Planning for a New Public Health Laboratory

Step One - Programming and Basis of Design

Scope of Work

Planning for a new public health laboratory is an opportunity to develop a preliminary listing of spaces required to perform the eleven core functions of the public health lab, as well as documenting the performance criteria for the laboratory functions required for the laboratory in your state. This information will form a solid basis for what is required from a programmatic, cost, and schedule basis for a new facility. This will aid in developing a baseline cost and timeline for the project that can be socialized with Administrative and Legislative leadership to establish the need and secure adequate funding for a new facility to support the health of the people of your state.

Programming involves developing a listing of space to identify the lab sections, specific rooms, and square footage estimates for each to provide a modern and flexible area required for the mandated testing, laboratory support, administration, and training for the laboratory. The programming document should incorporate modular planning and explore current trends in laboratory design to improve productivity and testing outcomes such as Molecular Testing, Central Sample Accessioning, Open Laboratory Design, and Biological Safety Level 3 design.

The **Basis of Design** (BOD) report will identify the performance requirements for the building and building systems to support the spaces identified for the new facility. The BOD is a report that outlines on a system by system basis, including fit and finish, the performance criteria needed to successfully support laboratory operations. This report will serve as a guidance document to develop an accurate cost estimate that reflects the needs of the laboratory.

The process for obtaining this information is as important as the information itself. The entire lab needs to be involved in developing this information, so that testing methodologies and operational considerations are part of the new facility as well as the amount of space. The best way to achieve this is through a series of **Workshops** designed to encourage laboratory stakeholder participation and input from facilities and operations subject matter experts to assure that all have had a voice in the development of the planning for the new facility.

The **Design Team** selected for this work should include Laboratory Planners, Architects, and Engineers with experience in the design of Public Health testing laboratory facilities. The processing of samples in a safe and productive environment to achieve results is what drives this need. The Design Team should have experience with:

- Public Health Testing Laboratory Programming and Design
- Laboratory Flexibility
- Containment Laboratory Design
- Training Laboratories
- Biosafety and Biosecurity
- Guidelines such as CDC/NIH Biosafety in Microbiological and Biomedical Laboratories (BMBL)

The following pages identify some of the key steps and deliverables intending to provide valuable information for designing and constructing a new public Health Laboratory.

<u>OPTION 1 –</u> This option provides the most complete level detail regarding area, cost and design for a new facility, this would afford more interface with the design team and the Laboratory. This Option is best suited when the Lab is looking to present a comprehensive basis for the construction of a new facility.

1.0 SCOPE OF SERVICES

1. **Workshop One**
    a. **Task 1 – Information Gathering -** The Design Team will need to review existing documentation as it exists for both the facility and the site to use a baseline for projecting future space and facility needs. Information to be provided to the Design Team from the Owner:
        i. Organization Chart for existing operations
        ii. Telephone directory
        iii. Listing of any open personnel requisitions
        iv. Listing of tests being performed or planned
        v. Existing CAD drawings and specifications of the entire laboratory Architectural, Mechanical, Electrical, Plumbing, Fire Protection
        vi. Utility rate information
        vii. Previous reports and deficiencies
        viii. Equipment Inventory
        ix. Chemical Inventory
    b. **Task 2 – Tour Existing Facility** - The Design Team should tour your existing facility with staff from each lab section and facilities maintenance. The tour should include all areas occupied and unoccupied including the basement and roof areas of the existing facility. This will allow the design team to observe existing conditions and equipment as a baseline for how the lab currently operates, and the current conditions that the staff work in.
    c. **Task 3 – User Interviews** - Meetings with all of the identified users of the new facility will allow the design Team to prepare a preliminary program for the space required for the new facility. This will establish the baseline for the specific departmental programmatic needs of the facility. This workshop will run concurrent with the information gathering meeting
        i. Benchmarks from previous Public Health Laboratories would also add value to the decision making.
    d. **Deliverable -** At the completion of this workshop, the Design Team will prepare:
        i. minutes of each meeting
        ii. A preliminary space listing to validate current and projected headcount and a listing of the spaces required to perform the intended testing.
        iii. Identify any additional items required from the laboratory to proceed with the scope of work.
2. **Workshop 2**
    a. **Task 1 - Program Review –** Based on discussions in Workshop 1, the design team will present a comprehensive space program identifying the net areas required for each lab section and the individual spaces required for each lab section of the new lab. The space listing should also identify spaces required to support the labs and the building including any mechanical equipment areas such as air supply or infrastructure such as toilet rooms for the new facility.

b. **Task 2 – Preliminary Layouts –** The Design Team should prepare preliminary floor plan layouts of the proposed space indicated in the space program. This will allow the lab to further visualize and review the space allocations and work flows for the new laboratory. Vertical staking of the lab will be discussed as well as discussion regarding the requirements of the site.
c. **Task 3 – Basis of Design** – The design Team will facilitate a discussion of the performance criteria required to support the space and testing identified in the program document.
d. **Deliverable -** At the completion of this workshop, the Design Team will prepare:
    i. Minutes of the meeting
    ii. The approved space listing indicating current and projected headcount and a listing of the spaces with assigned net areas required to perform the intended testing.
    iii. Preliminary floor plan layouts of the proposed spaces indicating lab sections and any stacking required.
    iv. Draft of the Basis of Design report
    v. Identify any additional items required from the laboratory to proceed with the scope of work.

