

EXECUTIVE SUMMARY

INTRODUCTION

Following the events of September 11, 2001, the focus on national security in the United States has greatly intensified. Through the National Institutes of Health (NIH) and the National Institute of Allergy and Infectious Diseases (NIAID), which support broad-based programs of basic and applied research to prevent, diagnose and treat infectious and immune-mediated diseases, the Department of Health and Human Services (DHHS) is advancing biomedical research. Integral to this mission is the responsibility to conduct biomedical research aimed at addressing the constant threat of naturally occurring, newly emerging and re-emerging infectious diseases. The specific mandate of the NIAID in the post-September 11 national security effort is to support research that will ultimately lead to the development of medical countermeasures in the form of therapies, vaccines, and diagnostic tools to protect the country from deliberate attacks with biologic agents (Hirschberg, et al. 2004).

In February of 2002, NIAID, in consultation with a blue ribbon panel, developed a strategic plan for biodefense research to accomplish short and long-term goals. The NIAID strategic plan emphasizes both basic research and the application of that basic research to the development of products. The plan identified a critical need to expand the availability of national resources for biodefense research and identified a serious shortage of high-level biocontainment laboratories. NIAID issued a Broad Agency Announcement (BAA) in the fall of 2002 to build national laboratories to expand the research capacity. Boston University Medical Center (BUMC), a consortium of Boston University and Boston Medical Center, submitted an application to NIAID in response to the BAA to construct the National Emerging Infectious Diseases Laboratories at the Boston University Medical Center (BUMC) campus in the South End neighborhood of Boston, MA. The Boston National Biocontainment Laboratory (NBL) is hereinafter referred to as the “Boston-NBL” or the “Project”.

The mission of the Boston-NBL, which will be owned, operated and managed by BUMC, is to provide biomedical research facilities for research and development of diagnostics, vaccines and therapeutics to combat emerging and re-emerging infectious diseases. The facility would serve as a venue for training researchers in infectious diseases and would not conduct research to develop offensive biological weapons. The Boston-NBL Project is one of two National Biocontainment Laboratories (NBL) funded by the NIAID in 2003. Construction of the facility would add to the growing life sciences industry in the region that is supported by both the Commonwealth of Massachusetts and the City of Boston.

PURPOSE OF AND NEED FOR ACTION

NIAID has recognized that there is a well-documented and serious strategic national shortage of biological containment facilities with laboratories and procedures for handling potentially lethal infectious agents. This condition represents a substantial impediment to conducting research on infectious diseases and is a national biodefense vulnerability. Therefore, additional facilities are required, which are partially comprised of laboratories designed and constructed to biosafety standards that would allow for the safe conduct of biomedical research with emerging and re-emerging infectious diseases.

The purpose of the Boston-NBL is to provide a highly contained and secure laboratory dedicated to studying emerging and re-emerging infectious diseases, many of which have potential as bioterrorism agents. The Boston-NBL facility, which would be owned, operated and managed by the BUMC, would contain state-of-the-art laboratories designed to conduct research in a safe and secure environment to find treatments and vaccines for many significant infectious diseases.

The facility's proposed location, in the BioSquare Research Park, allows for dynamic collaborations among investigators at multiple research entities such as the Boston University School of Medicine, Harvard Medical School, Massachusetts Institute of Technology, Massachusetts General Hospital, Brigham and Women's Hospital, the Center for Blood Research, University of Massachusetts Medical Center, Massachusetts Biological Laboratories, Tufts University, New England Medical Center, Brandeis University and others. The laboratory would serve as a national resource for efforts in conducting laboratory research and testing on hazardous biological agents to prevent, diagnose and treat these infectious agents.

SUMMARY OF PROPOSED ACTION

The National Institutes of Health proposes to partially fund the construction of the National Emerging Infectious Diseases Laboratories at the BioSquare Research Park in Boston, Massachusetts. The 194,000 square foot (sf) facility would contain state-of-the-art Biosafety Level (BSL) -2, BSL-3 and BSL-4 laboratories constructed to the National Institutes of Health's (NIH) and Centers for Disease Control (CDC) standards of safety. The facility would not be used to work on or develop biological weapons, as this is forbidden by a national security directive and international law. President Nixon, in 1969, agreed to a National Security Decision Memorandum which renounced the use of lethal methods of bacteriological/biological warfare and ordered the destruction of all stockpiled agents. The United States signed the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their*

Destruction, which became effective March 26, 1975 (signed by President Ford and ratified by Congress) and remains in effect.

The Boston-NBL would emphasize comprehensive core research facilities that would enable basic, translational and clinical research and the development of products related to emerging infectious diseases. The facility would contain core support laboratories with sophisticated facilities including high power microscopes, Magnetic Resonance Imaging (MRI) machines, and diagnostic tools to study new vaccines and drugs to treat infectious diseases.

