



Homeland
Security

Science and Technology



NBACC STRATEGIC PLAN

February 2020

Prepared by:

Battelle National Biodefense Institute, LLC

8300 Research Plaza, Fort Detrick, MD 21702

Contract Number: HSHQDC-15-C-00064, Competitive Award

Contract/Task Order Dollar Amount: \$480,569,435.56

Sponsored by: Department of Homeland Security

Requiring Activity:

Department of Homeland Security

Office of National Laboratories

245 Murray Lane, SW

Washington, DC 20528



CONTENTS

Part 1	STRATEGIC CONTEXT AND NBACC MISSION	Page 1
Part 2	NBACC STRATEGIC APPLIED SCIENCE GOALS	Page 2
Part 3	NBACC APPLIED SCIENCE ROADMAPS	Page 2
Part 3.1	NBTCC ROADMAP UPDATE	Page 3
Part 3.2	NBFAC ROADMAP UPDATE	Page 5
Part 4	OPERATIONAL EXCELLENCE	Page 7
Part 5	WORK FOR OTHERS	Page 8
Part 6	OUTREACH	Page 8
Part 7	NBACC PROCESSES THAT SUPPORT STRATEGIC PLANNING	Page 10
Part 8	LINKAGES TO DHS ONL STRATEGIC GOALS	Page 11

1 STRATEGIC CONTEXT AND NBACC MISSION

Department of Homeland Security (DHS) strategic responsibilities related to the National Biodefense Analysis and Countermeasures Center (NBACC) mission in biodefense are captured in legislation, Presidential Directives and Strategies, national planning documents and DHS strategy and planning documents (e.g., 2014 Quadrennial Homeland Security Review, DHS FY14-18 Strategic Plan, DHS S&T Strategic Plan 2015–2019, and 2016 Homeland Security Advanced Research Projects Agency Strategic Plan). The President’s 2018 National Biodefense Strategy states, “Biological threats—whether naturally occurring, accidental, or deliberate in origin—are among the most serious threats facing the United States and the international community. . . . America’s biodefense enterprise needs to be nimble enough to address emerging infectious disease threats, the risks associated with the accelerating pace of biotechnology, and threats posed by terrorist groups or adversaries seeking to use biological weapons.” Five strategic goals were identified—NBACC has a role supporting DHS in preparing for and responding to four of the five:

- *Enable Risk Awareness to Inform Decision-Making Across the Biodefense Enterprise;*
- *Ensure Biodefense Enterprise Capabilities to Prevent Bioincidents;*
- *Ensure Biodefense Enterprise Preparedness to Reduce the Impacts of Bioincidents; and*
- *Rapidly Respond to Limit the Impacts of Bioincidents*

The President identified the national security requirement that biodefense be available and applicable to the risks associated with natural outbreaks of disease, accidents with high consequence pathogens, and deliberate use by adversaries who wish to do harm with biological agents. This includes enabling effective response to and recovery from priority biological incidents and maintaining mission-essential functions during and after biological incidents as stated in the 2014 Quadrennial Homeland Security Review. DHS domestic leadership responsibilities also provide NBACC requirements in support of DHS Components, Federal Law Enforcement, and other federal agencies across the Homeland Security Enterprise (HSE).

The NBACC mission is to provide the Nation with the scientific basis for characterization of biological threats and bioforensic analysis to support attribution of their planned or actual use.

NBACC operates within the Department of Homeland Security, Science and Technology Directorate, Office of National Laboratories (ONL), and follows the strategic vision under this office to:

1. *Provide technical expertise and high-quality Research, Development, Test and Evaluation (RDT&E) laboratory solutions*
2. *Demonstrate the value of the NBACC within the ONL Enterprise of Laboratories*
3. *Create and maintain a resilient infrastructure operated with quality processes and providing enduring and emerging capabilities*
4. *Enhance networked laboratory capabilities with other ONL labs to align with current and long-ranged HSE threats and demands*
5. *Develop, train and retain a diverse workforce with multifaceted skills and talents to address current and future challenges*

NBACC also supports the critical mission and programmatic needs for the Federal Bureau of Investigation (FBI), in concert with the Weapons of Mass Destruction Directorate and the Laboratory Division, for providing agile (24/7) and expert support for bioforensics.

Biodefense must be nimble enough to address traditional and nontraditional threat agents and scenarios. Historically, lists of contemporary agents and envisioned scenarios were compiled and prioritized. Unfortunately, list-based approaches to biodefense are insufficient for several reasons including: 1) the combinatorial number of agents and scenarios exceeds available resources to understand and address, 2) an adaptive adversary could avoid defenses/bioforensic analysis capabilities by using agents or scenarios not on the lists, and 3) the power and availability of biotechnologies is rapidly increasing, which requires frequent list amendments and reprioritization and may not address a previously “unknown-unknown” agent. NBACC is critical to providing rapid, dynamically directable scientific and operational capabilities in order to support response to biocrime, bioterrorism, or infectious disease outbreaks of national significance—essentially a hedge against uncertainty.

