State of Utah

Unified State Laboratory

Planning & Programming Report

DFCM Project #06038390

Final Report
October 2006

architecture. engineering. planning. CUH2A

In association with, MHTN

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Introduction

This Planning and Programming Report is the product of the combined efforts of five agencies in four public service departments within the State of Utah. They include The Department of Health (DOH) and Office of the Medical Examiner (OME), The Department of Agriculture and Food (DAF), The Department of Environmental Quality (DEQ), and The Department of Public Safety (DPS). In an unprecedented collaboration, these five agencies have come together to capitalize on the opportunities associated with funding, constructing and operating a public laboratory complex by pooling resources, ideas, needs, and costs into a Unified State Laboratory System. The information contained in this document qualifies and quantifies the requirements to create a new state-of-the-art facility dedicated to meet the unique needs of Utah's State government laboratories.

The proposed facility will contain modern safety and engineering features currently deficient in each of the separate laboratories currently located in different regions of the Salt Lake Valley. These modern features include biological safety cabinets, externally exhausted fume hoods, negative air pressure laboratory spaces, flexible "open campus" processing areas, and a dedicated Bio-Safety suite for testing potentially dangerous agents such as the SARS virus, anthrax and avian influenza. Due to the highly technical nature of this type of laboratory, the experience and expertise of the nationally recognized state laboratory design firm of CUH2A was commissioned by the State of Utah to assist in the planning and programming effort.

This report was requested by the Department of Health, the lead agency of the project, through the State Division of Facilities Construction and Management (DFCM) after it was determined that each of the existing facilities are currently inadequate and fail to address the needs of an expanding Utah population. It is divided into five separate sections, the Building Program, the Site Analysis, the Building Performance Requirements, the Cost Analysis and an Appendix containing supporting information.

Justification

The latest census report (yr. 2000) ranks the State of Utah fourth in population growth among the fifty states, with a near 30% increase during the last ten years. Population projections predict this rate to remain consistent, or possibly increase over the next decade. This dramatic escalation in Utah residency has significantly stretched the resources, infrastructure, and staff of each of the departments included in this report. All of the laboratories within the domain of the five agencies collaborating on this project have reached, or are above their facility capacity. Each is requesting an increase in space.

The laboratories of The Department of Health, currently located in the Russell S. Fraser building on the University of Utah campus, The Department of Agriculture and Food, currently located at 350 North Redwood Road, and The Department of Public Safety, currently located in the Calvin Rampton Building at 4501 South 2700 West are experiencing serious deficiencies in infrastructure. Space constraints, antiquated mechanical and plumbing systems, non-compliant ADA components,

exterior fenestration and interior finish failures all translate into an inefficient, substandard, and unsafe working environment.
In addition to the necessity to address the needs of a growing population and the deficiencies in existing infrastructure, each of these agencies has the intrinsic challenge to keep pace with the advancements in science and technology available to laboratorians today. In so doing productivity, safety and data accuracy can be significantly improved.

The realization of this new collaborative project for the State of Utah will address and rectify each of these crucial issues to ensure that the residents of the state will continue to receive the high level of public service they have come to expect and appreciate from their state laboratory facilities.

Goals

With the assistance of the CUH2A and their extensive experience in working on similar projects in other states throughout the country, the five agencies identified the following goals of this planning and programming report:

1. To establish a thorough comprehensive planning guide that identifies the quantitative and qualitative elements for the architects, engineers and contractors who will design and build this technically advanced facility.
2. To illustrate the importance and benefits of a consolidated approach to a state laboratory complex.
3. To accurately establish an objective program of area requirements and space needs.
4. To define and communicate the building's performance requirements and criteria.
5. To identify an appropriate site for construction through an appropriate analysis of the locations under consideration.
6. To establish preliminary construction costs based upon the architectural/engineering program and overall unit costs of facilities similar in use and construction.

Program Participants

Those who participated in the development of this report include:

The Department of Health (DOH), under the direction of Dr. Patrick Luedtke.
The Department of Agriculture and Food (DAF), under the direction of Dr. David Clark.
The Department of Public Safety (DPS), under the direction of Major Stu Smith.
The Office of the Medical Examiner, under the direction of Dr. Todd C. Grey.
The Division of Facilities Construction and Management, Bill Bowen.

Construction Phasing

In order to construct the entire Unified State Laboratory as programmed in a single phase capital in excess of $78 million would be required. For

purposes of obtaining the required funds the Programming Steering Committee has configured the project into three building modules that will be engineered and constructed in three distinct phases over the next three state funding cycles. This phased funding approach will allow the State of Utah the flexibility to incrementally commit resources to the project as they become available. These three modules are discussed in greater detail in the Programming Procedure section of this report. The breakdown of the funding requests for these modules is as follows:

Module 1 has been submitted for the Unified State Laboratory, at a cost of just over $30 million. Attached in the appendix is the "Capital Budget Estimate" for Module 1.

Module 2 will be requested and submitted with the CBE in August of 2008, approximately $20 million worth of construction costs.

Module 3 will be requested and submitted with the CBE in August of 2007, approximately $16 million worth of construction costs.

Site Analysis

Five available parcels of land in the Salt Lake Valley currently owned by the State of Utah were identified as potential sites for the new Unified State Laboratory. They have been ranked in order of preference below following a comprehensive sight analysis which can be found in Section 2.0 of this report. The basis of the ranking is upon constructing all three modules identified above, with the Calvin Rampton Site, near the current Crime Lab being the most appropriate location for the Unified State Laboratory. However, if it were determined by the state that Module 1 would be the only portion of the project to be funded then the University of Utah Research Park site would be the preferred location for the new Utah Department of Health Laboratory Building.