3. Workshop 3

a. **Task 1 – Endorsement** - The final stage of workshops will consist of endorsement of the proposed design, a review of the updated program spreadsheet, and a review of the space program. Site diagrams, blocking & stacking diagrams and building systems diagrams will be presented and discussed. Any revisions or modifications to these items identified during these final workshops will be incorporated in the administrative draft of the feasibility report.
b. **Deliverable -** At the conclusion of the final workshop, The Design Team will begin preparation of the BOD.
    i. The BOD should include the following:

Item	Scope of Work Description
1	Executive Summary
2	Key Assumptions & Exclusions
3	Space List
4	Room Data Information
5	Design & Engineering Guidelines (Codes)
6	Performance Criteria • Architectural • Lab Planning • Structural • Mechanical • Plumbing • Electrical • Security • Commissioning
7	Site Plan
8	Concept Plan Drawings • Architectural

	• Mechanical • Plumbing • Electrical • Security
9	Interior Lab Renderings
10	Exterior Building Renderings
11	Risk Assessment
12	Flow Analysis • Sample • Staff • Waste • Materials
13	Directional Airflow Plans
14	Cost Estimate

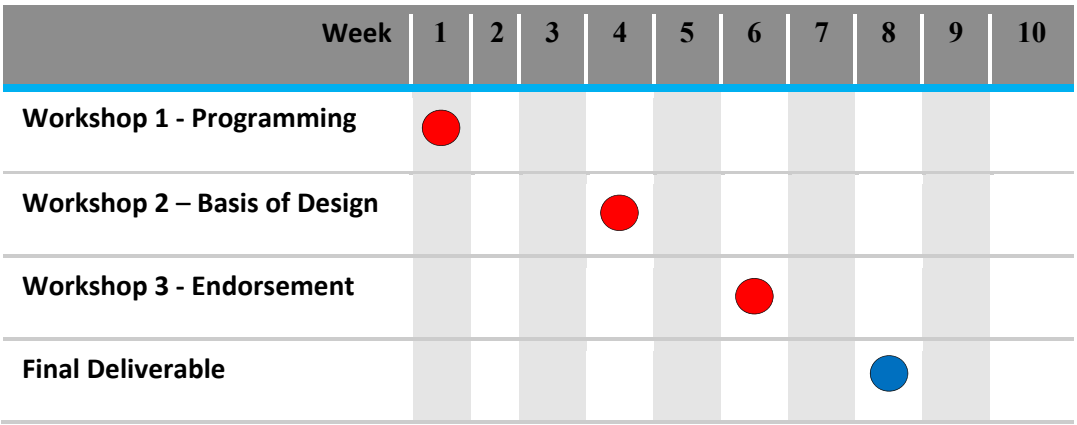
Here is a list of other services that other laboratories have found beneficial

"Virtual" Benchmarking Tour: Since your existing facility is not new it might be helpful to establish a framework of what the current reality is in Public Health Laboratory design. The Design Team could prepare a lunchtime presentation of the current trends planning and design issues found in today's modern state laboratories. This information can presented to educate a broad audience including laboratory management, laboratorians, stakeholders, and others as needed.

Benchmarking Tour: it might be helpful to establish a framework of what the current reality is in State Laboratory design. The Design Team could arrange, facilitate, and lead a tour of various relevant building solutions. We would recommend that a small group of 6 -8 people from the lab visit a new facility such as the Arizona Department of Health Laboratory in Phoenix, Arizona. Or the North Carolina Laboratory of Public Health in Raleigh, NC. These facilities incorporate many current public health design trends including, open laboratories, central accessioning, and containment areas.

2.0 PROPOSED SCHEDULE

Following is a proposed schedule of activities that corresponds to the activities listed in the scope of services. The red circles indicate proposed meetings with the laboratory users. Time between meetings will be used to develop the options, drawings, and program information.



<u>OPTION 2 –</u> This option is a more streamlined approach and is organized to provide information to define the overall scope of the project but without the renderings or the floor plan layouts. This option is best suited when the site is unknown and the Lab is looking to define their needs before developing graphics to help sell the project to Administration or the Legislature.

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b. **Task 2 – Basis of Design** – The design Team will facilitate a discussion of the performance criteria required to support the space and testing identified in the program document.
c. **Task 3 – Endorsement** - The final stage of this workshop will consist of endorsement of the updated program spreadsheet, and a review of the space program. Any revisions or modifications to these items identified during these final workshops will be incorporated in the final draft of the report.
d. **Final Deliverable -** At the conclusion of the final workshop, The Design Team will begin preparation of the BOD.
    i. Minutes of the meeting
    ii. The BOD should include the following:

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1	Executive Summary
2	Key Assumptions & Exclusions
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4	Room Data Information
5	Design & Engineering Guidelines (Codes)
6	Performance Criteria • Architectural • Lab Planning • Structural • Mechanical • Plumbing • Electrical • Security • Commissioning
7	Cost Estimate (Based on Benchmarks)

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Week	1	2	3	4	5	6	7
Workshop 1 – Develop Program							
Workshop 2 – Review Program							
Final Deliverable