Our strategic research approach and operational bioforensic capabilities fully supports NBACC as the national biosecurity laboratory that:

- Addresses limitations of the list-based biodefense approach
- Uses currently identified threats as exemplars for nontraditional threats
- Maintains the biocontainment infrastructure and scientific core competencies to support the identification and characterization of traditional and nontraditional threats

2 NBACC STRATEGIC APPLIED SCIENCE GOALS

The NBACC strategic applied science goals are derived from national and DHS strategies, described in the previous section, intersected with overarching NBACC strategic objectives that were provided by DHS, summarized in Table 2-1. The general scope is biodefense research, development, analysis, community engagement, and associated core competencies required for safe, secure, and compliant support of homeland security enterprise operations.

DHS SO-1
Develop equipment, protocols, and training procedures for response to and recovery from biological attacks
DHS SO-2
Enhance the technical capabilities of the DHS operational elements and other Federal, State, local, and tribal agencies in order to allow them to fulfill their homeland security related missions
DHS SO-3
Develop methods and capabilities to test and assess threats and vulnerabilities, and prevent technology surprise and anticipate emerging threats
DHS SO-4
Support U.S. leadership in science and technology

Table 2-1: DHS has identified 4 overarching Strategic Objectives for NBACC.

The NBACC strategic applied science goals are shown below in Table 2-2.

	Threat Characterization Long-term Strategic Goals			
	<ul style="list-style-type: none"> • Preparedness: Provide broadly applicable core capabilities to generate data and understanding of the hazards and risks posed by biological threat agents and related technologies to inform pre-incident decision-making to prevent, prepare for, respond to, and recover from a biological incident of national significance • Response: Provide broadly applicable core capabilities to generate data and understanding of the characteristics of a biological threat agent to enable DHS and HSE decision makers to effectively respond and recover from a biological incident of national significance 			
	Bioforensic Analysis Long-term Strategic Goals			
	<ul style="list-style-type: none"> • Casework: Provide “always available” bioforensic analyses and support to traditional forensics analyses of biological agent-contaminated evidentiary samples for attribution investigations and federal prosecutions • Casework Capability Enhancement: Identify and characterize any biological agent in any sample to include traditional, non-traditional, new and emerging, genetically engineered and synthetic agents, as well as any other informative biological signature 			
	NBACC Strategic Competencies			
	• Bacteriology	• Sample Processing	• Knowledge Management	• Genomics/Bioinformatics
	• Virology	• Electron Microscopy	• Synthetic/Molecular Biology	• Quality Management
	• Bioforensic Repository	• Toxinology/Mass Spectrometry	• Comparative Medicine	• Biocontainment Operations
	• Aerobiology			

Table 2-2: NBACC Strategic Applied Science Goals.

Achieving these goals enables the “vision” for NBACC as the national biocontainment laboratory that deters, enables attribution of, and reduces the impact of bioterrorism and biocrime for current and future threats.

3 NBACC APPLIED SCIENCE ROADMAPS

Scientific and technical roadmaps for achieving NBACC applied science strategic goals are developed to provide plans of action and milestones. Roadmaps that were developed as part of the approved NBACC Strategic Plan in 2012 (see <http://bnbi.org/about-us-2/strategic-plan/>) have been updated with each annual planning cycle. Roadmap updates for the two applied science components of NBACC—National Biological Threat Characterization Center (NBACC) and National Bioforensic Analysis Center (NBACC), follow.

3.1 NBTCC ROADMAP UPDATE

The mission of the National Biological Threat Characterization Center (NBTCC) is to establish the scientific basis for the threat posed by traditional and nontraditional biological agents and life science-related technologies to support and inform Homeland Security Enterprise (HSE) biodefense preparedness, response, and recovery decisions. NBTCC specifically supports the U.S. biodefense strategy by:

- *Conducting research and providing data to improve the ability to assess the risk and effectively plan to prevent or respond to biological incidents*
- *Assuring United States Government access to laboratory infrastructure, including a trained workforce capable of supporting United States Government biodefense programs and decision-making*
- *Conducting research to understand the persistence and potential for secondary transmission of biological contaminants in a variety of environments and the ability of various disinfection technologies to inactivate or remove biological contaminants; and*
- *Conducting real-time research during response to characterize emerging or novel biothreat agents and develop response tools in order to improve national response and recovery capacity, capability, and future preparedness*