Site Analysis Ranking:

1. Calvin Rampton Site – near the current Crime Lab
2. Proposed Technology Park – 7200 South 700 West
3. University of Utah Research Park – below the Huntsman Headquarters
4. North Temple Site #1 – between the current DOH and DAF
5. North Temple Site #2 – near the current DEQ

A thorough analysis of each of these locations has been included in this report. Based upon an initial estimate of the physical needs and utility requirements of the Unified State Laboratory, as indicated in pre-programming documentation, a maximum of five acres of land would be needed to meet the above criteria. Each of these sites qualifies under these conditions. However, as a result of this planning and programming exercise and a more definitive assessment of the space, security stand off and access requirements approximately nine acres of available land would be required. Only one of the five sites meets the qualifications in total acreage available for development of all three modules, that being the Proposed Technology Park Site located at 7200 South 700 West. However, the uncertainty related to the development and leasing terms between the state and the property owner reduces its favorable. The top ranking of the Calvin Rampton Site located at 4700 South 2700 West is based upon the assumption that additional acreage over and above that

which has been currently designated by the State is obtainable to be used for the Unified State Laboratory. The recent relocation of a few of the existing State Agency tenants at the site may free up enough property including developed and undeveloped land to be used for the construction of this project. Further discussion and consideration to proceed in this direction is warranted by the State at several different levels.

If it was determined that only Module 1 would be constructed now and in the foreseeable future, then the favored site would be the University of Utah Research Park. This due primarily to the strong relationship ties the Department of Public Health has to the Hospital environment and the reduced need of available acreage.

Space Square Foot Summary

The total net square footage programmed for the proposed facility is 130,711. It includes 41,856 for the DOH, 22,279 for the DAF, 36,445 for the DPS, and 16,703 for the OME. Approximately 13,428 square feet is dedicated to shared common facilities. A thorough analysis of the building infrastructure and support spaces was completed, utilizing the experience and benchmarking data of the CUH2A. The building infrastructure includes mechanical space, structural components, wall thickness, and building support spaces, such as restrooms, supply rooms, and janitorial rooms. The total efficiency factor of the building should be in the range between 60-70%. This percentage is consistent with projects similar in type and scale as the proposed Unified State Laboratory that have been constructed in other states. It does however deviate by as much as 10% from previously submitted documentation. Earlier submissions did not benefit from the expertise and experience of a programming professional, relying exclusively on data extrapolated from other state projects that are significantly simpler in complexity to the Unified State Laboratory.

Projected Cost Summary

Preliminary total project cost for Module 1 is projected to be $30 million. This reflects Base Building Construction Costs at $300 per gross square foot and includes all project costs, i.e. fees, landscaping, administration, security, on-site and off-site utilities and other costs. The estimated cost to construct all three modules is approximately $62 million. This figure does not include escalation to the time of construction and other soft costs, such as loose equipment, furnishings, design fees, testing, surveys, and commissioning. These figures will be provided by the State under a separate document. A summary breakdown of the estimated costs of construction for each module is provided in Section 4 of this document. The detailed breakdown following the summary focuses exclusively on the costs to construct Module 1.

Proposed Project Schedule

The following represents a proposed schedule suggested for this project. Though the design and construction phases of the project are delineated sequentially, with a brief overlap to proceed with an early foundation package, the funding of the project occurs in three separate phases (modules) as delineated above. With the initial or introductory request being submitted in August of this year, the two subsequent requests will be submitted in the two following years. Commencement of each phase is

subject to many factors and does not include delays due to a prolonged review process. This schedule assumes a prompt review and approval by all interested parties.

PROPOSED PROJECT SCHEDULE

Task	Estimated Completion Date
State Funding Request – Phase I	*August 2006*
State Funding Approval - Phase I	*March 2007*
Selection of a Design Team	April 2007
Schematic Design Phase - Begins	June 2007
State Funding Available – Phase I	*July 2007*
Schematic Design Phase – Completed (10 weeks)	August 2007
State Funding Request – Phase II	*August 2007*
Approvals & Reviews of Schematic Design	September 2007
Design Development Phase – Begins (14 weeks)	September 2007
Design Development Phase – Ends	November 2007
Approvals & Reviews of Design Development	December 2007
Construction Document Phase Begins (24 weeks)	January 2008
State Funding Approval – Phase II	*March 2008*
Construction Begins – (Early Package)	April 2008
Construction Documents Phase - Ends	May 2008
Approvals & Review of Construction Documents	June 2008
State Funding Available – Phase II	*July 2008*
State Funding Request – Phase III	*August 2008*
State Funding Approval – Phase III	*March 2009*
State Funding Available – Phase III	*July 2009*
Construction Ends	August 2009
Building Occupied	September 2009

In summary, the architectural design and engineering of the first module for the Unified State Laboratory will begin in the summer of 2007. The construction of the entire project as programmed including Modules 2 and 3, will be completed and in full occupancy by the end of September 2009.

Building Program

Programming Procedure – 1.1
Space Use Program – 1.2
Detailed Program – 1.3

Programming Procedure

In an effort to facilitate a unified vision for the new Unified State Laboratory, CUH2A organized the planning process to maximize user involvement in the outcome. The Programming Procedure included a Benchmark Tour of similar facilities followed by two Planning Workshops.

Benchmark Tour

The projects visited by the Department of Health, Department of Agriculture, Department of Public Safety and Office of the Medical Examiner representatives during the Benchmark Tour were as follows:

- The Georgia Bureau of Investigation
- The State of Georgia Public Health Central Laboratory
- The State of Virginia Division of Consolidated Laboratory Services
- The State of Virginia Crime Lab
- The Arizona Department of Health Services State Laboratory

The projects toured contained similar spaces and needs as were identified by the departments in the Solicitation for Planning and Programming Services. The review of these projects provided a common foundation of information for the members of the steering committee, which would be used as a basis of discussion and evaluation during the workshops to follow.

Workshops 1 & 2

Workshop 1 involved detailed interviews of each of the key individuals within each agency and tours of their existing spaces. The interviews served to capture the organization of each group for head counts and space types. They also provided an opportunity for each agency to delineate the deficiencies of their current building and spaces. Each group provided to CUH2A their organizational charts, chemical lists, regulatory requirements, and major equipment lists for review. (Much of this information can be found in the Appendix of this report.) Based on this data CUH2A began to develop the program spaces and the space required for each task by department. In addition to the individual agency spaces CUH2A began to develop a detailed list of Shared Areas for all groups and the Building Infrastructure for the project.

The Final Workshop served to validate the information gathered and the assumptions made by CUH2A on space allocation and sizes. In addition, the opportunities for maximizing energy efficiency were discussed. The final program document was used to develop the Cost Analysis for the project found in section 4.0.

