that Virginia is losing nearly 30,000 acres of forest land each year, VDF recommends a mitigation ratio in excess of 1 to 1, more than one acre of land reforested or protected to every one acre cleared. To achieve this, NASA could assist landowners in the conservation, reforestation and/or purchase of at least 50 to 100+ acres within the two county area or statewide.

Questions concerning the potential mitigation options for this project as well as discussing an overall mitigation strategy for future projects and protection of trees and forest resources of the Commonwealth may be addressed to Todd Groh, Assistant Director, VDF Forest Resource Management Division at (434) 977-6555 ext. 3344, email: todd.groh@dof.virginia.gov.

12. Geologic and Mineral Resources. The EA (page 40) states that since the uppermost geologic layer occurs at a depth of 60 feet below the ground surface, and excavation would not occur below a depth of 30 feet below ground surface, no impacts to geology are anticipated.

12 (a) Agency Jurisdiction. The mission of the DMME, Division of Mineral Resources (DMR) is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner to support a more productive economy in Virginia. Serving as Virginia's geological survey, DMME-DMR generates, collects, compiles, and evaluates geologic data, creates and publishes geologic maps and reports, works cooperatively with other state and federal agencies, and is the primary source of information on geology, mineral and energy resources, and geologic hazards for both the mineral and energy industries and the general public. DMME-DMR also provides the necessary geologic support for those divisions of DMME that regulate the permitting of new mineral and fuel extraction sites, miner safety, and land reclamation.

12(b) Agency Comments. According to DMME-DMR, regional mapping indicates that the site is underlain by sand, silt, clay and silt of the Jaynes Sand and Omar formation. These material should pose no unusual problems. DMME-DMR does not anticipate the project would have a significant impact to mineral resources.

For additional information, contact Matt Heller, DMME-DMR at (434) 951-6351.

13. Transportation Impacts. The EA (page 63) states that temporary impacts to traffic flow would occur during construction activities due to an increase in the volume of construction-related traffic on roads in the immediate vicinity of the WRP. According to the document (page 64), no long-term adverse impacts to transportation are anticipated because Accomack County would implement traffic flow mitigation measures including modifying and upgrading existing roads and intersections, and installing additional traffic devices including signal lights and/or stop signs in the vicinity of the WRP, where necessary.

13(a) Agency Comments. The Virginia Department of Transportation (VDOT) reviewed the information provided for the proposal and submitted comments with respect to impacts to existing and proposed transportation facilities. After reviewing the Six Year Plan and the 2026 Plan, VDOT concludes the there are no conflicts with the current or future construction projects.

VDOT finds that the only transportation improvement project found in the FY 08-13 Secondary Six Year Improvement Program in the vicinity of the development is the Wallops Research Park EDA (UPC #89341-0849-001-569).

13(b) Recommendations. Any VDOT land use requirements, lane closures, traffic control or work zone safety issues should be closely coordinated with Accomack County and the VDOT Accomac Residency Office at (757) 787-1550.

For more information, contact Mary Stanley, VDOT at (804) 786-0868.

14. Public Water Supply. According to the EA (page 44) NASA would provide potable water to the WRP partners and tenants for drinking water supply, fire suppression, and industrial water use.

14(a) Agency Jurisdiction. The Virginia Department of Health (VDH), Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells and surface water intakes).

14(b) Findings. VDH-ODW finds that the proposed facility would have no adverse impact on public water supply.

14(c) Requirement. Potential impacts to the public water distribution system must be verified by NASA.

Contact Susan Douglas, VDH at (804) 864-7490 for additional information on water supply sources. Further information on the VPDES program may be directed to James McConathy, DEQ-TRO at (757) 518-2165.

15. Wastewater Treatment. Wastewater generated by WRP would discharge to existing Wallops Flight Facility (WFF) wastewater collection lines and would be sent to the WFF Wastewater Treatment Plant for treatment (EA, page 42).

15(a) Agency Jurisdiction. Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System to limit pollutant discharges into streams, rivers, and bays. DEQ administers the program as the Virginia Pollutant Discharge Elimination System (VPDES). DEQ requires VPDES permits for all point source discharges to surface waters.

15(b) Findings. The DEQ Tidewater Regional Office determined that the existing wastewater treatment facility at NASA, Wallops has sufficient capacity to handle additional wastewater flows and no VPDES permit action is required in regard to the acceptance of these new waste streams.

15(c) Recommendation. The WFF should ensure that any new wastewater discharges are capable of being properly treated and do not create pass through or treatment interference problems.

Further information on the VPDES program may be directed to James McConathy, DEQ-TRO at (757) 518-2165.

16. Historic Structures and Archaeological Resources. According to the EA (page 62), in a letter dated February 22, 2008, the Virginia Department of Historic Resources concurred with NASA's determination that the proposed action will have no adverse effect on historic properties and further stated that DHR did not have any concerns with regard to archaeological properties for the WRP site (EA, Appendix A).

16(a) Agency Jurisdiction. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated State's Historic Preservation Office, ensures that federal actions comply with Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, and its implementing regulation at 36 CFR Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding.

16(b) Agency Finding. According to DHR, staff have been in direct consultation with NASA regarding the proposal and reached consensus that the project would have no adverse effect on historic properties.

For additional information, contact Roger Kirchen, DHR at (804) 367-2323, ext. 153.

17. Local Comments. The Accomack County Administrators Office responded to DEQ's request for comments on the EA with no objections.

Contact Steve Miner, Accomack County Administrator at (757) 787-5700 for additional information.

18. Pollution Prevention. DEQ advocates that principles of pollution prevention be used in all construction projects as well as in facility operations. Effective siting, planning, and on-site Best Management Practices (BMPs) will help to ensure that environmental impacts are minimized. However, pollution prevention techniques also include decisions related to construction materials, design, and operational procedures that will facilitate the reduction of wastes at the source.

18(a) Recommendations. We have several pollution prevention recommendations that may be helpful in the construction of this project and in the operation of the facility:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the airport is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for infrastructure construction and design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.
- Integrate pollution prevention techniques into the airport maintenance and operation, to include the following: inventory control (record-keeping and centralized storage for hazardous materials), product substitution (use of non-toxic cleaners), and source reduction (fixing leaks, energy-efficient HVAC and equipment). Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact

DEQ's Office of Pollution Prevention, Tom Griffin at (804) 698-4545.

19. Energy Conservation. The proposed facility should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, the energy efficiency of the facility can be enhanced by maximizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, windows, and insulation);
- facility siting and orientation with consideration towards natural lighting and solar loads
- high efficiency heating, ventilation, air conditioning systems;
- high efficiency lighting systems and daylighting techniques; and
- energy-efficient office and data processing equipment.

Please contact Matt Heller, Department of Mines, Minerals, and Energy at (434) 951-6351 for additional information.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the Virginia Coastal Resources Management Program (VCP) (also called the Virginia Coastal Zone Management Program). The VCP consists of a network of programs administered by several agencies. The DEQ coordinates the review of federal consistency determinations with agencies administering the Enforceable and Advisory Policies of the VCP.

A federal consistency determination was submitted with the EA that includes an analysis of the enforceable policies of the VCP. Based on the information provided in the EA, and the comments of reviewing agencies, we concur that the proposed activity is consistent, to the maximum extent practicable, with the enforceable policies of the VCP, provided the NASA complies with all requirements of applicable permits and other authorizations that may be required. We encourage NASA to consider the advisory policies of the VCP as well (see Attachment 2).

REGULATORY AND COORDINATION NEEDS

1. Water Quality and Wetland Impacts. Water quality and wetland impacts associated with this proposal will require a Virginia Water Protection Permit issued by the DEQ Tidewater Regional Office pursuant to Virginia Code §62.1-44.15:5. A wetland

delineation utilizing methods outlined in the 1987 Corps delineation manual should be prepared and confirmed by the Corps. Both the delineation and the subsequent confirmation by the Corps should clearly identify the presence of all wetlands, not just those deemed "jurisdictional" under the Clean Water Act. A Joint Permit Application may be obtained from and submitted to VMRC which serves as a clearinghouse for the joint permitting process involving the VMRC, DEQ, Corps, and local wetlands boards. For additional information and coordination regarding the VWPP, contact Bert Parolari (DEQ-TRO) at (757) 518-2166.

2. Erosion and Sediment Control and Stormwater Management.

2(a) Erosion and Sediment Control and Stormwater Management. NASA must ensure that it is in compliance with Virginia's Erosion and Sediment Control Law (Virginia Code 10.1-567) and regulations (4 VAC 50-30-30 et seq.) and Stormwater Management Law (Virginia Code 10.1-603.15) and regulations (4 VAC 3-20-210 et seq.).

2(b) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities. For projects involving land-disturbing activities of one acre or more, NASA is required to apply for registration coverage under the Virginia Stormwater Management Program General Permit for Discharges of Stormwater from Construction Activities. Specific questions regarding the Stormwater Management Program requirements should be directed to Holly Sepety, DCR, at (804) 225-2613.

3. Air Quality Regulations. This project may be subject to air regulations administered by the Department of Environmental Quality. The following sections of Virginia Administrative Code are applicable:

- 9 VAC 5-50-60 et seq. governing fugitive dust emissions; and
- 9 VAC 5-40-5600 et seq., for open burning.

The proposed paint/spray booths may require permitting under the *State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution* (9 VAC 5 Chapter 80), Permits for Stationary Sources (Part II Article 6), Permits for New and Modified Stationary Sources (9 VAC 5-80-1320 Permit Exemption Levels). NASA must submit information relevant to the booths to DEQ-TRO for the determination of any required permitting.

The installation of fuel burning equipment (e.g. boilers and generators), may require a permit (9 VAC 5-50-10 et seq. and 9 VAC 5-80-10 et seq.) prior to beginning construction of a facility.

For more information contact Jane Workman, DEQ-TRO at (757) (757) 518-2112. Also, contact local Accomack officials for information on any local requirements pertaining to open burning.

4. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Some of the applicable state laws and regulations are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 et seq.);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9 VAC 20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9 VAC 20-80); and
- Virginia Regulations for the Transportation of Hazardous Materials (9 VAC 20-110).

Some of the applicable Federal laws and regulations are:

- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Section 6901 et seq.);
- Title 40 of the Code of Federal Regulations; and
- U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 CFR Part 107).

4(a) Comprehensive Environmental Response, Compensation and Liability Act. NASA must contact Mr. T.J. Meyer, NASA WFF Manager of Environmental Restoration at (757) 824-1987, for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites, and Mr. Sher Zaman, U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS at (410) 962-3134 for information concerning CERCLA obligations at or near Wallops FUDS sites.

4(b) Asbestos-Containing Material. It is the responsibility of the owner or operator of a renovation or demolition activity, prior to the commencement of the renovation or demolition, to thoroughly inspect the affected part of the facility where the operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos containing material (ACM). Upon classification as friable or non-friable, all waste ACM shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9 VAC 20-80-640), and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9 VAC 20-110-10 et seq.). Contact the DEQ Waste Management Program for additional information, (804) 698-4021, and the Department of Labor and Industry, Ronald L. Graham at (804) 371-0444.

4(c) Lead-Based Paint. If applicable, the proposed project must comply with the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA)

regulations, and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements contact the Department of Professional and Occupational Regulation, David Dick at (804) 367-8588.

5. Storage Tanks. If evidence of a petroleum release is discovered during construction of this project, NASA must contact the DEQ Tidewater Regional Office LeAnn Moran, at (757) 518-2126, or Gene Siudyla at (757) 518-2117.

The use of portable fuel AST(s) with a capacity of greater than 660 gallons, the tank(s) must be registered with DEQ using *AST Registration Form 7540-AST*. Tank registration may be accomplished by contacting Tom Madigan, DEQ Tidewater Regional Office, at (757) 518-2115 or by e-mail at temadigan@deq.virginia.gov.

6. Natural Heritage Resources. NASA should coordinate with DCR-DNH to conduct an inventory for Sheep-laurel in the project area. Contact DCR-DNH, Rene Hypes at (804) 371-2708 for additional information and coordination.

Thank you for the opportunity to review the Draft Environmental Assessment and Federal Consistency Determination for the Wallops Research Park in Accomack County. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or John Fisher at (804) 698-4339 for clarification of these comments.

