



UMass Chan
MEDICAL SCHOOL

Environmental Assessment

Environmental Assessment for the Proposed Biosafety Level 3 Laboratory Suite
on the University of Massachusetts Chan Medical School Campus

Prepared for:
National Institutes of Health
Office of Research Infrastructure Programs (ORIP)



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EXECUTIVE SUMMARY

The University of Massachusetts Chan Medical School (hereafter designated as UMass Chan) located in Worcester, Massachusetts, operates over 40 Core facilities and services overseen by the Office of the Vice Provost for Research (OVPR), with centralized financial management provided by a Research Core Administration (RCA). The comprehensive vision of the OVPR is to support UMass Chan researchers and scientists with advanced facilities in a safe and secure environment.

Given UMass Chan's excellence in immunology, microbiology, and virology research, it is critical that current Biosafety Level 3 (hereafter designated as BSL-3) laboratory researchers/scientists are supported and that UMass Chan is prepared for further growth in funding, faculty, staff and programs that depend on biocontainment facilities. Pandemic preparedness and the emergence of diseases caused by Risk Group 3 (RG-3) pathogens, such as Viral Hemorrhagic Fever (VHF), have placed a strain on the existing BSL-3 research space. Due to this strain, an outdated and poorly equipped existing BSL-3 laboratory remained operational to meet the current demand. By constructing and equipping a new Core BSL-3 laboratory suite, UMass Chan will be properly positioned to meet the research challenges associated with emerging and re-emerging infectious diseases.

The proposed BSL-3 laboratory suite will require renovations to select areas on the 7th, 8th, and Penthouse levels within the existing University of Massachusetts Chan Medical School's Basic Research Wing (Worcester, Massachusetts). The proposed project scope includes the renovation of 3,511 gross square-feet of existing and underutilized research space at an estimated total project cost of \$12,761,00.00, with \$7,857,615.00 funded via a NIH Federal Assistance Award. The design intent is to create a Core facility with three research laboratories, shared equipment alcoves, and a decontamination space, all served by a common gowning room, a dress-in/exit-out shower, and airlocks. Renovations to the 8th floor and Penthouse levels will accommodate mechanical controls and prefabricated mechanical units dedicated to serving the new BSL-3 laboratory suite. Additionally, this project also includes both the purchase of and reuse of numerous pieces of research/scientific equipment.

Furthermore, the modernization/improvement in lighting systems, HVAC systems, and laboratory equipment is likely to result in a net gain in energy efficiency, and, at a minimum, is not expected to increase the demand on water usage, energy usage and/or waste streams. Since it is replacing an existing BSL-3 laboratory and being constructed within an existing research building, there are no anticipated adverse impacts on natural resources, pollution, populations, human services, human values and surrounding communities/ neighborhoods.



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1.0 INTRODUCTION

1.1 Agency Introductions

National Institutes of Health (NIH)

The National Institutes of Health (hereafter designated as NIH) is the largest public funder of biomedical and public health research in the world and a key agency of the U.S. Department of Health and Human Services (HHS). The NIH is dedicated to advancing scientific discovery, fostering medical innovation, and improving human health through research. It plays a critical role in funding and conducting studies that lead to breakthroughs in disease prevention, treatment, and overall public health. By supporting thousands of research projects annually, the NIH helps drive medical progress, ensuring that scientific discoveries translate into real-world health benefits.

The mission of the NIH is to seek fundamental knowledge about the nature and behavior of living organisms and apply that knowledge to enhance health, extend life, and reduce illness and disability. Through rigorous scientific research, the NIH aims to improve understanding of biological processes, develop innovative medical treatments, and address the most pressing health challenges facing society. The NIH also prioritizes training and supporting the next generation of researchers, ensuring continued advancements in biomedical and public health research.

The NIH traces its origins back to 1887, when it was first established as the Hygienic Laboratory within the Marine Hospital Service, primarily focused on studying infectious diseases. In 1930, the Ransdell Act officially restructured the organization as the National Institute of Health, laying the foundation for its future expansion. Over the following decades, the NIH has become the forefront of scientific research, playing a critical role in landmark medical breakthroughs such as the development of vaccines, cancer treatments, and the sequencing of the human genome. Today, the NIH consists of 27 institutes and centers, each specializing in specific areas of medical research, including neurology, genetics, cardiovascular diseases, and public health.

As the principal federal agency supporting biomedical research, the NIH operates with a substantial annual budget allocated by the U.S. Congress. For fiscal year (FY) 2024, the NIH's budget was approximately \$48 billion, which funded thousands of research projects across the U.S. and internationally. More than 80% of the NIH's budget is allocated to extramural research, largely through 50,000 competitive grants to more than 300,000 researchers at approximately 2,500 universities, medical schools, hospitals, and research institutions, supporting pioneering studies in areas such as cancer research, infectious diseases, neuroscience, and precision medicine. Additionally, the NIH directs funding to its intramural research programs, which include laboratories and clinical trials conducted at the NIH Clinical Center in Bethesda, Maryland (the world's largest research hospital).

The NIH has played a pivotal role in some of the most significant medical advancements of the past century, including the development of vaccines, cancer therapies, treatments for heart disease, and genome sequencing technologies. The agency was instrumental in funding research that led to HIV/AIDS treatments, immunotherapy for cancer, and the rapid



development of COVID-19 vaccines. Through its continued investment in cutting-edge science, the NIH remains at the forefront of medical progress, driving discoveries that improve lives and shape the future of healthcare worldwide.

Office of Research Infrastructure Programs (ORIP)

The Office of Research Infrastructure Programs (hereafter designated as ORIP) is a subsidiary of the NIH that augments the scientific advancement of biomedical research by supporting key infrastructure through the creation of animal models for human disease, access to state-of-the-art instrumentation and facilities, support of educational training programs, and assistance to small businesses in developing new technologies.

ORIP is comprised of two divisions, the *Division of Comparative Medicine* and the *Division of Construction and Instruments*, which play essential roles in supporting and accelerating biomedical discovery. Brief descriptions of each division are below:

1. The *Division of Comparative Medicine* functions to support infrastructure for innovative research by developing animal models and related biological resources; managing the infrastructure required to maintain, distribute, and utilize these models and resources; and providing training for scientists. The *Division of Comparative Medicine* is committed to ensuring that NIH-supported scientists have access to, and facilities for, important animal models for disease.
2. The *Division of Construction and Instruments* enhances our nation's competitiveness in biomedical research by supporting physical infrastructure programs to (1) provide the research community with shared and cost-efficient access to advanced scientific instruments that generate data for scientific discoveries, (2) provide supporting equipment that innovates scientific research operations, and, (3) modernize research facilities that drive transformative biomedical research for 21st century results.

University of Massachusetts Chan Medical School (UMass Chan)

Introduction to the University of Massachusetts Chan Medical School: The University of Massachusetts Chan Medical School (herein designated as UMass Chan) is a nationally recognized public medical school and research institution located in Worcester, Massachusetts. As the only public medical school in the Commonwealth, UMass Chan is dedicated to advancing medical education, biomedical research, and healthcare delivery. The institution is recognized for its commitment to training the next generation of physicians, nurses, and scientists while making significant contributions to medical research and public health.

A Brief History of UMass Chan: Founded in 1962 by an act of the Massachusetts legislature, UMass Chan was established to address the growing need for medical professionals in the state and ensure access to affordable, high-quality medical education. The first class of 16 medical students was admitted in 1970, and since then, the institution has expanded significantly in size, reputation, and research capabilities.



Over the decades, UMass Chan has made significant contributions to biomedical science and healthcare, with breakthroughs in RNA biology, gene therapy, infectious diseases, and neurodegenerative disorders. In 2021, the school received a historic \$175 million gift from the Morningside Foundation, leading to its renaming as the “University of Massachusetts Chan Medical School”. The institution is composed of three graduate schools:

1. *T.H. Chan School of Medicine*: Focusing on training medical students and future physicians.
2. *Tan Chingfen Graduate School of Nursing*: Preparing advanced practice nurses and nurse educators.
3. *Morningside Graduate School of Biomedical Sciences*: Offering doctoral and postdoctoral training in biomedical research.

Mission of UMass Chan: The mission of UMass Chan is to advance the health and well-being of the people of Massachusetts and beyond through excellence in education, research, and healthcare delivery. The institution is committed to:

- Training highly skilled and compassionate healthcare professionals who serve diverse communities.
- Conducting groundbreaking research that leads to medical innovations and improved patient care.
- Providing high-quality, accessible healthcare services through its partnerships with regional hospitals and clinics.

Budget and Funding Overview: As a state-funded institution, UMass Chan operates with a diverse funding portfolio, including support from state appropriations, federal research grants, private donations, and clinical revenue. For fiscal year 2023, the school reported an annual budget of approximately \$1.5 billion, with a substantial portion allocated to research funding and healthcare services. The institution receives significant grants from the National Institutes of Health, private foundations, and industry partners, enabling it to sustain its research and educational programs.

Scientific and Research Overview: UMass Chan is a leader in biomedical and translational research, focusing on transforming scientific discoveries into real-world medical treatments. Key research strengths include:

- RNA Biology & Gene Therapy – Home to Nobel Laureate Craig Mello, whose discovery of RNA interference (RNAi) revolutionized genetics and led to innovative treatments for genetic diseases, and, Victor Ambrose, 2024 Nobel Prize in Physiology or Medicine, for his co-discovery of microRNA, the very short, single-stranded RNA molecules that are now understood to play a critical role in post-transcriptional gene regulation.



