Draft Environmental Assessment for CO6 Grant

Boston, Massachusetts

Boston University National Emerging Infectious Diseases Laboratories (NEIDL) Infrastructure Modernization

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ACRONYMS AND ABBREVIATIONS

ABSL	Animal Biosafety Level
ACL	Arthropod Containment Level
APR	Air Pressure Resistant
APV	annual performance verification
ARS	Agriculture Research Services
BI	Biological Indicators
BMBL	Biosafety in Microbiological and Biomedical Laboratories
BMP	best management practices
BSL	Biosafety Level
BTD	Bubble Tight Dampers
BU	Boston University
BWSC	Boston Water and Sewer Commission
CDC	Centers for Disease Control and Prevention
CLC	Community Liaison Committee
ClO2	chlorine dioxide
DDC	Direct Digital Control
EA	Environmental Assessment
EHS	Environmental Health and Safety
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
HASP	Health and Safety Plan
HEPA	high efficiency particulate air

HHS	U.S. Department of Health and Human Services
MWRA	Massachusetts Water Resources Authority
NEIDL	National Emerging Infectious Diseases Laboratories
NEPA	National Environmental Policy Act
NIH	National Institutes of Health
PPE	personal protective equipment
Proponent	Boston University
Risk Assessment	Supplementary Risk Assessment
ROD	Record of Decision
RPC	Room Pressure Controllers
USC	United States Code
USDA	United States Department of Agriculture
VAV	Variable Air Volume
VHP	vaporized hydrogen peroxide
VoIP	Voice-over Internet Protocol

Chapter 1

INTRODUCTION

CHAPTER 1: INTRODUCTION

1.1 BACKGROUND

Boston University (BU or the Proponent) has been awarded a grant from the National Institutes of Health (NIH) to address infrastructure modernization needs at the National Emerging Infectious Diseases Laboratories (NEIDL). BU is proposing to modernize laboratory and research facilities to improve safety, efficiency, and productivity (the Project).

The NIH NEIDL is one of two National Biocontainment Laboratories. The NEIDL is housed on the BU Medical Campus proximate to the Schools of Medicine and Public Health and their associated research facilities, and Boston Medical Center, the principal teaching hospital for the medical school. See Figure 1-1, Locus Map. The faculty and staff at the NEIDL conduct academic and clinical research on high priority emerging infectious diseases, provide fundamental knowledge for the benefit of public health, and implement knowledge to find cures for these diseases.

This Environmental Assessment (EA) has been prepared to address the requirements under the National Environmental Policy Act of 1969 (NEPA), as amended (42 USC 4321 et seq.), which requires all federal agencies to understand and disclose the environmental impacts from their actions and provide a basis for a determination whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). This EA objectively evaluates the effects of the action on the human environment.

1.2 ORGANIZATION OF ENVIRONMENTAL ASSESSMENT

This EA has been prepared in accordance with NEPA and in compliance with NIH's own policy and guidelines for implementing NEPA. Specifically, NIH accomplishes adherence to NEPA through the U. S. Department of Health and Human Services (HHS) General Administration Manual Part 30, Environmental Protection. These federal regulations establish the administrative process.

Per Section 30-50-40 of the General Administrative Manual, the EA shall:

1. Briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or FONSI;

2. Briefly discuss the need for the proposed action;

3. Describe the potential environmental impacts of the proposed action;

4. Describe measures, including suitable pollution prevention techniques, which would be taken to avoid or mitigate potential environmental impacts associated with the proposed action;

5. Describe in detail the environmental impact of reasonable alternatives to the proposed action (including no action), particularly those that will enhance the quality of the environment and avoid some or all of the adverse environmental effects of the proposed action;

6. Include a comparative analysis of environmental benefits and risks of the proposed action and alternatives, identifying the preferred action based on environmental factors;

7. Include, if appropriate, a floodplain/wetlands assessment prepared under Sections 30-40-40 or 30-40-70 and analyses needed for other environmental determinations;

8. Include an overview of public engagement;

9. List those persons preparing the assessment and their areas of expertise and persons and agencies consulted; and

10. List complete citations for all referenced documents and include copies of referenced articles that are not generally available.

Consistent with 42 USC 4321 et seq., EAs may incorporate by reference information presented in other documents that are reasonably available to HHS and to the public within the time to comment.

1.3 PROJECT SITE

The NEIDL is a seven-story University-wide Research Center located at 620 Albany Street, Boston, Massachusetts on the BU Medical Campus adjacent to the BU Schools of Medicine and Public Health and Boston Medical Center. See Figure 1-2, Aerial View of Project Site. The 192,000-square-foot (sf) building sits in a medical campus in an urban landscape. The Project activities will occur entirely inside the building.

1.4 FEDERAL DECISIONS TO BE MADE

1.4.1 ACTING AGENCY

As part of the HHS, the NIH's mission is to seek fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to enhance health, lengthen life, and reduce illness and disability.

The NIH goals include the following:

1. to foster fundamental creative discoveries, innovative research strategies, and their applications as a basis for ultimately protecting and improving health;

2. to develop, maintain, and renew scientific human and physical resources that will ensure the Nation's capability to prevent disease;

3. to expand the knowledge base in medical and associated sciences in order to enhance the Nation's economic well-being and ensure a continued high return on the public investment in research; and

4. to exemplify and promote the highest level of scientific integrity, public accountability, and social responsibility in the conduct of science.

In realizing these goals, the NIH provides leadership and direction to programs designed to improve the health of the Nation by conducting and supporting research in the following areas:

1. in the causes, diagnosis, prevention, and cure of human diseases;

2. in the processes of human growth and development;

3. in the biological effects of environmental contaminants;

4. in the understanding of mental, addictive and physical disorders; and

5. in directing programs for the collection, dissemination, and exchange of information in medicine and health, including the development and support of medical libraries and the training of medical librarians and other health information specialists.

1.4.2 AGENCY FINDING AND DECISION

The NIH will use the EA to inform their decision to grant funds to the Proponent for the Proposed Project. Through the EA and the NEPA process, the NIH has identified the actions they will undertake to minimize effects to the human health and environmental, pursuant to NEPA and Council on Environmental Quality (CEQ) oversite.

The NIH's decision-making process will include determining that no potentially significant adverse effects are identified. The NIH will carefully consider comments received from the public and regulatory agencies in their decision-making process. The NIH will either document the decision in a FONSI or indicate an EIS is required.

Boston, MA

Figure 1-1
Locus Map
Source: USGS, 2025

Boston, MA

Figure 1-2
Aerial View of Project Site
Source: Nearmap, 2024

Chapter 2

PURPOSE AND NEED

CHAPTER 2: PURPOSE AND NEED

2.1 INTRODUCTION

BU has applied for a grant from NIH to upgrade laboratory facilities at the NEIDL. These upgrades are important for improving the efficiency of researching high-consequence pathogens, a principal objective of the NEIDL. NIH's goals include promoting research in public health through research conducted with the highest level of scientific integrity and greatest degree of safety.

The NEIDL at BU was established for containment research for the following reasons:

1. to generate essential information about new and reemerging infectious pathogens and the diseases they cause;

2. to facilitate development of vaccines, therapeutics, and diagnostics; and

3. to train future generations of scientists to safely study pathogens with pandemic potential.

The NEIDL is one of two National Biocontainment Laboratories established by the NIH as part of the Biodefense Research Program. The NEIDL houses moderate (Biosafety Level 2 [BSL-2]), high (Biosafety Level 3 [BSL-3]), and maximum (Biosafety Level 4 [BSL-4]) containment labs. Shortly after research operations had begun, NEIDL investigators were faced with the need to urgently pivot to work on the new pandemic pathogen, SARS-CoV-2. This effort revealed infrastructure modernization needs in the facility that impeded research flexibility, reduced operational efficiency and turnaround time between studies, limited the number of pathogens and arthropod vectors that could be investigated concurrently, and slowed scientific productivity and the development of essential medical countermeasures and diagnostics. With increasing frequency of new and reemerging high-consequence pathogens causing human (and animal) diseases and the limited availability of proven safe and effective medical countermeasures, there is a need to improve the facility's operational efficiency for research on Risk Group 3 pathogens.[1]

The purpose and need of the NIH grant are to fund the modernization of the NEIDL in the areas of decontamination, isolation, pressure control systems, ventilation, and arthropod containment systems. The following three modernization goals will significantly improve the NEIDL's ability to manage the facility and better meet future research needs:

[1] Based on NIH guidelines, Risk Group 3 pathogens are those agents associated with serious or lethal human disease for which preventative or therapeutic interventions may be available. Risk Group 3 agents represent a high risk to the individual and a low to moderate risk to the community depending on the pathogen.

Goal 1. Modify BSL-3 and Animal Biosafety Level (ABSL)-3 spaces to facilitate individual room isolation for decontamination and essential maintenance, allowing uninterrupted work in other BSL-3/ABSL-3 areas. Updating the original room air pressure control systems will preclude inadvertent positive pressurization of adjacent spaces, while the installation of additional in-parallel high efficiency particulate air (HEPA) filter housings will increase capacity for extended or phased Risk Group 3 studies in animals and room-by-room annual maintenance and certification.