Sincerely,

Ellie Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: Michelle Hollis, DEQ-TRO
Paul Kohler, DEQ-ORP
Tony Watkinson, VMRC
Amy Ewing, DGIF
Keith Tignor, VDACS
Susan Douglas, VDH
Matt Heller, DMME
Todd Groh, VDF
Ethel Eaton, DHR
Mary Stanley, VDOT

Wallops Research Park
National Aeronautics and Space Administration

Steven Miner, Accomack County
Paul Berge, Accomack-Northampton PDC

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:

   a) Wetlands
   b) Aquatic Spawning, Nursery, and Feeding Grounds
   c) Coastal Primary Sand Dunes
   d) Barrier Islands
   e) Significant Wildlife Habitat Areas
   f) Public Recreation Areas
   g) Sand and Gravel Resources
   h) Underwater Historic Sites.

b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:

   i) Highly Erodible Areas
   ii) Coastal High Hazard Areas, including flood plains.

c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:

   i) Commercial Ports
   ii) Commercial Fishing Piers
   iii) Community Waterfronts

   Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCRMP is encouraged. Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCRMP recognizes two broad classes of priority uses for waterfront development APC:

   i) water access dependent activities;
   ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Advisory Policies for Shorefront Access Planning and Protection

a. Virginia Public Beaches - Approximately 25 miles of public beaches are located in the cities, counties, and towns of Virginia exclusive of public beaches on state and federal land. These public shoreline areas will be maintained to allow public access to recreational resources.

b. Virginia Outdoors Plan - Planning for coastal access is provided by the Department of Conservation and Recreation in cooperation with other state and local government agencies. The Virginia Outdoors Plan (VOP), which is published by the Department, identifies recreational facilities in the Commonwealth that provide recreational access. The VOP also serves to identify future needs of the Commonwealth in relation to the provision of recreational opportunities and shoreline access. Prior to initiating any project, consideration should be given to the proximity of the project site to recreational resources identified in the VOP.

c. Parks, Natural Areas, and Wildlife Management Areas - Parks, Wildlife Management Areas, and Natural Areas are provided for the recreational pleasure of the citizens of the Commonwealth and the nation by local, state, and federal agencies. The recreational values of these areas should be protected and maintained.

d. Waterfront Recreational Land Acquisition - It is the policy of the Commonwealth to protect areas, properties, lands, or any estate or interest therein, of scenic beauty, recreational utility, historical interest, or unusual features which may be acquired, preserved, and maintained for the citizens of the Commonwealth.

e. Waterfront Recreational Facilities - This policy applies to the provision of boat ramps, public landings, and bridges which provide water access to the citizens of the Commonwealth. These facilities shall be designed, constructed, and maintained to provide points of water access when and where practicable.

f. Waterfront Historic Properties - The Commonwealth has a long history of settlement and development, and much of that history has involved both shorelines and near-shore areas. The protection and preservation of historic shorefront properties is primarily the responsibility of the Department of Historic Resources. Buildings, structures, and sites of historical, architectural, and/or archaeological interest are significant resources for the citizens of the Commonwealth. It is the policy of the Commonwealth and the VCRMP to enhance the protection of buildings, structures, and sites of historical, architectural, and archaeological significance from damage or destruction when practicable.

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MAY 08 2008

DEQ-Office of Environmental Impact Review

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

MEMORANDUM

TO: John Fisher, Environmental Program Planner

RWK

FROM: Paul Kohler, Waste Division Environmental Review Coordinator

DATE: May 8, 2008

COPIES: Sanjay Thirunagari, Waste Division Environmental Review Manager; file

SUBJECT: Environmental Impact Report: Wallops Research Park; 08-086F

The Waste Division has completed its review of the Environmental Impact report for the Wallops Research Park project in Wallops Island, Virginia. We have the following comments concerning the waste issues associated with this project:

Only hazardous waste issues were addressed in the report. The report did not include a search of waste-related data bases. A GIS database search did not reveal any waste sites within a half mile radius that would impact or be impacted by the subject site. The Waste Division staff performed a cursory review of its data files and determined that the facility is under DEQ's Federal Facilities Installation Restoration Program (VA2800005033). The following websites may prove helpful in locating additional information for this identification number: http://www.epa.gov/superfund/sites/cursites/index.htm or http://oaspub.epa.gov/enviro/ef_home2.waste. Paul Herman of DEQ's Federal Facilities Program has been contacted for his review of this determination and will reply in a separate memo, if he identifies any additional issues.

Any soil that is suspected of contamination or wastes that are generated during construction-related activities must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Also, all structures being demolished/renovated/ removed should be checked for asbestos-containing materials (ACM) and lead-based paint prior to demolition. If ACM or LBP are found, in

addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Paul Kohler at (804) 698-4208.

RECEIVED

MAY 08 2008

DEQ-Office of Environmental Impact Review

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WASTE DIVISION
Federal Facilities Restoration Program
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Environmental Assessment – NASA Wallops Flight Facility, Proposed Wallops Research Park

TO: John E. Fisher, OEIR

FROM: Paul E. Herman, P.E., FFR

DATE: May 8, 2008

COPIES: Paul Kohler, File

The *Draft Report Environmental Assessment for Wallops Research Park* dated April 2008 has been reviewed as requested by Paul Kohler, Waste Division Environmental Review Manager. In addition to the no action alternative the document presents one action alternative that may be impacted by NASA Wallops Flight Facility (WFF) or Wallops Formerly Used Defense Sites (FUDS) sites.

The proposed construction of the Wallops Research Park would be in an area adjacent to the installation. There are no CERCLA sites in the vicinity of the area proposed for the Research Park. However, prior to initiating any construction/demolition activities on property adjacent to the installation or on property to be managed by the installation where soil, groundwater, surface water, or sediment will be disturbed, the Federal Facilities Restoration Program recommends the Wallops Research Park Project Manager contact Mr. T.J. Meyer, NASA WFF Manager of Environmental Restoration at (757) 824-1987, for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites and Mr. Sher Zaman, U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS at (410) 962-3134 for information concerning CERCLA obligations at or near Wallops FUDS sites.

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR.JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
jefisher@deq.virginia.gov

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MAY 0 2 2008
DEQ-Office of Environmental Impact Review

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Based on information in our database, no T/E plant and insect species are documented to occur in the vicinity of the project area. At this time, we do not anticipate this project will have significant adverse affect as it relates to VDACS' responsibilities for the preservation of agricultural lands and the protection of listed endangered and threatened plant and insect species.

(signed) (Keith R. Tignor) (date) April 30, 2008

(title) Endangered Species Coordinator

(agency) VDACS, Office of Plant and Pest Services

PROJECT # 08-086F

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 5, 2008

PROJECT NUMBER: 08-086F

PROJECT TITLE: Wallops Research Park

As Requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:

Twenty three petroleum releases have been reported at the Wallops Flight Facility in Accomack County, three of which are currently active cases. There have been no petroleum releases reported at or adjacent to the proposed research park. The two closest releases to the proposed site are closed cases located more than 2000 feet east - PC#s 1993-1193 and 1996-2241. The first case is associated with the NOAA operations at the Wallops Flight facility and the second is associated with the new fuel farm at Wallops. If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ. Contact Ms. Lynne Smith at (757) 518-2055 or Mr. Gene Siudyla at (757) 518-2117. Petroleum contaminated soils or ground water generated during construction of this project must be properly characterized and disposed of properly.

Petroleum Storage Tank Compliance/Inspections:

The Wallops Island Flight Facility (CEDS Facility # 5000411) currently operates 34 underground storage tanks (USTs) and 32 aboveground storage tanks (ASTs) for the storage and dispensing of various types of petroleum products including, Jet Fuel, Diesel Fuel, Gasoline, Heating Oil and Lubricating Oils. Based on my review of the proposed development plan, some of the currently active USTs / ASTs may be located in the NASA Payload Processing Facility (PPF) area and could be impacted by the construction outlined in the EA. The disturbance, removal and/or closure of petroleum storage tanks should be reported to the DEQ Tidewater Regional Office. (See contact information below).

In addition to the above, if the construction of this project will include the use of portable AST storage (>660 gallons) for equipment fuel, the tank or tanks must be registered with DEQ using AST Registration form 7540-AST. This form is available at the **DEQ web site (deq.virginia.gov)** under "petroleum programs, download library, AST registration forms". Once the registration form is completed, it should be mailed to the DEQ address on the form along with the appropriate registration fee (also listed on the form). **Any questions concerning UST or AST registration should be directed to "Tom Madigan" at the Tidewater Regional Office 5636 Southern Boulevard, Virginia Beach, VA 23462, (757) 518-2115 or by e-mail at** temadigan@deq.virginia.gov

Virginia Water Protection Permit Program (VWPP):

The extent to which wetlands have been identified and the methods by which these investigations were conducted is unclear in this document. This is due, in part, from the use of descriptions such as "a non-jurisdictional wetlands characterization of the WRP property was performed..." Since wetland impacts are anticipated as a part of this project, an official wetland delineation utilizing methods outlined in the 1987 Corps delineation manual should be prepared and confirmed by the Corps. Both the delineation and the subsequent confirmation by the Corps should clearly identify the

presence of all wetlands, not just those deemed "jurisdictional" under the Clean Water Act. A completed joint permit application should then be prepared that fully justifies the need for any wetland impacts. No work should commence in surface water/wetland areas until all required permits are obtained.

Air Permit Program :
Please submit information relevant to the paint spray/coatings booths referenced on page viii of this document. We would also be interested in any toxic gases released from fume hoods referenced on the same page.

Water Permit Program :
The document appears to accurately reflect waste water permit requirements for the planned actions. Sedimentation and erosion control permits associated with the construction will be required. Industrial storm water general permits may be required depending on the kinds of industries to be located at the site and the exposure of materials that could cause contamination in storm water runoff. The existing waste water treatment facility at NASA, Wallops has plenty of capacity to handle additional wastewater flows and no permit action is required in regard to the acceptance of these new waste streams. However, care should be exercised to insure that any new wastewater discharges are capable of being properly treated and do not create pass through or treatment interference problems.

Waste Permit Program :
Information received in the past indicates groundwater contamination and methane gas generation needs to be addressed in the area of the County landfill in the development plans. At a minimum an evaluation of potential gas migration into adjacent structures needs to conducted efforts taken to protect landfill cap. Note this facility was closed prior to the effective date of the Virginia Solid Waste Management Regulations and would only be subject to regulation if found to be an open dump, hazard or nuisance.

In addition, the NASA Wallops facility has several areas of undergoing remediation through various waste programs. An evaluation of the proximity of these remediation projects and any controls needed to be implemented should be conducted.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.

Sincerely,

Michelle R. Hollis

DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

May 5, 2008

PROJECT NUMBER: **08-086F**

PROJECT TITLE: Wallops Research Park

Environmental Specialist
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mrhollis@deq.virginia.gov

COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Steven G. Bowman
Commissioner

May 2, 2008

Mr. John E. Fisher
c/o Department. Of Environmental Quality
Office of the Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

Re: 08-086F,
"Wallops Research Park"

Dear Mr. Fisher:

You have inquired regarding the permitting requirements for developing a reach park adjacent to the Wallops Flight Facility Main Base, on 202 acres of land owned by NASA, Accomack County and the Marine Science Consortium.

The Marine Resources Commission requires a permit for any activities that encroach upon or over, or take use of materials from the beds of the bays, ocean, rivers and streams, or creeks, which are the property of the Commonwealth.

Based upon my review of the reference maps and drawings, it appears that the proposed project will not require authorization from the Marine Resources Commission.

If I may be of further assistance, please do not hesitate to contact me at (757) 414-0710.

Sincerely,

George H. Badger, III
Environmental Engineer

L. Preston Bryant, Jr.
Secretary of Natural Resources

Joseph H. Maroon
Director

COMMONWEALTH of VIRGINIA

DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street
Richmond, Virginia 23219-2010
(804) 786-6124

RECEIVED
JUN 04 2008
DEQ-Office of Environmental Impact Review

MEMORANDUM

DATE: May 6, 2008 – revised June 4, 2008

TO: John E. Fisher, DEQ

FROM: Robert S. Munson, Planning Bureau Manager, DCR-DPRR

SUBJECT: DEQ 08-086F: NASA/Wallops Research Park, Accomack County

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, a Bald Eagle nest site (*Haliaeetus leucocephalus*, G5/S2S3B,S3N/NL/LT) has been documented in the project vicinity. Bald Eagle nest sites are often found in the midst of large wooded areas near marshes or other bodies of water (Byrd, 1991). Bald Eagles feed on fish, waterfowl, seabirds (Campbell et. al., 1990), various mammals and carrion (Terres, 1980). Threats to this species include human disturbance of nest sites (Byrd, 1991), habitat loss, biocide contamination, decreasing food supply and illegal shooting (Herkert, 1992). Please note that this species is currently classified as threatened by the Virginia Department of Game and Inland Fisheries (VDGIF).

In addition, there is potential for the Sheep-laurel (*Kalmia angustifolia,* G5/S2/NL/NL) to be present within the project limits. Sheep-laurel is a state rare plant found primarily in acidic soils. Its range stretches from Newfoundland and Labrador to Virginia, and as far west as Michigan and Ontario. This plant blooms from May to July. While common across the eastern seaboard, sheep-laurel is very rare and imperiled in Virginia (Gleason and Cronquist, 1991), with 12 remaining local occurrences.

Due to the potential for this site to support populations of Sheep-laurel, DCR recommends an inventory for the resource in the study area. With the survey results we can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources. In addition, due to the legal status of the Bald Eagle, DCR recommends coordination with the VDGIF to ensure compliance with protected species legislation.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR

represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

Furthermore, our files do not indicate the presence of any State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters, that may contain information not documented in this letter. Their database may be accessed from www.dgif.virginia.gov/wildlifeinfo_map/index.html, or contact Shirl Dressler at (804) 367-6913.

Division of Soil and Water Conservation

Federal agencies and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations (VSWML&R), and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, or other structures, soil/dredge spoil areas, or related land conversion activities that disturb 10,000 square feet or greater would be regulated by VESCL&R and those that disturb one acre or greater would be covered by VSWML&R. Accordingly, the sponsoring federal agency should prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. The sponsoring federal agency is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and/or other mechanisms consistent with agency policy. The agency is highly encouraged to contact DCR's Watershed Office and/or the local ESC and SWM authorities to obtain plan development, implementation assistance and to ensure project conformance during and after active construction. *[Reference: VESCL §10.1-567; VSWML §10.1-603.15]*

A copy of the document titled, *DCR Urban Programs Contact Information,* is available at http://www.dcr.virginia.gov/soil_&_water/documents/UrbanStaffContacts.pdf for directing requests for assistance to the appropriate DCR office for consideration. Specific questions regarding requirements for the Virginia General (VSMP) Permit for Discharges of Stormwater From Construction Activities should be directed to Ms. Holly Sepety, at (804) 225-2613.