In the final workshop it became clear that an option for phasing the construction of this project would need to be investigated. The State has identified three modules for construction of the Unified State Laboratories. The driving factor for the phased approach is the funding options available to the state for this project. The modules are discussed below for scope and program.

The schedule for these modules is as follows:

1. Module 1 has been submitted for the Unified State Laboratory, at a cost of just over $30 million. Attached in the appendix is the "Capital Budget Estimate" for Module 1.

2. Module 2 will be requested and submitted with the CBE in August of 2007.
3. Module 3 will be requested and submitted with the CBE in August of 2008.

The detailed program for the USL was used to arrive at the size and makeup of each Module. The program and scope of the modules are as follows:

Module 1

The specifics of Module 1 request are as follows:

1. The Public Health Labs
2. Forensic Toxicology
3. Unified State Laboratory common areas as outlined below.
4. A ten-foot wide lab module will be utilized throughout the facility.
5. The total net square footage is 60,193
6. The total requested gross square footage is 75,241
7. The efficiency factor is 1.25, based on DFCM typical planning number.
8. The Unified State Laboratory common areas will include; a shared warehouse, a shared stockroom, a shared bulk chemical storage room, two types of shared training labs, a cafeteria, a locker room, a lactation room, and a lobby. The total net square footage of the shared common areas for Module #1 as programmed is 13,428.
9. The table that follows is a summary of the programs and spaces that will be included in Module #1. It identifies the existing square footage each program currently contains and the amount of square footage being requested for the new Unified State Laboratory. Refer to section 1.2 for a detailed tabulation of the contents of each program.

Table 1

Department Health Laboratories	Existing Square Footage	Requested Square Footage
Microbiology	7,633	15,103
Chemistry	8,986	17,139
Laboratory Improvement	9,265	5,928
Management Services	2,894	2,589
Director's Office – Administration	626	1,097
Forensic Toxicology	3,107	4,908
Wet Training Laboratory		3,000
Dry Training Laboratory		2,000
Conference Rooms		3,500
Amenity Spaces		1,500
Building Support		1,000
Shipping/Receiving Area		2,428
Total Net Square Footage	32,511	60,193
Total Gross Square Footage		75,241

The inclusion of the shared common areas as programmed for the Unified State Laboratory in Module 1 is one of the great benefits of consolidating the various departments into a single facility. In so doing these spaces are shared between each group, rather than constructing them independently for each department. The results of this approach being a reduction in infrastructure requirements, land utilization, operating expenses and construction costs. In addition, opportunities for collaboration and the sharing of ideas between each department are increased.

Module 2

The specifics of the Module 2 request are as follows:

1. The Office of the Medical Examiner
2. The Department of Public Safety
3. The assumptions for space shall be the same as discussed for Module 1
4. Laboratory Space Requirements:

Table 2

Department of Agriculture and Food & Office of the Medical Examiner Laboratories	Existing Square Footage	Requested Square Footage
Department of Agriculture and Food	20,500	22,279
Office of the Medical Examiner	10,000	16,703
Building Support		10,000
Shipping/Receiving Area		2,428
Total Net Square Footage	30,500	51,410
Total Gross Square Footage – DAF	3,700	
Total Gross Square Footage – OME	16,803	
Total Gross Square Footage – Module 2		59,973

Module 3

The specifics of the Module 3 request are as follows:

1. The Department of Agriculture and Food will be in this Module.
2. The assumptions for space shall be the same as discussed for Module 1
3. Laboratory Space Requirements:

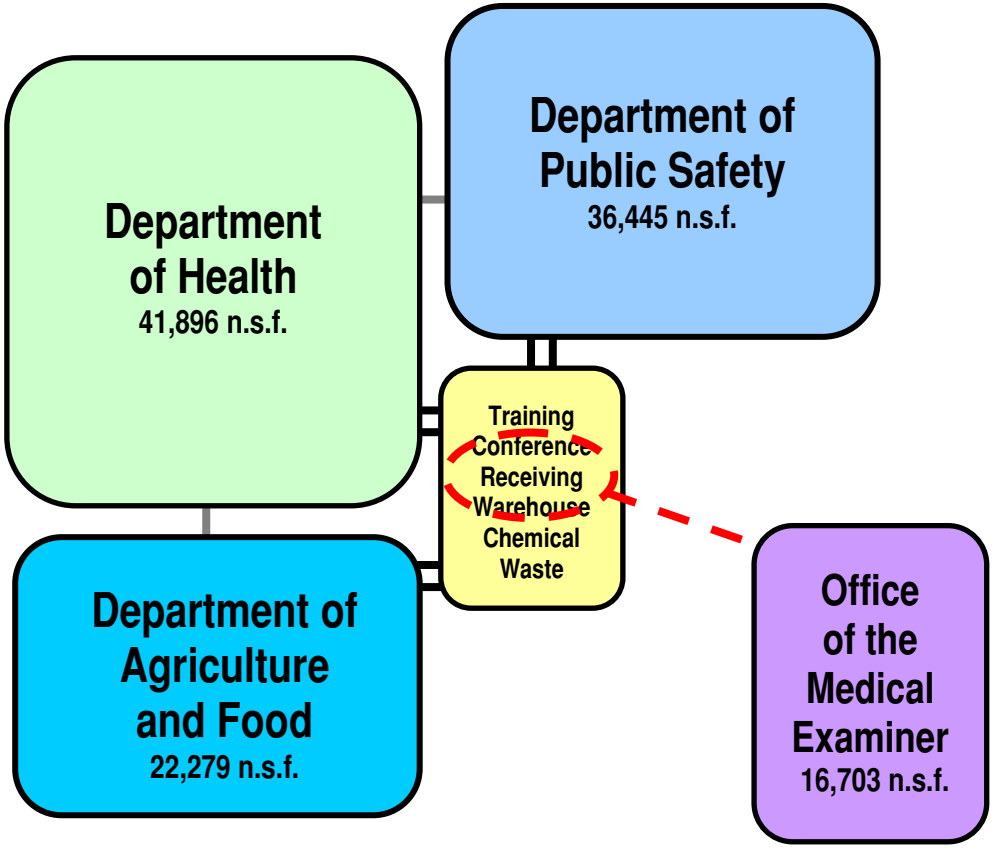
Table 3

Department of Safety	Existing Square Footage	Requested Square Footage
Forensic Laboratory	22,000	31,536
Building Support		10,000
Shipping/Receiving Area		1,900
Total Net Square Footage	22,000	43,436
Total Gross Square Footage – Module 3	38,714	48,518

General Adjacencies

The opportunity for sharing of support spaces is shown in the diagram on the next pages. There is also the opportunity for the Department of Health and Agriculture to share similar instrument areas if they could be collocated. The Office of the Medical Examiner (OME) has the least ability to share resources and areas with the rest of the Agencies. The desire for the OME to have a separate receiving area and waste stream is critical to its mission and success. However, the ability to use the Training and Conferencing area would be beneficial.