Strategic Goal 1: Provide broadly applicable core capabilities to generate data and understanding of the hazards and risks posed by biological threat agents and related technologies that informs pre-incident decision-making to prevent or prepare for a biological incident of national significance

Strategic Goal 2: Provide broadly applicable core capabilities to generate data and understanding of the characteristics of a biological threat agent to enable DHS and HSE decision makers to effectively respond and recover from a biological incident of national significance

Because the numbers of potential Biological Threat Agents (BTAs) are large and biotechnology is evolving at a rapid pace while becoming more accessible, the threat is not static. As a result, NBTCC employs an approach based upon characterizing risks from specific known threats while providing capabilities that can promptly adapt to, and address, unanticipated biological threats. To achieve this, NBTCC has established a unique combination of capabilities required to characterize risk-associated attributes of biological agents, biotechnologies, biodefense vulnerabilities, and countermeasure strategies to enable a common biological agent risk framework.

The existing capabilities are flexible and responsive in order to deliver timely characterization of the threat properties of high hazard agents (both traditional and nontraditional). However, to anticipate and identify emerging biological threats and “game changing” technologies that reduce barriers for adversaries to access and effectively use a biological agent, additional capabilities and approaches are required. Specifically, systems approaches that provide a mechanistic understanding of the processes driving threat properties of agents (both host/agent and agent/environment interactions) that permit interpolation/extrapolation of results are needed to inform biodefense decisions.

Such an approach must integrate biological agent data into a system of analytical models of key threat characteristics and “on demand” decision support tools that can be dynamically applied to traditional and nontraditional threat scenarios (Table 3-1).

Methods to rapidly determine the genomic sequence and proteins expressed by a biological agent continue to mature and provide a plethora of data, but a key challenge in rapid biological threat characterization of novel agents is the ability to predict the characteristics of biological threat agents based upon genome sequence, transcriptomic, and/or proteomic information with minimal experimental data. While a few specific properties of newly identified agents can be predicted based on signatures (e.g., antibiotic resistance, presence of known virulence factors, growth requirements), the ability to infer all of the properties required for full biological threat characterization of novel agents (virulence, countermeasure efficacy, etc.) from multi-omic information requires a more comprehensive systems understanding of biological agents and is still decades away. In the absence of this, NBTCC will provide flexible and agile biological threat characterization capabilities to provide timely and high quality data on the threat characteristics of any biological threat agent as a hedge against uncertainty. In parallel, NBTCC will take an incremental approach to