Division of Dam Safety and Floodplain Management

The Flood Plain Management Program of DCR has reviewed the subject project, and has the following comments: the western edge of the area for this project contains designated floodplain on the flood map, an AE zone along Wattsville Branch and Little Mosquito Creek with a base flood elevation (BFE, the 1%, "100-year" flood) of seven feet. The majority of the project area is above the 5-foot elevation, based on the topographic map for the area.

According to the Executive Summary, "for the construction that would take place within the floodplain, WRP partners and tenants would ensure that the action complies with EO 11988 (Floodplain Management) and 14 CFR 1216.2 (NASA regulations on Floodplain and Wetland Management), including notifying the public of actions that would occur within the floodplain. The WRP would obtain

any required permits for construction within the floodplain and would minimize floodplain impacts and protect and restore the natural and beneficial functions of floodplains to the maximum extent possible."

Based on the principles of flood plain management, there are no objections to this project. All applicable permits for the project must be obtained and evidence of such provided to the NFIP-participating community (Accomack County) prior to commencement of construction.

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Cc: Amy Ewing, VDGIF

Literature Cited

Byrd, M.A. 1991. Bald eagle. In Virginia's Endangered Species: Proceedings of a Symposium. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. Pp. 499-501.

Campbell, R.W., N.K. Dawe, I. McTaggart-Cowan, J.M. Cooper, G.W. Kaiser, and M.C.E. McNall. 1990. The Birds of British Columbia. Vol. 1. Nonpasserines: Introduction and loons through waterfowl. Royal British Columbia Museum, Victoria, British Columbia, Canada.

Gleason, H., and Cronquist, A. 1991. Manual of Vascular Plants of Northeastern United States and Adjacent Canada, Second Edition. The New York Botanical Garden, Bronx, New York. p.205.

Herkert, J. R., editor. 1992. Endangered and threatened species of Illinois: status and distribution. Vol. 2: Animals. Illinois Endangered Species Protection Board. iv + 142 pp.

Terres, J.K. 1980. The Audubon Society encyclopedia of North American birds. Alfred A. Knopf, New York.

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: John E. Fisher **DEQ - OEIA PROJECT NUMBER: 08 – 086F**

PROJECT TYPE: ☐ STATE EA / EIR **X FEDERAL EA / EIS** ☐ SCC

☐ CONSISTENCY DETERMINATION/CERTIFICATION

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DEQ-Office of Environmental Impact Review

PROJECT TITLE: WALLOPS RESEARCH PARK

PROJECT SPONSOR: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROJECT LOCATION: X OZONE ATTAINMENT AREA

REGULATORY REQUIREMENTSMAY BE APPLICABLE TO: X **CONSTRUCTION**
☐ OPERATION

STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:

1. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. ☐ 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F – STAGE II Vapor Recovery
3. ☐ 9 VAC 5-40-5490 et seq. – Asphalt Paving operations
4. **X 9 VAC 5-40-5600 et seq. – Open Burning**
5. **X 9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
6. ☐ 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to_____
7. ☐ 9 VAC 5-50-160 et seq. – Standards of Performance for Toxic Pollutants
8. ☐ 9 VAC 5-50-400 Subpart_____, Standards of Performance for New Stationary Sources, designates standards of performance for the_____
9. ☐ 9 VAC 5-80-10 et seq. of the regulations – Permits for Stationary Sources
10. ☐ 9 VAC 5-80-1700 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. ☐ 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
12. ☐ 9 VAC 5-80-800 et seq. Of the regulations – Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:

_____
(Kotur S. Narasimhan)
Office of Air Data Analysis

DATE: May 9, 2008

Fisher,John

From: Ewing, Amy (DGIF)

Sent: Wednesday, May 14, 2008 2:27 PM

To: Fisher,John

Subject: ESSLog# 24258_08-086F-Wallops Research Park EA and Consistency

We have reviewed the subject project which includes the development of a 232-acre parcel adjacent to Wallops Flight facility in Accomack County.

According to our records, state Threatened bald eagle has been documented in the project area. However the nest location is approximately one mile for the proposed research park boundary and therefore, the site falls outside of the management zone for this species. We do not anticipate adverse impacts upon this species to result from the proposed work.

We recommend that all land clearing of forested areas adhere to a time of year protective of migratory and resident songbird nesting from March 15 through July 31 of any year.

To further minimize overall impacts to wildlife and our natural resources, we recommend that the applicant avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable. We recommend maintaining undisturbed wooded buffers of at least 100 feet in width around all on-site wetlands and on both sides of all perennial and intermittent streams. We recommend maintaining wooded lots to the fullest extent possible. We generally do not support proposals to mitigate wetland impacts through the construction of stormwater management ponds, nor do we support the creation of in-stream stormwater management ponds. We are willing to assist the applicant in developing a plan that includes open-space, wildlife habitat, and natural stream channels which retain their wooded buffers.

We recommend that the stormwater controls for this project be designed to replicate and maintain the hydrographic condition of the site prior to the change in landscape. This should include, but not be limited to, utilizing bioretention areas, and minimizing the use of curb and gutter in favor of grassed swales. Bioretention areas (also called rain gardens) and grass swales are components of Low Impact Development (LID). They are designed to capture stormwater runoff as close to the source as possible and allow it to slowly infiltrate into the surrounding soil. They benefit natural resources by filtering pollutants and decreasing downstream runoff volumes.

Assuming adherence to erosion and sedimentation controls, we find this project consistent with the Fisheries Management Section of the Coastal Zone Management Act.

Amy M. Ewing
Environmental Services Biologist
Virginia Dept. of Game and Inland Fisheries
4010 West Broad Street
Richmond, VA 23230
804-367-2211
amy.ewing@dgif.virginia.gov

Carl E. Garrison III
State Forester

COMMONWEALTH of VIRGINIA

DEPARTMENT OF FORESTRY
900 Natural Resources Drive, Suite 800
Charlottesville VA 22903
434.977.6555 ~ Fax: 434.296.2369
www.dof.virginia.gov

May 15, 2008

PROPOSED PROJECT: National Aeronautics and Space Administration, Wallops Research Park, Accomack County, VA
DEQ Project #: 08-086F

Department of Forestry's Comments:

The Department of Forestry finds that this project will have a significant impact on the forest resources of the Commonwealth; therefore, the Department recommends that the proposed clearing of between 50 to 100 acres of forestland on a 202 acre parcel to create an integrated business park for aerospace research and development programs be mitigated. Potential opportunities for mitigation include but are not limited to:

1. Working with the Virginia Department of Forestry to develop a cost share program to assist private landowners within the Accomack, Northampton county area or statewide to reforest harvested timberlands or plant open lands with pine or hardwood seedlings. This potential program would be funded through mitigation funding from this project.
2. Working with the Virginia Department of Forestry or other Virginia conservation agency or group to create a forest land conservation fund that would be used for the purchase of conservation easements or property acquisitions of forestlands. These purchases could be within the two county areas or statewide and would ensure that the forested lands are managed and retained as working forest lands for perpetuity.

In light of Governor Kaine's, goal of conserving 400,000 acres of land in the Commonwealth by the end of his administration, the year 2010, and the fact that Virginia is losing nearly 30,000 acres of forest land each year, the Department recommends a mitigation ratio in excess of 1 to 1, more than one acre of land reforested or protected to every one acre cleared. Therefore, the National Aeronautics and Space Administration would be assisting landowners in the conservation, reforestation and/or purchase of at least 50 to 100+ acres within the two county area or statewide.

Questions concerning the potential mitigation options for this project as well as discussing an overall mitigation strategy for future projects and protection of trees and forest resources of the Commonwealth may be addressed to Todd Groh, Assistant Director, Forest Resource Management Division at the DOF (telephone:434-977-6555 ext. 3344, email: todd.groh@dof.virginia.gov).

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
jefisher@deq.virginia.gov

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DEQ-Office of Environmental Impact Review

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

Based on regional mapping, the site is underlain by sand, silt, clay + silt of the Jagnes Sand and Omar formation. These materials should pose no unusual problems. I do not anticipate a significant impact to mineral resources.

(signed) _____ (date) 5/8/08

(title) Geologist Mgr

(agency) DMME

PROJECT # 08-086F

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MAY 12 2008

DEQ-Office of Environmental Impact Review

COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1401 EAST BROAD STREET
RICHMOND, VIRGINIA 23219 2000

David S. Ekern, P.E.
COMMISSIONER

May 8, 2008

Mr. John E. Fisher
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, VA 23219

Re: Wallops Research Park

Dear Mr. Fisher:

The Virginia Department of Transportation has reviewed the information provided for the referenced project. Our review covers impacts to existing and proposed transportation facilities. After checking the Six Year Plan and the 2026 Plan, we have concluded that there are no conflicts with the current or future construction projects.

The only transportation improvement project in the vicinity of this development in the FY 08-13 Secondary Six Year Improvement Program is UPC # 89341- 0849-001-569- Wallops Research Park EDA. This construction project is part of the Master Plan for the Wallops Research Park (WRP).

In this Environmental Assessment, it is stated on Page xiii of the Executive Summary that WRP would implement traffic flow mitigation measures including modifying and upgrading existing roads and intersections, and installing additional traffic devices including signal lights and/or stop signs in the vicinity of the WRP, where necessary.

Any VDOT land use requirements, lane closures, traffic control or work zone safety issues should be closely coordinated with affected cities/counties and VDOT's Accomac Residency Office (757-787-1550).

Thank you for the opportunity to comment on this project.

Sincerely,

Mary T. Stanley

Mary T. Stanley
Environmental Engineer
Virginia Department of Transportation
(804) 786-0868

Fisher,John

From: Douglas, Susan (VDH)
Sent: Monday, May 05, 2008 6:02 PM
To: Pinion,Anne; Fisher,John
Subject: VDH Environmental Reviews

The Virginia Department of Health, Office of Drinking Water limits project reviews to potential impacts to public drinking water *sources* (groundwater wells and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.
Recent project review comments are summarized in the attached Excel table. I apologize if some of these have been sent to you already; we are still working out a review procedure with new staff.

Susan E. Douglas, P.E.
Field Services Engineer

DEQ-OEIR PROJECT #	PROJECT TITLE	SPONSOR	TYPE	REVIEWER	RESPONSE
08-100S	Mountain Lake Biological Station Barn & Directors	UVA	EIR	WCR	No adverse impact to PWS
08-097S	Replacement of Damaged Maintenance Building	DCR	EIR	WCR	No adverse impact to PWS
08-095S	Ranger Residence Replacement & Campground	DCR	EIR	WCR & SED	Coordinate proposed modifications to existing waterworks through our Abindon Field Office.
08-089S	Rocky Gap Southbound Rest Area Site Upgrades	VDOT	EIR	WCR & SED	Proposed closed loop geothermal well must comply with VDH Priivate Well regulations. Contact Office of Environmental Health Services for additional information.
08-088S	Rocky Gap Northbound Rest Area Site Upgrades	VDOT	EIR	WCR & SED	Proposed closed loop geothermal well must comply with VDH Priivate Well regulations. Contact Office of Environmental Health Services for additional information.
08-087F	Cascade Apartments	HUD	C	WCR	Stumpy Lake is sufficently downgradient from project location and should not be adversely impacted.
08-086F	Wallops Research Park	NASA	EA & C	WCR	No further comments
08-084F	Apartments at 7000 Iron Bridge Road	HUD	C	WCR	No adverse impact to PWS.
08-083S	Performing Arts Building Addition	GMU	EIR	WCR	No adverse impact to PWS.
08-060S	Beaumont Juvenile Correctional Center Trailer	DJJ	EIR	WCR	No adverse impact to James River Correction Ctr intake on James River. Coordinate proposed expansion to waterworks with VDH's East Central Field Office.
08-059S	Bent Mountain Maintenance Staging Facility	VDOT	EIR	WCR	No adverse impact to PWS
08-058S	Equipment Storage Building, Carlisle Area HQ's	VDOT	EIR	WCR	No adverse impact to PWS

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
jefisher@deq.virginia.gov

JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

We have been in direct consultation with NASA regarding the proposed Wallops Research Park and reached consensus that this project will have no adverse effect on historic properties. DHR has no additional comment.

(signed) _____ (date) 5/7/08

(title) ARCHAEOLOGIST

(agency) DHR (FILE #2007-1229)

PROJECT # 08-086F **4/07**

Fisher,John

From: Sheila Goodman [sgoodman@co.accomack.va.us]
Sent: Monday, May 05, 2008 4:22 PM
To: Fisher,John
Subject: Wallops Research Park Consistency Determination (08-086F)

Per our conversation today, County Administrator Steven Miner has asked me to inform you that there have been no changes to the original comments regarding the aforementioned.

Thank you for your assistance in this matter.

Shelia Goodman
Administrative Assistant
County Administrator's Office
County of Accomack
757-787-5700

If you cannot meet the deadline, please notify JOHN FISHER at 804/698-4339 prior to the date given. Arrangements will be made to extend the date for your review if possible. An agency will not be considered to have reviewed a document if no comments are received (or contact is made) within the period specified.

REVIEW INSTRUCTIONS:

A. Please review the document carefully. If the proposal has been reviewed earlier (i.e. if the document is a federal Final EIS or a state supplement), please consider whether your earlier comments have been adequately addressed.