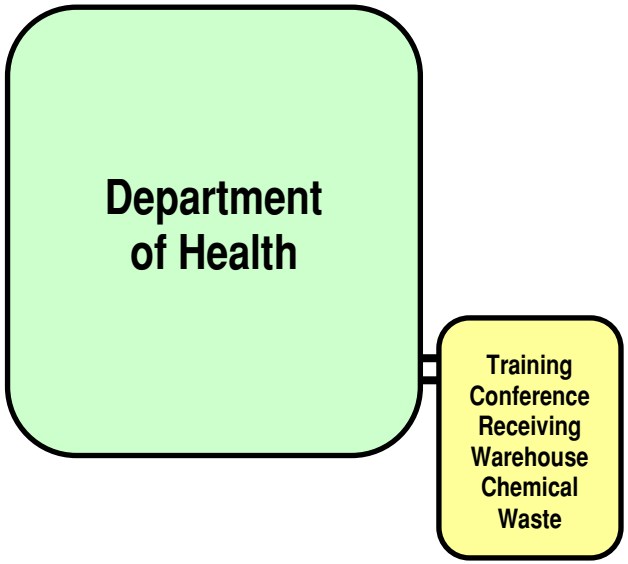
The overall relationship diagram of the Unified State Laboratory is as follows:



The overall relationship diagram for the phasing of the Modules for the Unified State Laboratory is as follows:

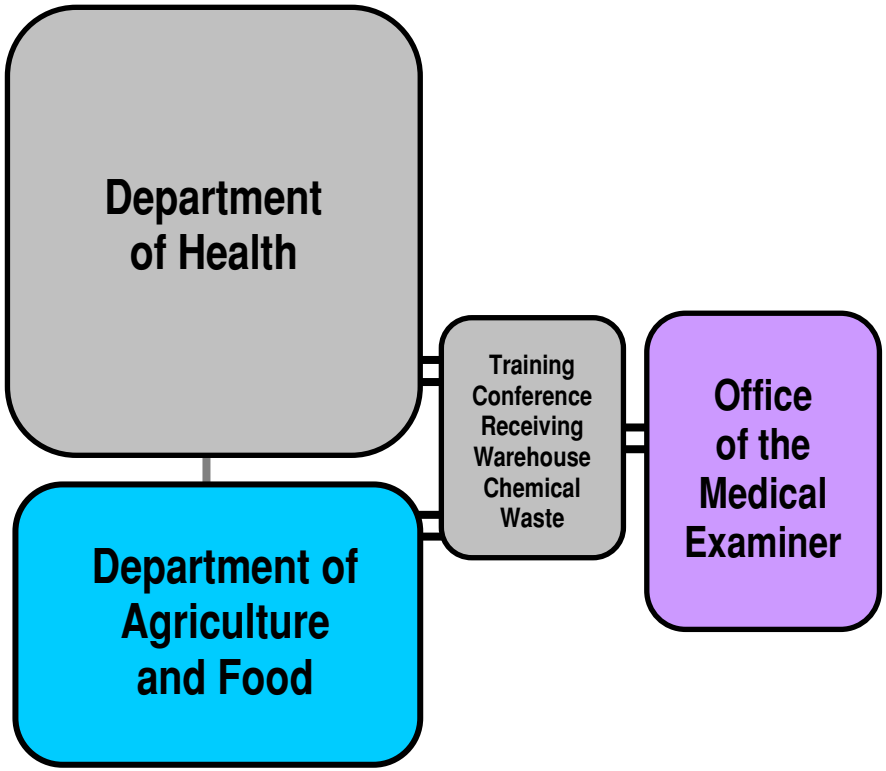
Module 1

The Core elements of the Training, conferencing and dock support areas would be constructed with the Department of Health Laboratories.



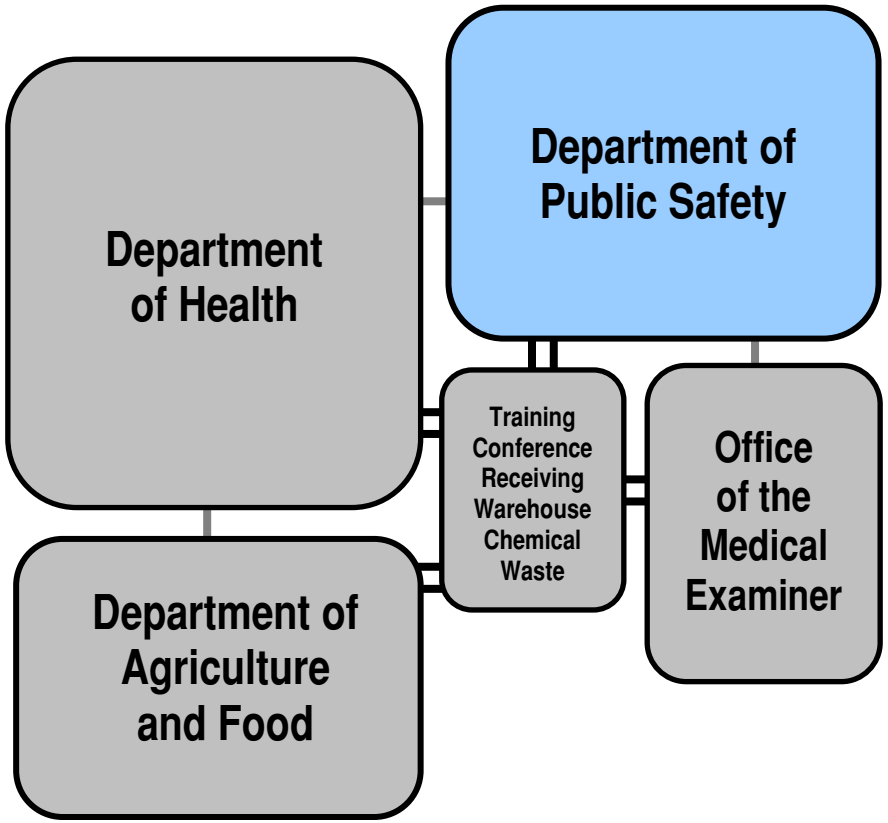
Module 2

The Department of Public Safety and Toxicology labs building would be constructed along with the one storey Office of the Medical Examiner.