- Infectious Disease & Vaccine Development – Contributions to COVID-19 vaccine research and ongoing studies in virology, immunology, and antimicrobial resistance.
- Neuroscience & Neurodegenerative Diseases – Research on ALS, Alzheimer’s, and Parkinson’s disease, with a focus on novel therapies.
- Cancer & Immunotherapy – Exploring precision medicine, targeted therapies, and immune-based treatments to improve cancer outcomes.
- Public Health & Health Equity – Addressing healthcare disparities, opioid addiction, and chronic disease prevention.

UMass Chan is also home to advanced research institutes and centers, including the RNA Therapeutics Institute, the NeuroNexus Institute, and the Center for Clinical and Translational Science, which accelerate discoveries from bench to bedside.

Summary: As a top-tier medical school and research institution, UMass Chan Medical School continues to have a profound impact on medical education, scientific discovery, and healthcare delivery. Through its mission-driven approach, strong research programs, and commitment to improving public health, UMass Chan remains at the forefront of shaping the future of medicine and biomedical science, both in Massachusetts and beyond.

1.2 Location

UMass Chan is located at 55 Lake Avenue North in Worcester, Massachusetts (Worcester County). The Biosafety Level 3 laboratory suite will be located on the 7th floor within UMass Chan’s existing “School” building, a 995,497 GSF teaching and research facility. The site plan for the “School” building, which would house the BSL-3 laboratory suite, is shown in Figure 1.

1.3 Subject of the Environmental Assessment (EA)

UMass Chan, in conjunction with a NIH grant opportunity, is proposing to renovate select areas on the 7th, 8th and Penthouse levels within UMass Chan’s existing Basic Research Wing (“School” Building). The proposed project replaces a recently decommissioned Biosafety Level 3 (hereafter designated as BSL-3) in-vitro laboratory located elsewhere on campus and it will include the renovation of 3,511 gross square feet of existing and underutilized research space to create the new BSL-3 laboratory suite.

A BSL-3 laboratory is a high-containment research facility designed for the safe handling and study of airborne infectious pathogens known to cause serious health related issues with potentially fatal consequences. The proposed BSL-3 laboratory suite is essential for UMass Chan’s ongoing infectious disease research, diagnostic testing, vaccine development, and drug discovery, allowing UMass Chan scientists/researchers to investigate pathogens such as *Mycobacterium tuberculosis*, *Yersinia pestis*, SARS-CoV-2, West Nile virus, and avian influenza in a controlled environment. By focusing on in-vitro (test tube and cell culture-based) experiments, the proposed UMass Chan BSL-3 laboratory suite will enable researchers to



analyze microbial behavior, replication, and treatment responses without direct exposure to infected animals and/or human subjects.

To ensure biosafety and biosecurity, the proposed BSL-3 laboratory suite will incorporate advanced containment measures and protocols, including, but not limited to, the following:

- **Negative Air Pressure System:** Sustained directional airflow is maintained into the lab from surrounding areas, preventing airborne pathogens from escaping.
- **HEPA Filtration System:** High-Efficiency Particulate Air (HEPA) filters remove infectious agents from exhaust air before it is released outside.
- **Sealed Laboratory Structure:** Walls, floors, and ceilings are constructed with non-porous, seamless materials to prevent contamination and facilitate decontamination.
- **Controlled Access and Security Measures:** Only authorized personnel are allowed entry, with security protocols such as key card access, biometric identification, and surveillance systems.
- **Biosafety Cabinets (BSC's):** Class II biosafety cabinets provide a safe workspace for handling infectious materials while maintaining a sterile environment.
- **Decontamination and Waste Management:** Includes autoclaves, chemical disinfectants, and dedicated waste disposal procedures to eliminate hazardous biological materials safely.
- **Airlock and Anteroom Systems:** Personnel enter through a two-door airlock system, equipped with a shower and HEPA-filtered airlocks to prevent contamination when exiting.
- **Personal Protective Equipment (PPE) Protocols:** Researchers wear specialized protective clothing, including respirators, gloves, face shields, and gowns to minimize exposure risks.

The proposed BSL-3 laboratory suite is vital to UMass Chan's ongoing biomedical innovation. It will support pathogen characterization, therapeutic and diagnostic development, and research in host-directed therapies and vaccines, helping UMass Chan scientists/researchers develop new treatments for emerging and re-emerging infectious diseases. With the growing threat of pandemics, antimicrobial resistance, animal diseases affecting food sources, and bioterrorism, the construction and operation of a well-designed BSL-3 laboratory suite ensures that research can be conducted safely while contributing to critical medical and public health advancements.

1.4 Relationship to Other On-campus BSL-3 Activities

UMass Chan currently has two operational BSL-3 facilities on-campus (note: a third BSL-3 facility operated on the UMass Chan campus but was decommissioned and ceased operations in December of 2024). Details of the operational BSL-3 facilities on campus include:



- *S7-314 BSL-3 Facility:* Commissioned in 2014, this multi-room 3,554 square foot suite, also located on the 7th floor of the “School” Building, operates as a Tier 1, Select Agent laboratory, which is approved and licensed by the Centers for Disease Control and Prevention (CDC) and the United States Department of Agriculture’s Animal & Plant Health Inspection Service (APHIS). In 2024, this facility underwent \$2.5M in critical repairs and mechanical/electrical upgrades within its existing footprint on the UMass Chan campus.
- *Animal Medicine ABSL-3 Facility:* Commissioned in 2005, this 2,900 square foot suite, located in the basement level of the “School” Building, includes laboratories for research with *Mycobacterium tuberculosis* and for Select Agent use, including one registered for work with Tier 1 Select Agents. This facility operates exclusively for handling and housing animals used in experiments with hazardous pathogens. In 2024, this facility underwent \$1.5M in critical repairs and mechanical/electrical upgrades within its existing footprint on the UMass Chan campus.

Having multiple BSL-3 laboratories provides several strategic and operational advantages in infectious disease research, public health preparedness, and biomedical innovation. These advantages include:

Expanding Research Capacity

- Multiple BSL-3 laboratories allow for simultaneous research on different high-risk pathogens allow a degree of separation between bacterial and viral pathogens to minimize cross-contamination.
- Increases the ability to conduct parallel studies on vaccine development, antimicrobial resistance, and emerging infectious diseases.
- Supports interdisciplinary collaborations between researchers working on distinct infectious agents or experimental approaches.

Enhancing Biosafety and Containment

- Reducing overcrowding in a single BSL-3 laboratory minimizes the risk of accidental exposure or breaches in containment.
- Dedicated laboratories can be pathogen-specific, ensuring a more controlled and safer working environment for handling different infectious agents.
- Separate laboratories reduce cross-contamination risks, improving the reliability of experimental results.

Supporting Pandemic and Biodefense Preparedness

- With multiple BSL-3 laboratories, UMass Chan can quickly scale up research operations in response to global health crises, including outbreaks of highly pathogenic influenza or emerging diseases.



- Increases UMass Chan's institutional capacity for biodefense research, enabling work on countermeasures for bioterror threats and high-consequence pathogens.
- Facilitates government and industry collaborations for rapid vaccine and therapeutic development during health emergencies.

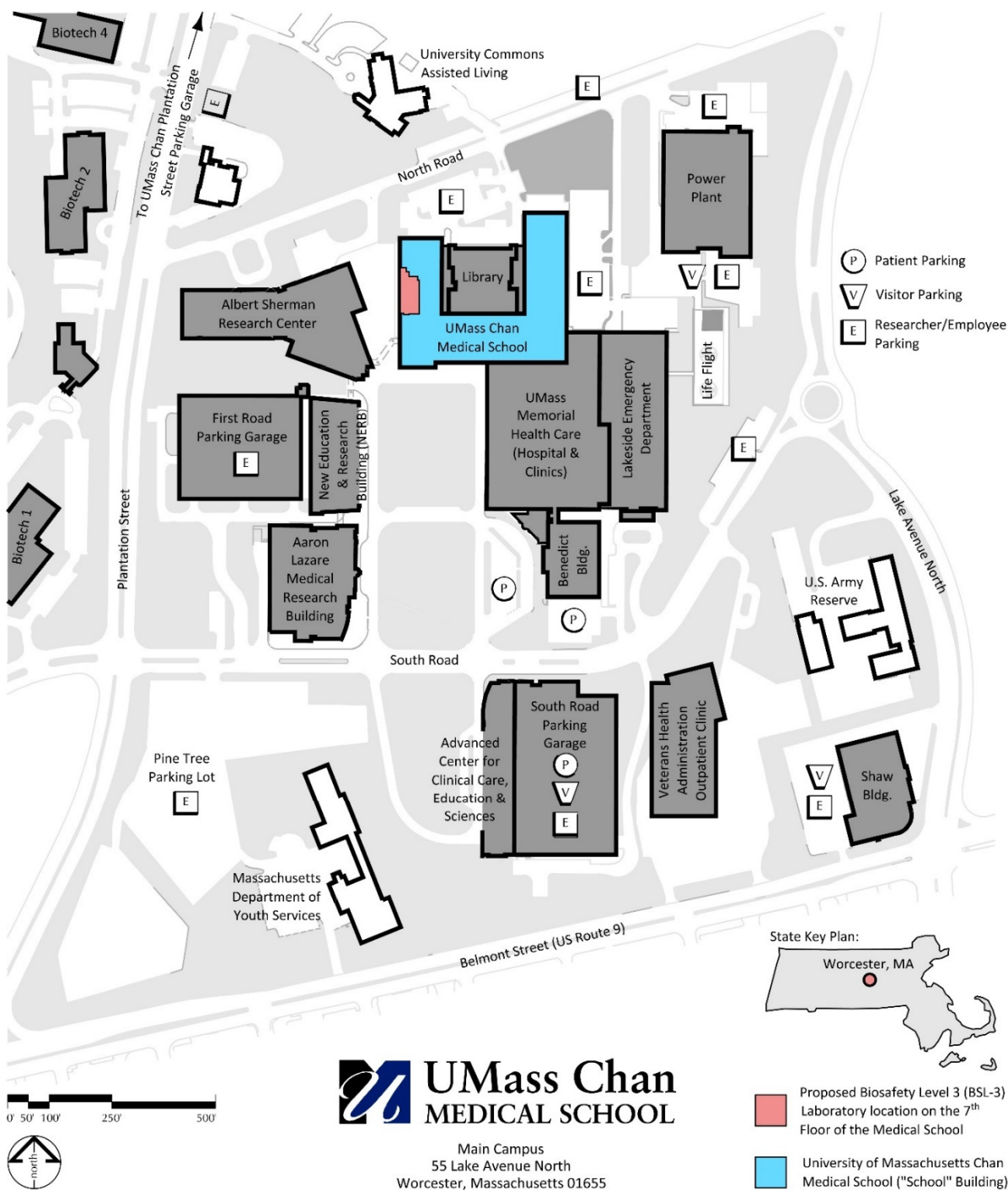
Maintaining Research Continuity and Redundancy

- If one laboratory requires maintenance, decontamination, or renovations, research can continue uninterrupted in the second lab.
- Having multiple facilities ensures that critical studies and federally funded projects do not face delays due to periodic preventive maintenance and/or infrastructure issues.
- Reduces downtime in the event of an unexpected equipment failure or contamination event.

