

TABLE OF CONTENTS

List of Acronyms ES–ii
1.0 Introduction..... ES–1
2.0 Description of the Proposed NBAF ES–3
3.0 Development of Reasonable Alternatives..... ES–4
4.0 Alternatives Evaluated in the NBAF EIS ES–5
5.0 Environmental Effects ES–7
6.0 Risks and Mitigation Measures..... ES–12
7.0 NBAF DRAFT EIS Organization and Content..... ES–12
8.0 Public Participation..... ES–13

LIST OF FIGURES

Figure ES–1 Six Site Alternatives ES–5

LIST OF TABLES

Table ES–1 NBAF Space Requirements ES–3
Table ES–2 Environmental Effects Categories..... ES–10
Table ES–3 Comparison of Environmental Effects..... ES–11

LIST OF ACRONYMS

BSL	biosafety level
DHS	U.S. Department of Homeland Security
EIS	environmental impact statement
NBAF	National Bio and Agro-Defense Facility
NEPA	<i>National Environmental Policy Act</i>
PIADC	Plum Island Animal Disease Center
USDA	U.S. Department of Agriculture

1.0 INTRODUCTION

The United States needs to update and expand its facilities to study the range of foreign animal diseases that are potential threats to United States (U.S.) agriculture.¹ The U.S. Department of Homeland Security (DHS) has proposed to augment existing capabilities through the construction and operation of the National Bio and Agro-Defense Facility (NBAF). Operation of this biosafety level 3 (BSL-3) and BSL-4 research facility would enable basic and advanced research, diagnostic testing and validation, countermeasure development (i.e., vaccines and antiviral therapies), and diagnostic training for high-consequence livestock diseases with potentially devastating impacts to U.S. agriculture and public health.

What is the Proposed Action?

The U.S. Department of Homeland Security has proposed to augment the United States' existing research capabilities through construction and operation of the National Bio and Agro-Defense Facility at one of six alternative sites.

The Plum Island Animal Disease Center (PIADC), where much of the current research on foreign animal diseases is performed, is an essential component of the national strategy for protecting U.S. agriculture from a bioterrorist attack involving the intentional introduction of viruses such as foot and mouth disease. However, PIADC was built in the 1950s and is nearing the end of its lifecycle. The NBAF would fulfill the need for a secure U.S. facility that could support collaborative efforts among researchers from federal and state agencies and academia.

Why does the United States need the NBAF?

The global marketplace, increased imports of agricultural products, and growing numbers of international travelers to the United States have increased the number of pathways for the introduction of foreign and invasive agricultural pests and diseases. More than 40 contagious foreign animal diseases are currently recognized as threats to the U.S. agricultural economy².

DHS's Proposed Action to site, construct, and operate the NBAF would allow researchers to study foreign animal and zoonotic diseases (transmitted from animals to humans) in the U.S. U.S. researchers currently use similar facilities in Winnipeg, Canada, and Geelong, Australia. However, those facilities do not have the capacity to address outbreak scenarios in the United States in a timely manner and cannot guarantee their availability to meet U.S. research requirements. The NBAF would enable DHS and the U.S. Department of Agriculture (USDA) to fulfill their respective missions of detecting, preventing, protecting against, and responding to an accidental or intentional release of a foreign animal disease within the United States.

Agriculture is the largest industry and employer in the United States, generating more than \$1 trillion in economic activity annually, including more than \$50 billion in exports. U.S. agriculture is threatened by the entry of foreign pests and pathogens that could harm the economy, environment, plant and animal health, and public health³. A key component of this economy is the livestock industry, which contributes over \$100 billion annually to the gross domestic product⁴. Diseases affecting livestock could have significant impacts on the U.S. economy and consumer confidence in the food supply⁵. The introduction of animal and

¹ Homeland Security Presidential Directive 9, "Defense of United States Agriculture and Food."

² U.S. Government Accountability Office. 2003. Bioterrorism: A Threat to Agriculture and the Food Supply. GAO-04-259T. Testimony Before the Committee on Governmental Affairs, US, U.S. Senate Statement for the Record by Lawrence J. Dyckman, Director Natural resources and Environment. Washington, DC.

³ U.S. Government Accountability Office. 2005. Plum Island Animal Disease Center. DHS and USDA are Successfully Coordinating Current Work, but Long-Term Plans Are Being Assessed. GAO-06-132. Washington, DC.

⁴ U.S. Government Accountability Office. 2005a. Report to Congressional Requesters. Homeland Security. Much is Being Done to Protect Agriculture from a Terrorism Attack, but Important Challenges Remain. GAO-05-214. Washington, DC.

⁵ See footnote 2.

plant diseases at the farm level would cause severe economic disruption given that agriculture accounts for 13% of the U.S. gross domestic product and 18% of domestic employment.

What diseases would be studied at the NBAF?

DHS anticipates that the NBAF initially would focus BSL-3Ag research on African swine fever, classical swine fever, contagious bovine pleuropneumonia, foot and mouth disease, Japanese encephalitis, and Rift Valley fever. BSL-4 research would focus on Hendra and Nipah viruses.

The NBAF research mission would be based on current pathogen and disease risk assessments, subject to change as threats and risk assessments change.