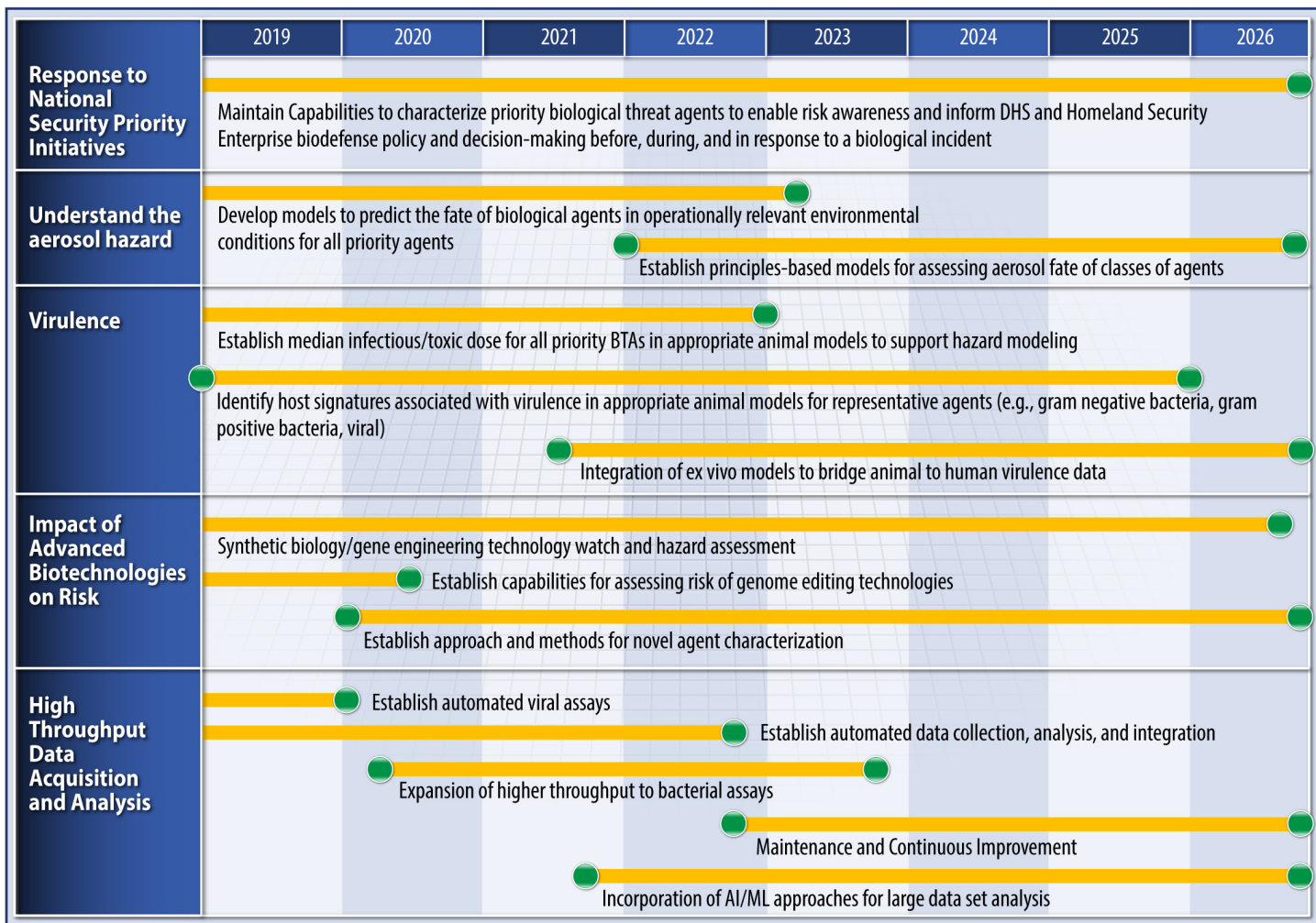


Table 3-1. Roadmap for achieving NBTCC strategic goals.

implement and leverage the technologies and capabilities required to understand host-pathogen and host-environment interactions (interactome) as they become available from academic, commercial, and government sectors. These include leveraging synthetic biology capabilities available to the global scientific community that influence the landscape of enhanced and advanced threats, systems biology capabilities to understand the underlying biological pathways and patterns associated with relevant threat agent characteristics, and implementation of automation for higher throughput in biocontainment to provide increased data on threat characteristics. The maturity of new technologies will be evaluated prior to adoption to reduce the risk of adoption and to ensure that only the best and most mature tools required for broad biological threat characterization are utilized. In the longer term, advancements in both systems biology and ex vivo systems, driven by the biomedical and public health communities to bridge between animal models and animals, may be leveraged if the systems reach sufficient maturity.

This approach will allow NBTCC to achieve near/intermediate term goals of providing timely data, knowledge products, and analyses to effectively respond to a biological event, while providing threat characterization data to address remaining traditional agent knowledge gaps to improve and inform biodefense DHS and HSE preparedness efforts to mitigate the impact of a bioterrorism attack on the homeland. To address intermediate and long term goals, NBTCC will steward threat characterization capabilities, maintaining currency in technologies that are shaping the rapidly evolving threat space, and adopting capabilities needed to more fully understand complex pathogen/environment and host/pathogen interactions. Advancing the ability to provide broad biological threat characterization data and development and validation of analytical models to extrapolate threat characteristics across BTAs/scenarios supports the achievement of the long-term goal of a comprehensive systems-based approach to characterize traditional and nontraditional agents.

3.2 NBFAC ROADMAP UPDATE

The mission of NBFAC, as delineated by Homeland Security Presidential Directive-10 and FBI requirements, is to establish and maintain “always available” bioforensic analyses and to expand this capability to unknown and future biological threat agents to support attribution investigations. NBFAC has built a strong technical core with International Organization for Standardization (ISO) 17025 accredited, agent-based methods and assays in Bacteriology, Virology, Toxinology, and Molecular Biology. Additionally, NBFAC has established and will incrementally expand methods-based approaches in Genomics, Analytical Chemistry using mass spectrometry (MS), and Physical Analyses using electron microscopy (EM). NBFAC’s combined use of agent- and methods- based approaches will achieve NBFAC’s strategic goals and the establishment of capabilities for the identification and characterization of traditional, non-traditional, new and emerging, engineered and advanced biological threat agents as well as other informative biological signatures (Table 3-2).