Specialization and Optimized Functionality

- Laboratories can be customized for different biosafety research needs, such as one designed for bacterial pathogens (tuberculosis, anthrax) and another for viral research (SARS-CoV-2, influenza, West Nile virus).
- Different containment and engineering controls can be tailored for specific research applications, improving operational efficiency.

Multiple on-campus BSL-3 laboratories will enhance research capacity, biosafety, and public health preparedness while supporting pandemic and/or epidemic responses, biodefense efforts, and cutting-edge biomedical innovation. By maintaining separate, specialized facilities, institutions like UMass Chan can optimize their resources, improve research continuity, and accelerate discoveries that lead to life-saving treatments and vaccines.



Total gross square footage of all buildings on the UMass Chan campus: 3,791,252 GSF
Proposed Project's Gross Square Feet: 3,511 GSF (by comparison, this is 0.09% of the total campus GSF)

Figure 1: Location of proposed Biosafety Level 3 (BSL-3) Laboratory in the existing the University of Massachusetts Chan Medical School building ("School" Building)



2.0 PURPOSE AND NEED

2.1 Purpose and Need for Agency Action

Given UMass Chan's excellence in immunology, microbiology, and virology research, it is critical that current BSL-3 laboratory researchers/scientists are supported and that UMass Chan is prepared for further growth in funding, faculty, staff and programs that depend on biocontainment facilities. Pandemic preparedness and the emergence of other RG3 pathogens, such as Viral Hemorrhagic Fever (VHF), have placed a strain on the existing BSL-3 research space. Due to this strain, an outdated and poorly equipped existing BSL-3 laboratory remained operational to meet the current demand. By constructing and equipping a new Core BSL-3 laboratory suite, UMass Chan will be properly positioned to meet the research challenges associated with emerging and re-emerging infectious diseases.

UMass Chan Aim 1: *Develop a BSL-3 laboratory suite to support the growing needs of UMass Chan and neighboring institutions.* UMass Chan has a robust research program working with Risk Group 3 pathogens; however, our facilities are strained, as was exemplified when new SARS-CoV-2 researchers were added to the previously registered scientists working on other pathogens. In addition, UMass Chan recently received U.S. Department of Defense funding to study Viral Hemorrhagic Fever (VHF) and plans to expand to Alphaviruses. The existing S7-314 BSL-3 laboratory suite cannot accommodate the relocation of researchers displaced from another recently decommissioned BSL-3 laboratory suite. Simply duplicating the floor space and instrumentation of the decommissioned 885 gross square foot BSL-3 laboratory suite will not adequately meet our needs or those of our regional partners to address SARS-CoV-2 and other emerging threats.

Proposed plan of action: Convert existing and underutilized research space on the 7th floor of the "School" building into a new BSL-3 laboratory suite, focused on viral pathogens that will provide a vital resource to our institute, universities and industries in the New England area, and our national collaborators.

UMass Chan Aim 2: *Provide dedicated space with shared instrumentation to study viral pathogens and prepare for future pandemics.* UMass Chan is a leader in infectious disease research requiring BSL-3 containment, receiving significant funding for basic and clinical studies, including two awards totaling \$123-million for the Rapid Acceleration of Diagnostics (RAD-X) program. During the COVID-19 pandemic, UMass Chan was a major site for clinical studies, ranking 7th in global recruitment for the NIH-sponsored American Type Culture Collection clinical trials. Thus, UMass Chan is uniquely positioned to bridge clinical studies with important basic research to advance cutting-edge biomedical research. These essential studies have strained the existing BSL-3 laboratory facilities, which were already in high demand prior to the pandemic. Having expanded BSL-3 laboratory facilities, will ensure that research on Risk Group 3 viruses and bacteria at UMass Chan, along with our nationwide collaborators and regional institutions, can be performed with maximum productivity, safety and security.

Proposed plan of action: Construct and commission a new BSL-3 laboratory suite dedicated to working with Risk Group 3 viral pathogens.



2.2 Public Involvement

Public trust and acceptance are essential to the advancement and growth of UMass Chan. UMass Chan is proactive, in terms of communication and involvement, with our neighbors and the community. As such, public notification of the proposed BSL-3 laboratory suite project was included in the Worcester Telegram & Gazette's legal edition/ Section on August 17, 19, and 21. A provided 30-day public comment period, which will end on September 15, 2026. Copies of the Draft EA can be found at the Worcester library located at 3 Salem St, Worcester, MA 01608, Shrewsbury library located at 609 Main Street, Shrewsbury, MA 01545 and the Grafton library located at 35 Common, 35 Grafton Cmn, Grafton, MA 01519.

[Public comments and/or reports will be included here in Final AE Report]

2.3 Comment Summaries and Responses

The Commonwealth of Massachusetts Department of Environmental Protection, the Bureau of Climate and Environmental Health within the Massachusetts Department of Public Health, and the Massachusetts Historical Commission have each reviewed the Environmental Assessment and concluded that the information provided adequately addresses all environmental concerns. No additional formal comments or amendments are required (see correspondence included in the appendices).



3.0 THE “PROPOSED ACTION” AND THE “NO ACTION ALTERNATIVE”

3.1 “Proposed Action”

In conjunction with a federal grant opportunity, UMass Chan proposes to replace a recently decommissioned BSL-3 laboratory suite in a new and larger location (note: decommissioned BSL-3 laboratory suite was 880 gross square-feet). The proposed action includes the renovation of 3,511 gross square-feet of existing and underutilized research space on the 7th floor of UMass Chan’s Basic Research Wing in the “School” Building. The design intent is to create a Core facility with three laboratory workrooms (note: one of which will serve a dual purpose for decontamination) and shared equipment alcoves, all served by a common gowning room, a dress-in/optional exit-out shower, and airlocks. Renovations to the 8th floor and Penthouse levels will accommodate mechanical controls and prefabricated mechanical units dedicated to serving the new BSL-3 laboratory suite. Additionally, this project also includes both the purchase of and reuse of numerous pieces of research/scientific equipment.

3.1.1 Facility Site and Construction

The proposed project will be completely contained within the existing UMass Chan’s Basic Research Wing in the “School” Building (no new structure or addition is required). The “school” Building was originally constructed in 1970 and is a cast-in-place concrete structure. Over the past few years, significant resources have been dedicated by UMass Chan to upgrade and increase the efficiency of internal mechanical, electrical and plumbing systems.

The intent of this proposed project is to:

- Replace a recently decommissioned BSL-3 laboratory in a different location and expand its footprint to increase research capacity.
- Enhance biosafety and biosecurity in the existing facility and to bring it in compliance with current codes and standards.
- Construct multiple laboratories within the BSL-3 suite to enable simultaneous research on different high-risk pathogens without cross-contamination.
- Add a dress-in/shower-out feature (note: did not exist in the recently decommissioned BSL-3 laboratory), required for existing and future research.
- Increase the physical comfort of the researchers and reduce overcrowding to minimize the risk of accidental exposure or breaches in containment.
- Provide specialized equipment to be available to all researchers.



- Increase the efficiency of the building systems and consolidate dedicated mechanical systems.
- Maintain research continuity and redundancy (i.e.: if one laboratory requires maintenance, decontamination, or renovations, research can continue uninterrupted in the second lab).

Project Area: The proposed project's gross square footage is 3,511, which represents only 0.09% of the gross square footage on the UMass Chan Main Campus (UMass Chan's total gross square footage across the Main Campus is 3,791,252).

Code Compliance: The BSL-3 laboratory suite will be constructed in strict compliance with the codes/standards set by the Commonwealth and Federal regulators having jurisdiction over this project, the Center for Disease Control (CDC)/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL; 6th Edition, 2020), and the NIH's Design Requirements Manual (DRM; Revision 2.1 08/02/2024).

Schedule: The Design Phase began following the receipt of a *Notice of Award* in December of 2024 and expected to conclude in December of 2025. Bidding and negotiation under the Commonwealth of Massachusetts public bidding laws is expected to take an additional six (6) weeks. The proposed construction would begin in March of 2026 and UMass Chan is targeting an occupancy date in June of 2027.

3.1.2 Facility Description and Operations

The proposed BSL-3 laboratory suite will include three laboratories (note: one of which will serve a dual purpose for decontamination) and shared equipment alcoves, all served by a common gowning room, a dress-in/optional exit-out shower, and airlocks.