Why is this environmental impact statement being prepared?

The *National Environmental Policy Act* (NEPA) requires federal agencies to examine the impacts of their proposed actions before decisions are made. DHS published a Notice of Intent to prepare an environmental impact statement (EIS) and held public scoping meetings in the *Federal Register* on July 31, 2007.

The objectives of this EIS are to

- State the underlying purpose and need for the DHS Proposed Action to site, design, construct, and operate the NBAF;
- Describe the Proposed Action and identify the six site alternatives that satisfy the purpose and need for DHS action;
- Describe the baseline environmental conditions at the six potential site locations;
- Analyze the potential indirect, direct, and cumulative effects to the existing environment from implementation of the Proposed Action at each potential site location and from the No Action Alternative (i.e., maintain current research capability at PIADC and do not build the proposed NBAF);
- Compare the effects from implementation of the Proposed Action to design, construct, and operate the NBAF with the No Action Alternative; and
- Compare the environmental effects of the alternatives at each site location.

What are biosafety levels?

Four levels of biosafety levels are used to define the types of facilities, protective equipment, and administrative controls needed to conduct research on pathogens. Each level is meticulously designed to prevent lab-acquired infections and to protect the environment from potentially hazardous pathogens.

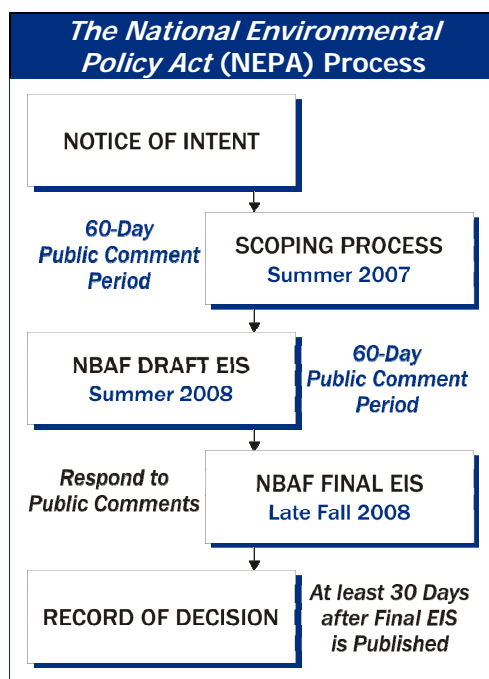
BSL-2. Facilities appropriate for handling indigenous agents of moderate risk to personnel and the environment.

BSL-3. Facilities appropriate for handling pathogens of indigenous or exotic origin with a known potential for aerosol transmission.

BSL-3E. Refers to the protective enhancements commensurate with the risk assessment of the pathogens and requirements for agricultural protection.

BSL-3Ag. Refers to research involving large agricultural animals and foreign and emerging pathogens that may cause serious consequences in livestock but are not harmful to humans because protective measures are available.

BSL-4. Facilities appropriate for handling exotic pathogens that pose a high risk of life-threatening disease in animals and humans through the aerosol route and for which there is no known vaccine or therapy.



The EIS also provides DHS with environmental information that can be used to develop mitigation actions, if necessary, to minimize or avoid adverse effects to the quality of the human environment and natural ecosystems from the implementation of the Proposed Action or the No Action Alternative.

2.0 DESCRIPTION OF THE PROPOSED NBAF

The proposed NBAF would consist of two laboratory facilities and four outbuildings. One of the two laboratory buildings would be the primary research building containing the BSL-2, BSL-3E, BSL-3Ag, and BSL-4 laboratories with associated support spaces. The other building would be a laboratory for small-scale vaccine and reagent production. It would be located adjacent to the primary research laboratory. Other outbuildings would include a central utility plant, an entry guard house, a central receiving facility, and parking. The approximate area needed for the NBAF is between 500,000 and 520,000 square feet. The approximate breakdown (percentage) by component is provided in Table ES-1.

Table ES-1 — NBAF Space Requirements

Space	Percent of Total Area
Office/Administrative	6.9
BSL-2 ^a	6.0
BSL-3 ^b	73.8
BSL-4	10.9
Production Module	2.4

^aBSL-2 includes laboratory and support areas.

^bBSL-3 includes laboratory, 3Ag, and training and support areas.

The NBAF would provide state-of-the-art operating procedures and biocontainment features to minimize the potential for laboratory-acquired infections and accidental releases. Primary biocontainment measures include, but are not limited to, high-efficiency particulate air filtration for air exhaust and air intake systems, biosafety cabinets (BSCs), pressurized biosafety suits, and decontamination stations. Safety and biocontainment protocols would be addressed in facility-specific standard operating procedures that would be developed prior to commissioning and operation of NBAF according to USDA guidelines. In addition, all laboratory areas, animal areas, support areas, back-up computer servers, and engineering systems would have 100% redundancy.

Construction of the NBAF could start in early 2010 and take approximately 4 years to complete. It would either be operated directly by the government or operated by a contractor with strict government oversight.