B. Prepare your agency's comments in a form which would be acceptable for responding directly to a project proponent agency.

C. Use your agency stationery or the space below for your comments. **IF YOU USE THE SPACE BELOW, THE FORM MUST BE SIGNED AND DATED.**

Please return your comments to:

MR. JOHN E. FISHER
DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL IMPACT REVIEW
629 EAST MAIN STREET, SIXTH FLOOR
RICHMOND, VA 23219
FAX #804/698-4319
jefisher@deq.virginia.gov

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JOHN E. FISHER
ENVIRONMENTAL PROGRAM PLANNER

COMMENTS

No objections.

(signed) _____ (date) 5/5/08

(title) County Administrator

(agency) County of Accomack

PROJECT # 08-086F

4/07

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ecological Services
6669 Short Lane
Gloucester, VA 23061

June 18, 2008

Mr. Joshua A. Bundick
NEPA Program Manager
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337-5099

Re: Draft Environmental Assessment for the Wallops Research Park, Project # 2008-I-0345, Accomack County, Virginia

Dear Mr. Bundick:

The U.S. Fish and Wildlife Service (Service) has reviewed your Draft Environmental Assessment (EA) for the construction and operation of the Wallops Research Park, in Accomack County, Virginia. The Service provides the following comments under provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*), the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668d), and the Fish and Wildlife Coordination Act of 1958 (38 Stat. 401, as amended; 16 U.S.C. 661 *et seq.*)

Based on the project description and location, it appears that no impacts to federally listed or proposed species or designated critical habitat will occur. Should project plans change, or if additional information on the distribution of listed or proposed species or critical habitat becomes available, this determination may be reconsidered.

The Service supports your decision to maintain a vegetative buffer around the perimeter of the Wallops Research Park site and surrounding the wetlands. In addition to the vegetative buffers proposed, the Service recommends a 100-foot buffer along the named and un-named tidal creeks.

You can find species information and other pertinent information on project reviews within Virginia at our website http://www.fws.gov/northeast/virginiafield/Project_Reviews.html. If you have any questions, please contact Ms. Sumalee Hoskin at (804) 693-6694, extension 136.

Sincerely,

Tylan Dean
Assistant Supervisor
Endangered Species/Federal Activities
Virginia Field Office

National Aeronautics and
Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

Reply to Attn of: 250.W

July 24, 2008

Forest Resource Management Division
Attn: Todd Groh
Assistant Director
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903

Dear Mr. Groh:

The NASA Wallops Flight Facility (WFF) would like to thank the Virginia Department of Forestry (DOF) for its review and comments regarding the Draft Environmental Assessment (EA) for the development of the Wallops Research Park (WRP) in Accomack County, VA.

Regarding the DOF's finding that the "project will have a significant impact on the forest resources of the Commonwealth" and its subsequent recommendation of mitigation strategies to compensate for the loss of over 100 acres of forest, the WFF offers the following response:

While respecting Governor Timothy Kaine's goal of conserving 400,000 acres of land in Virginia by 2010, it is the WFF's position that the establishment of the WRP and the eventual clearing of over 100 acres of existing forested land would not have a significant impact on the Commonwealth's forests either locally or cumulatively. Currently, the WRP contains approximately 137 acres of forested area. Quantifying the exact extent of clearing is difficult at this time because building footprints and landscaping plans have not been established; however in both the Proposed Action and Alternative 1, maximum site clearing (95 and 120 acres, respectively) would represent a very small portion of the approximately 15.8 million forested acres in the Commonwealth and the 156,000 forested acres on the Eastern Shore of Virginia (Rose 2007).

To ensure that development activities are compatible with the surrounding area both aesthetically and environmentally, the WRP principals (Accomack County, Marine Science Consortium, and NASA) have developed Draft Guiding Covenants and Restrictions for the WRP (NASA 2008). The draft covenants require that a 100 foot vegetated buffer be maintained along the westernmost boundaries of the Park and that a 35 foot buffer be maintained along the southern perimeter of the southern parcel. Approximately 17 acres of forest would be preserved within this buffer zone. Additionally, the covenants specify that a parcel in the WRP "will draw as much of its character from the preservation of existing

vegetation as it will from the addition of new sustainable landscapes that will become an integral part of the park development." During review of proposed projects, the WRP Site Plan Review Committee would require that tenants adhere to these requirements to ensure site consistency and minimal environmental impact.

As described in the draft EA, all land clearing activities would be performed in accordance with all applicable laws and regulations and would utilize appropriate Best Management Practices (BMPs) to mitigate any adverse effects to the surrounding environment. Likewise, timber harvesting operations would be designed and overseen by a professional forester to ensure BMP effectiveness and consistency with accepted industry practice. Exact harvesting plans are not known at this time; however it is likely that the timber would be removed in phases according to tenant construction plans and timber market conditions.

While we appreciate DOF's suggestions of formal participation in a cost-share program or establishing a land conservation fund, such options are currently not feasible for either WRP principal. However, in light of the nearly 30,000 acres of Virginia forest land lost annually, WRP principals do realize the need to offset the impacts of forest clearing to the greatest extent practicable, and as such Accomack County has agreed to lead reforesting efforts in open areas on its existing properties. Target properties that have been identified include areas on the south side of Mill Dam Road in the WRP, county waste collection facilities, and schools. By engaging its employees, local civic and environmental organizations, and members of the community to voluntarily plant trees as part of Arbor Day and Earth Day celebrations, the WRP would strive to offset forested areas lost as the result of future development activities. Although a 1:1 replanting ratio would be the ultimate goal, replanting would need to be performed over many years with actual replanted acreage being a function of property disposition and resource availability. The WRP would work closely with the DOF Area Forester during future reforesting activities.

In conclusion, I would like to re-emphasize the commitment of the WFF and the other WRP principals to promoting the development of an integrated business park that will mesh with the surrounding area and minimize its impact on all environmental resource areas, including the Commonwealth's forests. Through a combination of maintaining a vegetated buffer, promoting preservation of natural vegetation through a rigorous site plan review process, implementation of BMPs during land clearing activities, and gradual reforestation on available Accomack County property, the WRP will strive to mitigate its impact on the forest resources of the Commonwealth. Again, thank you for your review of the proposed project. If you have any further questions regarding this matter, please contact Mr. Joshua Bundick, NEPA Program Manager, at (757) 824-2319.

Sincerely,

Caroline R. Massey
Assistant Director of Management Operations

cc:
250/Mr. J. Bundick
250/Ms. C. Turner
250/Mr. K. Yargus
AC/Ms. A. Bull
MSC/Mr. J. Callander

References:

NASA. 2008. Draft Wallops Research Park Guiding Covenants and Restrictions.

Rose, Anita K. 2007. Virginia's Forests, 2001. Resource Bulletin. SRS-120. Asheville, NC: U.S. Department of Agriculture Forest Service, Southern Research Station. 140 pp.

National Aeronautics and
Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

Reply to Attn of: 250.W

July 24, 2008

Division of Natural Heritage
Attn: Rene Hypes
Environmental Review Coordinator
Virginia Department of Conservation and Recreation
217 Governor Street, Third Floor
Richmond, VA 23219

Dear Ms. Hypes:

The NASA Wallops Flight Facility (WFF) would like to thank the Virginia Department of Conservation and Recreation (DCR) for its review and comments regarding the Draft Environmental Assessment (EA) for the development of the Wallops Research Park (WRP) in Accomack County, Virginia.

Regarding the DCR-Division of Natural Heritage (DNH) recommendation that the WFF should conduct an inventory for Sheep-laurel (*Kalmia angustifolia*) in the proposed project area, the WFF offers the following response:

In support of the WRP EA, the WFF collaborated with several universities in the Marine Science Consortium in conducting a vegetation survey for the properties within the proposed WRP project area. The intent of the survey, performed in April, May, and July 2007 by professors and students of Kutztown University, Shippensburg University, and East Stroudsburg University (all of Pennsylvania), was to adequately assess the existing botanical resources within the subject properties and to identify any plant species subject to federal and/or state regulation.

The survey, which involved reviewing existing natural heritage studies and survey methods, coordinating with personnel from the Virginia Natural Heritage Program (NHP), performing intensive field inventories (using NHP-employed techniques), and mapping features with Geographic Information System (GIS) technology, did not identify any Sheep-laurel in the project area. An electronic copy of the final report is enclosed for your records.

Additionally, to better understand the size and proximity of currently known Sheep-laurel colonies, the WFF has reviewed DCR-NHP GIS data and found that a small colony of Sheep-laurel was identified in the summer of 1975 approximately 0.7 miles southwest of the proposed WRP project site. While the WFF recognizes DCR's concern that Sheep-laurel may be within the proposed WRP properties, we are confident that the inventory performed by the

MSC vegetation survey team during the summer of 2007 confirms the absence of the rare plant.

While we appreciate DCR's recommendation of performing additional Sheep-laurel surveys of the area, the WRP principals (Accomack County, Marine Science Consortium, and NASA) feel that additional survey is not warranted at this time. However, WRP principals do support the protection of rare plant species in the Commonwealth, and as a mitigation measure would ensure that Sheep-laurel awareness is incorporated into the WRP site plan review process. Prior to any land-clearing activities, contactors would be made aware of the potential for Sheep-laurel on the WRP property and would be required to halt work in the immediate vicinity if the species were discovered. The WRP would consult with DCR-DNH to develop appropriate mitigation measures if such a situation were to arise.

Furthermore, to ensure that development activities are compatible with the surrounding area both aesthetically and environmentally, the WRP principals have developed Draft Guiding Covenants and Restrictions for the WRP (NASA 2008). The draft covenants require that a 100 foot vegetated buffer be maintained along the westernmost boundaries of the Park and that a 35 foot buffer be maintained along the southern perimeter of the southern parcel. Approximately 17 acres of forested habitat would be preserved within this buffer zone. Additionally, the covenants specify that a parcel in the WRP "will draw as much of its character from the preservation of existing vegetation as it will from the addition of new sustainable landscapes that will become an integral part of the park development." During review of proposed projects, the WRP Site Plan Review Committee (consisting of representatives from all WRP principals) would require that tenants adhere to these requirements to ensure site consistency and minimal environmental impact.

In conclusion, I would like to re-emphasize the commitment of the WFF and the other WRP principals to promoting the development of an integrated business park that will mesh with the surrounding area and minimize its impact on all environmental media, including the Commonwealth's natural heritage resources. Through the combination of sponsoring a professional vegetation survey of the proposed project site (already completed), requiring a vegetated buffer around the Park's perimeter, and promoting preservation of natural vegetation and natural heritage awareness through a rigorous site plan review process, the WRP would strive to mitigate its impact on the natural heritage resources of the Commonwealth. Again, thank you for your review of the proposed project. If you have any further questions regarding this matter, please contact Mr. Joshua Bundick, NEPA Program Manager, at (757) 824-2319.

Sincerely,

Caroline R. Massey
Assistant Director of Management Operations

Enclosure

cc: (w/o encl.)
250/Mr. J. Bundick
250/Ms. C. Turner
250/Mr. K. Yargus
AC/Ms. A. Bull
MSC/Mr. J. Callander

Reference:

NASA. 2008. Draft Wallops Research Park Guiding Covenants and Restrictions.

From: Groh, Todd (DOF)
To: Bundick, Joshua A. (GSFC-250.0);
cc: Bundick, Joshua A. (GSFC-250.0);
Subject: RE: Response to your comments - Wallops Research Park
Date: Wednesday, August 06, 2008 8:30:57 AM

Josh,

The Department has no further comments.

Todd A. Groh, Assistant Director
Forest Resource Management Division
Virginia Department of Forestry
900 Natural Resources Drive, Suite 800
Charlottesville, VA 22903
Phone: 434-220-9044
Mobile: 434-981-8882
Fax: 434-296-2369

From: Bundick, Joshua A. (GSFC-250.0) [mailto:joshua.a.bundick@nasa.gov]
Sent: Wednesday, August 06, 2008 8:24 AM
To: Groh, Todd (DOF)
Cc: josh.bundick@nasa.gov
Subject: Response to your comments - Wallops Research Park

Dear Mr. Groh,

NASA Wallops Flight Facility wishes to thank you again for supplying comments to our Draft Environmental Assessment for the proposed Wallops Research Park. Your office should have received our written responses to these comments, dated July 24, 2008. Do you have any additional comments or questions based upon our responses? If not, NASA will finalize this document and issue a Finding of No Significant Impact with regard to the proposed action. Again, thank you for your review of this proposed project.

Sincerely,

Josh Bundick
NEPA Program Manager
NASA Wallops Flight Facility
757-824-2319

From: Rene Hypes
To: Bundick, Joshua A. (GSFC-250.0);
Subject: Re: Response to your comments - Wallops Research Park
Date: Wednesday, August 06, 2008 8:50:24 AM

Mr. Bundick,

John Townsend, DCR botanist, reviewed the survey report and said it was " an adequate response to our request". Therefore we have no further comments at this time.

Thank you for the opportunity to provide comments.

Rene'

S. Rene' Hypes
Project Review Coordinator
DCR-DNH
217 Governor Street
Richmond, Virginia 23219
804-371-2708 (phone)
804-371-2674 (fax)
Rene.Hypes@dcr.virginia.gov

>>> "Bundick, Joshua A. (GSFC-250.0)" <joshua.a.bundick@nasa.gov>
08/06/08 8:38 AM >>>
Dear Ms. Hypes,

NASA Wallops Flight Facility wishes to thank you again for supplying comments to our Draft Environmental Assessment for the proposed Wallops Research Park. Your office should have received our written responses to these comments, dated July 24, 2008. Do you have any additional comments or questions based upon our responses? If not, NASA will finalize this document and issue a Finding of No Significant Impact with regard to the proposed action. Again, thank you for your review of this proposed project.