Strategic Goal 1: Provide “always available” bioforensic analyses and support to traditional forensics on biological agent contaminated evidentiary samples for attribution investigations and Federal prosecutions

Strategic Goal 2: Identify and characterize any biological agent and signatures in any sample to include traditional, non-traditional, new and emerging, genetically engineered and synthetic agents as well as any other informative biological signatures

NBFAC will largely focus future capability expansion efforts on its methods-based approaches, which are agent agnostic, and will support the identification and characterization of a broad range of biological agents, including “unknown” advanced threats, as well as human DNA. NBFAC will build methods-based capabilities following the incremental approach utilized to establish genomics capabilities that encompasses sample preparation, next generation sequencing, and bioinformatic analyses to address current and anticipated bioforensic casework needs. This genomics capability, like other methods-based approaches, requires sophisticated equipment, an experienced multidisciplinary team, and a multi-year incremental development effort. Critical investments in laboratory technologies and equipment have been matched by those in High Performance Computing (HPC) – NBFAC has established a significant HPC infrastructure that is being expanded to support unclassified and classified genomic analyses. NBFAC will incrementally expand genomics capabilities over time in several major thrust areas that include sample processing, metagenomics, genotyping, inferential analysis, single cell sequencing and human DNA analysis.

The incremental methods-based capability development process used for the successful establishment of NBFAC’s genomics capability will be used as a model to establish a proteomics capability that is similarly complex and multidisciplinary, and will leverage MS, bioinformatics and HPC capabilities. NBFAC will use a combination of MS and bioinformatics to analyze any protein present in bioforensic samples, and ultimately to complement parallel genomic analyses in a comprehensive methods-based investigation. Proteomic capabilities have begun with the development of an MS infrastructure, currently being established to identify and characterize protein toxins through peptide sequencing and to identify and characterize low molecular weight toxins. NBFAC’s Proteomics Team will require expertise in protein biochemistry and proteome bioinformatics to establish both preparative and analytical proteomic approaches. NBFAC will incrementally establish multi-dimensional liquid chromatographic and solid phase extraction techniques to facilitate the fractionation of increasingly complex samples and the isolation of a broad range of biomolecules. This capability will require a repertoire of complementary MS platforms that identify and characterize these molecules and software tools to support large-scale protein analysis utilizing NBFAC’s HPC clusters. These capabilities will be linked to existing inferential analysis processes to support analysis of a wide spectrum of bioforensic samples.

NBFAC will be flexible in evaluating and adopting new technologies and ensuring that the best tools are available for any casework scenario. Throughout NBFAC’s incremental methods-based capability expansion

processes, new technologies and methods will be evaluated and those that add value to NBFAC’s analytical portfolio will be established. This incremental approach will achieve intermediate goals that will provide important advances to NBFAC’s ability to perform broad bioforensic analyses, and build toward the long-term goal of a comprehensive orthogonal Genomics and Proteomic methods-based approach to characterize any agent and to identify other informative biological signatures in any sample.

NBFAC Roadmap: Provides “Always Available” casework support with evolving capabilities for traditional, non-traditional, emerging, genetically engineered and synthetic biological agents and toxins, and other informative biological signatures.