Once the NBAF reaches its life expectancy, DHS may choose to decommission the facility and transition the property for future use. Standard decontamination protocols would be performed according to the Biosafety in Microbiological and Biomedical Laboratories to ensure the health and safety of the workers and the public. Site-specific protocols and a decontamination and decommissioning plan would be developed. The plan would address decontamination methodologies; disposition of used equipment; re-use, disposal, or salvaging of site materials; and post-decontamination monitoring, among other factors.

3.0 DEVELOPMENT OF REASONABLE ALTERNATIVES

Congress appropriated money for site selection and other pre-construction activities for the NBAF; however, it did not designate a specific site upon which to build and construct the facility. DHS implemented a site selection process. DHS issued a Public Notice soliciting Expressions of Interest for potential sites for the NBAF in the *Federal Business Opportunities* on January 17, 2006, and in the *Federal Register* on January 19, 2006. Based on the 29 submissions received by the March 31, 2006 deadline, DHS conducted an initial evaluation using four evaluation criteria developed by an interagency working group.

1. Proximity to Research Capabilities
2. Proximity to Workforce
3. Acquisition/Construction/Operations
4. Community Acceptance

The evaluation criteria were intended to ensure that the NBAF would be located in an environmentally suitable site that meets the purpose and need of the project. It would also need to meet the interdependent needs of DHS and USDA to adequately protect the nation against biological threats to animal agriculture. In the first-round evaluation, three committees comprised of federal employees evaluated submissions by site proponents, assessing strengths, weaknesses, and deficiencies against the evaluation criteria and associated sub-criteria. Based on the committees' conclusions, a federal steering committee recommended sites to the DHS selection authority, who then selected 18 sites with qualifications to be considered further. Some sites were eliminated from further consideration due to weaknesses and/or deficiencies, including the following:

- Lack of proximity to existing BSL-3 or BSL-4 research programs that could be linked to NBAF mission requirements;
- Difficulty in demonstrating ability to attract world-class researchers and scientists or skilled technical workforce with necessary experience;
- Insufficient infrastructure, utilities, or other siting difficulties; and
- Insufficient community support.

In December 2006, DHS requested more information from the 18 sites still under consideration and communicated preferences that would be considered by the evaluation committee in the second round of the site selection process. DHS preferences included location within a research community with programs in areas related to the NBAF mission; proximity to skilled technical staff and related training programs; title to at least a 30-acre site deeded at no or minimal cost to the government; potential for all NBAF construction to occur at the site; willingness to support to the NEPA process; contributions such as deeded land, new utilities, roads, and chilled and steamed water; demonstration of local and national stakeholder support or lack of opposition; and environmental suitability.

Upon receipt of the requested information, DHS and USDA evaluation committee representatives visited the sites to verify the information provided to see any observable physical conditions and constraints and to view the site's utilities and infrastructure.

Based on analysis of the additional information and observations on the site visits, the evaluation team recommended five sites, deemed to meet the evaluation criteria and DHS preferences, advanced as reasonable alternatives to be studied in the EIS.

Although it was not part of the competitive site selection process, Plum Island was also determined to be a reasonable alternative site for study in the EIS, making a total of six sites for consideration. The reasons for including Plum Island as an alternative were

- The Plum Island Site, currently owned by DHS, meets the NEPA definition of a reasonable alternative;
- PIADC, which is located at Plum Island, currently performs research similar to that proposed for the NBAF and has a workforce that assesses potential threats from foreign animal and zoonotic diseases;
- PIADC fulfills some of the goals and mission identified for the NBAF; and
- The Plum Island Site meets some of the NBAF site evaluation criteria could be internally evaluated throughout the EIS process given that DHS already owns Plum Island.

The six site alternatives were identified in the *Federal Register* on July 31, 2007, as those that would be analyzed in the NBAF EIS (in addition to the No Action Alternative). The sites are shown in Figure ES-1.

4.0 ALTERNATIVES EVALUATED IN THE NBAF EIS

Under the No Action Alternative, the NBAF would not be constructed. The work currently being conducted at PIADC, which performs much of the research on foreign animal and zoonotic diseases in the United States, would continue. However, PIADC has facility limitations, such as its lack of any BSL-4 space, and aging facilities and infrastructure. Improvements and facility replacements would be required for PIADC to maintain its ability to perform current mission requirements.