Module 3

The final module would include the Department of Agriculture and Food. Any additional site utilities, central plan, warehousing and support spaces would be part of this module of construction. For a detailed functional space adjacency analysis of each department refer to section 5.2 of the appendix.



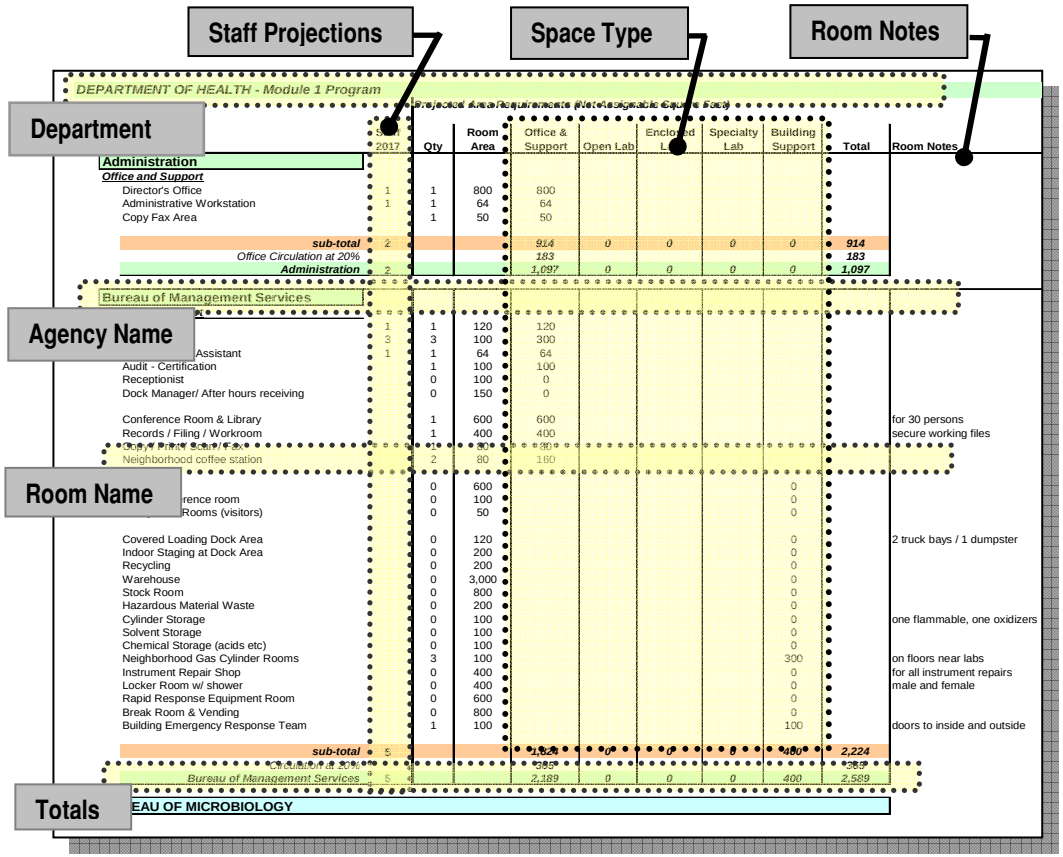
Detailed Program

The Detailed Program, found on the following sheets, is an itemization of the projected space utilization for the Unified State Laboratory. It was developed to capture the personnel and space needs of each agency and the components that comprise their required functions. The diagram to the right illustrates the various sections of the Detailed Program and what they represent. Each State Department name is indicated at the top of the section on the left side of the document. The Agencies within each department are listed below their corresponding State Department. Within each Agency the various rooms required for the proper function and operation of that group are identified. Staff projections for each department are indicated in the first column to the right of the Department, Agency and Room Names. The staff personnel headcount is projected out to year 2017. The Space Type columns located to the left section of the Staff Projections column is broken into six categories. Office & Support, Open Lab, Enclosed Lab, Specialty Lab, Building Support.

Office & Support spaces would include such rooms as enclosed administration offices, open office cubicle area for administrative and research staff, copy and office supply rooms, conference rooms, break rooms, and training rooms.

Open Lab spaces include dedicated open laboratories area, usually large rooms containing no wall partitions to subdivide and segregate various lab functions. These areas permit greater flexibility within the main work area by allowing designated area and bench space to shrink or grow as program or space requirements demand. These types of spaces are usually more cost effective to construct on a

Detailed Program - *Sample*



DEPARTMENT OF HEALTH - Module 1 Program										
				Projected Area Requirements (Net Assignable Square Feet)						
	2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Administration										
Office and Support										
Director's Office	1	1	800	800						
Administrative Workstation	1	1	64	64						
Copy Fax Area		1	50	50						
sub-total	2			*914*	*0*	*0*	*0*	*0*	***914***	
Office Circulation at 20%				*183*					***183***	
Administration	2			*1,097*	*0*	*0*	*0*	*0*	***1,097***	
Bureau of Management Services										
	1	1	120	120						
	3	3	100	300						
Assistant	1	1	64	64						
Audit - Certification		1	100	100						
Receptionist		0	100	0						
Dock Manager/ After hours receiving		0	150	0						
Conference Room & Library		1	600	600						for 30 persons
Records / Filing / Workroom		1	400	400						secure working files
Neighborhood coffee station		2	80	160						
		0	600					0		
rence room		0	100					0		
Rooms (visitors)		0	50					0		
Covered Loading Dock Area		0	120					0		2 truck bays / 1 dumpster
Indoor Staging at Dock Area		0	200					0		
Recycling		0	200					0		
Warehouse		0	3,000					0		
Stock Room		0	800					0		
Hazardous Material Waste		0	200					0		
Cylinder Storage		0	100					0		one flammable, one oxidizers
Solvent Storage		0	100					0		
Chemical Storage (acids etc)		0	100					0		
Neighborhood Gas Cylinder Rooms		3	100					300		on floors near labs
Instrument Repair Shop		0	400					0		for all instrument repairs
Locker Room w/ shower		0	400					0		male and female
Rapid Response Equipment Room		0	600					0		
Break Room & Vending		0	800					0		
Building Emergency Response Team		1	100					100		doors to inside and outside
sub-total	5			*1,824*	*0*	*0*	*0*	*400*	***2,224***	
Circulation at 20%				*365*					***365***	
Bureau of Management Services	5			*2,189*	*0*	*0*	*0*	*400*	***2,589***	
EAU OF MICROBIOLOGY										

square foot basis than smaller labs specifically dedicated to a procedure or piece equipment.