Goal 2. Renovate Arthropod Containment (High) Level space to add capacity for tick research and permit concurrent mosquito vector studies, facilitate direct vector-to-host transmission studies in animal models of human disease, and improve vector biosecurity when doors are opened and closed.

Goal 3. Modernize and convert the BSL-4 air locks to include the automated delivery of MicroChem shower as an option to manual delivery of MicroChem shower or gaseous phase decontamination to reduce the required process time from days to minutes and expedite turnaround time for studies to resume.

The Proposed Project would meet the objectives for both the NEIDL to conduct containment research on infectious pathogens and the NIH to promote such research.

Chapter 3

PROPOSED ACTION AND ALTERNATIVES

CHAPTER 3: PROPOSED ACTION AND ALTERNATIVES

3.1 INTRODUCTION

This section of the EA describes both the Proposed Action and No-Action Alternative and identifies those alternatives considered but eliminated from detailed analysis. The alternatives analysis is centered around the purpose and need, as described in Chapter 2.

3.2 PROPOSED ACTION – MODERNIZE RESEARCH FACILITIES

Under the Proposed Action, the NIH would fund the modernization of research facilities at the NEIDL, as described in the following sections. The measures for completing the three modernization goals would be carried out completely within the interior of the NEIDL building. The modernization would occur on floors 2–7, in laboratories and mechanical spaces.

3.2.1 GOAL 1: UPGRADE AND MODERNIZE ISOLATION AND PRESSURE CONTROL SYSTEMS AND INSTALL PARALLEL HEPA FILTER HOUSINGS

Goal 1 will upgrade and modernize isolation and pressure control systems in all BSL-3/ABSL-3 spaces and install additional parallel HEPA filter housings to ABSL-3. Goal 1 will impact the internal environment and have no impact on the safety measures in place external to the specific space and systems proposed for upgrade. It will improve safety and biocontainment assurances and increase uptime and use of laboratories and animal holding for Risk Group 3 research studies.

3.2.1.1 BASIS FOR UPGRADE AND MODERNIZATION

Decontamination of the individual BSL-3/ABSL-3 spaces on the 6th floor and associated exhaust system HEPA filters on the 7th floor mechanical space are persistent issues due to the original design of the heating, ventilation, and air conditioning (HVAC) system, which restricts the ability to isolate air supply to individual containment suites. The air supply distribution system that serves individual BSL-3/ABSL-3 laboratories lacks Bubble Tight Dampers (BTDs). When a room is isolated, the Variable Air Volume (VAV) box on the supply side and the VAVs and BTDs on the exhaust side are closed. Due to the absence of BTDs on the supply side, some air leaks past the dampers. Consequently, when the BTDs on the exhaust system are closed for HEPA filter maintenance, the supply air system continues to push air beyond the supply dampers, leading to positive pressurization of the room.

The limitation of isolation tactics presents a significant risk of unacceptable positive space pressurization to the adjacent spaces during space fumigation and HEPA filter certification. This also directly impacts proper decontamination and/or efficiency testing of the filters, the ability to use the adjacent spaces, increases concerns about safety, and significantly increases downtime for laboratory use. The upgrades will allow space fumigation and room exhaust HEPA filter validation without disrupting multiple BSL-3/ABSL-3 research operations. The original design limitation in the air supply has hindered the ability to isolate and decontaminate spaces in a more efficient manner while maintaining safety levels. Simply stated, the inability to achieve airtight shutoff for supply air to the BSL-3/ABSL-3 spaces during fumigation can cause pressurization in active (hot) adjacent laboratories without additional significant operational procedures that limit/restrict the use of these adjacent rooms during a decontamination run.

In addition, the Room Pressure Controllers (RPCs) currently servicing the BSL-3/ABSL-3 suites have reached the end of their operational life and are no longer supported for service or replacement by the manufacturer. The existing RPCs, based on velocity pressure tubing technology, are outdated compared to modern electronic and digital sensor technology. Due to the reduced serviceability of the older tubing technology, any failure in these components poses a substantial risk of disrupting NEIDL laboratory operations. The outdated RPCs contribute to operational issues, such as an increased frequency of the Building Automation System programmed safety lockouts, leading to disruptions in ongoing research in adjacent areas.

Another significant limitation in the ABSL-3 animal holding suites is their original design, which included only a single exhaust HEPA filter housing for each individual suite. This setup imposes restrictions on sustaining continuous research operations when HEPA filters undergo required isolation for decontamination, annual certification, and/or maintenance. The proposed inclusion of parallel HEPA filtration assemblies removes the necessity to interrupt research activities for HEPA filter management, ensuring seamless support for long-term animal research.

Lastly, and concurrent with the issues identified above, the HVAC system configuration serving BSL-3 Laboratory 604 uses a shared common exhaust airflow control valve with ABSL-3 Vestibule 633 and ABSL-3 Airlock 634. This configuration presents directional airflow control maintenance issues during space shutdowns. Modifications are necessary to separate the Airflow Control Valves and ductwork routing of these spaces and allow for independent isolation of BSL-3 and ABSL-3 to maintain inward directional airflow at the containment boundary during space isolation activities for annual performance verification (APV).

3.2.1.2 PROPOSED UPGRADES AND MODERNIZATION

The modernization improvements will involve enhancing BSL-3 and ABSL-3 room isolation capabilities by substituting leaky supply side airflow control dampers with BTDs, upgrading

obsolete RPCs with modern designs, addressing identified airflow deficiencies between the 633 Airlock and the 604 Laboratory, and introducing flexibility to the exhaust HEPA filtration system through the addition of a parallel filter configuration to ABSL-3 animal holding suites. See Figure 3-1, Typical BSL-3 Laboratory. Execution sequence for Goal 1 will be coordinated and aligned with other proposed goals to minimize conflicting schedules that could result in delays or downtime.

The existing supply system consists of redundant supply air handling units for BSL-3 from mechanical spaces on the 7th floor to the containment suites below on the 6th floor. The air handler supplies air into a common duct header and is distributed to individual rooms through room Airflow Control Valves to each BSL-3 laboratory space. An identical, but separate, supply system is provided for the ABSL-3 suites. The lack of bubble-tight isolation dampers on the supply air side will be corrected by installing new supply side bubble tight isolations valves to negate the effect of the leakage through the supply side airflow control valve. This will mitigate the potential for positive pressurization of adjacent spaces during a room or HEPA housing shutdown.

Upgrading to modern RPCs will achieve and assure operations and serviceability over the foreseeable future. The technology and performance of the new RPCs will improve accuracy and responsiveness to airflow control requirements during normal operations and space isolation. The NEIDL previously piloted an upgrade to these new RPCs for the two suites associated with the dedicated ABSL-3 HVAC systems. This addressed issues with slow HVAC control response and resulted in improved overall performance. Notably, this modernization pilot was performed without broad-scale disruptions to the ABSL-3 space and was accomplished in 3 days. The subsequent experience with controlling these spaces confirmed new RPCs will add significant value to a safe and secure biocontainment operation.

Ductwork and airflow control associated with ABSL-3 vestibule/airlock 634/633 that is combined with BSL-3 Laboratory 604 needs modifications to accomplish suite isolation of this area. The modification will separate the associated ductwork and airflow control to allow each space to perform independently and not in conflict with each location.

Goal 1 will add parallel exhaust HEPA filter configurations for ABSL-3 animal holding rooms. This will provide redundancy for required HEPA filter management (decontamination, annual certification, and maintenance) to address the ability to sustain long-term animal studies without disruption and avoid affecting HEPA filter certification schedules.

3.2.1.3 MEANS AND METHODS

Implementation for the supply BTD installation and RPC modernization is planned to occur in phases to stage and minimize disruptions to research operations. The individual BSL-3 and ABSL-3 Suite Supply Side Airflow Control Valves are in the 7th-floor Mechanical Penthouse, directly above and outside of the BSL-3/ABSL-3 Laboratory zones. BTD modernization will

be primarily conducted in the 7th-floor Mechanical Penthouse, above the 6th floor biocontainment areas. New Supply Side BTDs will be installed and located between the airflow control valve and the room such that each room can be individually shut down via the Airflow Control Valve and BTDs, one room at a time without shutting down the entire research floor.

There are 29 dampers for the BSL-3 Suite and 35 for the ABSL-3 Suite. BU's consulting engineering firm, Merrick, performed design calculations to determine the correct BTD size and cubic feet per minute requirements for each space. Figure 3-2 shows how the addition of the BTDs and parallel exhaust HEPA filter configurations will change the current air flow controls for the BSL-3 and ABSL-3 Suite.