An additional description of each room within the BSL-3 laboratory suite is as follows:

- *BSL-3 Laboratory I* (982 net square-feet): Contains approximately 44 linear-feet of lab bench space, (7) Class II Type A2 6'-0" biosafety cabinets, dedicated handwash sink, safety shower/eyewash, and numerous laboratory apparatus (i.e.: centrifuges, cell imagers, orbital shaker, ultracentrifuge, freezers, refrigerators, and incubators). *Laboratory I* will contain a pass-thru autoclave to sterilize waste and deliver it to an access-controlled room outside of the BSL-3 containment area for appropriate disposal.
- *BSL-3 Laboratory II* (910 net square feet): Contains approximately 55.5 linear-feet of lab bench space, (4) Class II Type A2 6'-0" biosafety cabinets, (1) Class II Type B1 6'-0" biosafety cabinet (connected to a dedicated exhaust), dedicated handwash sink, safety shower/eyewash, and numerous laboratory apparatus (i.e.: centrifuges, cell imagers, orbital shaker, ultracentrifuge, freezers, refrigerators, and incubators). *Laboratory II* will contain a pass-thru autoclave to sterilize waste and deliver it to an



access-controlled room outside of the BSL-3 containment area for appropriate disposal.

- *BSL-3 Laboratory III/Decontamination* (262 net square feet): Contains approximately 9.5 linear-feet of lab bench space, (2) Class II Type A2 6'-0" biosafety cabinets, dedicated handwash sink, safety shower/eyewash. This laboratory will also serve items/equipment requiring vapor decontamination in the future.
- *Gowning Room* (170 net square feet): The Gowning Room will be used to store personal protective equipment, as well as, general laboratory supplies. The room will also contain lockers for street clothing and items that cannot be brought into the lab. Additionally, the Gowning Room will serve as Anteroom prior to entering the BSL-3 airlock.
- *Ante/Airlock Room I* (90 net square feet): The Ante/Airlock Room I will serve as a collection area for soiled scrubs. Additionally, it will include charging stations for PAPR reusable respirators. The Ante/Airlock Room I exits directly into the Gowning Room.
- *Ante/Airlock Room II with Shower* (120 net square feet): The Ante/Airlock Room II with Shower (also used as an exit-only air lock) will serve as a collection area for soiled scrubs. Additionally, it will include a decontamination shower-out provision. The shower room exits directly into the Gowning Room and a locking scheme will ensure user privacy while showering and changing.
- *Shared Equipment Room* (200 net square feet): This room will be primarily used as a freezer room and refrigeration storage room. By grouping this equipment together, the heat generated by this equipment could be handled more efficiently by the mechanical system. No active work will be conducted in this room.

Dedicated and prefabricated mechanical systems, located on the 8th floor and Penthouse, will service the entire BSL-3 laboratory suite (control valves for the mechanical systems will be installed in secure areas). In addition, several automatic monitoring and notification systems will be incorporated to ensure maximum safety for research personnel. The design and operation of the facility is certified by a third-party professionals on an annual basis. Service personnel perform monthly preventative maintenance on the systems and equipment of each facility. Besides airflow monitoring, additional safety and security features include:

- HEPA filtration of all air exiting the facility.
- Type II biosafety cabinets where infectious work is conducted.
- Pass-through autoclave for decontamination of all waste before disposal.



- Hands free sink, eyewash station, shower, and other safety equipment.
- Restricted access with security monitoring.

3.1.3 Safety and Security

The proposed BSL-3 laboratory suite will be constructed in strict compliance with laws, regulations and policies imposed by state and federal governments, the National Institutes of Health, the Centers for Disease Control and Prevention and the U.S. Department of Agriculture and other accrediting agencies that govern and oversee the construction, use, security, inspection and certification of BSL-3 laboratories. They specifically ensure the proper containment and destruction of infectious agents and materials. Standard Operating Procedures (SOP's) and training protocols will be in place before the facility is certified to operate by the respective federal agencies.

UMass Chan is well-positioned in the Central Massachusetts area to be available to assist national, state and local public health efforts in the event of a public health emergency. Only minute quantities (measured in milligrams) of biological agents will be stored and handled in the BSL-3 laboratory suite. In the unlikely event of an accidental release into the environment, light, temperature, humidity and other environmental factors would kill most agents. Additionally, UMass Chan has detailed emergency response plans that are documented in the SOP's available to all BSL-3 personnel. The emergency response procedures are discussed with BSL-3 users at the initial training for BSL-3 entry and annually thereafter. Furthermore, specific scenarios for incidents are discussed during monthly BSL-3 users' meetings and at the BSL-3 annual "refresher training day". Emergency simulations and drills are also performed.

Deficiencies in current operations: Use of the existing S7-314 BSL-3 core facility at UMass Chan has greatly increased in the past 10 years, with a notable spike during and after the COVID-19 pandemic. There are presently 44 researchers registered for access or in training for independent access to this 3,554 square foot facility. The surge in demand coincided with a decision by UMass Chan leadership to decommission another on campus BSL-3 laboratory, which served to decompress the demand in the S7-314 BSL-3 core facility. The decommissioned BSL-3 laboratory also housed the only BSL-3 cell sorter on campus, and it allowed for some separation of tuberculosis and respiratory viral pathogen research.

Closure of the third BSL-3 not only exacerbated the demand for biosafety cabinet and lab bench access in S7-314, but it also reduces the supply of usable space. A cell sorter from the decommissioned BSL-3 was moved into S7-314 and it now occupies a custom biosafety cabinet that replaced one general purpose biosafety cabinet in the lab. A second standard biosafety cabinet has been rededicated to use for sample preparation for the sorter. In 2023, UMass Chan received funds from the Massachusetts Life Sciences Center to purchase a Seahorse metabolic flux analyzer for BSL-3. This instrument permanently occupies a third biosafety cabinet, which is now unavailable for general use. A fourth biosafety cabinet has been rededicated to hold a cell counter, 10X controller, and PCR cycler that were all relocated from the decommissioned BSL-3. Since all bench work with risk group 3



pathogens is conducted inside biosafety cabinets, the reduced number of BSC's available for general use is a serious deficiency of the S7-314 facility.

The S7-314 BSL-3 facility was recently recommissioned after renovations to address issues with the ceiling structure, aged and increasingly unreliable autoclaves, an outdated HVAC system that was incompatible with the updated "School" Building Management System, an outdated exhaust system that could not achieve N+1 redundancy, and electrical systems that did not have redundant backups. Correcting those issues greatly improved the current lab, but did not address the primary deficiency of insufficient space to operate with maximum safety and security. In addition to the congestion of too many investigators caused by too few biosafety cabinets, the S7-314 BSL-3 does not allow separation of work with different classes of pathogens, nor does it provide optimal resilience to prevent a single point of failure from affecting the productivity of all ongoing funded research projects. As an example, when the S7-314 BSL-3 is shut down for scheduled preventive maintenance, or to address any unscheduled MEP issues or a major spill, then all research activities cease until the repairs are completed or the problem is addressed. Furthermore, while two autoclaves provide some redundancy, there have been occasions when both autoclaves were out of service resulting in complete stoppage of research activities.

Impact of the proposed BSL-3 laboratory suite: The plan to create a second in vitro BSL-3 laboratory suite addresses the deficiencies noted above. It will have a major positive impact on productivity, safety and resilience for the UMass Chan BSL-3 core.

- a. **Productivity:** The new facility will add 3,511 square feet of BSL-3 research space and make 13 additional biosafety cabinets available for investigators. This will dramatically ease the pressure on the daily schedule for biosafety cabinet access, currently causing research teams to delay some experiments and/or to work "off hours" as an alternative, which has a number of negative consequences. In addition, the Dean of UMass Chan has committed to purchasing a number of advanced scientific instruments, particularly for imaging, that will go into the new BSL-3 lab and greatly expand the technical scope of experimentation. Most academic institutions lack such equipment in BSL-3, which forces compromises like using model systems of uncertain fidelity or simply foregoing the use of cutting-edge approaches to achieve breakthroughs in research.
- b. **Safety:** UMass Chan researchers are funded to work with a variety of Risk Group 3 pathogens. Ideally, each pathogen should be handled in isolation, but this is unfeasible given the resources available at our institution and nearly all others in the country that conduct research on more than one agent. Once the new BSL-3 lab funded by the project is commissioned, we will achieve a relatively high if not absolute separation of bacterial and viral pathogens. Even with two labs in full operation, it is unfeasible to duplicate every advanced scientific instrument that may be important for experiments with all the class of agents. Thus, registered BSL-3 core users will have access to both labs, for example to make the cell sorter or Seahorse instrument in S7-314 BSL-3 available for virus research, and to make the imaging instruments in the new lab available for research in tuberculosis or other Risk Group 3 bacterial pathogens.



At the operational level, in addition to making it easier for researchers to schedule biosafety cabinet time, having two BSL-3 suites will reduce crowding and foot traffic. This in turn reduces the risk of accidents and will limit the number of people with potential exposure in the event of an incident or HVAC equipment failure.

- c. Resilience:** With two BSL-3 suites available to all registered BSL-3 core users, critical time-sensitive work can be shifted to one lab when the other is offline for any reason. Given the timeframe for many experimental approaches, delays due to unavailability of the BSL-3 lab can have cascading effects that delay progress far more than the actual laboratory's downtime. Annual scheduled maintenance, which requires closing and decontaminating an entire lab, will be staggered so that researchers using the lab to be shut down can plan ahead to shift critical experiments to the other lab. Also, with four autoclaves shared between the two labs, the chance of work stoppage due to the unavailability of waste sterilization will become vanishingly small.