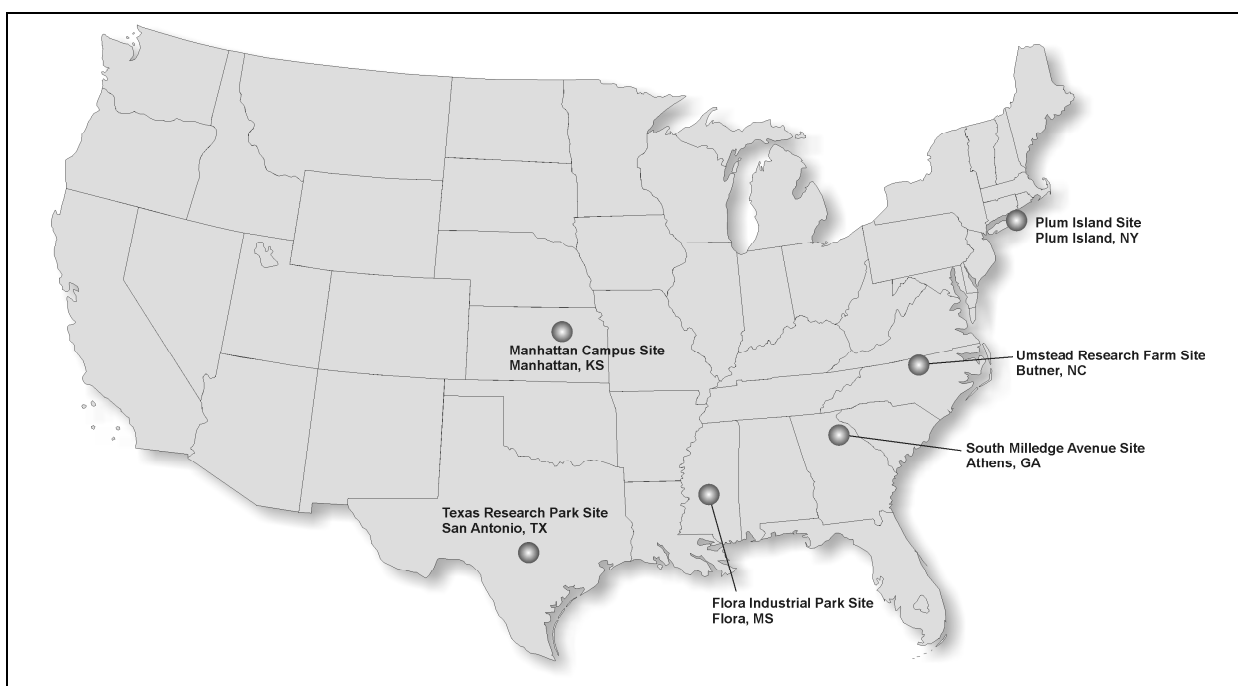


Figure ES-1 — Six Site Alternatives

South Milledge Avenue Site is located west of the South Milledge Avenue/Whitehall Road intersection in Clarke County, Georgia. The site is an approximate 67-acre tract of land consisting of open pastureland and wooded land and is owned by the University of Georgia.

Manhattan Campus Site is on the campus of Kansas State University immediately adjacent to the Biosecurity Research Institute. The site consists of approximately 48.4 acres southeast of the intersection of Kimball Avenue and Denison Avenue.

Flora Industrial Park Site is located in Madison County, Mississippi, and is owned by the Madison County Economic Development Authority. The site is 150 acres on the east side of U.S. Highway 49, north and east of the intersection with North 1st Street.

Plum Island Site is a U.S. government-owned 840-acre island located about 12 miles southwest of New London, Connecticut, and 1.5 miles from the northeast tip of Long Island, New York. The Plum Island Site is approximately 24 acres directly east of the existing PIADC, which is on the western shore of the island.

Umstead Research Farm Site is located north of the terminus of Dillon Drive along the northern property boundary of the C.A. Dillon Youth Development Center in Butner, North Carolina. The site is an approximate 249-acre tract of undeveloped, cleared and wooded land.

Texas Research Park Site is located in San Antonio, Texas, and extends over the Bexar County line into a portion of Medina County. The 100.1-acre site is located west of Lambda Drive, south of the proposed extension of Omicron Drive, and is currently vacant, undeveloped ranch land.

Alternatives Considered but Eliminated From Detailed Study

Early in the NEPA process, DHS considered other potential alternatives, including suggestions by the public during the scoping process. The following alternatives were considered but determined not to be reasonable alternatives for evaluation in the NBAF Draft EIS:

- **U Upgrade PIADC.** The proposed NBAF would require BSL-4 capability. PIADC does not have BSL-4 laboratory space, and the existing infrastructure is inadequate to support a BSL-4 laboratory. Refurbishing the existing facilities and obsolete infrastructure to allow PIADC to meet the new mission would be more costly than building the NBAF on Plum Island. In addition, for the existing facility to be refurbished, current research activities might have to be suspended for extensive periods.
- **Use Existing Laboratory Facilities.** No existing U.S. facility could meet the mission needs determined by DHS and USDA. Although a number of BSL-3 and BSL-4 facilities are located in the U.S., they do not have the capacity to conduct the research required. Similar facilities in Winnipeg, Canada, and Geelong, Australia, do not have the capacity to address the outbreak scenarios in the United States in a timely manner and cannot guarantee their availability to meet U.S. research requirements.
- **Other Locations.** Other potential locations were considered during the NBAF site selection process but were eliminated based on evaluation by the DHS evaluation committee. It was suggested during the scoping process that the NBAF be constructed in a remote location such as an island distant from populated areas or in a location that would be inhospitable (e.g., desert or arctic habitat) to escaped animal hosts/vectors. However, the evaluation criteria called for proximity to research programs that could be linked to the NBAF mission and proximity to a technical workforce. In addition, the Plum Island Site represents an isolated location while meeting the evaluation requirements. It was also suggested that the NBAF could be constructed beneath a mountain; however, the cost and feasibility of such a construction project would be prohibitive.

The Preferred Alternative

DHS has not identified a Preferred Alternative at this point in the evaluation process. The evaluation conducted during the NEPA process and presented in the NBAF Draft EIS documents the potential effects of the various alternatives on the natural and human environments on a local, regional, and national scale. This evaluation will be used in conjunction with other factors to assist DHS in identifying the Preferred Alternative in the NBAF Final EIS.