3.2.1.4 CONSTRUCTION AND COMMISSIONING IMPLICATIONS

The ABSL-3 and BSL-3 suites are served by separate dedicated Supply and Exhaust Air systems, so the work will be staged and executed separately for each of the zones. The Supply and Exhaust Air systems will need to be temporarily shut down and isolated to be able to conduct portions of this work, so phasing of modifications, installation and commissioning verification will be required. Most of this work involves the 7th-floor Mechanical Space, while some of the work will occur in the embedded BSL-3 spaces on the 4th and 5th floors. The impacts to the physical lab areas from construction work will be minimized, and construction activities can be implemented most efficiently when there is no active work within selected laboratory areas. To limit interruptions to lab services, some construction activities may occur outside of normal operating hours. During the modernization of ABSL-3 and BSL-3 suites, any containment work that cannot be postponed may be scheduled for the ABSL-4 on an acute basis, with review and approval by the NEIDL's leadership and Environmental, Health and Safety (EHS) and the Institutional Biosafety Committee. For modifications described above, isolation of affected suites will require close coordination with adjacent activities to minimize disruptions or delays.

Commissioning is required to verify the performance of each isolation damper and the new Room Pressure Controllers before returning each laboratory or animal holding room to full operation. Global whole space commissioning is not anticipated to verify BTDs and RPC performance but can be implemented as deemed necessary. New parallel HEPA filters will be in-situ pressure decay and efficacy tested.

3.2.2 GOAL 2: MODERNIZE AND ENHANCE ARTHROPOD CONTAINMENT LEVEL-3 FACILITIES

Goal 2 will modernize and improve the Arthropod Containment Level 3 (ACL-3) facility resulting in a redesigned arthropod research space that will improve operational efficiency and support important arthropod vectors of disease to be studied in the same facility.

3.2.2.1 BASIS FOR MODERNIZATION AND ENHANCEMENT

The current ACL-3 space (Room 618) is situated on the southwest wing of the 6th floor. This space does not align with future NEIDL research priorities to enhance vector-borne disease programs nor facilitate direct access to animal models for vector transmission studies. Optimization and modernization of ACL-3 space is necessary to align with planned Risk Group 3 pathogen work. The relocation of the ACL-3 Suite from 618 to the opposite side of the 6th floor, in Room 629, will optimize layout and capabilities to support arthropod disease research with mosquitoes and expand capacity for tick-vectored agents. Room 629 has ample space for necessary upgrades and provides direct access to an adjacent ABSL-3 animal holding space (Room 628) for vector transmission studies, enhancing the 628/629 Suite with new interconnection capabilities.

3.2.2.2 PROPOSED MODERNIZATION AND ENHANCEMENTS

The proposed improvements will address the requirement for expanded Risk Group 3 work capabilities involving mosquitoes, ticks, and vectored-transmission studies, while ensuring the management of cross-contamination risks associated with ongoing research in other ABSL-3 suites. The proposed layout for Room 629 ACL-3 is positioned directly adjacent to Room 628 Animal Holding area and Procedure Support space, creating a comprehensive suite for arthropod disease studies, encompassing transmission and animal model research. The Animal Holding area is envisioned as a Risk Group 3 'flex' space, capable of isolation from the ACL for other Risk Group 3 studies in animals unrelated to arthropod disease research. Therefore, the proposed design incorporates an Air Pressure Resistant (APR) door to provide access between 628 and 629. The design also incorporates independent access to Room 629 Insectary and independent access to Room 628 Animal Holding spaces from the ABSL-3 clean corridor and the ABSL-3 containment corridor.

3.2.2.3 MEANS AND METHODS

Goal 2 incorporates upgrades to the supply side room isolation, integrating BTDs, modernizing RPCs, and introducing parallel redundant exhaust HEPA filter housings, as described for Goal 1, to modernize ACL-3 facilities. Figure 3-3 shows the current and proposed layouts of the ACL-3 facilities, respectively. The wall and door configurations will remain unchanged with two exceptions: 1) installation of an interconnecting APR doorway between Rooms 628 and 629, and 2) repositioning the door swing from Room 629 to the ABSL-3 containment corridor to accommodate limitations posed by the screened mosquito workstation. The interconnecting APR door for Rooms 628/629 will feature access and security controls, aligning with policy standards to ensure controlled operation by authorized individuals and integration into the NEIDL centralized access control system. All physical alterations will be meticulously undertaken, and the color of all high-performance coating systems will be changed to white for enhanced visibility. Upgraded epoxy flooring will be uniformly applied throughout the designated areas. Laboratory-grade sealants will be

meticulously applied for any new penetrations, and a comprehensive inspection of existing penetrations (such as pipe and duct penetrations, electrical back boxes, door frames, joints, and other interfacing elements) will be conducted to ensure the integrity of the biocontainment barrier. Any damage to room surfaces and existing and new penetrations will be repaired if necessary and inspected to ensure biocontainment barrier integrity. In the event of any disruption to Life Safety and Lab Alert communications, restoration will be conducted in accordance with the established code and NEIDL emergency response protocols. All data jacks, including Voice-over Internet Protocol (VoIP) jacks, Building Automation jacks for equipment monitoring, electrical service outlets, and lab gases are anticipated to remain unaffected. Finalized design details might require the relocation or restoration of these components. All associated components will have functionality verified as part of project close-out.

3.2.2.4 CONSTRUCTION AND COMMISSIONING IMPLICATIONS

Full project design will include early and ongoing risk assessments, construction phasing and execution planning and coordination to minimize impact on the operations and functionality on the 6th floor. All materials, supplies, and components will be onsite before project initiation. This strategy aims to ensure project execution efficiency to minimize impacts to overall 6th floor operations. A project staging area for materials, equipment, and supplies will be provided onsite or located offsite that is inventoried and controlled by the contractor. Execution sequence for Goal 2 will be coordinated and aligned with other goals of our proposal to minimize conflicting schedules that could result in delays or downtime.

Planning for the renovation of the new ACL-3 Suite shall consider site access and material flows to limit the impact to adjacent spaces and zones that will remain operational. Vertical process flows from the program floor to the loading dock area will utilize freight supply elevators. Routes of contractor and materials access to Rooms 628/629 will be achieved through coordinated use of ABSL-3 Clean Corridor, via Airlock 633 at the Cagewash Vestibule 634 from Corridors 690E and 690D to minimize disruptions on the BSL-3 laboratories and waste flow in the ABSL-3 Containment corridor. As construction is completed within the affected program spaces, commissioning will be conducted to verify operational sequence of the added APR door, confirm directional airflow and space pressurization of the 628/629 ACL, and confirm animal holding suites perform as intended and align with overall operational sequences for the 6th floor ABSL-3 areas.

3.2.3 GOAL 3: MODERNIZE THE BSL-4 AIRLOCKS FOR AUTOMATED MICROCHEM DELIVERY FOR DECONTAMINATION

Goal 3 will provide the flexibility to rapidly decontaminate the two BSL-4 airlocks. This modernization will convert the airlocks to include automated delivery of MicroChem as well as an option for manual delivery of MicroChem. This will minimize the need for prolonged

gaseous phase decontamination protocols. Doing so will reduce the required process time from days to minutes and expedite turnaround time for studies to resume.

3.2.3.1 BASIS FOR MODERNIZATION

Airlocks are located at each end of the BSL-4 containment footprint; airlocks 232 and 246 are on the west and east ends of the main BSL-4 Corridor 290F, respectively. These airlocks serve various purposes, including the transfer of "clean" materials and equipment into containment, routine retrieval of certified inactivated Risk Group 4 samples (over 1,000 per year) through chemical dunk tanks within the airlocks (which are subsequently removed from BSL-4 for use at lower containment levels), extraction of materials and equipment from BSL-4 containment, and provide an emergency egress route for personnel extraction in the event of a medical emergency. A hand-held sprayer is used to apply 5% MicroChem to all surfaces inside the airlock before the airlock can be opened to the non-containment side for First Responder access. Except for the emergency person-down extraction, the current practice requires application of Chlorine Dioxide (ClO_2) or Vaporized Hydrogen Peroxide (VHP) fumigation procedures to decontaminate the airlock any time the inner side doors to the BSL-4 are opened and before the outer door to non-containment can be opened. ClO_2 and VHP application procedures include the use of Biological Indicators (BIs). Current BIs for ClO_2 (36-hour incubation required) and VHP (7-day incubation required) with no growth is required for test acceptance. During these time periods, the airlock is offline from use until BI results can be confirmed. These scenarios present limitations and unnecessarily extend disruption of BSL-4 operations.

3.2.3.2 PROPOSED MODERNIZATION

Goal 3 will modernize the two existing airlocks to enable the application of 5% MicroChem analogous to the industry standard for BSL-4 chemical suit showers including an emergency egress deluge feature. See Figure 3-4, Modernize BSL-4 Airlocks for Decontamination. Chemical suit showers have long-standing acceptance and proven capability to rapidly decontaminate a person while wearing a positive pressure suit at the barrier of BSL-4 prior to exiting laboratories or animal vivariums. MicroChem is universally used and accepted for rapid destruction of Risk Group 4 pathogen contamination. This modernization will be efficient and low cost due to existing infrastructure. The addition of chemical shower functions in these airlocks will allow operations to have a wet decontamination option for more rapid turnover of airlock usage by reducing downtime from multiple days to just minutes for airlock decontamination when use of ClO_2 or VHP is not necessary. This improvement will significantly facilitate the movement of equipment, animals, or supplies into the BSL-4.