3.2 “No Action Alternative”

If the NIH was unable to fund a portion of the proposed project, the proposed BSL-3 laboratory suite would not be constructed. In this case, the benefits of enhanced biomedical research on the UMass Chan campus would not be realized, and the opportunity to improve human health/safety and security would be lost.

The environmental consequences of not undertaking the action or proposed project would remain unaffected.

3.3 Alternatives Considered but Eliminated from Consideration

Other areas on the UMass Chan campus were evaluated; however, the placement of the BSL-3 laboratory suite on the 7th floor of the Basic Research Wing (“School” building) was chosen as the ideal location for the following reasons:

- An existing BSL-3 laboratory suite has operated in an adjacent wing on the 7th floor for over 12 years with a clean security and safety record.
- Underutilized research space is at a minimum on the UMass Chan campus and the amount of contiguous square footage in the proposed area makes it ideal.
- The 7th floor's close proximity to mechanical spaces located on the 8th floor and Penthouse level make it ideal for the complex mechanical systems required for BSL-3 lab. Additionally, the close proximity between the BSL-3 and mechanical systems augments safety/security features and facilitates annual maintenance requirements.



4.0 EFFECTED ENVIRONMENT – BASELINE MEASUREMENTS

4.1 Geology

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local geological features. Thus, geological baseline conditions are not relevant for this environmental assessment.

4.2 Soils

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local soils. Thus, soil baseline conditions are not relevant for this environmental assessment.

4.3 Groundwater/Surface Water

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local groundwater or surface water. Thus, groundwater and surface water baseline conditions are not relevant for this environmental assessment.

4.4 Surrounding Communities

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the surrounding community. Thus, surrounding community baseline conditions are not relevant for this environmental assessment.

4.5 Human Health

Decommissioned BSL-3 Laboratory Suite: The decommissioned BSL-3 laboratory suite was built and equipped in the late-1990's. Although current BSL-3 operating policies and procedures were adhered to, it was difficult to comply with updated safety standards and construction regulations. For example, most of the major mechanical equipment was due for replacement. Continued operation of units nearing failure interferes with productivity and, more importantly, human health.

Existing BSL-3 Laboratory Suite Fully Functional in Adjacent Location: An existing BSL-3 laboratory suite has operated in an adjacent wing on the 7th floor for over 12 years with a clean security and safety record, setting a baseline standard for the proposed project. In addition, the



existing BSL-3 laboratory suite recently underwent over \$2,000,000.00 in facility improvements and building system upgrades (completed in December of 2024).

Existing Medical Research Laboratory Space to be Renovated: The proposed location of the new BSL-3 laboratory suite will occupy underutilized and deteriorating biomedical research laboratory space. Originally constructed in 1974, the proposed location contains much of the original laboratory building systems (including asbestos-containing materials), casework and laboratory equipment (i.e.: fume hoods). The space remains underutilized due to outdated and inadequate facilities.

4.6 Socioeconomics

4.6.1 Employment

Preliminary U.S. Department of Labor, Bureau of Labor figures indicate that as of December 2024, the non-seasonally adjusted unemployment rate for the Worcester, MA-CT Metropolitan New England City and Town Area (NECTA) was 4.0%, reflecting an increase from 3.4% in December 2023. The Massachusetts statewide seasonally adjusted unemployment rate for the same time period was 4.1%. The proposed project would provide additional jobs during construction/operation and is elaborated on in Section 5 (item number 5.6.1).

Note: There are approximately 8,300 individuals currently employed on the UMass Chan campus.

4.6.2 Taxes and Financial Contributions

As a public institution, UMass Chan is part of the University of Massachusetts system and exempt from federal and state income taxes; however, UMass Chan has contributed to Payments in Lieu of Taxes (PILOT) to the city of Worcester, MA.

Indirect Tax Contributions: Through employees' wages, the institution generates income tax revenues for the Commonwealth of Massachusetts.

4.6.3 Community Services

UMass Chan Medical School actively engages with the community through various programs and initiatives aimed at enhancing education, healthcare access, and overall well-being. Key community services include:

Educational Outreach

- **Pipeline Programs:** To increase the number of underrepresented and disadvantaged students entering healthcare and biomedical research careers, UMass Chan offers mentoring, job shadowing, internships, laboratory opportunities, after-school science programs, visiting-scientist programs, and academic support. These initiatives reach hundreds of young people annually.



- **Massachusetts Area Health Education Center (MassAHEC):** With centers in Pittsfield, Springfield, Worcester, Lawrence, Boston, and Brockton, MassAHEC focuses on improving healthcare access for vulnerable populations by enhancing workforce education.

Community Engagement

- **Community Engagement Committee:** This committee promotes service, teaching, and research in the Greater Worcester community and Central Massachusetts. It emphasizes respectful two-way communication to develop programs benefiting both the community and the medical school.
- **Student Involvement:** UMass Chan encourages students to participate in community engagement activities, fostering a culture of service and responsiveness to community needs.

Healthcare Services

- **UMass Memorial Health Partnership:** As the clinical partner of UMass Chan, UMass Memorial Health operates a network of hospitals and clinics providing comprehensive healthcare services, including emergency care, long-term care, rehabilitation, and behavioral health services, primarily serving Central Massachusetts

Through these initiatives, UMass Chan Medical School demonstrates a strong commitment to enriching its surrounding communities by addressing educational disparities, enhancing healthcare access, and fostering collaborative community relationships.

4.6.4 Property Values

The proposed project would require no outward changes to the UMass Chan campus and would be imperceptible to its community and neighbors. The nature and scale of the proposed project is small enough, such that there will be no significant impact to area property values. Thus, property value baseline conditions are not relevant for this environmental assessment.

4.7 Air Quality

The Worcester area is designated as non-attainment for ozone, along with the rest of Massachusetts, according to the U.S. Environmental Protection Agency (and, therefore, its precursor pollutants, NO_x and VOC). This means that during summer there are days on which regional air quality does not meet National Ambient Air Quality Standards for ozone. The area is designated as an attainment for all other pollutants. Since the Basic Research Wing is already heated, cooled and equipped with electrical service from the central CHP (which is already fully permitted to supply the “School” building), no appreciable increase in any air pollutants would



result due to conversion of this existing floor space. A discussion of the project's impact upon air quality is presented in Section 5 (item number 5.7).

4.8 Waste Management

The incremental waste production associated with the existing laboratory operations on the 7th Floor in the Basic Research Wing ("School" Building) is minimal, with respect to the total waste volumes generated by the entire UMass Chan campus and disposed of at existing waste disposal facilities.

UMass Chan produced 3,151.81 tons of waste in Fiscal Year 2024; of which, 1,411.26 tons of recycling occurred in Fiscal Year 2024 (31% recycling rate).

Additionally, UMass Chan promotes "Growing Green" initiatives, which encompasses a comprehensive approach to waste management, focusing on reducing waste generation, promoting recycling, and ensuring the responsible handling of hazardous materials. Key aspects of this initiative include:

- **Waste Minimization and Diversion:** UMass Chan is committed to minimizing waste through various strategies, including recycling programs and initiatives aimed at reducing waste at the source. These efforts are part of the institution's broader sustainability goals to decrease overall waste production and enhance recycling rates.
- **Hazardous Waste Management:** The medical school adheres to stringent protocols for managing hazardous waste, ensuring compliance with environmental regulations and safeguarding public health. This includes proper segregation, storage, and disposal of hazardous materials generated from laboratory and clinical operations.
- **Sustainable Construction Practices:** In its construction projects, UMass Chan emphasizes sustainable practices to reduce environmental impact. At the start of 2025, UMass Chan released Sustainability and Resiliency Standards which apply to all construction and renovation projects. These standards include requirements for construction waste management plans.
- **Materials and Resource Management:** The institution's Sustainability and Climate Action Plan (2021-2026) outlines specific initiatives to improve materials and resource management. These initiatives aim to enhance waste diversion, promote the use of sustainable materials, and implement best practices in resource efficiency across campus operations.

4.9 Noise

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. As such, the proposed project will have no impact and/or negative effect on the surrounding community during operation. The only exception will be during construction and is elaborated on in Section 5 (item number 5.9).



4.10 Land Use

UMass Chan's Master Plan for the next 10 years has been documented and submitted to the Massachusetts Environmental Policy Act Office and the Commonwealth of Massachusetts Division of Capital Asset Management (DCAM) Office. The proposed project, however, is fully contained within the footprint of UMass Chan's existing Basic Research Wing ("School" Building). As such, the proposed project will have no impact or negative effect on the local land use. Thus, land use baseline conditions are not relevant for this environmental assessment.

4.11 Aesthetics

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. As such, the proposed project will have no impact and/or negative effect on any external aesthetic features. Thus, aesthetic baseline conditions are not relevant for this environmental assessment.

4.12 Ecological Resources

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. As such, the proposed project will have no impact and/or negative effect on any ecological resources. Thus, ecological resources baseline conditions are not relevant for this environmental assessment.

4.13 Transportation

UMass Chan's existing facility and can currently accommodate parking for 5,270 vehicles. 3,839 parking spaces are dedicated for employee and fleet vehicles, and 1,431 are dedicated to patient and visitor parking. Additionally, UMass Chan is an active participant in the Massachusetts Department of Environmental Protection's "Ride Share Program" to develop plans and set goals for reducing commuter "drive-alone" trips by 25 percent. UMass Chan partners with BayState Commute to reward sustainable transportation options including walking, biking, telecommuting, carpooling, vanpooling, or taking public transportation.

Public Transportation: Public transportation is available via Worcester Regional Transit Authority buses and the Massachusetts Bay Transportation Authority's Boston-to-Worcester commuter rail.