Sincerely,

Josh Bundick

NEPA Program Manager

NASA Wallops Flight Facility

757-824-2319

Comment and Response Matrix

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
1.	Marianne Simko, Atlantic, VA	N/A	I would like to express my concern for the preservation of Wallops Park.	Comment noted.	None.
2.	Marianne Simko, Atlantic, VA	Figure 3	The EA is not very consistent in its protection of the wooded area to the southwest, west, and northwest of the ball field. Although the maps (Figure 3) show a 100-foot buffer, which appears to extend to the edge of the tree line, the woods are deeper than 100 feet.	The forest is deeper than 100 feet in some areas. The WRP Guiding Covenants and Restrictions direct tenants to preserve as much vegetation as possible, including forest; so the first choice for tenants should be to avoid vegetation removal. In areas where vegetation may need to be cleared, WRP mandates that a 100-foot buffer must remain.	None. The text in Section 4.3.1 Vegetation currently states that the WRP Guiding Covenants and Restrictions direct tenants to preserve as much vegetation as possible.
3.	Marianne Simko, Atlantic, VA	Figure 3	[Figure 3] also includes a note "nature trails to be retained," but the proposed action states that the nature trails would be relocated.	What is meant by “retained” on Figure 3 is that the nature trails will be part of the natural area after development of the WRP, and where possible, the nature trails will be undisturbed. In some places the nature trails may require relocation, but exact locations of trail relocation won’t be identified until the detailed site plans of a tenant are developed.	The text in Section 4.4.2 Recreation was revised to state: The existing nature trails would be left undisturbed where possible; in areas where the nature trails would require relocation, the relocation would be completed as quickly as possible in order to minimize temporary trail closure. Exact locations of trail relocation would not be identified until an individual tenant’s site plans are known; the WRP Site Plan Review Committee would review site-specific plans that have the potential to result in impacts to trails.
4.	Marianne Simko, Atlantic, VA	N/A	Accomack County has very few park or playground areas available to its residents. We live in an area of vast natural beauty, but with very few public areas to access it. Accomack County does not have nor could they build a wooded paradise which would offer comparable recreation and natural beauty as does the wooded area which buffers the	Accomack County plans to add a new park within the County to mitigate the loss of the existing park within the proposed WRP; in addition, the playground equipment in the existing park would be relocated across Mill Dam Road to the closed County landfill. The WRP Guiding Covenants and Restrictions direct tenants to preserve as much vegetation as possible and require	The text in Section 4.3.1 Vegetation was revised to address land clearing and potential reforestation opportunities. The text in Section 4.4.2 Recreation was revised to address nature trails and relocation of the current park equipment and ball field.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
			wetlands of Wallops Park. I urge Accomack County, NASA Wallops Flight Facility, and the Wallops Research Park to preserve the forested area buffering the wetlands, through stronger and more consistent language in its EA and resulting agreements.	that a 100-foot vegetative buffer remain around the WRP site perimeter. WRP intends to offset the impacts of forest clearing to the greatest extent practicable; Accomack County has agreed to lead reforesting efforts in open areas on existing properties such as school grounds and public recreation areas, etc. WRP would engage its employees, local civic and environmental organizations, and members of the community to voluntarily plant trees as part of several Arbor Day and Earth Day celebrations in order to offset the timber that would be removed in phases by WRP development.	
5.	Marilyn Ailes, Navy Surface Combat Systems Center (SCSC)	N/A	You might want to include in the research park EA either an historical map showing the extent of the old landfill boundary, or some drill sample results if you have them. There is one memory that we had considered building the houses just across the road from our base, but in doing the soil borings, we found old cars. … I know they are looking to build somebody's headquarters right across from [Wallops Main Base] main gate now, so they may have found clean soil, but no one here seems to know. Nonetheless, there must be a line somewhere between the old dump and clean soil. It would be good to include that line so that planners know what they will be getting into.	The landfill boundary is shown on Figures 3 and 4. Any site specific development plans would be reviewed by the WRP Site Plan Review Committee. Proposed construction within the landfill or near the landfill boundary would be coordinated with Accomack County and VDEQ. The relocation of the existing playground to the landfill would result in minor, shallow disturbance of the ground surface for the installation of the playground equipment.	None.
6.	National Oceanic and Atmospheric	Section 3.2.6 Section 4.2.6	The draft EA did not address the impact of radio frequency (RF) emissions on the existing WCDAS	Because RF emissions from WRP are not predictable prior to identifying WRP tenants and their operations, the EA did	None.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
	Administration (NOAA) Wallops Command and Data Acquisition Station (WCDAS)		either in terms of socioeconomic consequences or performance degradation.	not evaluate RF impacts at a detailed level. The WRP Guiding Covenants and Restrictions direct RF-emitting tenants to notify the WFF Spectrum Manager who will coordinate with any RF system users/owners, including WCDAS.	
7.	NOAA WCDAS	Section 3.2.6 Section 4.2.6	The EA also does not address potential hazards of electromagnetic radiation to ordnance and fuel, although it does address potential hazards of electromagnetic radiation to personnel.	Because electromagnetic radiation sources from WRP are not predictable prior to identifying WRP tenants and their operations, the EA did not evaluate the specific impacts of electromagnetic radiation on ordnance and fuel. However, the WRP Guiding Covenants and Restrictions require emitters to coordinate with the WFF Spectrum Manager and to conduct Hazards of Electromagnetic Radiation to Ordinance (HERO) and Hazards of Electromagnetic Radiation to Personnel (HERP) analyses as needed; these analyses would be coordinated with RF system users/owners, including WCDAS.	The text in Section 3.2.6 Radiation and 4.2.6 Radiation was revised to include the potential for HERO and HERP analyses to be conducted and to state that electromagnetic radiation-emitting tenants would be required to coordinate with the WFF Spectrum Manager.
8.	NOAA WCDAS	N/A	NOAA is concerned that increasing levels of radio frequency interference (RFI) resulting from industrial/commercial/scientific expansion in the vicinity of the WFF could degrade the Station's ability to accomplish its mission.	As required by the WRP Guiding Covenants and Restrictions, any proposal submitted by WRP tenants that includes potential RF transmitters and/or radiating systems would be subject to NASA WFF spectrum management policies which includes review by the WFF Spectrum Manager and coordination with any RF system users/owners, including WCDAS.	None.
9.	NOAA WCDAS	Section 3.2.6	RF interference that may result from development of the WRP can be caused by radio transmitters' devices that intentionally radiate electromagnetic signals -or by	As required by the WRP Guiding Covenants and Restrictions, any proposal submitted by WRP tenants that includes potential RF transmitters and/or radiating systems would be subject to NASA WFF	None.

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			devices that unintentionally radiate "radio noise." WCDAS antennas can be subjected to RFI from unintentional radiators such as arc welders and motor-driven landscaping and construction equipment and also from intentional radiators such as high powered radar transmitters or even low-powered personal communications systems (such as cell phones)… In addition, RF radiation from transmitters can pose hazards to personnel, ordnance and fuel. The draft EA should identify these concerns in section 3.2.6 under the Non-Ionizing Radiation heading. RF emissions are not predictable before WRP tenants are identified.	spectrum management policies which includes review by the WFF Spectrum Manager and coordination with any RF system users/owners, including WCDAS.	
10.	NOAA WCDAS	N/A	Coordination and planning for the WRP will be an important issue for the WCDAS.	As required by the WRP Guiding Covenants and Restrictions, any proposal submitted by WRP tenants that includes potential RF transmitters and/or radiating systems would be subject to NASA WFF spectrum management policies which includes review by the WFF Spectrum Manager and coordination with any RF system users/owners, including WCDAS.	None.
11.	NOAA WCDAS	N/A	To the extent possible, construction locations, heights, industrial machines, and RF usage for purposes such as communications with personnel in the field, data links to aircraft, and security functions should be described. Information to allow system overview should include model number(s), frequencies and power levels as	At this time, WRP tenants have not been identified, therefore, site-specific information such as construction locations, heights, industrial machines, RF usage, data links to aircraft, and security functions that would be needed for individual tenant sites and operations is unknown. WRP would require submittal of detailed	None.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
			applicable.	information in tenant's plans on proposed RF-emitting systems such as model number(s), frequencies, and power levels. Once these specifics are made known to the WRP via a proposal by a potential tenant, the WRP Site Plan Review Committee will review the plans and has the authority to approve, deny, or require mitigation measures as necessary.	
12.	NOAA WCDAS	Section 1.1.1	The WCDAS considers it imperative that WRP future tenants coordinate all potential transmitters and radiating systems to preclude expensive mitigation processes to legally operate.	As required by the WRP Guiding Covenants and Restrictions, any proposal submitted by WRP tenants that includes potential RF transmitters and/or radiating systems would be subject to NASA WFF spectrum management policies which includes review by the WFF Spectrum Manager and coordination with any RF system users/owners, including WCDAS.	None.
13.	Navy SCSC	N/A	There is no mention of the Cropper Center, which is located within the area boundaries.	The EA has been revised to include the Cropper Center that is located inside of WRP area boundaries, but is a separate entity from WRP.	The text in the Executive Summary (Page ii), Section 2.2 Proposed Action, and Figure 2 have been revised to include the Navy-owned Cropper Center.
14.	Navy SCSC	Section 4.2.1	Would the entire site be graded and cleared before specific users were identified, or would each site be cleared as needed?	The entire site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site layout, etc. would require approval from the WRP Site Plan Review Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department	The text in Section 4.2.1.1 Topography and Drainage and Section 4.2.1.2 Geology and Soils were revised to state: The entire site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
				of Forestry Area Forester.	layout, etc. would require approval from the WRP Site Plan Review Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department of Forestry Area Forester.
15.	Navy SCSC	Section 4.2.2	Will there be any attempt to develop the wetlands and floodplains last?	Both action alternatives include the development of less than 1 acre of wetlands and floodplain on the western portion of the NASA property; the placement of facilities (large aircraft hangars) in this area was determined by the setback requirements related to airfield safety restrictions for the WFF runway to the north. As such, this area would not likely be developed last. The remaining parcels for future tenant sites are not located in areas that would involve construction within a wetland or floodplain.	None.
16.	Navy SCSC	N/A	What is the enforcement tool for compliance to proper procedures for the industries resident at the Research Park?	Oversight and enforcement of WRP tenants will include: • Federal, State, and local regulations as enforced primarily by permits obtained by individual tenants (exceptions are WRP's inclusion in WFF's Wastewater Discharge, Public Water System, and Groundwater Withdrawal permits) • WRP Guiding Covenants and Restrictions, overseen by WRP principals • WRP Site Plan Review Committee	The text in Section 2.2 Proposed Action has been revised to include clarification on the oversight and enforcement mechanisms for WRP.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
17.	Navy SCSC	N/A	What are the covenants or controls? Such items should be included.	The WRP Guiding Covenants and Restrictions are currently in draft form and cannot be included in the EA as such; however, once completed, this document will serve as the guidelines and restrictions for WRP. The EA incorporates the WRP Guiding Covenants and Restrictions by reference.	None.
18.	Navy SCSC	N/A	What role will WFF play? Will there be oversight on such internal affairs as training, hazardous materials use, boiler maintenance, sound levels, and permit compliance? What force will require compliance?	WFF will not play a direct role in oversight, enforcement, or permit/regulation compliance of WRP tenants; however WFF will be represented by members on the Site Plan Review Committee and Governing Body. The following are means of oversight and enforcement for WRP tenants: • Federal, State, and local regulations as enforced primarily by permits obtained by individual tenants (exceptions are WRP's inclusion in WFF's Wastewater Discharge, Public Water System, and Groundwater Withdrawal permits) • WRP Guiding Covenants and Restrictions, overseen by WRP principals • WRP Site Plan Review Committee	The text in Section 2.2 Proposed Action has been revised to include clarification on the oversight and enforcement mechanisms for WRP.
19.	Navy SCSC	N/A	Will NASA include WRP in such compliance as Integrated Contingency Plan (ICP), air permits, discharge permits, etc.?	NASA will include the WRP in the following WFF permits: • Wastewater Discharge • Groundwater Withdrawal WRP and/or tenants would be responsible for obtaining all other permits to be in	None.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
				compliance with Federal, State, and local regulations including but not limited to: • Air Quality permit from Virginia Department of Environmental Quality (VDEQ) • Virginia Pollutant Discharge Elimination Systems (VPDES) permit from VDEQ • Individual tenant's VSMP permits from Virginia Department of Conservation and Recreation (DCR) • Hazardous Waste generator ID from EPA WRP and/or tenants would be responsible for development of contingency plans as necessary.	
20.	Navy SCSC	Section 4.4.4	Will NASA Fire Company respond to spills, accidents, and fires?	NASA Fire Company's specific role in providing services for WRP has not been determined yet. However, due to an existing mutual aid agreement with Accomack County and close proximity to WRP, NASA Fire Company would assist in emergency response on an as-needed basis.	None.
21.	Navy SCSC	Section 4.2.5	If each tenant has an EPA [hazardous waste] generator number, why are NASA hazmat controls relevant?	Tenants that transport material across WFF property would be required to follow NASA hazardous materials controls and regulations in addition to obtaining an individual EPA hazardous waster generator number and complying with all Federal, State, and local hazardous materials regulations.	None.
22.	Navy SCSC	Section 4.2.5	Will fully fueled rockets be transported over public roads presenting a significant safety	Fully fueled rockets may be transported on public roads. Fully fueled rockets or any other potentially hazardous material	The text in Section 4.2.5 Hazardous Materials and Hazardous Wastes has been revised to include the following:

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
			hazard?	that would be transported by WRP partners or tenants would be appropriately placarded and transported following Federal and State transportation regulations.	"Fully fueled spacecraft or any other potentially hazardous material that would be transported by WRP partners or tenants would be appropriately placarded and transported following Federal and State transportation regulations."
23.	Navy SCSC	Section 4.4.1 Section 4.4.3	There will be a number of impacts on the local support economy, not only for the businesses but for the new residents. Positive aspects of these impacts will be historically exceeded by negative economic impact of development.	Full build-out of WRP is anticipated over a 20 year time period; the population growth is anticipated to be approximately 3 percent within Accomack County, and less than 1 percent per County in the four other counties where WRP employee households are likely to settle. The population growth (especially spread over a 20-year period) and the positive effects of WRP to the local economy including support of local businesses via new residents and employees, and providing jobs within Accomack County, and a larger tax base are not considered to be adverse or significant.	None.
24.	Navy SCSC	Section 4.4.7	What is the plan to support County funding for road improvement, better emergency services, additional school students, and new medical demands?	The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
25.	Navy SCSC	Section 4.2.2	What is the cumulative impact of all parking lots on Mosquito Creek? What sort of landscape filtering would be required, as opposed to 'encouraged'?	Management of stormwater runoff and impacts on water quality are monitored and regulated by the VDEQ and DCR. Individual tenants would be required to obtain VSMP and VPDES construction and industrial permits to discharge water from their site. These permits would require implementation of best management practices to avoid, minimize,	None.