PROJECT ALTERNATIVES

The only alternative studied in detail is the No Action Alternative. Under the No Action Alternative, the Boston-NBL at the BioSquare Research Park would not be built.

Alternative locations for the Boston-NBL were considered by BUMC during the early planning phases of the Project. Alternatives suggested during the public scoping process on the Environmental Impact Statement (EIS) include:

- Locations outside Massachusetts or lower density areas outside of Boston
- Alternative locations for the BSL-4 facilities
- Other Boston University-owned sites/facilities

The above Project alternatives are not analyzed in detail as they are technically unfeasible, provide no environmental advantage over the Proposed Action or No Action, or do not meet the purpose and need for the Project.

The only alternative to the Proposed Action discussed in detail in the Environmental Impact Statement (EIS) is the No Action Alternative.

SUMMARY OF IMPACTS

Analysis of potential impacts and mitigation measures associated with the Proposed Action and Alternatives is presented in Chapter 4, Environmental Consequences. The following is a summary of potential impacts resulting from the Proposed Action and the No Action Alternative.

SOCIAL RESOURCES

PROPOSED ACTION

The Proposed Action would not result in adverse housing or educational impacts. The existing housing supply and school systems have adequate capacity to accommodate the projected additional population growth. The Proposed Action would result in a minimal increase in traffic in the South End but would not create unacceptable conditions. The Project would include implementing traffic improvements and participation in transportation demand management activities as described in Chapter 4. Construction traffic would create temporary impacts in the project vicinity. BUMC would work closely with the Boston Transportation Department to develop a construction management plan to maximize direct access from the interstate highway system and minimize impacts on neighborhood streets to the greatest extent possible.

The Proposed Action would not create undue burdens on community safety. The existing fire, police and emergency services provided by the City of Boston are adequate to service the proposed Boston-NBL facility. BUMC would expand its security staff to ensure that the Boston-NBL facility achieves a high level of safety and security.

The Boston-NBL facility is being designed to incorporate state-of-the-art security systems as well as redundant utility systems. Continuing systems maintenance procedures would be instituted to ensure a high level of reliability of the safety infrastructure. Strict operational protocols would be imposed on laboratory personnel including specific training and background checks prior to working in the facility.

Scenarios involving terrorist, intentionally destructive acts or other malevolent acts at the proposed Boston-NBL have been analyzed in an independent Threat and Risk Assessment (TRA). Because the analysis contains sensitive information, the TRA is a confidential/official use only document. Both Boston University and NIH security personnel have reviewed the analysis and conclusions of the TRA. The design as well as security plans and procedures of the proposed Boston-NBL building address the TRA analysis and recommendations.

The overall safety record of biomedical and microbiological laboratories indicates that there is negligible risk of accidental release. However, as required, a quantitative worst-case risk analysis was conducted for the Boston-NBL BSL-4 laboratory and is presented in Chapter 4. The worst-case risk assessment involves a complete loss of containment systems at the BSL-4 laboratory that coincides with a release of anthrax spores within the facility. The results of the analysis demonstrate that the community risk resulting from the potential release of infectious agents is negligible.

Chapter 4 also includes a qualitative risk assessment including a review of the Boston-NBL proposed infectious waste handling procedures, animal containment and procedures for biological material shipment. Appendix 4 includes a summary of the safety record of

biocontainment laboratories at BUMC and the results of a survey prepared for the NIH which reviewed the safety records of BSL-4 laboratories worldwide with 20 or more years of operating experience (Johnson, 2003). Similar to the quantitative risk assessment conducted for the Boston-NBL facility, the qualitative risk assessment demonstrates that the community risk resulting for the potential release of infectious agents is negligible.

NO ACTION

Under the No Action Alternative, no additional jobs would be created and housing will be unaffected. The construction-related and long-term traffic associated with the proposed Boston-NBL facility would not be generated. The existing fire, police and emergency services would not need to accommodate the Boston-NBL facility. The Boston-NBL facility would not be constructed and the negligible risk associated with the BLS-4 laboratory would not be present.

ECONOMIC RESOURCES

PROPOSED ACTION

Construction of the proposed Boston-NBL facility would occur over a 36-month period and would generate approximately 1,300 construction jobs. Once the facility is opened, approximately 660 new positions would be created. These positions would include research technicians, safety officers, animal lab technicians, and building maintenance personnel, as well as research professionals and principal investigators. The increase in new jobs would add 0.1% to the current work force in the City of Boston. Based on current employment statistics for BUMC, approximately 244 or 37% of NBL employees would be residents of the City of Boston. The Proposed Action would have direct positive economic impacts on the City of Boston. Annual payroll associated with the facility is estimated at \$33,000,000. Using the U.S. Department of Commerce Regional Input-Output Modeling System (RIMS II), the economic activity generated would be \$72 million annually, of which \$19.7 million would be within the City of Boston. Total economic impact of the facility, including direct, indirect and induced activity, is projected to be \$130.5 million annually. Public finance revenues would increase from payroll income tax, taxes on real property purchased by employees and the BUMC payment in lieu of taxes to the City of Boston. In addition, BUMC would contribute to the City's Housing and Jobs Trust Funds.