What is a Preferred Alternative?

An alternative that an agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical, and other factors. DHS will present its Preferred Alternative in the Final EIS.

5.0 ENVIRONMENTAL EFFECTS

One of the factors DHS considered during the site selection process was whether the NBAF could be constructed and operated without causing harm to the environment. This consideration is reflected in the results of the evaluation conducted in the NBAF Draft EIS. Overall, the adverse effects for the site alternatives are minimal as described below.

- **Land use.** For all site alternatives, land use would be consistent with local land use and zoning regulations. Conversion of approximately 30 acres of open land to the NBAF would occur. No other land use effects are expected.
- **Visual effects.** For all site alternatives, visual effects would occur during construction activities but would be temporary. Long-term visual effects due to operation of the NBAF would occur, particularly at the South Milledge Avenue Site and the Manhattan Campus Site where the NBAF would be visible to nearby residential or recreational receptors. The NBAF would be similar in size to a 400-bed hospital or 1,600 student high school and would be a noticeable landscape feature. Landscaping and appropriate architectural design features would reduce the visual effects.
- **Infrastructure.**
 - Potable water – Potable water use would vary to some degree for each site, but operation would result in use of approximately 36 million (Plum Island Site) to 52 million (Texas Research Park Site) gallons per year. All sites have available capacity to meet this demand. The South Milledge Avenue and Umstead Research Farm sites would need new water lines, and the Plum Island Site would need new groundwater wells and a new water tower.
 - Electricity – Operations at all sites would require 12.8 megawatts of electric power. Capacity is available at all sites to meet this need. Connection to existing or new substations would be needed at all sites.
 - Fuel oil and gas – Operation at all sites except the Plum Island Site would use natural gas as the primary fuel for operating the NBAF. The amount of natural gas needed would vary somewhat for each site, but capacity is available for all sites. New connecting lines would be needed at the South Milledge Avenue Site, the Flora Industrial Park Site, and the Umstead Research Farm Site. Fuel oil would be used when natural gas is not available. The Plum Island Site would use 1.6 million gallons per year of fuel oil as the primary source for operating the NBAF.
 - Sanitary sewer – Operation at all sites would generate between 25 million and 30 million gallons of wastewater per year. Capacity would be available from existing or planned wastewater treatment facilities. Wastewater discharged by the NBAF would meet all local wastewater permit requirements. New sewer lines would be needed at the Flora Industrial Park Site, the Umstead Research Farm Site, and the Texas Research Park Site.
 - Steam and chilled water – Steam and chilled water would be provided by on-site boilers and chillers for all sites.

- **Air Quality.** Air quality effects would occur with construction and operation of the NBAF for all sites. The Plum Island Site (ozone and particulates) and Texas Research Park Site (ozone) are in non-attainment areas for specific air pollutants, so air emissions from the NBAF would need to comply with local efforts to improve air quality. Air emissions from construction activities would include construction traffic and equipment. Operation of the NBAF would result in air emissions from boilers, emergency generators, and traffic from employees and deliveries. Additional effects to air quality would occur if incineration is used to treat and dispose of pathological waste. Preliminary assessments indicate that operation of the NBAF would not likely affect regional air quality. Additional modeling may be needed once the NBAF design and location have been determined.
- **Noise.** Noise effects would be similar for all sites, although residential or recreational receptors near the South Milledge Avenue Site and the Manhattan Campus Site may be more likely to be affected. Temporary increases in noise levels would occur due to construction activities and construction-related traffic. Operation of the NBAF would result in minor increases in noise levels from employee traffic and heating and cooling facilities. However, operation of the emergency generators would result in sporadic noise increases during testing.
- **Geology and Soils.** Effects to geology and soils would be similar for all sites. The NBAF would be designed to withstand and minimize the effects of earthquakes. Temporary effects to soils would occur due to excavation and site clearing, but erosion-control measures would minimize any adverse effects from construction and operation. It is not anticipated that prime or unique farmlands would be affected, although coordination with the NRCS is not complete.
- **Water.** Potential effects to water resources could occur with construction activities and would be similar for all sites. However, the South Milledge Avenue Site, the Flora Industrial Park Site, and the Umstead Research Farm Site are closer to surface waters, so the potential for effects are greater at these sites. Runoff from the construction site has the potential to enter surface or groundwater sources, but storm water management during construction would minimize the potential for this to occur. Similar effects could occur with operation of the NBAF. Strict compliance with storm water pollution prevention plans and spill management protocols would minimize the potential and mitigate the potential effects of a spill. Operation of the NBAF would result in use of between 36 million (Plum Island Site) and 52 million (Texas Research Park Site) gallons per year of water from surface water or groundwater sources. Operation at all sites would generate between 25 million and 30 million gallons of treated wastewater per year that would be discharged from the site. All discharged wastewater would meet local discharge requirements. No effects to floodplains would occur.
- **Biological Resources.** Effects to vegetation, wetlands, wildlife, aquatic life, and threatened or endangered species would be similar for all sites with a few exceptions. Site clearing would remove approximately 30 acres of vegetation, although all of the sites have been previously disturbed to some degree. Wetlands would be affected at the South Milledge Avenue Site from road and utility crossings (less than 0.5 acres), and approximately 0.2 acres of forested uplands would be lost. Threatened or endangered species, aquatic resources, and wildlife would not be directly affected by construction or normal operations at any site. An accidental release of pathogens from the NBAF would adversely affect selected wildlife populations and would be similar for all sites. The research conducted at the NBAF has the potential to prevent or contain outbreaks of the foreign animal diseases that could affect wildlife populations throughout the United States.
- **Cultural Resources.** No effects to cultural resources are expected to occur with construction or operation of the NBAF at any site. Consultation with state and federally recognized Native American Indian tribes has been initiated.
- **Socioeconomics.** Construction activities at all sites would result in between 1,300 and 1,614 temporary jobs, generating between \$138.2 million and \$183.9 million in labor income and between \$12.5 million and \$24.7 million in state and local taxes. Population, housing, and quality of life would not be affected by construction. Operation of the NBAF would result in 250 to 350 direct jobs