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				and mitigate impacts from construction and industrial activities and comply with the Clean Water Act. The WRP Guiding Covenants and Restrictions would not require specific landscaping or best management practices, although as noted, will strongly encourage the use of practices that would allow maximum infiltration to minimize storm water runoff and the use of native vegetation in landscaping to reduce watering needs.	
26.	Navy SCSC	N/A	Will vehicle maintenance be enforced on contractors?	Vehicle maintenance will be enforced by: • Federal, State, and local regulations as enforced primarily by permits obtained by individual tenant's • Vehicle maintenance measures to avoid or minimize air quality impacts would be incorporated into tenant's VVDEQ air quality permit. • VPDES and Virginia Stormwater Management Program (VSMP) permits obtained by individual tenants prior to construction would include vehicle maintenance measures to protect stormwater that should be followed by tenants in order to be in compliance with the permit. • WRP Guiding Covenants and Restrictions, overseen by WRP principals • WRP Site Plan Review Committee	The text in Section 2.2 Proposed Action has been revised to include clarification on the oversight and enforcement mechanisms for WRP.
27.	Navy SCSC	Section 4.2.3	Many minor impacts to air – what is the cumulative impact of all the	Because the WRP site is located in an attainment area for all criteria pollutants	None.

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			solvents?	as regulated under Virginia's Ambient Air Quality Standards; WRP is not required to complete the Clean Air Act conformity process for the WRP site. At this time, on a large scale, cumulative adverse impacts are not expected to the local and regional ambient air quality; however, because WRP tenants have not yet been identified, the potential impacts of all WRP tenant's operations/industry are unknown. Individual tenants would be required to comply with the Clean Air Act and obtain air quality permits from VDEQ if necessary, On a smaller scale, such as looking at impacts on humans working within an individual site (i.e., workers within a warehouse) each tenant would be responsible for complying with Occupational Health and Safety Administration regulations on clean air for employee and non-employee health and safety and the Clean Air Act regulations for environmental impacts. Individual tenants would be responsible for obtaining air quality permits from VDEQ and implementing safe work practices including employee training programs.	
28.	Navy SCSC	Section 4.2.4	There are homes in this area, which could not reasonably be expected to use hearing protection at all times. Will any of these activities impact those homes?	Special precautions may be required when construction occurs near housing or occupied facilities in the WRP site, such as noise suppression systems for heavy equipment. WRP partners and tenants would comply with local noise ordinances and State and Federal standards and guidelines for potential impacts to humans caused by	The text in Section 4.2.4 Noise was revised to include mitigation for noise impacts.

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
				construction activities to mitigate potential impacts on nearby residences, businesses, and the MSC and Cropper Center. No significant noise-producing activities would be routinely conducted between the hours of 9:00 p.m. and 7:00 a.m. Any activities outside of typical work hours that could create disruptive noise levels would be coordinated directly with the persons affected by the planned activity.	
29.	Navy SCSC	N/A	Much depends on the covenants. These should be in an appendix.	The WRP Guiding Covenants and Restrictions are currently in draft form and cannot be included in the EA as such; however, once completed, this document will serve as the guidelines and restrictions for WRP. The EA incorporates the WRP Guiding Covenants and Restrictions by reference.	None.
30.	Navy SCSC	Section 4.2.2	What are the considerations for aquatic species, both commercial and non-commercial? Parking lots will have a significant negative impact on aquatic life in an area heavily used by both recreational and commercial watermen.	Considerations for water quality, including management of storm water runoff during construction and industrial activities, are handled through the VPDES and VSMP permit programs, which may require the development of a Storm Water Pollution Prevention Plan that outlines specific best management practices to avoid and minimize impacts on water quality for each permitted site. In addition, the WRP Guiding Covenants and Restrictions will strongly encourage the use of practices that would allow maximum infiltration to minimize storm water runoff and impacts on water quality and quantity.	None.
31.	Navy SCSC	Section 4.4.1	The population increase will have significant impact, since the largest	The impacts on population are not considered significant because full build-	The text in Section 3.4.1 Population and 4.4.1 Population have been

No.	Commenter	Draft EA Section Addressed	Comment/Proposed Revision to Text	Response to Comment	Revision to Text
			community in Accomack is only 4,000 people. The WRP would be the second largest community in the County.	out of WRP is anticipated over a 20 year time period. As stated in Section 4.4.1 Population, the largest impact would occur in Accomack County, resulting in a population increase of approximately 3 percent spread out over a 20-year period. Accomack County's population growth was 20% over the past 10 years. The WRP growth rate projected over the next 10 years is approximately 1.5 percent, which is not a significant impact compared to "background" growth rates of population in the County. The four other counties where WRP employee households are likely to settle would result in a population increase of less than 1 percent per County.	revised to include the figure of 20 percent population growth in Accomack County between 1990 and 2000 (reference included in EA), and Section 4.4.1 was revised to state: "Additionally, the population growth attributed to the WRP over a 10 year period (1.5 percent) compared to the "background" population growth in Accomack County over a 10 year period (between 1990 and 2000) of 20 percent, does not indicate that the population growth from WRP would result in a significant impact on population within the County."
32.	Navy SCSC	Section 4.2.2	What about the water? Wallops is located on a sole-source aquifer. Will there be enough for all that industry plus the people?	WRP would be covered under WFF's existing groundwater withdrawal permit with the Virginia VDEQ that permits withdrawals from the Columbia and Yorktown-Eastover Multiaquifer System, which is a sole source aquifer. Alternative One would result in greater water use than the Proposed Action Alternative – the following scenario was developed for Alternative One in the EA: WFF would supply all of the potable water (drinking water supply, fire suppression, and industrial water use) to the WRP, and water demand for the WRP would be covered under WFF's existing groundwater withdrawal permit with the VDEQ. The combined water demand of WFF and WRP would be approximately 3,468,000 gallons per month, which is below the VDEQ permit limit of 8,153,000 gallons per month. Therefore,	None.

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				development of the WRP would not result in an adverse impact to ground water resources.	
33.	Navy SCSC	Section 4.4.7	Roads aren't built for heavy traffic. Is there land already available? Does the County Parks & Recreation agree? Where would the money come from to rebuild?	Accomack County and the Virginia Department of Transportation have been included in the WRP planning and approval process and agree to the action alternatives described in the EA. The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
34.	Navy SCSC	Section 4.4.5	According to your Cultural Resources Assessment (2003), this area has high sensitivity for prehistoric, and moderate sensitivity for historic resources. Who is conducting the survey for historical artifacts before the bulldozers move earth for each facility, or does the James River Institute study suffice? (p. 37)	The Phase I archaeological survey conducted by the James River Institute for Archaeology in 2007 identified no archaeological sites within the WRP project area; therefore, NASA determined that the Proposed Action would have no effect on archaeological resources. In a letter dated February 22, 2008, the Virginia Department of Historic Resources (VDHR) stated that they did not have any concerns with regard to archaeological properties for the WRP site. If unanticipated archaeological remains are identified during construction of the WRP, the WFF Facility Historic Preservation Officer would consult with the VDHR to determine the significance of the resource and the effects of the undertaking on the resource, and to identify the appropriate avoidance or mitigation measures, as appropriate.	The text in Section 4.4.5 Cultural Resources was revised to include the following statement: "If unanticipated archaeological remains are identified during construction of the WRP, the WFF Facility Historic Preservation Officer would consult with the VDHR to determine the significance of the resource and the effects of the undertaking on the resource, and to identify the appropriate avoidance or mitigation measures, as appropriate."

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35.	Navy SCSC	Section 4.4.7	Will upgrading the local state roads be included in development plans? The local roads are already busy; adding this many new employees will be significant.	There are no specific plans to upgrade state roads at this time. A traffic study, completed in 2007 by Vanasse Hangen Brustlin, Inc., concluded that although WRP development would generate an increase in traffic, effective traffic operations in the WRP area would be maintained, and that existing traffic operations on Mill Dam Road in the WRP area are projected to operate more efficiently with implementation of signals with optimal signal timings at currently unsignaled intersections. The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
36.	Navy SCSC	Section 3.2.1	Land use ignores both the Cropper Center and the Marine Science Consortium.	Because WRP development does not include either the Cropper Center or the Marine Science Consortium, land use changes for these buildings/sites were not evaluated. Figure 2 and EA text have been revised to include the MSC and Cropper Center under Section 4.2.1.3 Land Use.	Figure 2 has been revised to show the Cropper Center and the MSC campus. The text in Section 4.2.1.3 Land Use was revised to include the following: The parcels within the boundaries of the WRP, the MSC and the Cropper Center, would not be altered by development of the WRP, therefore, land uses for those parcels would not change.
37.	Navy SCSC	Figure 7	Include the 100-yr floodplain.	Figure 8 has been revised to show the 100-year floodplain.	Figure 8 has been revised to show the 100-year floodplain.
38.	Navy SCSC	Section 3.2.4	Noise sensitive land uses within or adjacent to the project area are the homes along the adjacent roads and the Marine Science Consortium. There are many homes within 4.5	The text in the EA has been revised to state that residences, the MSC, and the Cropper Center are all potential noise-sensitive receptors.	The text in Section 3.2.4 Noise and 4.2.4 Noise was revised to state that there are noise-sensitive receptors including residences, the MSC, and the Cropper Center, that would be affected by WRP construction and

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			miles.		operation activities. The text in Section 4.2.4 Noise was revised to include the following mitigation: No significant noise-producing activities would be routinely conducted between the hours of 9:00 p.m. and 7:00 a.m. Any activities outside of typical work hours that could create disruptive noise levels would be coordinated directly with the persons affected by the planned activity..
39.	Navy SCSC	Section 3.2.5	Would WFF provide [hazardous waste] pickup and training to the WRP businesses?	Individual tenants would be required to develop their own contingency plans, hazardous materials training program, and schedule pickup of hazardous wastes on their own, independent of NASA. Each tenant would be individually responsible for complying with Federal, State, and local regulations regarding storage, handling and disposal of hazardous materials and wastes.	None.
40.	Navy SCSC	Section 4.2.1.2	How would WRP tenants be required to revegetate, use natural landscaping, or anything else?	The WRP Guiding Covenants and Restrictions include revegetation and landscaping requirements. The WRP Guiding Covenants and Restrictions are currently in draft form and cannot be included in the EA at this time; however, the EA incorporates the WRP Guiding Covenants and Restrictions by reference. The draft guidelines currently state the following: The [WRP] site will draw as much of its character from the preservation of existing vegetation as it will from the addition of new sustainable landscapes that will become an integral part of the [WRP] development. These	None.

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				landscapes will, among other things: collect and filter storm water, use permeable paving where possible, and use native and/ or adapted species that will thrive with little or no irrigation. The WRP Site Plan Review Committee will review tenant's site plans and enforce the WRP Guiding Covenants and Restrictions.	
41.	Navy SCSC	Section 4.2.2.3	How is cumulative impact being handled? If each facility is a small increase in storm-carried pollutants and storm surge, the overall impact of the WRP could still be a significant increase not addressed anywhere.	Management of storm water runoff and impacts on water quality are monitored and regulated by the VDEQ. Individual tenants would be required to obtain VSMP and VPDES construction and industrial permits which may require the development of a Storm Water Pollution Prevention Plan that outlines specific best management practices to avoid and minimize impacts on water quality for each permitted site. In addition, the WRP Guiding Covenants and Restrictions will strongly encourage the use of practices that would allow maximum infiltration to minimize storm water runoff and impacts on water quality and quantity.	None.
42.	Navy SCSC	Section 4.2.3	How will vehicle maintenance be enforced on contractors who do not work for NASA? How will watering down to prevent dust be enforced?	Vehicle maintenance will be enforced by: • Federal, State, and local regulations as enforced primarily by permits obtained by individual tenant's • Vehicle maintenance measures to avoid or minimize air quality impacts would be incorporated into tenant's VDEQ air quality permit. • VPDES and VSMP permits obtained	The text in Section 2.2 Proposed Action has been revised to include clarification on the oversight and enforcement mechanisms for WRP.