3.2.3.3 MEANS AND METHODS

The existing chemical suit showers are fed from an existing chemical shower skid located on the 7th floor mechanical space with piping and drops to BSL-4 from the 3rd floor mechanical space. The addition of the Chemical Showers function into Fumigation Airlocks 232 and 246 will connect to the existing Chemical Shower piping distribution system on the 3rd floor utilizing existing penetrations through the containment barrier that were installed in the original construction. Verification of penetration seals will be performed with application of pressure decay standards found in the U.S. Department of Agriculture (USDA) Agriculture Research Services (ARS) Facilities Design Standards (ARS-242.1 Manual; USDA 2022).

3.2.3.4 CONSTRUCTION AND COMMISSIONING IMPLICATIONS

Construction phasing and execution will be thoroughly assessed to minimize disruptions to the operations and functionality of the BSL-4. Execution sequence for Goal 3 will be coordinated and aligned with the other goals to minimize conflicting schedules that could result in project delays or research downtime. Construction activities will be staged and allow for the shutdown of only one airlock at a time. Process flows for the BSL-4 Suite will be closely coordinated to ensure that having one airlock operational will be suitable for program requirements. Before construction starts, comprehensive space decontamination procedures will be implemented.

Temporary shutdowns for service tie-ins will be necessary during modifications to the Chemical Shower, Tempered Water, and Compressed Air piping. These shutdowns will impact the functionality of the existing Chemical Showers serving the BSL-4 Suite. To minimize disruptions to lab services and programs, off-hour work may be scheduled. Piping work within the 3rd floor mechanical room will be prioritized and sequenced first to limit downtime for the Airlock rooms as much as possible. Upon completion of construction for each airlock, independent commissioning will be carried out to confirm the functionality of the newly added shower, the effectiveness of the new emergency deluge shower, and the integration with the access control and room-level sequence of operation. Once the system testing and functionality is verified, Validation Testing will be conducted for each of the showers to validate an effective distribution of chemical agent is being achieved.

3.2.4 GENERAL CONSTRUCTION NOTES APPLICABLE TO ALL THREE GOALS

Due to the overarching physical security and biosecurity profile of the NEIDL, all non-NEIDL project staff must be registered for access to the site and have authorized NEIDL personnel present for oversight during all project activities. The NEIDL maintains 24/7 onsite security, building automation, and maintenance mechanic staffing, and after-hour and weekend project activities can be coordinated as necessary to further minimize impacts on normal facility operations and research activities.

3.2.4.1 RISK ASSESSMENT

Prior to the modernization construction, the NEIDL will assess potential exposure risks to active research projects and develop mitigation strategies. The risk assessment process incorporates members of NEIDL leadership, researchers, EHS, Animal Research Services, and Facility Engineering Operations. The risk assessment process will also address training and orientation of contractors performing work in the NEIDL. All phases of work will be coordinated to ensure limited disruptions to research. Scheduling around active research projects will be optimized to the fullest extent possible.

3.2.4.2 PHASING AND IMPACTS TO ONGOING RESEARCH

Minimizing long-term impacts to conducting research is an overarching priority for the modernization efforts. Numerous opportunities exist for limiting disruptions, but eliminating all disruptions is not possible. However, the Proponent is confident disruptions can be minimized through careful project planning, oversight and management to include fully accepted designs, all materials on site, schedules for phasing, options to temporarily relocate research to other available spaces, and after-hours contractor work options. Utilization of the design features of the NEIDL can prevent large-scale utility or HVAC shutdowns. To further mitigate disruptions, measures such as noise abatement and dust protection will be implemented throughout the construction process. This will help limit the impact of construction on ongoing laboratory operations and any animals housed in the facility. Site access and material flows will be reviewed to limit impacts to adjacent spaces and zones that will remain operational. Vertical process flows from the program floor to the loading dock area will be evaluated, and life safety and fire egress paths will be verified. Staging structures will be strategically positioned to maintain clear access pathways critical for ongoing operations. Verification of the life safety and fire egress paths will be considered for each phase of construction to coordinate and comply with critical access pathway requirements.

3.2.4.3 COMMISSIONING/VERIFICATION

Each goal carries degrees of final commissioning and acceptance. Sequences of operation, BAS control monitoring, operating procedures will be verified to be consistent with biocontainment performance requirements.

3.2.5 SUMMARY

The Proposed Action meets the purpose and need of NIH's grant for the modernization of the NEIDL in the areas of decontamination, isolation, pressure control systems, ventilation, and renovation of arthropod containment systems. The three proposed goals would meet the objectives for the NEIDL to conduct containment research on infectious pathogens and for the NIH to support such research.

3.3 NO-ACTION – CURRENT CONDITION

Under the No-Action Alternative, the NIH would not fund the Proponent's proposed project, and the Proponent would not implement the measures to modernize the facility at this time. The existing facility would continue to inefficiently respond to new and reemerging risks as opposed to improving its ability to be at the forefront of pandemic preparedness. The laboratories would continue to be hampered by the obstacles associated with its current infrastructure, which impedes research flexibility, reduces operational efficiency and turnaround time between studies, limits the number of pathogens and arthropod vectors investigated concurrently, and slows scientific productivity towards development of essential medical countermeasures. Therefore, the NEIDL would not meet its goals for conducting swift, effective, and productive research on new and reemerging infectious diseases.

The No-Action Alternative would not meet the purpose and need of either NIH or the Proponent's goals and objectives. The No-Action Alternative was retained for analysis as the baseline condition for comparison to the Proposed Action.

3.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED ANALYSIS

Other action alternatives to the Proposed Action were considered relative to the purpose and need for the Project, as described in Chapter 2 and further detailed in the basis for each of the three goals in Section 3.2.1.1, Section 3.2.2.1, and Section 3.2.3.1. The primary objective is to improve existing spaces so they can be individually isolated and utilized efficiently to study Risk Group 3 pathogens. Other possible courses of action included alternative technologies for the modernization measures and adding new space to the laboratories. Regarding alternatives to the federal action, the Proponent considered but was unable to identify other available funding sources to undertake the work.

During their consideration of modernization needs, the Proponent evaluated numerous approaches and options for improving space utilization and research logistics for Risk Group 3 pathogens. Options included performing the research in the BSL-4/ABSL-4 Suite, given the ability to isolate space at BSL-4. This would require the use of space designed for a different level of risk and would result in a reduction of space used for researching Risk Group 4 pathogens.

The Proponent and the consulting engineering firm have worked together to develop the technical solutions for the modernization, which also conform with the Design Requirements Manual (NIH 2024) and Design Policy and Guidelines (NIH 2024). After careful consideration of the available technology, both the Proponent and engineers are confident the means and methods described for each goal present the most reasonable and responsible approaches to achieving the modernization objectives. Therefore, no other technological approaches were considered for detailed analysis in this EA.

When considering funding sources for the modernization, the Proponent reviewed various options. The NEIDL does not generate revenue; therefore, a loan was not an option and financing the improvements out of existing revenues was not possible. The NEIDL was established by NIH as part of their Biodefence Research Program, and the application for a grant from the NIH for the Proposed Action is in alignment with NIH's objectives for supporting research on emerging pathogens in laboratories so they may operate optimally, efficiently, and productively.

The option to create additional Risk Group 3 space that would have laboratory decontamination specific to this added space is not a practical alternative. Based on its full utilization of the existing layout, the NEIDL cannot accommodate this type of new space. Other spaces on BU's Medical Campus cannot practically house this type of new space given infrastructure, safety, and security requirements. Adding a Risk Group 3 space does not meet the objective of confining the modernization needs to the existing NEIDL infrastructure.

In summary, there are no other action alternatives to the Proposed Action given its specificity to the NEIDL's research objectives and the NIH's role as a government agency that promotes and supports those research objectives. Given the purpose and need, there are no other courses of action that make sense for the proposed facility upgrades and funding source.