Bike Commuting: UMass Chan maintains a bicycle commuter registry program which promotes bike commuting and allows for free access to locker rooms/showers.

Electric Vehicle (EV) Infrastructure: To support sustainable transportation, UMass Chan has installed 98 EV charging ports on campus, earning recognition for its leadership in promoting electric vehicles.

Further discussion of the project's impact upon transportation is presented in Section 5 (item number 5.13).



4.14 Historical Resources

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility and does not contain any documented historical resources. As such, the proposed project will have no impact and/or negative effect on any historical resources. Thus, historical resources baseline conditions are not relevant for this environmental assessment.

4.15 Utilities and Services

Electricity, Water, and Wastewater Usage: The estimated average daily usage of electricity, water and wastewater for the existing BSL-3 and adjacent labs within the project scope is 652 kWh 34 gallons and 32 gallons, respectively.

Note: The estimated total daily usage of electricity, water and wastewater for the entire UMass Chan campus is 246,375 kWh, 658,000 gallons and 447,000 gallons, respectively.



5.0 ENVIRONMENTAL CONSEQUENCES

5.1 Geology

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local geological features.

No Action Alternative: The "No Action Alternative" is negligible, as the proposed project would have no impact and/or negative effect on the local geological features.

5.2 Soils

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local soil features.

No Action Alternative: The "No Action Alternative" is negligible, as the proposed project would have no impact and/or negative effect on the local soil features.

5.3 Groundwater/Surface Water

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on the local groundwater or surface water.

No Action Alternative: The "No Action Alternative" is negligible, as the proposed project would have no impact and/or negative effect on the local groundwater or surface water.

5.4 Surrounding Communities

The proposed project will not require additional community services or perceivably effect the surrounding communities, as UMass Chan's Basic Research Wing ("School" Building) is already an existing structure utilized for biomedical research. The proposed project is expected to create twelve (12) new employment opportunities; however, the impact from new employees (traffic, economics, etc.) would be negligible relative to the entire UMass Chan campus and its UMass Memorial Medical Center's affiliation.

No Action Alternative: The "No Action Alternative" is negligible, as the proposed project would have no impact and/or negative effect on the surrounding communities.

5.5 Human Health

The proposed project will be explicitly designed to protect both the research scientists and the public from exposure to biological agents or biotoxins used in research. The design principle



used to ensure the safety of the facility is described as a “box-within-a-box.” This engineering principle has been utilized to safely design and operate these types of infectious disease laboratories for over 50 years. Research activities using infectious pathogens occur in chambers under negative pressure deep within the containment laboratory; these laboratories are, in turn, completely contained within the facility’s outer building.

Direct Transmission: Direct transmission first requires a worker to be exposed to an infectious agent. The likelihood of a worker inhaling or otherwise becoming exposed (for example, through cuts in the skin or ingestion) to an infectious agent would be extremely remote. While it would be very unlikely that a worker would be exposed, if exposed with a sufficient dose, it would be possible for them to be carriers for those agents and, through direct transmission, expose others. This potential is further reduced through the intervention of effective vaccines.

Following national guidelines, Standard Operating Procedures (SOPs) are established by the UMass Chan Department of Environmental Health & Safety and the UMass Chan Institutional Biosafety Committee to minimize opportunities for direct transmission.

Airborne Transmission: All air leaving the BSL-3 laboratories during normal conditions will exit through dedicated multiple high-efficiency particulate air (HEPA) filters prior to emission through stacks on the building Penthouse. The number of viable vegetative microorganisms after HEPA filtration would be near zero. HEPA filters are rated as 99.97 percent efficient.

Indoor Environmental Quality

The HVAC system design will incorporate the following measures to provide for indoor air quality:

- Air flow monitors and individual room airflow control devices to monitor HVAC performance.
- Ventilation rates provided are in excess of code requirements to improve laboratory ventilation.

Outdoor Air Quality

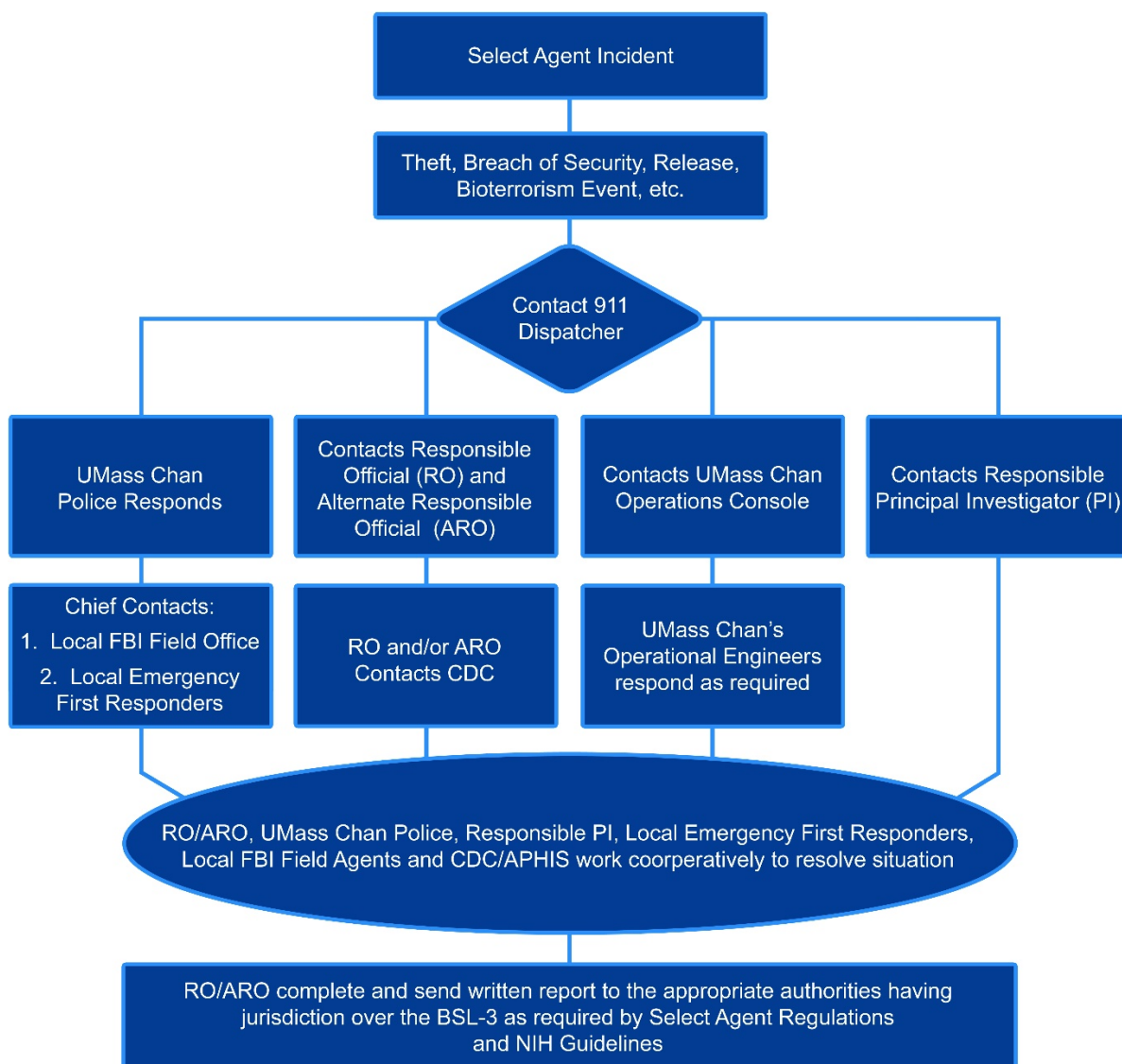
High-efficiency particulate air (HEPA) filters will be utilized to remove contaminants or to prevent particle emissions into the atmosphere. The HEPA filters remove at least 99.97% of all airborne particles by particle count at a size of 0.3 microns, which is one-300th the diameter of a human hair. Standard Operating Procedures (SOP’s) are in place requiring the HEPA filters to be regularly tested and re-certified by qualified personnel. Essentially, the emissions from the proposed BSL-3 laboratory suite would be cleaner than the outside ambient air. Therefore, there will be no significant impact upon ambient air pollutant concentrations and human health in surrounding communities.