and an estimated income of between \$26.8 million and \$30.4 million annually. Population growth due to the NBAF would be a small portion of the estimated growth in the regions surrounding all sites. The effect of the NBAF on the housing market and quality of life (i.e., schools, law enforcement, fire protection, medical facilities, recreation, and health and safety) would be negligible. Law enforcement and fire protection personnel could be adequately trained by DHS to respond to incidents at the NBAF. The risk of an accidental release of a pathogen is extremely low, but the economic effect could be significant for all sites. Response measures to minimize risks and quickly contain any accidental release would also greatly reduce the potential economic loss. The climate conditions during winter months would not be hospitable for mosquito species to breed at the Manhattan Campus Site and the Plum Island Site. The warmer conditions at the other four sites increase the risk of Rift Valley fever virus becoming established. In any case, the risk of release remains very small.

No long-term, disproportionately high and adverse human health, or environmental effects would occur to low income or minority populations at any of the sites, although there is a potential for disproportionately adverse effects from increased traffic, surface water, or visual on the high minority populations that reside near the various sites. Visual effects and traffic increases due to construction would be minimized with proper site management protocols. Potential traffic effects would be minimized by limiting road closures and rerouting traffic. Economic benefits would potentially occur to populations within the area due to construction-related jobs.

- **Traffic and Transportation.** Local traffic at all sites would be temporarily affected by general construction traffic. Operation of the NBAF would result in only minor increases in daily traffic on roads near the sites except for roads near the Umstead Research Farm Site (Range Road and Old Route 75), which are not heavily used by local traffic and would experience an increase of average daily traffic volumes of approximately 500%. South Milledge Avenue currently experiences poor traffic flow and would be affected by the additional traffic due construction and operation of the NBAF. Modifications recommended by the Georgia Department of Transportation would help minimize the effects. Planned improvements to Potranco Road would improve traffic flow in the vicinity of the Texas Research Park Site. Minor road improvements would also be needed for roads near the Manhattan Campus Site and the Flora Industrial Park Site. Transportation of research materials would not significantly increase the risk of a traffic-related incident.
- **Existing Hazardous, Toxic, and Radiological Waste.** None of the sites would affect existing hazardous, toxic, and radiological waste. Recent investigations in the area including the Umstead Research Farm Site indicate that the potential for unexploded materials from past military training is low. The Plum Island Site was previously used to dispose of military materials but has been remediated (cleaned up) and should not be a safety concern for workers. Training for construction workers for either of these sites may be required prior to initiation of construction activities to ensure worker safety.
- **Waste Management.** Waste generation and management would be similar for all sites, although the amount of wastewater would vary somewhat for each site. Construction would generate construction debris, sanitary solid waste, and wastewater. Operation of the NBAF would result in generation of wastewater, waste solids, and medical, hazardous, and industrial solid wastes. Operation of the NBAF would generate between 25 million and 30 million gallons of wastewater per year. Wastewater discharged by the NBAF would meet all local wastewater permit requirements.
- **Health and Safety.** The effects of the NBAF on health and safety due to construction and normal operations would be similar for all sites. Standard safety protocols would minimize the likelihood of accidents and personal injury at the NBAF, and normal operations pose no threat to the surrounding communities. An evaluation was conducted to determine the potential for an accidental or intentional (criminal or terrorist) release of a pathogen from the NBAF and the potential for the pathogen to spread from each site alternative. The evaluation considered the accident scenarios with and without measures to prevent and contain a release. The results indicate that for all sites the risk was none to low for all accident scenarios except an over-pressure fire, where an explosion would occur due to the

buildup of a large amount of gas or flammable chemical in an enclosed area. The risk for an over-pressure fire accident was moderate for all sites. For all sites except the Plum Island Site, the overall risk rank was moderate due to the potential easy spread of a disease through livestock or wildlife. The risk rank for the Plum Island Site was low or none due to the low likelihood of any disease getting off of the island.