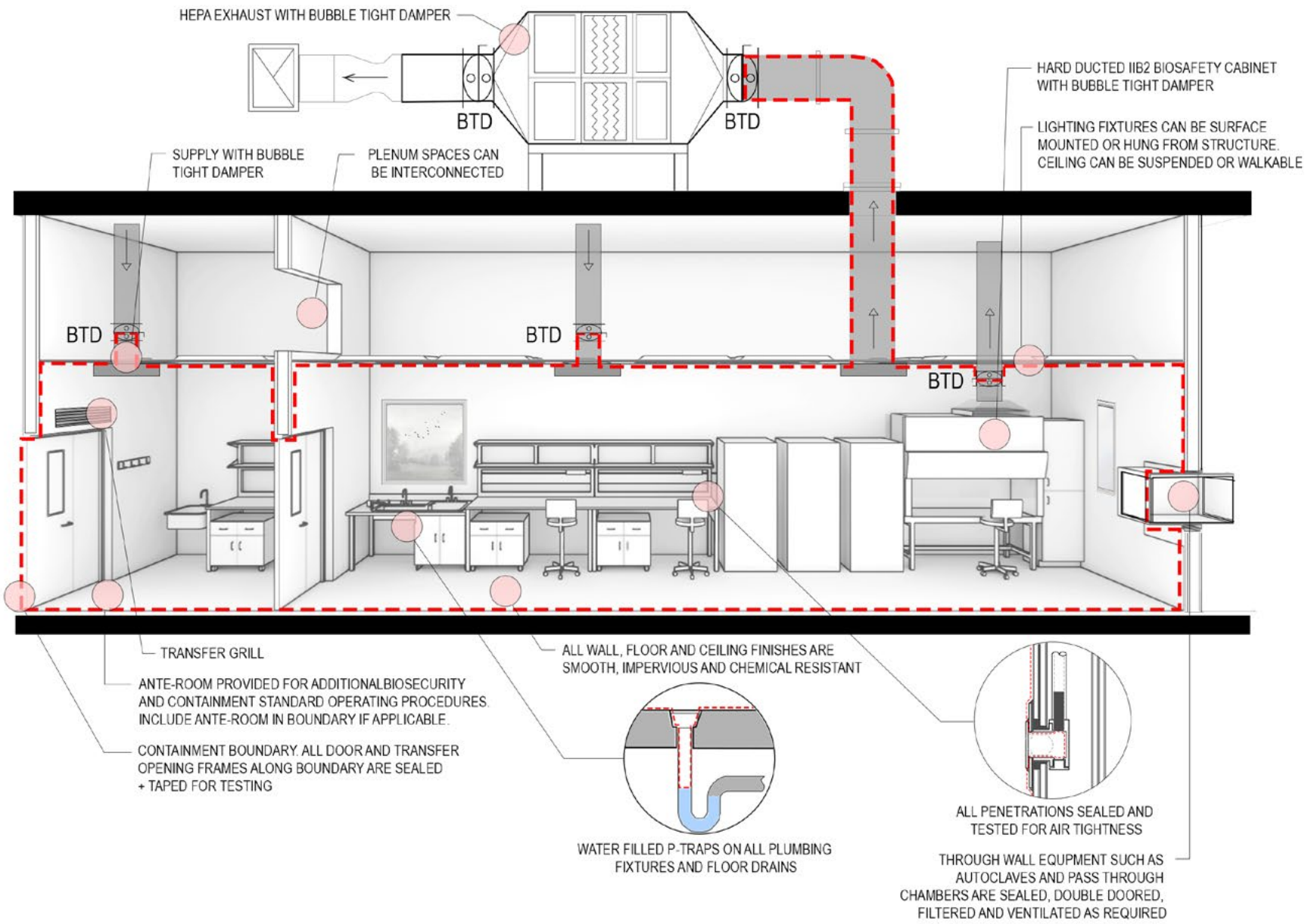


Figure 3-1
Typical BSL-3 Laboratory
Source: Merrick, 2025

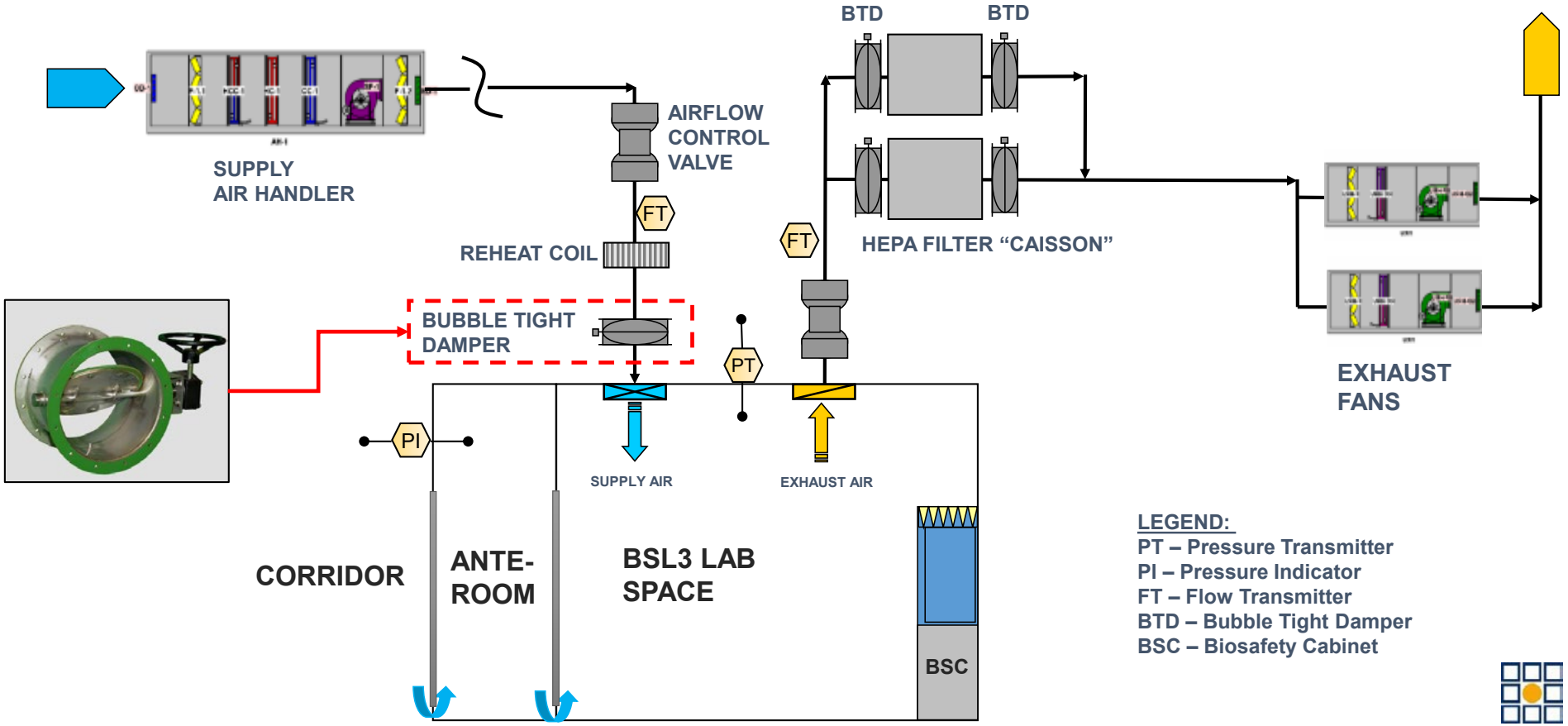
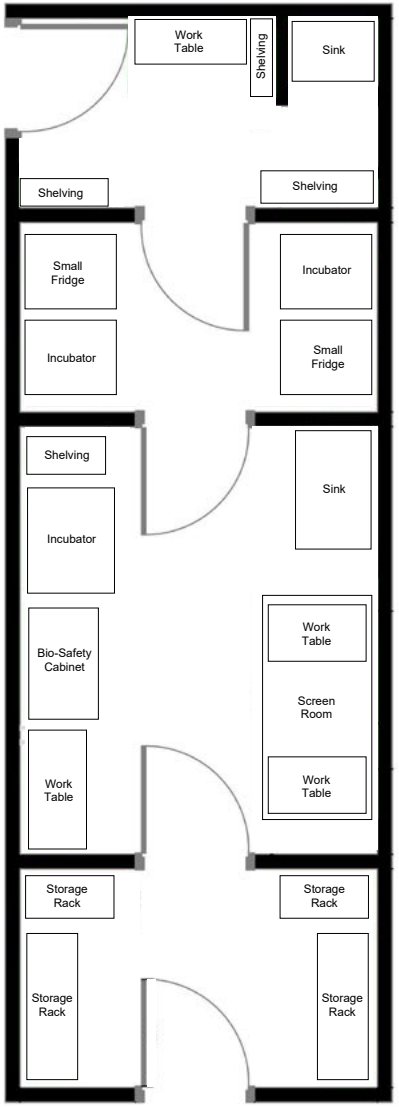