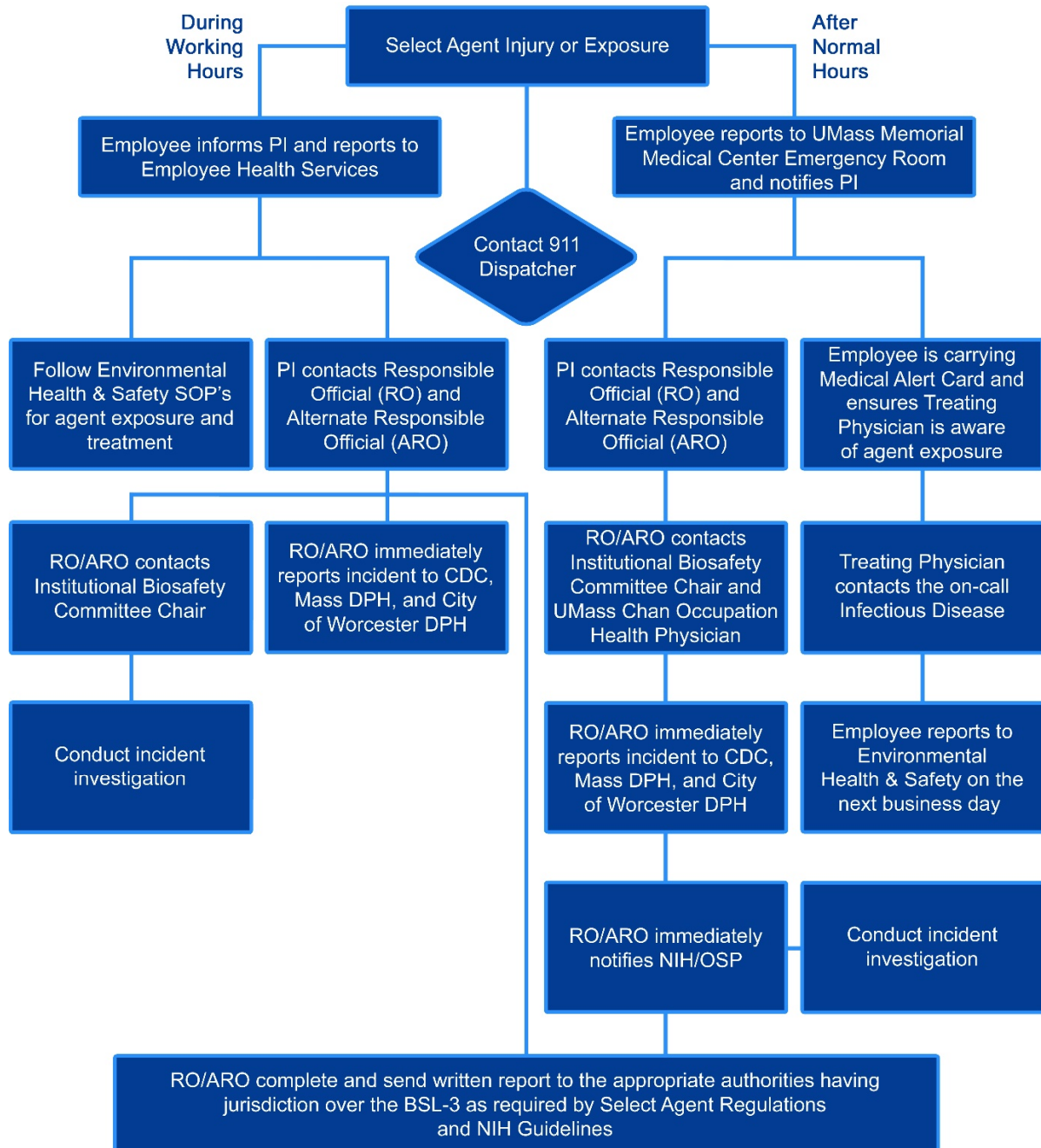
Water-borne Transmission: Portable water will not be affected by the implementation of the proposed project. Standard Operating Procedures (SOP’s) and facility design features, such as backflow preventers and uniform plumbing code requirements will prevent microbes within the facility from migrating back through the water supply piping to the public.



Incident Response Plan: In accordance with Federal Select Agents and Toxins Regulations, planned action responses have already been established by the UMass Chan Department of Environmental Health & Safety and the UMass Chan Institutional Biosafety Committee to counteract a variety of upset conditions, including theft, loss, inventory discrepancies, security breaches, severe natural disasters, workplace violence, bomb threats, suspicious packages, and emergencies such as fire, gas leaks, explosion, power outage, etc. (see Figure 2).

Figure 2: UMass Chan Incident Response Plan Summarizations –
Personnel Roles and Lines of Authority and Communication





No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on human health. Standard Operating Procedures and incident response structure is “in-place” for existing and operational BSL-3’s elsewhere on campus.



5.6 Socioeconomics

5.6.1 Employment

During construction: Project construction, occurring over seventeen (17) months from mid-February 2026 through mid-June 2027, will result in a short-term demand for construction personnel, employing, on average, 15-25 construction personnel at any one time. It is expected that local workers would be used for construction.

During operation: At full functional capacity, the proposed project will lead to the creation of approximately twelve (12) new full-time professional jobs. Impacts upon area-wide employment figures, while positive, would be negligible.

Note: There are approximately 8,300 individuals currently employed on the UMass Chan campus.

No Action Alternative: The “No Action Alternative” will have a negative impact on employment, as no construction employment opportunities and additional full-time professional jobs will be created.

5.6.2 Taxes and Financial Contributions

As a public institution, UMass Chan is part of the University of Massachusetts system and exempt from federal and state income taxes. As such, the proposed project would have no bearing on taxes or financial contributions.

Indirect Tax Contributions: Through employees’ wages, new full-time professionals would generate additional income tax revenues for the Commonwealth of Massachusetts, especially if the individuals were recruited from out-of-State.

No Action Alternative: The “No Action Alternative” will have a negative impact on taxes and financial contributions, as no additional full-time professional jobs will be created.

5.6.3 Community Services

UMass Chan’s commitment to community services, as is outlined in the Baseline Measurements, will remain unchanged as a result of this project’s construction.

Greater Community Contributions: The proposed project will expand research capacity and enhance pandemic/biodefense preparedness, which could lead to biomedical advances/discoveries benefiting the community beyond Central Massachusetts.

No Action Alternative: The “No Action Alternative” could have a negative impact on the greater community, as new biomedical advances/discoveries occurring in the new BSL-3 laboratory suite would not exist.



5.6.4 Property Values

UMass Chan's Basic Research Wing ("School" Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing's existing footprint. As such, the proposed project would have no impact and/or negative effect on local property values.

No Action Alternative: The "No Action Alternative" is negligible, as the proposed project would have no impact and/or negative effect on local property values.

5.7 Air Quality

During construction: There will be an imperceivable increase in automobile and truck traffic associated with the project's construction (i.e.: construction personnel will be commuting to/from the UMass Campus on a daily basis and construction material deliveries will take place on an occasional basis).

During operation: High-efficiency particulate air (HEPA) filters would be utilized to remove contaminants or to prevent particle emissions into the atmosphere. The HEPA filter would remove at least 99.97% of all airborne particles by particle count at a size of 0.3 microns, which is one-300th the diameter of a human hair. Standard Operating Procedures (SOP's) are in place to be regularly tested and re-certified by qualified personnel. In actuality, the emissions from the proposed BSL-3 laboratory suite would be cleaner than the outside ambient air. Therefore, there would be no significant impact upon ambient air pollutant concentrations and human health in surrounding communities.

No Action Alternative: The "No Action Alternative" would have a negative impact on long-term air quality. Understanding the impact from automobile/truck traffic associated with construction would be minimal, the long-term positive benefits of new, high-efficiency systems outweigh any negative short-term impacts.

5.8 Waste Management

During construction: The incremental increase in waste materials produced during the construction phase of work would be minimal with respect to the total waste production on the entire UMass Chan campus. Construction debris, primarily comprised of wood, metal, paper and plastic, would be the typical waste expected to be generated during the construction of a laboratory suite. Construction waste will be managed to ensure separation of recyclable materials from the jobsite waste.

During operation: The incremental waste production associated with the operation of the proposed BSL-3 laboratory suite would be minimal, if any, with respect to the total waste volumes generated by the entire UMass Chan campus and disposed of at existing waste disposal facilities.

Additionally, all solid waste would be placed in properly labeled containers, appropriate to the type of waste, placed in each room. Removal of all waste from the suite would be through



autoclaves located in Laboratories I & II. Sterilized solid waste would be temporarily stored in the autoclave rooms until it can be removed by approved staff. Access to these rooms would be by authorized personnel, and all access would be logged. The Institutional Biosafety Committee (IBC) would approve all policies and procedures governing disposal of all solid and liquid waste, based on a risk assessment of the agents investigated.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on local waste management.

5.9 Noise

During construction: Construction noise will most likely be unnoticeable in comparison to the current UMass Chan campus noise. Heavy equipment, such as crane/hoisting equipment (required for an approximate 4-day duration), and exterior roofing work may produce intermittent and adverse sound level exposures from the work site under normal working conditions and during daytime hours; however, the location/distance to residential and other non-campus related areas (i.e.: greater than 100 yards) would assist to diminish the levels. As for the remaining work, the construction will be contained within UMass Chan’s existing Basic Research Wing (“School” Building); therefore, there would be no further impact on noise in the surrounding community.

During operation: UMass Chan’s Basic Research Wing (“School” Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing’s existing footprint. As such, the proposed project would have no impact and/or negative effect on noise or adverse sound level exposures to the surrounding community.

No Action Alternative: The “No Action Alternative” would eliminate intermittent and short-duration construction noise. Long-term, the proposed project would have no impact and/or negative effect on the local noise or sound level exposures.

5.10 Land Use

UMass Chan’s Basic Research Wing (“School” Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing’s existing footprint. As such, the proposed project would have no impact and/or negative effect on the land use.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on the land use.

5.11 Aesthetics

UMass Chan’s Basic Research Wing (“School” Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing’s existing footprint. As such, the proposed project would have no impact and/or negative effect on aesthetics.



No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on aesthetics.

5.12 Ecological Resources

UMass Chan’s Basic Research Wing (“School” Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing’s existing footprint. As such, the proposed project would have no impact and/or negative effect on the local ecological resources.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on the local ecological resources.

5.13 Transportation

Individual Automobile: At full functional capacity, the proposed project would lead to the creation of approximately twelve (12) new full-time professional jobs. Assuming all new employees were to commute via individual auto, on-campus or other parking considerations are adequate to accommodate the additional number of vehicles. Additionally, new employees would cause an imperceptible change in traffic flow on nearby roadways. Furthermore, UMass Chan is an active participant in the Massachusetts Department of Environmental Protection’s “Ride Share Program” to develop plans and set goals for reducing commuter “drive-alone” trips by 25 percent. To support this program, UMass Chan encourages sustainable transportation through programs that promote and encourage carpooling, biking, use of public transit, and electric vehicles.