Enclosed Lab spaces are those laboratory rooms that require a partitioned off environment for proper operation either for ventilation, security, safety or containment. These space will typically be more expensive to construct and operate on a per square foot basis than open lab environments. In addition they reduce the flexibility within the lab environment due to the fixed location of walls, doors, lighting, power and mechanical zones. These types of spaces should be limited as much as possible, and only used where dictated by the specific needs of the space program.

Building Support spaces include rooms or areas that are indirectly related to laboratory work activity. They do not usually require a laboratory type environment, such as casework and benchtops. These types of rooms would include mail rooms, storage rooms, loading dock functions, workshops, and other areas that support the operations of the lab. These spaces are generally less costly to construct on a square foot basis than laboratories due to their reduced mechanical demand, level of finish, and power requirements.

The *Room Notes* column located on the right side of the document contains information specific to the space it describes. They are included to provide a detailed account of the equipment, relationship, and/or attributes of the space. This information was useful in the development of the cost, and will be helpful in layout of the space as the project moves into design.

The last three rows of each section contain the sub-totals and totals of each column above. A 20% increase in the square footage has been added to the *Sub-Total* to arrive at the final *Total* under the Office & Support space type column to account for the circulation space needed to move between the various spaces in that category.

Program Notes and Assumptions

Personnel and Space Requirement

1. The circulation number listed below each group's office space refers to secondary circulation. Secondary circulation is the portion of a building required to access to some subdivision of space (whether bounded by wall or not) that is not defined as primary circulation. It does not count the circulation space within a room. The enclosed offices and cubicles receive a circulation number of 20%.

2. Primary circulation is that portion of a building that is a public corridor or lobby, or is required for access by all occupants on the floor to stairs, elevators, toilet rooms and building entrances. Primary circulation is contained in the net to gross factor and is not counted in the net assignable square footage.

3. Net Assignable Square Feet is the measurement of office, laboratory, and building support spaces from the inside finish of the outer walls to the office or lab side of corridors (or permanent partitions) and from center line of adjacent assigned spaces. Interior spaces surrounded by corridors are measured from inside face of enclosing walls.

4. All offices are sized according to the Utah State Standards.

5. All groups are listed according to their reporting structure with the exception of Central Accessioning. Central Accessioning is grouped according to work flow and there may be staff from various groups incorporated into the central accessioning square footage.

6. Column headings in this program list each space type contained in the building. Lab spaces are further divided into different laboratory types: enclosed, open and specialty. Enclosed lab refers to a laboratory that needs to be separate, containing specific functions or with specific requirements. Open lab refers to a laboratory that can be a large open area, housing numerous functions that can share the same environmental requirements. Specialty Labs refer to labs that have Biological Safety Level 3 requirements, special ventilation, higher containment, or unique spaces.

7. Building Common spaces are areas that provide services to the occupants but which are not included in office or lab.

8. This program reflects a desire on the part of the Departments to design and size this facility to accommodate the projected staff growth from the construction completion date. Projected construction completion is the year 2017 so the facility has been designed to accommodate the projected year 2017 total staff.

9. Office spaces that indicate a staff but has zero (0) as the space allotment refers to personnel located in another area in the building (and space provided) but listed in their reporting group to maintain accurate headcount.

TOTAL SUMMARY OF EXISTING SQUARE FOOTAGES

Agency/Institutions Total Project Space (Gross Square Feet): 164,562

	Current	Near Term	
Department of Agriculture and Food			
Chemistry Lab	9,000	13,800	
Motor Fuels Lab	1,500	1,500	
Metrology Lab	1,500	2,500	
Seed Lab	1,500	1,500	
Lab Director's Office	500	1,200	
			20,500 subtotal
Department of Health (Lead Agency) (1)			
Microbiology Lab	6,200	12,050	
Chemistry/Radiological Lab	7,250	14,540	
Forensic Toxicology Lab	2,550	5,570	
Laboratory Improvements	7,600	9,690	
Management Services	2,400	3,715	
Lab Director's Office	500	1,200	26,500
			46,765 subtotal
Office of the Medical Examiner			
Laboratory & Examination Spaces	16,650	21,000	
Department of Public Safety			
Forensic Biology Lab	6,000	7,500	
Forensic Chemistry Lab	6,000	7,500	
Impression Evidence Lab	6,000	7,500	
Crime Scene Investigation Lab	2,000	2,750	
Firearms & Tool Marks Lab	2,000	2,750	
			28,000 subtotal
Office/Admin/Workstations			
72 FTE's + Support Space	incl.	5,670	
Training/Expansion Lab	0	6,000	
Conference Rooms/Amenity Spaces	incl.	5,000	
Building Support/Loading + Receiving Dock/Services	incl	6,476	
General Building Circulation		13,600	
Mechanical/Electrical/Telecom	incl	14,960	
Total GSF	**79,150**	**167,971**	

(1) Department of Environmental Quality laboratory services are conducted by the Department of Health and space requirements for environmental sample testing is included in the Department of Health gross and space requirements for environmental sample testing