- **Cumulative Effects.** There would be minor cumulative effects to air quality, water supply, wastewater treatment capacity, and traffic with some of the site alternatives. Water use at the South Milledge Avenue Site and the Umstead Research Farm Site would contribute to regional water use during the current drought conditions, although there are few large regional development projects planned for the near future. Madison County, location of the Flora Industrial Site, and west Bexar County, location of the Texas Research Park Site, are experiencing rapid growth, and a number of residential development projects are planned for the near future. These projects would occur with or without the NBAF and would add to air emissions, water supply use, wastewater treatment capacity use, and increased traffic. Future projects near the Manhattan Campus Site would also add to the cumulative effects of these resources but to a lesser degree. No measurable cumulative effects were identified for the Plum Island Site.

Comparison of the Environmental Effects

Table ES-2 provides a description of the effect categories used for comparison in Table ES-3. The effects categories are subjective and the rationale is provided in the previous descriptions.

Table ES-2 — Environmental Effects Categories

Effect Category		Definition
Beneficial Effects	Significant	An action that would greatly improve current conditions
	Moderate	An action that would moderately improve current conditions
	Minor	An action that would slightly improve current conditions
Negligible or No Effect		An action that would neither improve nor degrade current conditions
Adverse Effects	Minor	An action that would slightly degrade current conditions
	Moderate	An action that would moderately degrade current conditions
	Significant	An action that would greatly degrade current conditions

No significant adverse effects to environmental or human resources would be expected from any of the alternatives with normal operation of the NBAF. Moderate effects that would occur would be to the following resources:

- Potable water – use of 36 million to 52 million gallons of potable water per year.
- Wastewater treatment capacity – generation of 25 million to 30 million gallons of wastewater per year.
- Visual Quality – visual prominence of the NBAF at four of the alternative site locations.
- Air Quality – Potential for air emissions to affect local air compliance plans in Suffolk County, New York and Bexar County, Texas.
- Traffic – Potential adverse traffic flow effects at the South Milledge Avenue Site and the Texas Research Park Site.

Significant beneficial effects to biological resources (wildlife), economics, and health and safety could occur with the development of new vaccines, diagnostic procedures, or rapid responses to potential FAD outbreaks.

Table ES-3 — Comparison of Environmental Effects

Resource	No Action	South Milledge Avenue Site	Manhattan Campus Site	Flora Industrial Park Site	Plum Island Site	Umstead Research Farm Site	Texas Research Park Site
Potential Adverse Effects for Normal Operations							
Land Use	None	Minor	Minor	Minor	Minor	Minor	Minor
Visual	None	Moderate	Moderate	Moderate	Minor	Moderate	Minor
Infrastructure	Minor	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Air Quality	Minor	Minor	Minor	Minor	Moderate	Minor	Moderate
Noise	Minor	Minor	Minor	Minor	Minor	Minor	Minor
Geology and Soils	Minor	Minor	Minor	Minor	Minor	Minor	Minor
Water	Minor	Minor	Minor	Minor	Minor	Minor	Minor
Biology	Negligible	Minor	Negligible	Negligible	Negligible	Minor	Negligible
Cultural	None	None	None	None	None	None	None
Socioeconomics	None	Minor	Minor	Minor	Minor	Minor	Minor
Traffic and Transportation	None	Moderate	Minor	Minor	Negligible	Minor	Moderate
Hazardous Waste	None	Negligible	Negligible	Negligible	Minor	Minor	Negligible
Waste Management	Minor	Minor	Minor	Minor	Minor	Minor	Minor
Health and Safety	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Environmental Justice	None	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Cumulative Effects	None	Minor	Minor	Moderate	Negligible	Minor	Moderate
Potential Beneficial Effects for Normal Operations							
Biology	None	Significant	Significant	Significant	Significant	Significant	Significant
Socioeconomics	None	Significant	Significant	Significant	Significant	Significant	Significant
Health and Safety	None	Significant	Significant	Significant	Significant	Significant	Significant

6.0 RISKS AND MITIGATION MEASURES

Measures to mitigate potential environmental, socioeconomic, and health adverse effects are presented in the NBAF Draft EIS. All practicable means to avoid or minimize potential adverse effect from the selected alternative would be incorporated into the design of the NBAF. Potential health and safety impacts during the construction and operation phases of the proposed NBAF are addressed in a hazard assessment that was conducted specific to the NBAF. The hazard assessment included an analysis of the potential risks to the public, livestock, and wildlife from biological material shipments; laboratory accidents; escape of an infected animal; mechanical failures; human errors; contact with contaminated or transiently colonized or infected workers, and natural phenomena events such as hurricanes or tornados; and terrorist acts.

The risks of release of any identified pathogen proposed for study within the NBAF were evaluated specifically and were shown to present a hazard to workers and a potential for release from the facility. These risks were shown to be mitigated by implementation of operation protocols and rigid adherence to the guidelines presented in the Centers for Disease Control and Prevention and National Institutes of Health's Biosafety in Microbiological and Biomedical Laboratories and other standards for safe operational practices, and implementation of security measures as described in the NBAF Draft EIS. The risks associated with the operation of the NBAF as determined from the detailed hazard and accident analysis were shown to present a serious potential for adverse consequences in the event of a release of any of the three representative viruses (foot and mouth disease virus, Rift Valley fever virus, and Nipah virus).