Short-duration Automobile Traffic During Construction: There would be an average of 10 to 20 additional vehicles accessing the UMass Chan campus each day. Of these, approximately 10 to 15 would be construction personnel and 5 would be delivery trucks. This additional volume would not be expected to significantly impact traffic flows in the vicinity of the UMass Chan campus. On-campus or other parking considerations are adequate to accommodate additional vehicles used by construction workers and by the additional staff associated with the project.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would be imperceptible in comparison to daily traffic surround the UMass Chan campus.

5.14 Historical Resources

UMass Chan’s Basic Research Wing (“School” Building) is an existing biomedical and translational research facility. The proposed project will occupy existing biomedical laboratory research space within the Basic Research Wing’s existing footprint. As such, the proposed project would have no impact and/or negative effect on historical resources in the surrounding community, as is confirmed by the Massachusetts State Historic Preservation Commission.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on local historical resources.



5.15 Utilities and Services

Electricity, Water, and Wastewater Usage: The estimated average daily usage of electricity, water and wastewater for the proposed project is 678 kWh, 28 gallons and 28 gallons, respectively. Since the building already exists, and is already supplied with utilities, the proposed project would not materially increase demand over current conditions on the UMass Chan campus. Further, UMass Chan is a leader in energy efficiency, operating a centralized combined heat and power system that serves “School” building. The highly efficient sequential production of electricity, steam and chilled water from natural gas minimizes the carbon footprint of the UMass Chan campus.

Note: Estimated total daily usage of electricity, water and wastewater for the entire Medical School is 246,375 kWh, 658,000 gallons and 447,000 gallons, respectively.

No Action Alternative: The “No Action Alternative” is negligible, as the proposed project would have no impact and/or negative effect on utilities and services.



6.0 CUMULATIVE IMPACTS

Cumulative impacts are those that may affect resources of concern (resources for which the proposed action could contribute incrementally) arising from the proposed action in conjunction with past, present and reasonably foreseeable future actions in the particular region of influence during the time period in which the proposed action would incrementally contribute. The proposed project is of such a small scale (3,511GSF), on the UMass Chan campus (3,791,252 GSF), that it would not affect resources of concern, either alone, or in conjunction with other construction projects.



7.0 GLOSSARY

BSC	Biological Safety Cabinet
BSL-3	Biosafety (or Biological Safety) Laboratory Level 3 (the level refers to one of four classifications for biologic research designated by the Federal Centers for Disease Control and Prevention) is a high-containment laboratory facility designed for research involving infectious agents that may cause serious or potentially lethal diseases through aerosol transmission. These labs require strict safety measures to prevent exposure, including controlled access, specialized ventilation systems that maintain negative air pressure to prevent airborne contaminants from escaping, and HEPA filtration of exhaust air. Researchers working in BSL-3 laboratories must follow rigorous protocols, such as wearing appropriate personal protective equipment, including respirators and gloves, and conducting all work within certified biological safety cabinets. Decontamination procedures, such as autoclaving or chemical disinfection, are strictly enforced to prevent contamination. BSL-3 laboratories are critical for studying pathogens like tuberculosis, SARS-CoV-2, and West Nile virus while ensuring a secure environment that minimizes risks to personnel and the surrounding community.
CDC	Centers for Disease Control and Prevention
EA	Environmental Assessment
EPA	Environmental Protection Agency
GHG	Greenhouse Gasses
GSF	Gross Square Feet (or) Footage
HEPA	High-efficiency Particulate Air
HVAC	Heating , Ventilating and Air Conditioning
HPAIV	Highly Pathogenic Avian Influenza Virus
IBC	Institutional Biosafety Committee
IPPC	Intergovernmental Panel on Climate Change
MEP	Mechanical, Electrical and Plumbing
NSF	Net Square Feet (or) Footage
NIH	National Institutes of Health
ORIP	Office of Research Infrastructure Programs
OVPR	UMass Chan's Office of Vice Provost for Research
PI('s)	Principal Investigator(s)
PPE	Personal Protective Equipment
RCA	UMass Chan's Research Core Administration
RG-3	Risk Group 3 Agents
SOP('s)	Standard Operating Procedure(s)
UMass Chan	University of Massachusetts Chan Medical School



APPENDICES (SEE THE FOLLOWING ATTACHMENTS)



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

To: Robert Sachse, Architect/Sr. Project Manager, University of
Massachusetts Chan Medical School

From: Ann Lowery, Assistant Commissioner, Bureau of Planning and Evaluation
AL

Re: Draft Environmental Assessment, University of Massachusetts Medical
School, Biosafety Level 3 Laboratory for Viral Pathogens

Date: September 11, 2025

E-cc: M.J. Pigsley, Director Central Regional Office, MassDEP
Nalina Narain, Director Bureau of Climate and Environmental Health,
MassDPH

Staff from the Massachusetts Department of Environmental Protection have reviewed the Draft Environmental Assessment submitted by the University of Massachusetts Chan Medical School for the proposed Biosafety Level 3 Laboratory Suite. The agency has determined that the Assessment adequately addresses the environmental concerns within its jurisdiction and formal comment on the Environmental Assessment is not required.

In addition, MassDEP consulted with the Bureau of Climate and Environmental Health of the Massachusetts Department of Public Health. That Bureau concurs with MassDEP's view that the Assessment adequately addresses environmental and health concerns.

Please contact me at ann.lowery@mass.gov if you have any further questions.

Attachment 2

RECEIVED

AUG 08 2025

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH MASS. HIST. COMM

R.C. 52501

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION

220 MORRISSEY BOULEVARD

BOSTON, MASS. 02125

617-727-8470, FAX: 617-727-5128

PROJECT NOTIFICATION FORM

Project Name: Proposed Biosafety Level 3 Laboratory Suite on the University of Massachusetts Chan Medical School Campus

Location / Address: 55 Lake Avenue North

City / Town: Worcester, Massachusetts 01655

Project Proponent

Name: University of Massachusetts Chan Medical School

Address: 55 Lake Avenue North

City/Town/Zip/Telephone: Worcester, Massachusetts 01655; Tel.: 508.856.1772

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

Brana Simon 8/29/25

Brana Simon
Executive Director
State Historic Preservation Officer
Massachusetts Historical Commission

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	National Institutes of Health (NIH)	Type of License or funding (specify)	Federal construction grant funding - Grant No. C06 OD037781-01
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Project Description (narrative):

The University of Massachusetts Chan Medical School (hereafter designated as UMass Chan) located in Worcester, Massachusetts, operates over 40 Core facilities and services overseen by the Office of the Vice Provost for Research (OVPR), with centralized financial management provided by a Research Core Administration (RCA). The comprehensive vision of the OVPR is to support UMass Chan researchers and scientists with advanced facilities in a safe and secure environment.

Given UMass Chan's excellence in immunology, microbiology, and virology research, it is critical that current Biosafety Level 3 (hereafter designated as BSL-3) laboratory researchers/scientists are supported and that UMass Chan is prepared for further growth in funding, faculty, staff and programs that depend on biocontainment facilities. Pandemic preparedness and the emergence of diseases caused by Risk Group 3 (RG-3) pathogens, such as Viral Hemorrhagic Fever (VHF), have placed a strain on the existing BSL-3 research space. Due to this strain, an outdated and poorly equipped existing BSL-3 laboratory remained operational to meet the current demand. By constructing and equipping a new Core BSL-3 laboratory suite, UMass Chan will be properly positioned to meet the research challenges associated with emerging and re-emerging infectious diseases.

The proposed BSL-3 laboratory suite will involve renovations to designated areas on the 7th, 8th, and Penthouse levels of UMass Chan's Basic Research Wing in Worcester, Massachusetts. The project will renovate approximately 3,511 gross square feet of existing and underutilized research space, with a total estimated cost of \$12,761,000. Of this, \$7,857,615 will be funded through a NIH Federal Assistance Award. The design aims to establish a Core Facility consisting of three research laboratories, shared equipment alcoves, a decontamination area, and support spaces including a common gowning room, a dress-in/exit-out shower, and airlocks. Renovations on the 8th floor and Penthouse will accommodate mechanical controls and the installation of prefabricated mechanical units dedicated to the BSL-3 suite.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Yes, the project includes the demolition of approximately 3,511 gross square feet of existing and underutilized research space within the existing footprint/exterior envelope of UMass Chan's Basic Research Wing. Demolition is limited primarily to removing existing interior partitions and m.e.p. systems.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No external rehabilitation is anticipated.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

Yes, the project includes the construction of approximately 3,511 gross square feet to facilitate a BSL-3 Laboratory Suite within the existing footprint/exterior envelope of UMass Chan's Basic Research Wing. Construction is limited primarily to erecting new interior partitions and installing new m.e.p. systems.

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A (continued)

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

To the best of our knowledge, no historic or archaeological properties are known to exist within the project's area of potential impact.

What is the total acreage of the project area?

Woodland	<u>N/A</u>	acres	Productive Resources:		
Wetland	<u>N/A</u>	acres	Agriculture	<u>N/A</u>	acres
Floodplain	<u>N/A</u>	acres	Forestry	<u>N/A</u>	acres
Open space	<u>N/A</u>	acres	Mining/Extraction	<u>N/A</u>	acres
Developed	<u>N/A</u>	acres	Total Project Acreage	<u>N/A</u>	acres

What is the acreage of the proposed new construction? N/A acres

What is the present land use of the project area?

University Medical School (Occupancy Use Group B -- Business)

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.
This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form:

R. Sachse

Date: 24 April 2025

Name:

Robert Sachse

Address:

55 Lake Avenue North

City/Town/Zip:

Worcester, Massachusetts 01655

Telephone:

508.856.1772

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

7/1/93

950 CMR - 276