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				by individual tenants prior to construction would include vehicle maintenance measures to protect stormwater that should be followed by tenants in order to be in compliance with the permit. • WRP Guiding Covenants and Restrictions, overseen by WRP principals • WRP Site Plan Review Committee	
43.	Navy SCSC	Section 4.2.5	Are hazardous wastes handled through NASA? Would NASA's ICP be expanded to include the WRP? Would hazardous materials be included in NASA's database?	Individual tenants would be required to develop their own contingency plan, hazardous materials training program, and schedule pickup of hazardous wastes on their own, independent of NASA. Each tenant would be individually responsible for complying with Federal, State, and local regulations regarding storage, handling and disposal of hazardous materials and wastes. WRP will not be included in NASA's ICP for WFF unless tenant activities would occur on NASA property. WRP hazardous materials inventory will not be included in NASA's database.	None.
44.	Navy SCSC	Section 4.3.1	Is bulldozing and clearing happening in hopes of attracting tenants, or specifically for a given tenant?	The entire site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site layout, etc. would require approval from the WRP Site Plan Review	The text in Section 4.2.1.1 Topography and Drainage and Section 4.2.1.2 Geology and Soils were revised to state: The entire site would not be graded and/or cleared prior to identification of specific tenants and uses, however, timber harvesting would be performed in phases according to tenant construction plans and timber market conditions – it is likely that several acres would be

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				Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department of Forestry Area Forester.	harvested together in order to generate enough timber at one time for sale. Vegetation removal, grading, site layout, etc. would require approval from the WRP Site Plan Review Committee during the site plan review process and timber harvesting would be coordinated with the Virginia Department of Forestry Area Forester.
45.	Navy SCSC	Section 4.4.2	How will recreational facilities be rebuilt? What is the source of the funding?	Accomack County plans to add a new park within the County to mitigate the loss of the existing park within the proposed WRP; in addition, the playground equipment in the existing park would be moved from its existing location to a new location across Mill Dam Road on the closed County landfill. The ball field may also be moved to the County landfill across Mill Dam Road, or to a new location within the County. The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
46.	Navy SCSC	Section 4.4.2	Does the County agree to moving their park? Under Alternative One, doesn't the County lose the park entirely? Wouldn't this be a significant impact?	Accomack County has been included in the WRP planning and approval process and agrees to the action alternatives described in the EA. The County park would not be "lost" under Alternative One - Accomack County plans to add a new park within the County to mitigate the loss of the existing park within the proposed WRP. In addition, the playground equipment in the existing park would be moved from its	The text in Section 2.3 Alternative One and in Section 4.4.2 Recreation has been revised to clarify that both action alternatives would include relocation of the existing County park. The park would not be removed under Alternative One, but relocated to the area described under the Proposed Action Alternative.

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				existing location to a new location across Mill Dam Road on the closed County landfill. The ball field may also be moved adjacent to or on the closed County landfill across Mill Dam Road, or to a new location within the County. Because the park will be relocated, no net loss is occurring; therefore, impacts on recreation are not considered a significant impact.	
47.	Navy SCSC	Section 4.4.4	Will there be funds available to help local emergency response agencies beef up to support an industrial park and for the extra residents? Local agencies, especially the volunteer agencies, are stretched thin. Need to determine how many persons these agencies can handle.	Because full build-out of WRP, and thus the hiring of employees that would become new area residents, is anticipated over a 20 year time period, the capability of the medical, fire, and police services to meet the increased demand is not anticipated to be exceeded. The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
48.	Navy SCSC	Section 4.4.7	Did the County concur that they would improve the roads in this area? Are there funds for roads?	Accomack County and the Virginia Department of Transportation have been included in the WRP planning and approval process and agree to the action alternatives described in the EA. The increase in taxes generated by the additional WRP-employed families and businesses would add to the County's ability to implement public services such as medical, educational, and road improvements.	None.
49.	Navy SCSC	Section 4.2.2.4	Chincoteague already experiences some drawdown during the summer	Chincoteague and WFF have separate groundwater withdrawal permits issued	None.

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			tourist season. If any of the industries at WRP are intensive water-consumers, there could be a significant problem. Establish maximum allowed gallons/day removal for the Park.	by VDEQ; during permit approval, VDEQ considers regional groundwater usage in development of individual permit withdrawal limits. WFF would ensure that groundwater withdrawals do not exceed the limit permitted by the VDEQ, and WFF does not plan on setting a specific water use limit for WRP at this time. Therefore, development of the WRP would not result in an adverse impact to ground water resources.	
50.	Navy SCSC	Section 4.5	Could tenants be asked to put solar panels on roofs or make use of other generative technologies?	The WRP Guiding Covenants and Restrictions would not require solar panels or other green/sustainable technologies, but would strongly encourage the use of these technologies.	None.
51.	VDEQ Tidewater Regional Office (TRO)	Section 4.2.2.5	The extent to which wetlands have been identified and the methods by which these investigations were conducted is unclear in the EA. This is due, in part, from the use of descriptions such as “a non-jurisdictional wetlands characterization of the WRP property was performed…”	The EA text has been revised to clarify that a preliminary wetland delineation was conducted in 2007. Prior to construction, WRP would complete a jurisdictional wetland delineation in accordance with the USACE 1987 Wetland Delineation Manual to determine the location and size of the wetland area that would be adversely affected.	The text in Section 3.2.2 Water Resources has been revised to clarify that a preliminary wetland delineation of the WRP property was performed during a 2007 vegetation survey.
52.	VDEQ-TRO	Section 4.2.2.4	Industrial stormwater general permits may be required depending on the kinds of industries to be located at the site and the exposure of materials that could cause contamination in stormwater runoff.	WRP partners and tenants would be required to obtain a VPDES industrial stormwater permit, which includes the requirement that a SWPPP be developed for the permitted facility.	None.
53.	VDEQ-TRO	Section 4.2.2.5	The Commonwealth of Virginia does not support the filling of wetlands, particularly when alternative sites have been identified. It is the policy of the Commonwealth of Virginia to	The area planned for construction that would affect approximately 1 acre of wetlands is the only area within WRP that is of suitable size and proximity to the existing runway for the tenant’s	None.

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			first avoid impacts to wetlands before considering other mitigation measures such as minimization and compensation.	operations. Other areas of WRP were evaluated but did not meet the needs of the tenant; therefore, there are no alternative sites. WRP Guiding Covenants and Restrictions direct partners and tenants to first avoid impacts on wetlands if possible, then minimize impacts if construction in or near a wetland is unavoidable.	
54.	VDEQ-TRO	Section 4.2.2.5	Alternative Site 2 is the preferred alternative site for the facility because wetland impacts would be significantly less than at Alternative Site 1.	The EA does not describe different alternative sites; wetland impacts under the Proposed Action Alternative are the same as in Alternative One. Figure 4 (Alternative One) has been revised to clarify that wetlands would be impacted.	Figure 4 (Alternative One) has been revised to clarify that wetlands would be impacted.
55.	VDEQ-TRO	Section 4.2.2.5	Stream and wetland impacts should be avoided to the maximum extent practicable by utilizing the following practices: Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable. Preserve the top 12 inches of trench material removed from wetlands for use as wetland seed and root-stock in the excavated area. Erosion and sedimentation controls should be designed in accordance with the most current edition of the Virginia Erosion and Sediment Control Handbook. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to state waters. The controls should remain in place until the area is	WRP agrees that stream and wetland impacts should be avoided to the maximum extent practicable. Tenants would be required to obtain all necessary permits from VDEQ for stream or wetland impacts. As such, construction activities would adhere to the specifications of each permit.	None.

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			stabilized. Place heavy equipment, located in temporarily impacted wetland areas on mats, geo-textile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable. Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub, or forested). The applicant should take all appropriate measures to promote re-vegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed. Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands on mats, geo-textile fabric in order to prevent entry in State waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within thirty days following removal of the stockpile, and restored to the original vegetated		

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			state. All non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading, or filling activities should be clearly flagged or marked for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur. Measures should be employed to prevent spills of fuels or lubricants into state waters.		
56.	Virginia Marine Resources Commission (VMRC)	Section 4.2.2.6	VMRC staff finds that it does not appear that a VMRC permit will be required.	Comment noted.	None.
57.	VDEQ-DCR	Section 4.2.2.3	Federal agencies and their authorized agents conducting regulated land-disturbing activities on private and public lands in the state should undertake these activities in a manner consistent with the Virginia Erosion and Sediment Control Law and Regulations, Virginia Stormwater Management Law and Regulations, and other applicable federal non point source pollution mandates (e.g., Clean Water Act Section 313, Federal Consistency under the Coastal Zone Management Act.) Projects involving land-disturbing activities equal to or greater than one acre, NASA or its authorized agent is	Tenants would be required to develop and implement all necessary ESC and SWM plans and obtain all VPDES and VSMP permits necessary for stream or wetland impacts as required by DCR and VDEQ. As such, construction activities would adhere to the specifications of each permit to ensure minimal impacts on water quality.	None.

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			required to apply for registration coverage under the General Permit for Discharges of Stormwater from Construction Activities.		
58.	VDEQ-DCR	Section 4.2.2.3	NASA should prepare and implement erosion and sediment control (ESC) and stormwater management (SWM) plans to ensure compliance with state law. NASA is encouraged to contact the appropriate Regional Office and/or the local Accomack County ESC and SWM authorities to obtain plan development, implementation assistance and to ensure project conformance during and after active construction.	Tenants would be required to develop and implement all necessary ESC and SWM plans and obtain all VPDES and VSMP permits necessary for stream or wetland impacts as required by DCR and VDEQ. As such, construction activities would adhere to the specifications of each permit to ensure minimal impacts on water quality.	None.
59.	VDEQ-TRO	Section 4.2.3	The paint spray/coatings booths referenced in the EA (page vii) are subject to State Air Pollution Control Board Regulations for the Control and Abatement of Air Pollution (9 VAC 5 Chapter 80), Permits for Stationary Sources (Part II Article 6), Permits for New and Modified Stationary Sources (9 VAC 5-80-1320 Permit Exemption Levels). NASA must submit information relevant to the booths to VDEQ-TRO for the determination of any required permitting.	If any WRP partner's or tenant's facilities propose to utilize paint spray/coating booths, the partner or tenant that owns/operates the facility would consult with the Virginia VDEQ and provide specific information relevant to paint booths for the determination of any permitting and to ensure no adverse impacts to air quality would occur as a result of operations within the WRP.	None.
60.	VDEQ-TRO	Section 4.2.3	The installation of fuel burning equipment (e.g. boilers and generators), may require a permit (9 VAC 5-50-10 et seq. and 9 VAC 5-80-10 et seq.) prior to beginning construction of a facility	WRP partners and tenants that propose to install fuel burning equipment (e.g. boiler, generators) would consult with Virginia VDEQ and obtain all required permits prior to construction.	None.

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61.	VDEQ's Waste Division	Section 4.2.5	Only hazardous waste issues were addressed in the report. A geographic information system (GIS) database search did not reveal any waste sites within a half mile radius that would impact or be impacted by construction activities at the subject site.	Comment noted.	None.
62.	VDEQ-TRO	Section 4.2.5	Information the TRO has received regarding groundwater contamination and methane gas generation in the area of the County landfill should be addressed by NASA in the project development plans.	Any WRP actions that would result in ground disturbance of the closed County landfill would be coordinated with VDEQ-TRO.	None.
63.	VDEQ-TRO	Section 4.2.5	Prior to initiating any construction and/or demolition activities on property adjacent to the NASA WFF or Wallops Formerly Used Defense Sites (FUDS), or on property to be managed by the installation where soil, groundwater, surface water, or sediment will be disturbed, the VDEQ Federal Facilities Restoration Program recommends the Wallops Research Park Project Manager contact the NASA WFF Manager of Environmental Restoration for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites, and the U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS for information concerning CERCLA obligations at or near Wallops FUDS sites.	The WRP Project Manager would contact the WFF Manager of Environmental Restoration for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites, and the U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS for information concerning CERCLA obligations at or near Wallops FUDS sites.	The text in Section 4.2.5 Hazardous Materials and Hazardous Waste has been revised to include a statement that the WRP Project Manager would contact the WFF Manager of Environmental Restoration for information concerning any CERCLA obligations at or near areas adjacent to NASA WFF CERCLA sites, and the U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS for information concerning CERCLA obligations at or near Wallops FUDS sites.