TOTAL SUMMARY OF SQUARE FOOTAGES

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Department of Health								
DOH sub-total	*89*	*11,791*	*12,000*	*10,050*	*7,415*	*600*	*41,856*	
Department of Public Safety								
DPS sub-total	*77*	*10,745*	*13,300*	*8,450*	*3,200*	*750*	*36,445*	
Department of Agriculture & Food								
AG sub-total	*23*	*3,374*	*5,450*	*7,355*	*4,200*	*1,900*	*22,279*	
Office of the Medical Examiner								
OME sub-total	*31*	*7,313*	*0*	*0*	*8,090*	*1,300*	*16,703*	
Shared Areas								
Shared sub-total	*5*	*5,652*	*2,000*	*600*	*0*	*5,176*	*13,428*	
Total Building (NASF)								
Total	*225*	*38,875*	*32,750*	*26,455*	*22,905*	*9,726*	*130,711*	
Total Building Infrastructure Area								
Total							*53,020*	
Total Building Gross Square Feet (GSF)								
Total							183,731	
NASF to GSF Efficiency Ratio							*71%*	

DETAILED SUMMARY OF SQUARE FOOTAGES

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Department of Health								
Administration	*2*	800	0	0	0	0	1,097	
Bureau of Management Services	*5*	64	0	0	0	0	2,589	
Bureau of Microbiology								
Environmental Microbiology	*31*	3,038	0	300	0	0	3,338	
Bacteriology	*0*	0	800	500	200	0	1,500	
TB Laboratory	*0*	0	0	100	800	0	900	
Biological Terrorism Laboratory	*0*	0	0	0	2,165	0	2,165	
Virology/Immunology	*0*	0	2,400	1,200	400	0	4,000	
Molecular Biology	*0*	0	600	1,000	0	0	1,600	
Newborn Screening	*0*	0	800	800	0	0	1,600	
subtotal	*31*	*3,038*	*4,600*	*3,900*	*3,565*	*0*	*15,103*	
Bureau of Chemical and Environmental Services								
Administration	*28*	3,089	0	0	0	0	3,089	
Organic Chemistry	*0*	0	1,000	2,900	200	0	4,100	
Environmental Services	*0*	0	1,800	200	300	0	2,300	
Radio Chemistry	*0*	0	0	1,850	0	0	1,850	
Inorganic Chemistry	*0*	0	1,300	800	0	0	2,100	
Metals Laboratory	*0*	0	1,600	0	0	0	1,600	
Chemical Terrorism Laboratory	*0*	0	0	0	2,100	0	2,100	
subtotal	*28*	*3,089*	*5,700*	*5,750*	*2,600*	*0*	*17,139*	
Bureau of Laboratory Improvement								
Air Monitoring	*0*	0	0	0	0	0	0	
Lab Support								
Laboratory	*0*	0	0	0	0	0	0	
DOH sub-total	***89***	***11,791***	***12,000***	***10,050***	***7,415***	***600***	***41,856***	***32%***
Office of the Medical Examiner								
Laboratory Administration	*17*	3,665	0	0	0	0	3,665	
Autopsy/Morgue	*7*	1,680	0	0	8,090	1,300	11,070	
Investigative	*7*	1,968	0	0	0	0	1,968	
OME sub-total	***31***	***7,313***	***0***	***0***	***8,090***	***1,300***	***16,703***	***13%***

DETAILED SUMMARY OF SQUARE FOOTAGES

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Department of Agriculture & Food								
Laboratory Administration	*2*	1,546	0	0	0	200	1,746	
Metrology	*2*	197	0	700	2,100	400	3,397	
Seed/ Entomology Lab	*5*	427	800	855	0	0	2,082	
Motor Fuels	*2*	197	0	0	1,300	0	1,497	
Bacteriology	*4*	350	2,600	1,700	400	100	5,150	
Chemistry	*8*	658	2,050	4,100	400	0	7,208	
Lab Support	*0*	0	0	0	0	1,200	1,200	
DOA sub-total	***23***	***3,374***	***5,450***	***7,355***	***4,200***	***1,900***	***22,279***	***17%***
Department of Public Safety								
Laboratory Administration	*6*	1,834	0	0	0	0	1,834	
Identification	*18*	1,915	1,300	1,300	0	0	4,515	
Forensic Biology	*13*	1,282	3,500	900	0	0	5,682	
CODIS	*8*	958	800	600	0	0	2,358	
Chemistry/Trace	*9*	1,214	4,100	1,100	0	0	6,414	
Firearms/Toolmarks	*5*	667	600	800	1,600	0	3,667	
QA/Safety/Evidence	*2*	240	1,000	200	900	0	2,340	
Photo/Video	*2*	437	0	0	600	0	1,037	
Crime Scene Response	*0*	240	0	2,850	0	600	3,690	
✶ *Forensic Toxicology*	*14*	1,958	2,000	700	100	150	4,908	Included in Module 1
Laboratory Support	*0*	0	0	0	0	0	0	
DPS sub-total	***77***	***10,745***	***13,300***	***8,450***	***3,200***	***750***	***36,445***	***28%***
Unified Shared Areas								
Shared sub-total	***5***	***5,652***	***2,000***	***600***	***0***	***5,176***	***13,428***	
Total Building (NASF)								
Total	***225***	***38,875***	***32,750***	***26,455***	***22,905***	***9,726***	***130,711***	
Total Building Infrastructure Area								
Total							***53,020***	
Total Building Gross Square Feet (GSF)								
Total							**183,731**	180,000 gsf
NASF to GSF Efficiency Ratio							***71%***	

✶ Forensic Toxicology Agency will be included in Module 1. It is currently located with the Department of Health. The building housing both groups will be vacated.