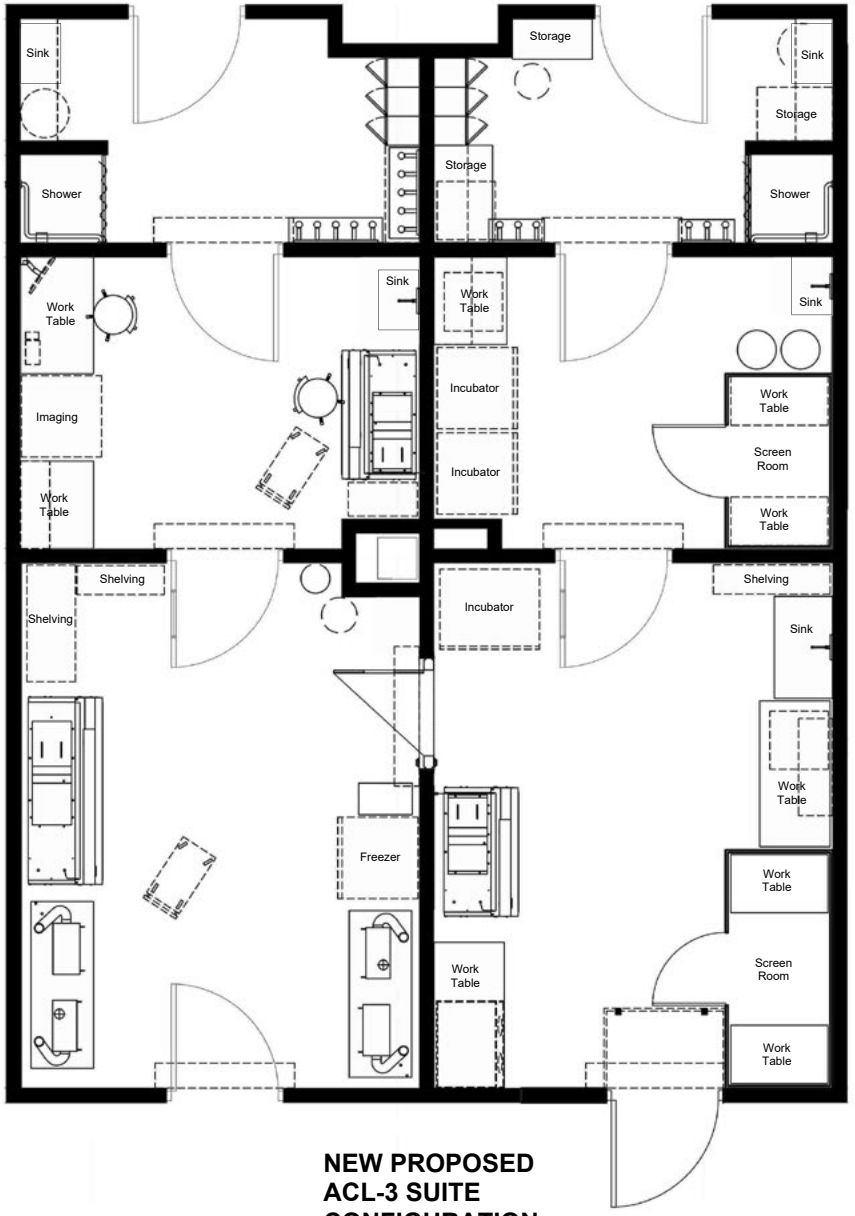
Figure 3-2

Goal 1 - Addition of HVAC Components Typical for all BSL-3 and ABSL-3 Suites

Source: Merrick, 2025



EXISTING ACL-3 SUITE CONFIGURATION



NEW PROPOSED ACL-3 SUITE CONFIGURATION

Figure 3-3
Goal 2 - Arthropod Containment Level 3 (ACL-3) Modernization
Source: Merrick, 2025

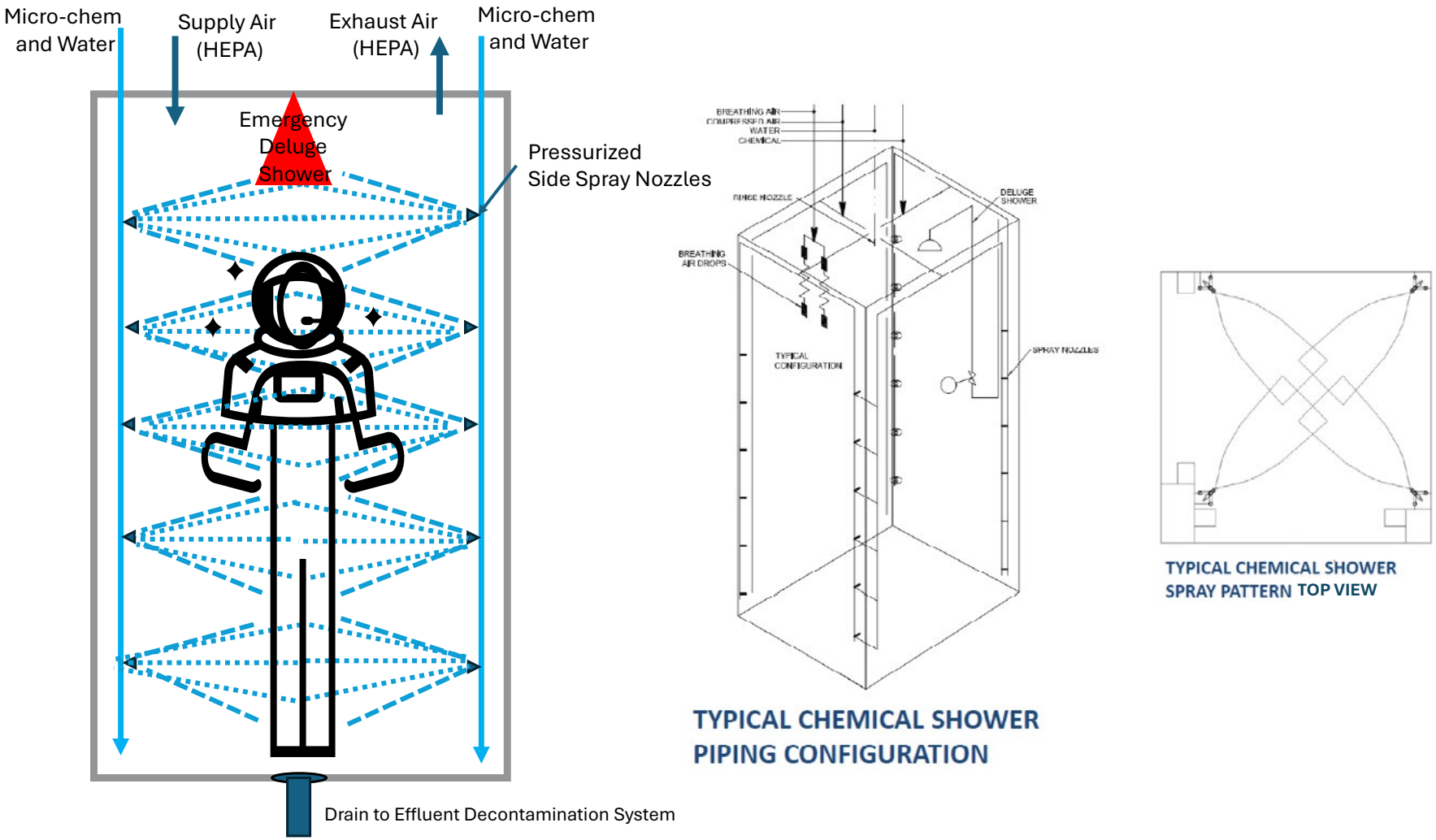


Figure 3-4
Goal 3 - Modernize BSL-4 Airlocks for Deconamination
Source: Boston University, 2025; Merrick, 2025

Chapter 4

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

CHAPTER 4: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the current conditions of the human environment where the activities of the Proposed Action would occur. This chapter also describes the potential environmental effects that are likely to occur from implementation of the Proposed Action. The No-Action Alternative provides the baseline for comparing the effects of the Proposed Action.

The description of the affected environment and assessment of environmental consequences in this EA rely on the NIH's previous environmental reviews conducted for the NEIDL, which included the following:

- NIH's Final EIS (NIH 2006) and Record of Decision (ROD; 71 Federal Register 5670), and
- NIH's Supplementary Risk Assessment (Risk Assessment; NIH 2012) and ROD (78 Federal Register 110).

The findings and decisions for both the EIS and Risk Assessment are relevant and applicable to the consideration of the Proposed Action's potential effects on the human environment.

4.2 POTENTIALLY AFFECTED RESOURCES

The Proposed Action includes measures to upgrade and modernize infrastructure at an existing biocontainment research facility. The measures would address laboratory space isolation and orientation, make changes to RPCs, and update decontamination processes. All construction and equipment installation would occur inside the NEIDL building, which is described in detail in the Risk Assessment. The potentially affected environment would include only those resources that may experience changes directly related to the construction and operation of the upgraded and modernized facilities.

Based on the description of the Proposed Action, as provided in Section 3.3 – Modernize Research Facilities, potentially affected resources include human health and safety and air quality. In summary, this EA analyzes in detail the potential effects to these two areas of the human environment. Each resource section explains the existing condition where effects would occur, presents the impact criteria for determining significance, and discloses the potential consequences to the resource.

4.3 RESOURCES ELIMINATED FROM DETAILED ANALYSIS

To improve efficiency and effectiveness of EAs, agencies and project proponents are encouraged to identify and eliminate those resource issues that are not relevant to the environmental review of the proposed action. For this EA, the affected environment for the Proposed Action would be confined to the interior of the NEIDL building. Therefore, the Proposed Action would be extremely unlikely to affect those resources associated with the outdoor environment. Below is the list of resources eliminated from further study in this document and the rationale for eliminating them.

Geology and Soils: The Proposed Action does not include disturbing earth, ground, rock, or soils.

Land Use: The Proposed Action would occur inside a building that conducts medical research on a medical campus. There would be no changes in current land use.

Water Use and Quality: For the NEIDL, water supply and wastewater utilities are provided by the Boston Water and Sewer Commission (BWSC), and laboratory discharges are regulated by the Massachusetts Water Resources Authority (MWRA). The MWRA regulations require all wastewater from the laboratories drain to a pH adjustment system, where pH and flow monitoring and water sampling take place prior to discharge. The Proposed Action will not change the amount of water used or how it is discharged.

Noise: The Proposed Action would occur inside a building, and activities would not be audible to any potential outside receptors. Any increases in sound during construction activities would be within acceptable limits. Any substantive increases in sound during construction would be mitigated appropriately to protect the safety of contractors and laboratory employees.