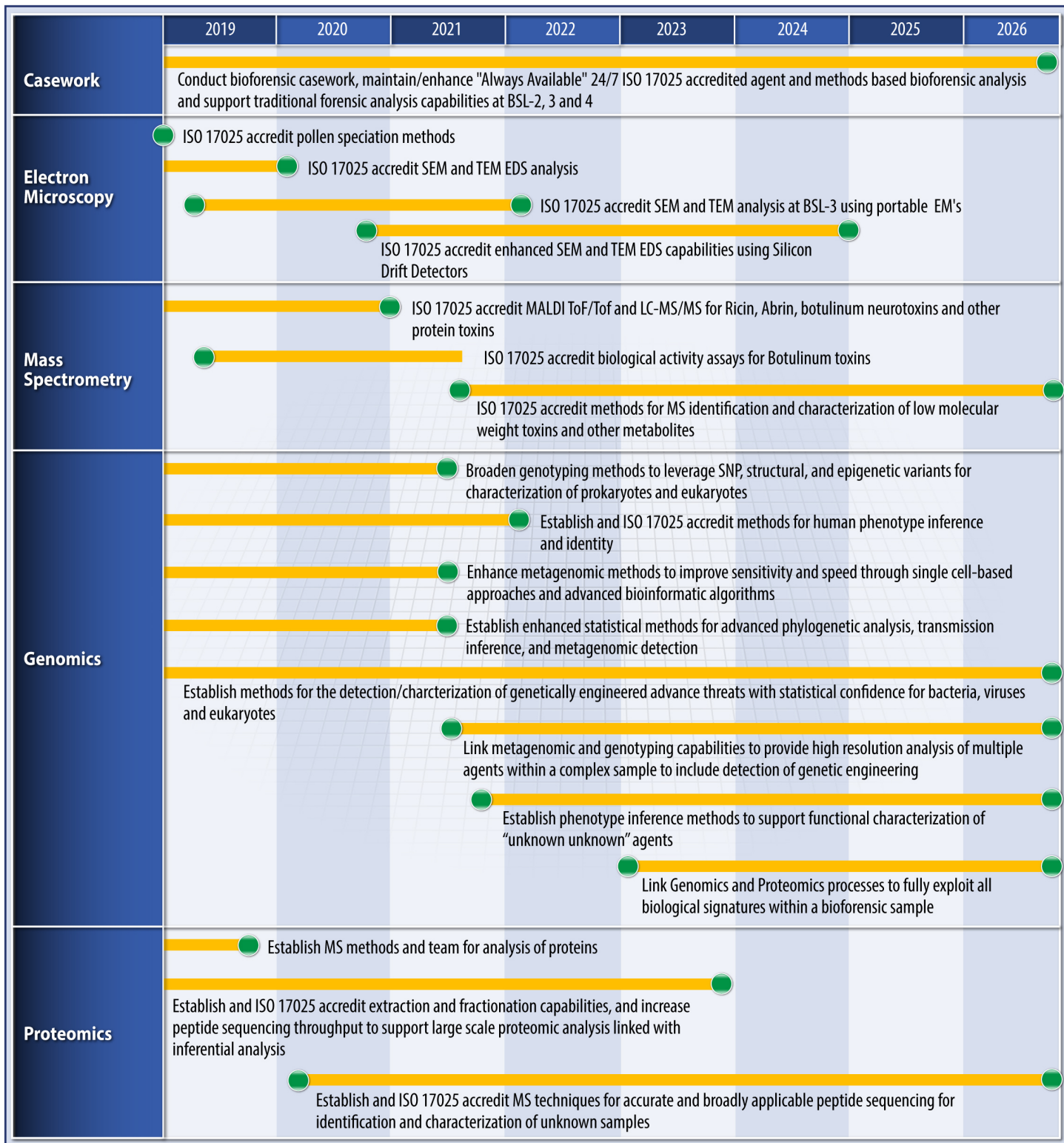


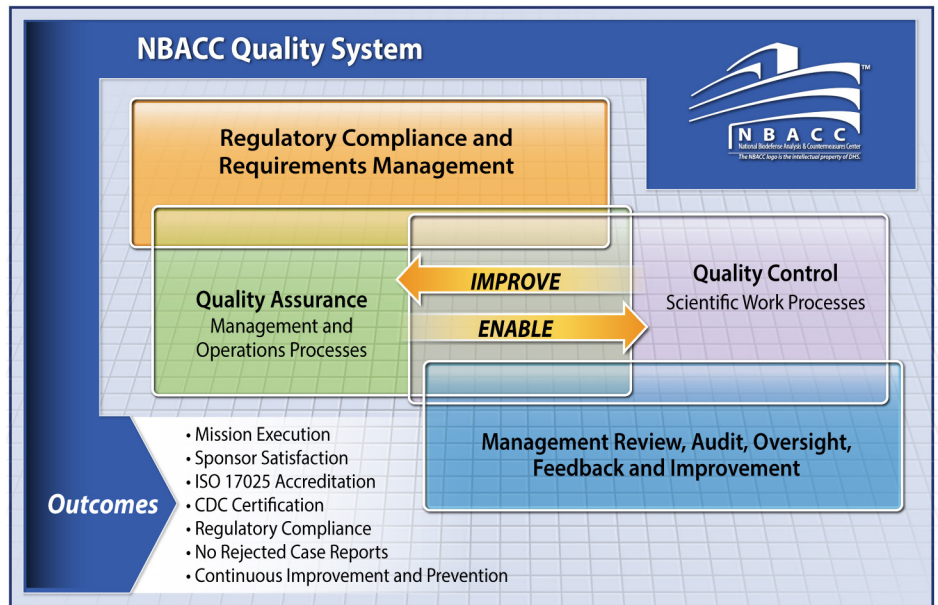
Table 3-2. Roadmap for achieving NBFAC strategic goals.

4 OPERATIONAL EXCELLENCE

The science missions at NBACC are enabled and underpinned by operational excellence that includes best-in-class compliance and safety. The NBACC culture of operational excellence ensures that capabilities are maintained in compliance with regulatory requirements, that safety is integral and continually improving, and that quality is built in to all work. NBACC utilizes a Safety Health and Environmental Management System and Quality Assurance Program to provide guidance and structure for compliance. Procedures and processes are continually refined to improve both the effectiveness and efficiency. NBACC will continue to evaluate and incorporate advances in safety and compliance and share best practices with the community through publications in peer reviewed journals and participation in professional societies.

NBACC Quality Assurance:

Battelle National Biodefense Institute's (BNBI) quality processes have been implemented and have been continually improving laboratory operations at NBACC since 2007, with excellent performance, safety, and reliability; with cited best practices; and with an approach and structure that allow economical and efficient use of resources. This approach encourages the growth of a culture where quality is everyone's responsibility at every level of performance. In this way, quality is built into the work as it is performed, implemented with checks and deliberate improvements. Safe, secure, and compliant operations are assured by the implementation of the Quality Assurance and Quality Control processes utilizing ISO standards for quality (9001 and 17025), safety (45001), risk management (31000) and environmental (14001) systems.