The risk and consequence of a release of foot and mouth disease virus was of concern due to its highly infectious nature and potential economic impact. The hazard analysis included in the Health and Safety section of the DEIS, and supplemented in Appendix E, concluded that the likelihood of a release of foot and mouth disease virus was extremely low, given appropriate attention to the design, construction and operation of an NBAF with the array of safety controls described including a robust facility that is capable of withstanding the various analyzed accident conditions. The risk of accidental release was independent of where the facility was located. The analysis of the consequences of a release of foot and mouth disease virus, however, indicated that should a large release occur there is considerable opportunity for the virus to cause infections and become established in the environment beyond the facility boundary. The site-specific consequences were shown to be essentially the same between the sites located on the mainland and were slightly lower for the Plum Island facility due in part to there being less opportunity for the viruses to become established and spread.

Economic consequence of a release of foot and mouth disease virus was evaluated in Appendix D of the DEIS and supported by recent modeling⁶. The evaluation determined that the effects would be dependent on the type of event causing the release and the location of the release (e.g., which alternative). A May 2008 modeling study evaluated the potential economic loss from a foot and mouth disease virus release in each county where the alternatives are located. The economic losses would be between \$2.8 billion (Suffolk County, New York) and \$4.2 billion (Riley County, Kansas).

7.0 NBAF DRAFT EIS ORGANIZATION AND CONTENT

The NBAF Draft EIS includes the Executive Summary and Chapters 1 through 9 as described below.

Chapter 1: Purpose and Need—provides information regarding the purpose of and need for the Proposed Action, outlines the NBAF mission, and provides background on animal disease research and DHS's responsibilities. It also describes the NEPA process, alternatives, and decisions to be made and summarizes the results of the public scoping process.

⁶ U.S. Department of Homeland Security Biodefense Knowledge Center Rapid Response 2008.

Chapter 2: Alternatives—describes the Proposed Action to site, build, and operate the NBAF; the No Action Alternative; and alternatives considered but eliminated from detailed analysis. It also presents the conceptual design of the NBAF and a comparison of effects from implementation of the Proposed Action at each site alternative and the No Action Alternative.

Chapter 3: Affected Environment and Consequences—describes the potentially affected environment under the No Action Alternative and each of the six site alternatives, as well as the approach taken in defining those environments. The potential environmental impacts form the scientific basis for comparison of the site alternatives. The discussion includes the identification of cumulative impacts, unavoidable adverse impacts, irreversible or ir retrievable resource commitments, and the relationship between short-term use and long-term productivity that could occur if the Proposed Action is implemented.

Chapter 4: Index—identifies the key terms used in the EIS and where they are used.

Chapter 5: References—provides the list of references that are cited in the EIS.

Chapter 6: List of Preparers—provides a list of preparers and document reviewers, their academic qualifications, and areas of responsibility.

Chapter 7: Distribution List—identifies the individuals and organizations who will receive the NBAF Draft EIS.

Chapter 8: Glossary—defines technical terms.

Appendixes

- Appendix A: *Federal Register* Notices
- Appendix B: Understanding Infectious Microorganisms: A Review of Biocontainment Laboratory Safety
- Appendix C: Socioeconomics Tables
- Appendix D: Potential Economic Consequences of Pathogen Releases from the Proposed NBAF
- Appendix E: Accidents Methodology
- Appendix F: NEPA Disclosure Statement

8.0 PUBLIC PARTICIPATION

DHS initiated a 60-day public scoping period for the NBAF EIS that began with publication of the Notice of Intent on July 31, 2007, and ended on September 28, 2007. DHS also mailed postcards to approximately 2,650 initial stakeholders including relevant federal agencies, state NEPA points of contact, non-governmental organizations, and associations, as well as mailing lists developed by associated federal agencies and interested organizations.. DHS also developed a Web page at <http://www.dhs.gov/nbaf> where the meetings were announced and interested stakeholders could request to be added to the mailing list.

DHS conducted eight public scoping meetings in the vicinity of the six site alternatives, along with one regional meeting in Washington, D.C. More than 1,350 people attended the meetings. Nearly 300 people provided oral comments at the public meetings, and more than 880 comment documents were received during the comment period.

The public comments were analyzed and helped identify and understand local concerns and issues. One area of concern shared by many of the potential site community members was the placement of proposed NBAF in highly populated areas or in areas that housed institutionalized populations. Another concern related to

What is Scoping?

This scoping process provides opportunities for the public to give their comments directly to the federal agency on the scope of the EIS. This aids the federal agency in determining the alternatives, issues, and potential environmental impacts to be analyzed in the EIS.

health risks, should an accidental or intentional (criminal or terrorist) release occur, and its effects on the population is the ability of affected communities to evacuate the area and environmental effects. Concerns were also raised on the construction and operation of the NBAF in terms of resources required, particularly water.

Details on the scoping process and issues identified are documented in the *NBAF EIS Scoping Report*, which is available online at <http://www.dhs.gov/nbaf> (click on Public Involvement) and in NBAF reading rooms in public libraries at each site alternative (see <http://www.dhs.gov/nbaf> and click on Public Reading Rooms).

How Do I Submit Comments on the NBAF Draft EIS?

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