Natural Communities, Plants, and Animals, including Threatened and Endangered Species: The Proposed Action would occur inside a building where natural communities do not occur. Natural communities, plants, and animals would not interface with any activities associated with the Proposed Action.

Floodplains: The Project Site is not in a mapped floodplain or flood zone. The Proposed Action would not affect floodplains.

Cultural Resources: The Proposed Action would occur inside a modern building, and activities would not be visible from any cultural resources. The Proposed Action would not affect cultural resources.

Visual Resources: The Proposed Action would occur inside a building, and activities would not be visible. The Proposed Action would not affect any viewsheds or create any new views.

Transportation: The Proposed Action would not add any measurable increase in traffic on roads or rails during the delivery of materials to the Project Site. The Proposed Action would not affect transportation resources.

4.4 EFFECTS ANALYSIS

The significance of an effect is determined by the context and intensity in which it occurs. For the purposes of this EA, the context is an existing research laboratory that is subject to numerous safety and security procedures mandated by NIH, City of Boston, and BU that are specific to the NEIDL. The potential environmental effects are described in terms of direct or indirect, duration, extent, and severity.

Duration: Short-term effects are those that would occur within a defined and finite period or during the time required for construction or installation activities. Long-term effects are those that are likely to be permanent, such as those associated with the operation of a project.

Direct and Indirect Effects: Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the action, occur later in time or farther removed in distance from the action, but are still reasonably foreseeable.

Extent: The extent of an effect is usually disclosed in a measurable quantity. For example, this can be a spatial extent or in numbers of individuals.

Severity: Effects are described as being adverse, neutral, or beneficial. Adverse effects are those that would result in unfavorable or undesirable outcomes on a resource. Beneficial effects are those that would have positive outcomes on a resource. Neutral effects would be those where the action would result in no observable consequence.

4.4.1 SIGNIFICANCE CRITERIA

Whether an effect is significant is based on context and intensity. Context is the setting in which a proposed action would occur; it can be local, regional, national, global, or possibly any combination of these four geographic scales. Determining the intensity of an effect will depend on its duration, extent, and severity of the consequence it would have on a resource. Intensity of an effect often ranges from negligible, minor, moderate, or major. Negligible effects are those that are either too small to be measured or at the lower level of detection; minor effects are slight but measurable; moderate effects are readily apparent; and major, or significant, effects are those that meet or exceed an established threshold. Given their context and intensity, significant effects are those that exceed one or more deciding criteria for that resource. The significance threshold is based on the resource professional's judgement and is based on a consequence that is likely to warrant mitigation. However, the decision-maker must consider each effect in its appropriate context (geographic scale), determine its intensity

(degree of its effect over time, numerical extent, and severity), and make a relationship using assigned criterion or criteria.

4.5 HEALTH AND HUMAN SAFETY

4.5.1 AFFECTED ENVIRONMENT

Construction and operation activities associated with the Proposed Action will occur inside the NEIDL building on floors 2 through 7. Laboratory spaces occur on floors 2, 4, 5, and 6, and mechanical spaces occur on floors 3 and 7. The NEIDL building was designed and constructed to protect laboratory workers, persons outside the laboratory, and persons or animals in the community from pathogens that could be released, accidentally or intentionally. The NEIDL was designed and constructed in conformance with the NIH's Design and Policy Guidelines (NIH 2008), Design Requirements Manual (NIH 2008), and Biosafety in Microbiological and Biomedical Laboratories 5th edition (CDC and NIH 2007); and Massachusetts State Building Code 780 Code of Massachusetts Regulation (CMR 6th edition). Further, the NEIDL operates in accordance with these manuals and codes and the NIH Security Guidelines Level 5.

Given the building's design, research protocols, maintenance and security practices, and safety measures that are all in place at the NEIDL, the laboratories and mechanical spaces in the building provide a highly safe environment for staff and contractors. The NEIDL's over-arching culture of safety and security is integrated into everyday practice.

4.5.2 ENVIRONMENTAL CONSEQUENCES

4.5.2.1 SIGNIFICANCE CRITERIA

Effects to human health and safety would be considered significant if the following occurred:

Expose BU NEIDL staff or contractors to any of the known classes of hazards, including those in the chemical, biological, physical, and ergonomic categories, at levels that exceed state or federal regulations or violate policies or guidelines established by either NIH or BU.

4.5.2.2 EFFECTS OF THE PROPOSED ACTION

Construction

During construction, the contractor and subcontractors will not be exposed to biological or chemical hazards. Construction workers may be exposed to physical and ergonomic hazards in association with any of the three modernization goals. Hazards include the potential for injury when lifting or moving equipment and materials and operating power tools. Noise levels from construction are unlikely to reach injurious levels. Construction managers will

implement the safety measures as specified by the NEIDL's and the contractors' Health and Safety Plans (HASP), including personal protective equipment (PPE).

NEIDL staff will be exposed to minor physical hazards associated with construction. Mitigation and management measures for avoiding and minimizing hazards are explained in Section 0.

Operations

Adding the modernization elements would not change the NEIDL's extensive safety and security measures, protocols, and compliance that are all in place for protecting human health and safety. The Final EIS and Supplementary Risk Assessment examined the potential effects of the NEIDL on the environment and public. The EIS and ROD concluded the risk to the community arising from the potential release of an infectious agent from the NEIDL was negligible. The Risk Assessment analyzed the theoretical release of an infectious agent from the NEIDL into the community resulting from failure of containment systems in the BSL-4 laboratory. The Risk Assessment examined numerous possible situations, including those that posed the maximum realistically expected risk that might expose laboratory workers and the general public to pathogens that would be studied in the NEIDL. The results of the analysis supported the original decision in the 2006 ROD and showed that the risk of infections or fatalities resulting from accidents or malevolent acts at the NEIDL are very low to remotely possible.

The Proposed Action includes modernization and enhancement to improve laboratory conditions for promoting efficiency. These changes would not alter the existing safe and secure environment for humans. Conversely, the Proposed Action will enhance the existing safety level under Goal 3, which will improve the existing Chemical Shower System by modernizing the airlocks, enabling MicroChem application, and adding an emergency egress deluge feature.

Mitigation / Management Measures

All practicable means to avoid or minimize adverse environmental effects will be identified and adopted. The NEIDL is subject to oversight by numerous federal, state, and local entities including, but not limited to, the NIH, Centers for Disease Control and Prevention (CDC), and Boston Public Health Commission. The NEIDL is also subject to federal, state, and local pollution prevention, waste management, and environmental regulations. Further, the NEIDL follows and complies with site-specific laboratory standards and research training. This level of oversight, regulation, and practice would greatly minimize any chance of exposing staff or contractors to any known human health and safety risk.

To prevent and respond effectively to any material spills, chemicals and solvents will be stored in sealed containers. Spill kits will be readily available for quick cleanup. Construction

period practices will include a comprehensive waste management plan, including proper sorting, recycling, and disposal of construction debris and hazardous materials. Construction materials will be stored in a safe and organized manner, and appropriate equipment will be used for lifting and moving materials to prevent accidents, spills, and injuries. Construction practices will also maintain a clean and organized worksite by regularly cleaning up debris, spills, and dust and properly storing equipment when not in use. The NEIDL has very prescriptive emergency procedures for fire evacuation and first aid to ensure that staff and workers are trained and prepared for any potential emergencies.

4.5.2.3 EFFECTS OF THE NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the NIH would not award the grant to fund the proposed Project, and the Proponent would not implement the modernization measures described in Chapter 3. The No-Action Alternative would result in no changes to human health and safety. The NEIDL would continue to operate as it currently does. The No-Action Alternative would not implement measures to improve safety and efficiency at the NEIDL associated with improvements to the Chemical Shower System. The No-Action Alternative would also not implement measures to modernize the ACL-3 and BSL-4 airlocks.

4.6 AIR QUALITY

4.6.1 AFFECTED ENVIRONMENT

The potentially affected environment for air quality includes only the NEIDL interior. Throughout the facility, the building has an integrated HVAC system that maintains a consistent and controlled environment. In the BSL-3 and BSL-4 spaces, each air-handling system has a corresponding exhaust system equipped with HEPA filtration. The BSL-4 exhaust passes through double HEPA filters in series at the point of exit from biocontainment. The BSL-4 portion of the facility is supplied air from a common BSL-4 supply header through a single HEPA filter at the biocontainment barrier for each laboratory space.

The mechanical support space for BSL-4 biocontainment areas includes individual HVAC plenums for each BSL-4 laboratory room. The HEPA filter banks are above the laboratory suites and are connected to the individual suite rooms below using stainless steel ducts that are embedded in the concrete floor to minimize the potential for duct-related issues. Each filter system is equipped with a damper system at the outlet, which is designed to close if an emergency occurs, maintaining negative air pressure, and isolating the airflow path to and from the laboratory. Air flow is monitored through the filter houses via the BAS, and reduction of flow is used as an indicator of filter loading or breach.