Safe, secure, and compliant operations are assured by the implementation of the Quality Assurance and Quality Control processes utilizing ISO standards for quality (9001 and 17025), safety (45001), risk management (31000) and environmental (14001) systems.

Animal Care and Use Program:

NBACC maintains full accreditation with AAALAC International, which provides regulatory compliance and oversight of the NBACC Animal Care and Use Program. NBACC maintains a robust, humane, and regulatory compliant animal care and use program through:

- *An active Institutional Animal Care and Use Committee (IACUC)*
- *Assurance with DHS ensuring that NBACC's Animal Care and Use Program fully meets the requirements of DHS Directive 026-01*
- *Care, Use and Transportation of Animals in Research*
- *Animal Welfare Assurance in accordance with the Public Health Service Policy on Humane Care and Use of Laboratory Animals*

These measures ensure that NBACC complies with all provisions of the Animal Welfare Act and other Federal statutes and regulations relating to animals, that it is guided by the "U.S. Government Principles for the Utilization and Care of Vertebrate Animals Used in Testing, Research, and Training," and that it maintains its

animal care and use program in accordance with the Guide for the Care and Use of Laboratory Animals.

Registrations, Accreditations and Regulatory Compliance

NBACC complies with many regulatory requirements in order to maintain capabilities necessary to achieving the strategic goals set forth in this document. Furthermore, NBACC has established several institutional committees to support regulatory compliance including: IACUC, Institutional Biosafety Committee, Institutional Safety Committee, Special Immunizations Program Committee, and Institutional Review Committee. Below are significant regulatory programs applicable to NBACC:

- *Centers for Disease Control and Prevention/United States Department of Agriculture BSL-3 and BSL-4 Registration*
- *Nuclear Regulatory Commission Registration*
- *American Association for Laboratory Accreditation*
- *Drug Enforcement Administration Controlled Substance License*
- *NBACC Biological Weapons Convention Compliance*
- *NBACC Dual Use Research of Concern Compliance*
- *Privacy Act*

5 WORK FOR OTHERS

The NBACC is committed to the ability to perform work on behalf of other Federal Agencies, under the allowances of the Federal Acquisition Regulation and our Sponsoring Agreement with Department of Homeland Security and in coordination with the interests of the Federal Bureau of Investigations. Additional means to work with NBACC for non-Federal entities is afforded through Cooperative Research and Development Agreement mechanisms. This opportunity is recognized by our Federal Sponsors to permit increased utilization of the NBACC facility and to make available our unique capabilities in threat characterization and biological forensics for overall advancements in our national security and response enterprise. Interested parties are encouraged to contact Battelle National Biodefense Institute (<https://bnbi.org/contact-us-2>) for further information.

6 OUTREACH

The NBACC is committed to seeking out diverse perspectives, evaluating and appreciating the basis for differences, and using this input to improve our programs and management practices.

Goal Outreach-1: Actively participate in the biodefense and scientific communities to extend the impact of the NBACC and improve performance

Formal and informal approaches will be used to maintain strong relationships with the biodefense and scientific communities. Informal approaches will include NBACC staff members serving on committees, panels, and peer reviews for other organizations. Formal approaches to achieve the outreach strategic goal will include:





- Participation in National Interagency Confederation for Biological Research and National Interagency Biodefense Campus activities
- Utilization of peer review and working groups, including an external Science and Technology Advisory Committee
- Use of the Work for Others process as valuable feedback on current national priorities and the state-of-the-art
- External benchmarks of best practices among DHS S&T Laboratories, Battelle affiliated Communities of Practice, and Department of Energy Laboratories

Goal Outreach-2: Engage with the local community with identifiable positive impacts

As part of engaging the local community, the NBACC commits to dialogue, participation and service, and will continue open, credible, and trusted relationships and communication channels with key stakeholders, including local and national media. We strive to be a positive influence in our community, including strengthening STEM in local public schools, affiliation with local universities and colleges, maintaining a diverse workforce, and building local business communications.



Frederick County Public Schools



7 NBACC PROCESSES THAT SUPPORT STRATEGIC PLANNING

NBACC maintains a standard operating procedure (SOP) #122-006135-SOP for institutional strategic planning.

The NBACC Strategic Plan is a joint DHS-NBACC document that defines the vision, mission, long-term goals, approaches (e.g., roadmaps, initiatives), core capabilities, and management systems with performance goals for NBACC to address specific national challenges. The NBACC strategy links to national, DHS and other governmental goals and priorities. The Strategic Plan should be specific to NBACC and provide meaningful and inspiring information to external stakeholders and the public as well as NBACC leadership and employees.