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64.	VDEQ-TRO	Section 4.2.5	An evaluation of potential gas migration into adjacent structures should be conducted and efforts taken to protect landfill cap should be identified. However, this facility was closed prior to the effective date of the Virginia Solid Waste Management Regulations and would only be subject to regulation if found to be an open dump, hazard or nuisance.	Accomack County monitors the landfill and is responsible for taking measures to protect adjacent structures and public health and safety. Any WRP actions that would result in ground disturbance of the closed County landfill would be coordinated with VDEQ-TRO.	The text in Section 4.2.5 Hazardous Materials and Hazardous Waste has been revised to include a statement that any WRP actions that would result in ground disturbance of the closed County landfill would be coordinated with VDEQ.
65.	VDEQ-TRO	Section 4.2.5	VDEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.	WRP would require partners and tenants to comply with applicable regulations regarding pollution prevention, and would encourage the reduction, reuse, and recycling of all solid wastes generated. Each WRP tenant that uses hazardous materials or generates hazardous waste would be required to comply with Federal, state and local regulations regarding the storage and use of hazardous materials and the disposal of hazardous wastes. Each WRP tenant that generates hazardous wastes would be required to obtain an EPA hazardous waste generator number and comply with all requirements in accordance with Federal, State, and WFF regulations.	None.
66.	VDEQ-TRO	Section 4.2.5	Some of the currently active USTs/ASTs may be located in the NASA Payload Processing Facility area and could be impacted by the construction described in the EA. The disturbance, removal and/or closure of petroleum storage tanks should be reported to VDEQ-TRO.	Any disturbance, removal, or closure of USTs/ASTs on NASA property would be reported to VDEQ. The construction activities at WRP would avoid existing USTs/ASTs including any associated with or in the NASA Payload Processing Facility.	The text in Section 4.2.5 Hazardous Materials and Hazardous Waste has been revised to include a statement regarding avoidance of existing USTs/ASTs and WRP tenants and partners would be subject to the Virginia VDEQ Storage Tank Program regulations and would be required to register all portable ASTs

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					with VDEQ, to report any spills/releases from temporay or permanent USTs/ASTs immediately, and to properly characterize and dispose of contaminated soils and/or groundwater.
67.	VDEQ-TRO	Section 4.2.5	Petroleum contaminated soils or groundwater generated during construction of this project must be characterized and disposed of properly.	Each WRP tenant that generates or discovers hazardous materials or hazardous waste, including petroleum contaminated soils or groundwater, would be required to comply with Federal, state and local regulations regarding the storage and use of hazardous materials and the disposal of hazardous wastes.	The text in Section 4.2.5 Hazardous Materials and Hazardous Waste has been revised to include a statement regarding avoidance of existing USTs/ASTs and WRP tenants and partners would be subject to the Virginia VDEQ Storage Tank Program regulations and would be required to register all portable ASTs with VDEQ, to report any spills/releases from temporary or permanent USTs/ASTs immediately, and to properly characterize and dispose of contaminated soils and/or groundwater.
68.	VDEQ-TRO	Section 4.2.5	NASA must comply with the following requirements of the Storage Tank Program. If evidence of a petroleum release is discovered during construction of this project, it must be reported to VDEQ-TRO. If the construction of this project will include the use of portable ASTs (>660 gallons) for equipment fuel, these tank(s) must be registered with VDEQ-TRO using AST Registration form 7540-AST. This form is available at the VDEQ web site at www.deq.virginia.gov.	WRP partners and tenants (including NASA) would comply with the VDEQ Storage Tank Program. Discovery of hazardous substances or any spills/releases of hazardous substances including petroleum would be reported immediately to VDEQ during construction and operation activities. Each WRP tenant is responsible for registering any portable ASTs.	The text in Section 4.2.5 Hazardous Materials and Hazardous Waste has been revised to include a statement regarding avoidance of existing USTs/ASTs and WRP tenants and partners would be subject to the Virginia VDEQ Storage Tank Program regulations and would be required to register all portable ASTs with VDEQ, to report any spills/releases from temporary or permanent USTs/ASTs immediately, and to properly characterize and dispose of contaminated soils and/or groundwater.

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69.	VDEQ-TRO	Section 4.2.5	VDEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used.	During review of proposed projects, the WRP Site Plan Review Committee will direct tenants to follow VDEQ's recommendation that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management and that the least toxic pesticides that are effective in controlling the target species should be used to ensure site consistency and minimal environmental impact.	None.
70.	VDEQ-DCR-Department of Natural Heritage (DNH)	Section 4.3.3	Conduct an inventory for Sheep-laurel in the project area due to the potential for the project site to support populations of the resource. With the survey results DCR-DNH can more accurately evaluate potential impacts to natural heritage resources and offer specific protection recommendations for minimizing impacts to the documented resources.	WRP will minimize and strive to mitigate its impact on the natural heritage resources of the Commonwealth through a combination of sponsoring a professional vegetation survey of the project site (completed in 20007), requiring a vegetated buffer around WRP's perimeter, preservation of existing native vegetation, and promoting natural heritage awareness through a rigorous site plan review process. NASA collaborated with several universities in the Marine Science Consortium in conducting a vegetation survey in April, May, and July 2007 for property within the WRP project area. The survey involved reviewing existing natural heritage studies and survey methods, coordinating with DNH, performing intensive field inventories (using DNH techniques), and mapping features using GIS. The survey did not identify Sheep-laurel in the project area. A copy of the final survey report is available upon request. Additionally, NASA has reviewed DCR-	The text in Section 4.3.3 Threatened and Endangered Species was revised to include additional mitigation measures for impacts to Sheep-laurel.

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				DNH GIS data and found that a small colony of Sheep-laurel was identified in the summer of 1975 approximately 0.7 miles southwest of the WRP site. WRP principals (NASA, Accomack County, MSC) are confident that the inventory performed by the MSC vegetation survey team confirms its absence and feel that additional survey is not warranted at this time. WRP principals would ensure that Sheep-laurel awareness is incorporated into the WRP site plan review process; prior to any land clearing activities, contractors would be made aware of the potential for Sheep-laurel on the WRP property and would be required to halt work in the immediate vicinity if the species were discovered and WRP would consult with DCR-DNH to develop mitigation measures if such as situation were to arise.	
71.	Virginia Department of Agriculture and Consumer Services (VDACS)	Section 4.3.3	VDACS does not anticipate that the proposal would have a significant adverse effect as it relates to VDACS' responsibilities for the protection of listed endangered and threatened plant and insect species. Contact DCR-Department of Natural Heritage, Rene Hypes at (804) 371-2708 for an update on natural heritage information if a significant amount of time passes before the project is initiated since new and updated information is continually added to Biotics.	WRP would contact the DCR Department of Natural Heritage is a significant amount of time passes before construction of WRP is initiated. Note that the full build-out of WRP is anticipated to occur over a span of approximately 20 years.	None.
72.	Department of Game and	Section 4.3.3	The state-listed Threatened bald eagle has been documented in the	Comment noted.	None.

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	Inland Fisheries (DGIF)		project area. However the nest location is approximately one mile from the proposed research park boundary and falls outside of the management zone for this species. Therefore, DGIF does not anticipate adverse impacts upon this species to result from the proposed work		
73.	DGIF	Section 4.3.3	DGIF offers the following recommendations for WRP development: -adhere to a time-of-year restriction that is protective of migratory and resident songbird nesting from March 15 through July 31 of any year for all land clearing of forested areas; -avoid and minimize impacts to undisturbed forest, wetlands, and streams to the fullest extent practicable to minimize overall impacts to wildlife and our natural resources; -maintain undisturbed wooded buffers of at least 100 feet in width around all on- site wetlands and on both sides of all perennial and intermittent streams; -maintain wooded lots to the fullest extent possible; -design stormwater controls to replicate and maintain the hydrographic condition of the site prior to the change in landscape, including: utilization of bioretention areas; and minimization of curb and	WRP partners have directed WRP tenants to preserve as much vegetation as possible in the WRP Guiding Covenants and Restrictions, and have required that a 100-foot vegetative buffer shall remain around the WRP site perimeter. During review of proposed projects, the WRP Site Plan Review Committee would advise tenants follow DGIF's recommendations to the greatest extent practicable.	None.

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			gutter in favor of grassed swales.		
74.	Virginia Department of Forestry (VDF)	Section 4.3.1	VDF recommends that the proposed clearing of between 50 to 100 acres of forestland on a 202-acre parcel to create an integrated business park for aerospace research and development programs be mitigated. VDF recommends a mitigation ratio in excess of 1 to 1, more than one acre of land reforested or protected to every one acre cleared. Potential opportunities for mitigation include but are not limited to: -Working with VDF to develop a cost share program to assist private landowners within the Accomack, Northampton County area or statewide to reforest harvested timberlands or plant open lands with pine or hardwood seedlings. This potential program would be funded through mitigation funding from this project. -Working with VDF or other Virginia conservation agency or group to create a forest land conservation fund that would be used for the purchase of conservation easements or property acquisitions of forestlands. These purchases could be within the two County areas or statewide and would ensure that the forested lands are managed and retained as working forest lands for perpetuity. -Assisting landowners in the conservation, reforestation and/or	WRP will strive to mitigate its impact on forest resources through a combination of maintaining a vegetated buffer, promoting preservation of existing native vegetation through a rigorous site plan review process, implementation of BMPs during land clearing activities, and gradual reforestation on available Accomack County property. It is WRP's position that the establishment of the WRP and the eventual clearing of over 100 acres of existing forested land would not have a significant impact on the Commonwealth's forests either locally or cumulatively. The WRP's Guiding Covenants and Restrictions require that a 100-foot vegetated buffer be maintained along the westernmost boundaries of WRP and that a 35-foot buffer be maintained along the southern perimeter of the southern parcel. Approximately 17 acres of forest would be preserved within this buffer zone. Additionally, the Guiding Covenants and Restrictions specify that a parcel in the WRP "will draw as much of its character from the preservation of existing vegetation as it will from the addition of new sustainable landscapes that will become an integral part of the park development." During review of proposed projects, the WRP Site Plan Review Committee would require that tenants adhere to these requirements to ensure site consistency and minimal environmental impact. All land clearing activities would be	The text in Section 4.3.1 Vegetation was revised to include additional mitigation measures for impacts to forest resources.

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			purchase of at least 50 to 100+ acres within the two County area or statewide.	performed in accordance with applicable laws and regulations and would utilize appropriate BMPs to mitigate any adverse effects to the environment. Timber harvesting operations would be designed and overseen by a professional forester to ensure BMP effectiveness. While WRP appreciates VDF's suggestions of formal participation in a cost-share program or establishing a land conservation fund, such options are currently not feasible. However, WRP does realize the need to offset the impacts of forest clearing to the greatest extent practicable; Accomack County has agreed to lead reforesting efforts in open areas on existing properties such as school grounds and public recreation areas, etc. WRP would engage its employees, local civic and environmental organizations, and members of the community to voluntarily plant trees as part of several Arbor Day and Earth Day celebrations in order to offset the timber that would be removed in phases by WRP development. Although a 1:1 replanting ratio would be the ultimate goal, replanting would need to be performed over many years with actual replanted acreage being a function of property disposition and resource availability. WRP would work closely with the VDF Area Forester during future reforesting activities.	
75.	Virginia Department of Transportation (VDOT)	Section 4.4.7	Any VDOT land use requirements, lane closures, traffic control or work zone safety issues should be closely coordinated with Accomack County and the VDOT Accomac Residency	WRP would coordinate all transportation activities including closures, traffic control, safety issues, etc. with Accomack County and the VDOT Accomac Residency Office prior to their	The text in Section 4.4.7 Transportation has been revised to state that WRP would coordinate all transportation activities including closures, traffic control, safety issues,

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			Office at (757) 787-1550.	implementation.	etc. with Accomack County and the VDOT Accomac Residency Office prior to their implementation.
76.	Virginia Department of Health, Office of Drinking Water	Section 4.2.2.4	Potential impacts to the public water distribution system must be verified by NASA.	NASA would continue to operate its public water system in accordance with its current Virginia Department of Health permit and the Virginia Waterworks Regulations.	None.
77.	VDEQ-TRO	Section 4.2.2.2	The WFF should ensure that any new wastewater discharges are capable of being properly treated and do not create pass through or treatment interference problems.	NASA would continue to operate its wastewater collection and treatment system in accordance with its current VPDES permit issued by Virginia VDEQ.	None.
78.	VDEQ Office of Pollution Prevention (OPP)	N/A	Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the airport is committed to minimizing its environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. VDEQ offers EMS development assistance and it recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program.	WRP may decide to implement an EMS in the future, and if so would include VDEQ in the EMS planning process.	None.
79.	VDEQ-OPP	N/A	Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts. Consider choosing sustainable materials and practices for infrastructure construction and	During review of proposed projects, the WRP Site Plan Review Committee would advise tenants to consider "environmentally friendly," green, eco-conscious materials and choices for the construction of facilities and operational activities to ensure site consistency and minimal environmental impact.	None.

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			design. These could include asphalt and concrete containing recycled materials, and integrated pest management in landscaping, among other things.		
80.	VDEQ-OPP	N/A	Consider contractors' commitment to the environment (such as an EMS) when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.	During review of proposed projects, the WRP Site Plan Review Committee would advise tenants to consider contractors' commitment to the environment when choosing contractors to ensure site consistency and minimal environmental impact.	None.
81.	VDEQ-OPP	N/A	[VDEQ recommends] integrating pollution prevention techniques into the airport maintenance and operation, to include the following: inventory control (record-keeping and centralized storage for hazardous materials), product substitution (use of nontoxic cleaners), and source reduction (fixing leaks, energy-efficient HVAC and equipment). Maintenance facilities should be designed with sufficient and suitable space to allow for effective inventory control and preventative maintenance.	In addition to individual tenant's obtaining VPDES and VSMP permits for construction and operation activities that include pollution prevention measures, WRP would recommend that partners and tenants integrate pollution prevention techniques into construction of facilities and operational activities, including design of maintenance facilities for appropriate inventory control and preventive maintenance.	None.