Laboratory air flows from areas with the lowest potential for contamination (e.g., office areas) to areas with the highest potential for contamination (e.g., the BSL-3 and BSL-4 laboratories), which restrict pathogens to the laboratory environment. Ventilated airlocks separate the

common corridors from the high-biocontainment laboratories. The airlock doors are interlocked to prevent multiple doors between the outside corridors and the high-biocontainment areas opening simultaneously. Directional airflow into the laboratory is provided through the airlock with differential pressure monitoring. The air pressure control system for maintaining the required pressure differentials is monitored inside and outside the BSL-4 and BSL-3 laboratories. The direction of airflow into the BSL-4 laboratories is verified by gauges and an alarm system. All BSL-3 and BSL-4 laboratories operate under negative air pressure. All high-biocontainment laboratory exhaust air is HEPA-filtered before discharge through the NEIDL roof air emission discharge stacks.

4.6.2 ENVIRONMENTAL CONSEQUENCES

4.6.2.1 SIGNIFICANCE CRITERIA

Effects to air quality would be considered significant if the following occurred:

Expose BU NEIDL staff or contractors to any of the known classes of air pollutants or alter air quality resulting in unsafe conditions to levels that exceed state or federal regulations or violate policies or guidelines established by either NIH or BU.

4.6.2.2 EFFECTS OF THE PROPOSED ACTION

Construction

During construction, the redesign and expansion of the ACL-3 facility on the 6th floor has the potential to affect interior air quality. Work associated with installing parallel HEPA housings will be conducted in the mezzanine area on the 7th floor mechanical space. Dusts from building materials will affect air quality in the immediate area while construction activities are occurring. The NEIDL building does not include any materials containing asbestos. The Mitigation/Management Measures subsection explains measures to mitigate and manage air quality changes during construction. Changes in air quality during construction will not expose humans to known pollutants at levels that would meet or exceed specified thresholds for causing harm.

Operations

The Proposed Action will make changes to the HVAC system in all BSL-3/ABSL-3 spaces. The modernization includes enhancing room isolation, upgrading Room Pressure Controllers, and installing parallel HEPA filter housings. Making these changes would allow space fumigation and HEPA filter validation to occur without disrupting BSL-3/ABSL-3 research operations. These are efficiency upgrades, and air quality conditions will not be different than those that currently occur.

Mitigation / Management Measures

The contractor will implement best management practices (BMPs) for avoiding and minimizing the potential for construction workers and NEIDL staff to be exposed to nuisance dusts. For building interior construction, BMPs include responsible material handling, including dust control and proper waste disposal. Construction activities will minimize dust generation and migration by using barriers, wet sweeping, and proper ventilation. The construction contractors will be required to monitor and control indoor air quality to ensure work areas are adequately ventilated and NEIDL staff and other workers are not exposed to harmful pollutants.

During construction, both the NEIDL's and contractor's HASPs will specify that all workers are properly trained and equipped with the necessary PPE, such as dust masks, respirators, gloves, and safety glasses, for the specific hazards present on the job site. Implementation of the HASPs will include a clear system for communicating hazards to staff and workers, including posting safety signs and providing training on safe work practices. The NEIDL has prescriptive emergency procedures for fire evacuation and first aid to ensure that staff and workers are trained and prepared for any potential emergencies.

4.6.2.1 EFFECTS OF THE NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the NIH would not award the grant to fund the proposed Project, and the Proponent would not implement the modernization measures described in Chapter 3. The No-Action Alternative would result in no changes to air quality during construction or operations. The NEIDL would continue to operate as it currently does.

4.7 SUMMARY

The Proposed Action will not result in effects to the human environment that would be significantly different to those that would be realized under the No-Action Alternative. The Proposed Action will improve the NEIDL's ability to conduct containment research effectively and efficiently, which meets the purpose and need of both the Proponent and the NIH's objectives as specified in Chapter 2, the Purpose and Need.

Chapter 5

PUBLIC ENGAGEMENT

CHAPTER 5: PUBLIC ENGAGEMENT

5.1 PUBLIC ENGAGEMENT

BU has been conducting formal and informal community outreach on the grant award with neighboring residents and businesses, and a variety of community groups. BU is committed to being transparent about its research activities and engaging the public regarding safety and security within the NEIDL. BU has participated in numerous meetings with various neighborhood and business groups and has partnered with local middle and high schools to support students interested in careers in science, to continuously engage the community, solicit feedback, and address concerns about the research being conducted. In direct response to the input received during outreach meetings and discussions, BU has worked to expand access to information about the laboratories as well as facilitate open dialogue and meaningful exchange through the creation of the Community Liaison Committee (CLC).

5.2 COMMUNITY LIAISON COMMITTEE

CLC members serve on a volunteer basis and are chosen through an open, self-nomination process. Meetings are open to the public and provide an opportunity for key BU personnel and researchers to provide regular updates on operational, regulatory, and scientific matters affecting the NEIDL and to respond to any questions or concerns raised by the committee members. CLC's input, talents, and expertise ensures more effective communication and collaboration on engagement activities and programs involving NEIDL and the community.

The members of the CLC are:

- J. Kevin Fisher, South End
- James Eliscar, Dorchester
- James Keeney, South End
- Jean Lee, South End
- Joe Lillis, South End
- Kenneth Nwosu, Dorchester
- Nefertiti Lawrence, Roxbury
- Norman Stembridge, Roxbury
- Olawumi Akinwumi, Roxbury
- P.M. Scarlet Ford, Roxbury
- Robert Francis, Milton
- Robert Timmerman, South End
- Vanessa Hackett, Dorchester

5.3 COMMUNITY OUTREACH

BU has conducted the following public and community outreach during the preparation of this EA:

- 10/29/2024 – Article in BU Today, which is BU's award-winning daily website, featuring breaking news and research stories, plus coverage of students, faculty, staff, alumni, campus events and programs: BU's Leading Home for Infectious Diseases Research to Get Major Upgrade with NIH Grant
- 11/14/2024 – BU hosts an annual public meeting every fall, which is advertised in local newspapers, for the residents of Boston and surrounding areas to receive updates on the facility and its research. BU presented on the proposed improvements and the NIH Grant Funding Proposal and Award at the 2024 annual meeting.
- 6/12/2025 – BU presented to Boston Biosafety Working Group, a cross-agency committee of government agencies and regulated institutions convened to exchange information, updates, and best practices in biosafety and incident planning and response. The presentation reviewed the need for the modernization of the laboratory and research facilities to improve safety, efficiency, and provided an overview of the EA and its process.
- 6/17/2025 – BU presented to CLC and reviewed the need for the modernization of the laboratory and research facilities to improve safety, efficiency, and productivity and provided an overview of the EA and its process.
- 11/19/2025 – BU provided an update on the proposed improvements and the NIH Grant Funding Proposal and Award at the 2025 annual fall meeting. The annual meeting was advertised in the local newspaper.
- 11/29/2025 – BU provided an update to the Boston Biosafety Working Group.
- 2/19/2026– BU provided an update to the Boston Biosafety Working Group.

5.4 COMMUNITY SUPPORT

In preparation for the grant proposal, the Proponent conducted outreach to the broader community to gain feedback of the proposed work and received letters of support from the following organizations:

- The Coalition for Epidemic Preparedness
- Moderna
- Massachusetts Medical Device Industry Council
- Greater Boston Chamber of Commerce

- Association of Independent Colleges and Universities of Massachusetts
- Galveston National Laboratory
- Massachusetts Biotechnology Council
- Ragon Institute
- New England Council

5.5 DISTRIBUTION LIST

A notice of availability for the Draft EA was published in the Boston Herald. Hard copies of the Draft EA have been made available at the following three libraries. In addition, the following agencies, organizations, and individuals were notified directly of the Draft EA's availability.

Libraries *(hard copies provided)*

Boston Public Library
Government Documents Section
700 Boylston Street
Boston, MA 02116

Dudley Branch Library
65 Warren Street
Roxbury, MA 02119

Grove Hall Branch Library
5 Crawford Street
Dorchester, MA 02121

Public Agencies

Boston Public Health Commission
c/o Dr. Bisola Ojikutu
1010 Massachusetts Ave
Boston, MA 02118

Community Groups

Community Liaison Committee
c/o Kenneth Ryan

Organizations and Individuals

Boston University Office of Research
Gloria Waters, Vice President and Associate Provost for Research

Coalition for Epidemic Preparedness Innovations (CEPI)
Richard J. Hatchett, CEO
in London, UK

Moderna
Andrea Carfi, Chief Scientific Officer, Infectious Disease
in Cambridge, MA

(**Organizations and Individuals** cont.)

Ragon Institute
Bruce D Walker, MD, Director, Ragon Institute of MGH, MIT and Harvard Investigator, Howard Hughes Medical Institute
in Cambridge, MA

Galveston National Laboratory
Gene Olinger, Director
in Galveston, TX

MassBio
Kendalle Burlin O'Connell, CEO & President
in Cambridge, MA

Association of Independent Colleges and Universities in Massachusetts (AICU Mass)
Rob McCarron, AICU Mass President & CEO
in Belmont, MA

New England Council
James T. Brett, President & CEO
in Boston and Washington, DC

Chapter 6

REFERENCES

CHAPTER 6: REFERENCES

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Chapter 7

LIST OF PREPARERS

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