NBACC utilizes a “Plan-Do-Check-Act” approach to management and operations that is applied from the institutional level through the project level, where feedback may include sponsor and scientific peer review. This is a well-established approach (Shewhart cycle) that utilizes the principles of quality management captured in standards like ISO 9001:

- *Plan: Establish the objectives, processes and predicted characteristics (performance measures and targets) necessary to achieve the expected goals*
- *Do: Implement the plan, execute processes, produce the deliverable, and collect performance data*
- *Check: Compare the collected data from “Do” with predictions from “Plan” and identify differences*
- *Act: For significant differences between actual and predicted results, analyze for root causes, assess potential changes, and recommend corrective/improvement actions and best practices*



Applied at the institutional level, the Plan-Do-Check-Act process steps are:

- *Annual Plan and execution for the program year (PY) with performance metrics and targets (the NBACC PY is from March 19 to March 18)*
- *DHS Performance Evaluation and feedback*
- *Performance Improvement Plan*

For strategic planning, external factors need to be considered, including customer perspectives, competitors, new technologies and emerging regulations. Assessment of the need for formal strategic planning is on an annual cycle, but a disruptive change in any of the external factors may require out-of-cycle examination of assumptions and plans. The strategy influences the annual plan and the relative alignment of the two should be considered by DHS and NBACC.

For NBACC, strategic planning is goal-based and alignment with government priorities is required. Because the external environment, the organization, and the confidence in assessing uncertainty can vary, strategic planning is an inherently iterative process. The process can be “entered” at any step and iteration is often beneficial. The strategic planning process includes:

- *Collect, Organize and Assess Information*
- *Establish and Update Strategic Goals*
- *Provide Implementation Approaches: Roadmaps and Initiatives*
- *Establish, Nurture and Evolve Key Capabilities*
- *Provide Management Systems and Performance Metrics*
- *Quality Systems Continual Oversight and Risk Assessments*

In advance of each fiscal year, DHS provides NBACC funding and requirements in three areas: Threat Characterization, Bioforensics, and Core Operations. NBACC prepares an Annual Plan describing the execution of work that is aligned with the mission, makes progress towards strategic goals, and is consistent with DHS-provided budgets and priorities that may be derived from Homeland Security Presidential Directives, DHS policies, partner Agency priorities, and Contract-specified objectives. The Annual Plan includes milestones and deliverables extending beyond the current program year that may be only partially funded during a program year; this lifecycle planning is required to organize and document the applied science projects that cannot be completed in a single year or that have uneven cost profiles. The Annual Plan authorizes the performance of the scope specified, until it is replaced by the final approval of the next year's Annual Plan.

8 LINKAGES TO DHS ONL STRATEGIC GOALS

NBACC strategy and its strategic planning process support achieving one of the three ONL strategic goals (see "ONL FY16 STRATEGY_FINAL 09242014.docx" for ONL strategic goals and the NBACC Operations Model for NBACC linkages to the other two goals) by promoting and facilitating the use of NBACC to provide technologies and science-based solutions for the Homeland Security Enterprise (HSE). More specifically:

- *The NBFAC component of NBACC provides direct operational support to the lead federal agency investigating criminal (including terrorist) use and the potential or planned nefarious use of biological agents and toxins. The FBI is the principal lead agency but casework support has also included DHS Components and other federal agencies.*
- *The NBTCC component of NBACC provides applied science support to DHS S&T principally to address knowledge gaps that improve hazard assessments utilized by DHS, its components and the HSE for preparedness planning. Through DHS S&T, NBTCC activities also support a range of federal agencies from public health to law enforcement and defense communities.*
- *NBACC is physically located on the National Interagency Biodefense Campus and is an active participant in the National Interagency Biodefense Campus (NICBR). Through leadership roles in NICBR, NBACC has supported enhancements to infectious disease outbreaks as well as management/operation of biocontainment laboratories (e.g., medical definitions for potential exposure).*



The National Biodefense Analysis and Countermeasures Center (NBACC) is a Department of Homeland Security (DHS) federal laboratory sponsored by the DHS Science and Technology Directorate (S&T) and operated by the Battelle National Biodefense Institute, LLC (BNBI). This Document was prepared for the DHS S&T by BNBI as part of contract HSHQDC-15-C-00064 to operate and manage the NBACC, a Federally Funded Research and Development Center (FFRDC). **In no event shall the DHS, BNBI, or NBACC have any responsibility or liability for any use, misuse, inability to use, or reliance upon the information contained herein. In addition, no warranty of fitness for a particular purpose, merchantability, accuracy or adequacy is provided regarding the contents of this document.**