NO ACTION

Under the No Action Alternative, the economic benefits associated with the Boston-NBL facility would not occur.

ENVIRONMENTAL JUSTICE

PROPOSED ACTION

The Project area is considered an Environmental Justice (EJ) area because the population of the area is at least 25% minority. The Project is similar in nature to the other research buildings in the area and presents no impacts which disproportionately affect disadvantaged populations.

NO ACTION

Under the No Action Alternative there would be no impacts to Environmental Justice populations.

VISUAL QUALITY

PROPOSED ACTION

The Project has been designed to complement the existing urban design context of the Project Area. The site and building design have been reviewed with the Boston Redevelopment Authority's (BRA) urban design staff as part of the design review process to assure compliance with BRA guidelines and recommendations. The building's placement on the site and treatment of the façade has projected the image of three "front doors": Albany Street to the north, the expressway to the south, and the BioSquare Research Park to the west. In addition, the facility has been configured to maximize the open space on the site and future development potential.

NO ACTION

Under the No Action alternative, the Boston-NBL facility and its associated public realm improvements would not be constructed. The site would remain an at-grade parking lot.

NOISE

PROPOSED ACTION

Construction of the Project would result in a temporary increase in daytime sound levels near the site at a level that complies with the City of Boston noise regulations. The peak noise impacts estimated for the Project would only occur for brief periods during pile driving and during the excavation period of the Project, when it is conservatively estimated that two heavy-duty vehicles would be operating simultaneously on the site. Mitigation measures would be employed as necessary to minimize the potential impact of noise generated by construction operations on all locations surrounding the Project site. Post-construction, the Project generated noise would be in compliance with City of Boston and state noise regulations.

NO ACTION

Under the No Action alternative, the noise associated with the construction and operation of the Boston–NBL facility would not occur.

AIR QUALITY

PROPOSED ACTION

Emissions would be generated during normal laboratory operations as well as from boilers and emergency generators. The laboratory exhaust system and pollution control equipment built for the Project would be designed to avoid air quality impacts inside or outside the building under normal operations. Source emissions would comply with all federal, state and local air quality standards.

NO ACTION

Under the No Action alternative, the air emissions associated with the operation of the Boston–NBL facility would not be generated.

WATER SUPPLY AND WASTEWATER

PROPOSED ACTION

The estimated average daily water usage for the Project when the facility becomes operational is 50,000 gallons per day (gpd). The South End area of Boston receives its domestic and fire protection water from an existing system of Boston Water and Sewer Commission water mains. The water itself is supplied by the Massachusetts Water Resources Authority, which has adequate capacity to service the facility.

The peak sewage flows are estimated at 45,825 gpd based on existing flows at similar BUMC labs. Sanitary sewage from the proposed Project would be carried by the New Albany Street Interceptor, which has more than adequate capacity to accommodate the Project flows.

NO ACTION

Under the No Action alternative, the water consumption and additional flows to the sewage system would not occur.

HISTORIC RESOURCES

PROPOSED ACTION

The Project is located near the South End National Register District and the South End Landmarks District. The proposed Project would meet the goal of the South End Harrison/Albany Protection Area, which is to protect the adjacent South End Landmark District, through design review of proposed projects. The Project would meet all of the

Protection Area standards and criteria for new projects and thus will not create adverse impacts to historic resources.

NO ACTION

Under the No Action Alternative, there would be no impact on historic resources.

CUMULATIVE EFFECTS

PROPOSED ACTION

The Proposed Boston-NBL and the five identified reasonably foreseeable actions would not result in any direct or indirect adverse impacts. The existing and proposed developments in the project area have been included as background assumptions for the analysis of the Proposed Action. The primary cumulative effect is in the area of transportation impacts. The transportation analysis, which was based on the total impact of the Proposed Action combined with other existing and proposed development and proposed mitigation measures, indicates that there would be no unacceptable adverse impacts. Since there are no direct or indirect effects from the reasonably foreseeable actions, the proposed Boston-NBL project would have no cumulative impacts.

NO ACTION

Since there are no direct or indirect effects, the No Action alternative would have no cumulative effects

PREFERRED ALTERNATIVE

The NIH has identified the Proposed Action as the preferred alternative.