TOTAL SUMMARY OF PHASING OPTIONS

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total
Module 1							
Department of Health							
DOH sub-total	*89*	*11,791*	*12,000*	*10,050*	*7,415*	*600*	*41,856*
Forensic Toxicology							
DPS sub-total	*14*	*1,958*	*2,000*	*700*	*100*	*150*	*4,908*
Unified Shared							*13,428*
sub total							*60,193*
Building infrastructure							*15,048*
Building Total							*75,241*
Module 2							
Office of the Medical Examiner							
OME sub-total	*31*	*7,313*	*0*	*0*	*8,090*	*1,300*	*16,703*
Department of Agriculture & Food							
AG sub-total	*23*	*3,374*	*5,450*	*7,355*	*4,200*	*1,900*	*22,279*
sub total							*38,982*
Building infrastructure							*20,990*
Building Total							*59,973*
Module 3							
Department of Public Safety							
DPS sub-total	*77*	*10,745*	*13,300*	*8,450*	*3,200*	*750*	*36,445*
Less Forensic Toxicology in Module 1	*14*	*1,958*	*2,000*	*700*	*100*	*150*	*4,908*
sub total							*31,536*
Building infrastructure							*16,981*
Building Total							*48,518*

Unified State Laboratory - Modules 1, 2, & 3

Total Net Square Foot	*130,711*
Building infrastructure	*53,020*
Total Gross Square Foot	*183,731*
Net/Gross	*71%*

MODULE 1 - TOTAL SUMMARY OF SQUARE FOOTAGES

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Department of Health								
Administration	*2*	1,097	0	0	0	0	1,097	
Bureau of Management Services	*5*	2,189	0	0	0	400	2,589	
Bureau of Microbiology								
Environmental Microbiology	*31*	3,038	0	300	0	0	3,338	
Bacteriology	*0*	0	800	500	200	0	1,500	
TB Laboratory	*0*	0	0	100	800	0	900	
Biological Terrorism Laboratory	*0*	0	0	0	2,165	0	2,165	
Virology/Immunology	*0*	0	2,400	1,200	400	0	4,000	
Molecular Biology	*0*	0	600	1,000	0	0	1,600	
Newborn Screening	*0*	0	800	800	0	0	1,600	
subtotal	*31*	*3,038*	*4,600*	*3,900*	*3,565*	*0*	*15,103*	
Bureau of Chemical and Environmental Services								
Administration	*28*	3,089	0	0	0	0	3,089	
Organic Chemistry	*0*	0	1,000	2,900	200	0	4,100	
Environmental Services	*0*	0	1,800	200	300	0	2,300	
Radio Chemistry	*0*	0	0	1,850	0	0	1,850	
Inorganic Chemistry	*0*	0	1,300	800	0	0	2,100	
Metals Laboratory	*0*	0	1,600	0	0	0	1,600	
Chemical Terrorism Laboratory	*0*	0	0	0	2,100	0	2,100	
subtotal	*28*	*3,089*	*5,700*	*5,750*	*2,600*	*0*	*17,139*	
Bureau of Laboratory Improvement								
Laboratory Improvement	*23*	2,378	1,700	400	1,250	200	5,928	
Lab Support								
Laboratory Support	*0*	0	0	0	0	0	0	
DOH sub-total	***89***	***11,791***	***12,000***	***10,050***	***7,415***	***600***	***41,856***	

MODULE 1 - TOTAL SUMMARY OF SQUARE FOOTAGES

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Department of Public Safety								
✶ *Forensic Toxicology*	*14*	1,958	2,000	700	100	150	4,908	
DPS sub-total	***14***	***1,958***	***2,000***	***700***	***100***	***150***	***4,908***	
Unified Shared Areas								
Shared sub-total	***5***	***5,652***	***2,000***	***600***	***0***	***5,176***	***13,428***	
Total Building (NASF)								
Total	***94***	***17,443***	***14,000***	***10,650***	***7,415***	***5,776***	***60,193***	
Total Building Infrastructure Area								
Total							***15,048***	
Total Building Gross Square Feet (GSF)								
Total							**75,241**	
NASF to GSF Efficiency Ratio							***80%***	

✶ See Department of Public Safety section for detail.

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Administration										
Office and Support										
Director's Office	1	1	800	800						
Administrative Workstation	1	1	64	64						
Copy Fax Area		1	50	50						
sub-total	**2**			***914***	***0***	***0***	***0***	***0***	***914***	
Office Circulation at 20%				***183***					***183***	
Administration	**2**			***1,097***	***0***	***0***	***0***	***0***	***1,097***	
Bureau of Management Services										
Office and Support										
Manager	1	1	120	120						
Offices	3	3	100	300						
Administrative Assistant	1	1	64	64						
Audit - Certification		1	100	100						
Receptionist		0	100	0						
Dock Manager/ After hours receiving		0	150	0						
Conference Room & Library		1	600	600						for 30 persons
Records / Filing / Workroom		1	400	400						secure working files
Copy / Print / Scan / Fax		1	80	80						
Neighborhood coffee station		2	80	160						
Lobby		0	600					0		
Lobby conference room		0	100					0		
Lobby Rest Rooms (visitors)		0	50					0		
Covered Loading Dock Area		0	120					0		2 truck bays / 1 dumpster
Indoor Staging at Dock Area		0	200					0		
Recycling		0	200					0		
Warehouse		0	3,000					0		
Stock Room		0	800					0		
Hazardous Material Waste		0	200					0		
Cylinder Storage		0	100					0		one flammable, one oxidizers
Solvent Storage		0	100					0		
Chemical Storage (acids etc)		0	100					0		
Neighborhood Gas Cylinder Rooms		3	100					300		on floors near labs
Instrument Repair Shop		0	400					0		for all instrument repairs
Locker Room w/ shower		0	400					0		male and female
Rapid Response Equipment Room		0	600					0		
Break Room & Vending		0	800					0		
Building Emergency Response Team		1	100					100		doors to inside and outside
sub-total	**5**			***1,824***	***0***	***0***	***0***	***400***	***2,224***	
Circulation at 20%				***365***					***365***	
Bureau of Management Services	**5**			***2,189***	***0***	***0***	***0***	***400***	***2,589***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
BUREAU OF MICROBIOLOGY										
Environmental Microbiology										
Office and Support										
Supervisor's Office	8	8	100	800						
Laboratorians	23	23	64	1,472						
Huddle Room		1	100	100						4-5p
Copy Fax Area		1	80	80						
Records Storage		1	80	80						
Laboratory										
Mycology		1	200			200				direct adjacency to media prep
Microscopy Room		0	100			0				shared microscope room
Equipment room		1	100			100				incubators, centrifuges, refrigerators
Media Prep Lab		0	600		0					Share with Chem Water Micro
Media Prep Autoclaves		0	300				0			
Media Storage		0	100			0				
sub-total	**31**			***2,532***	***0***	***300***	***0***	***0***	***2,832***	
Office Circulation at 20%				***506***					***506***	
Environmental Microbiology	**31**			***3,038***	***0***	***300***	***0***	***0***	***3,338***	
Bacteriology										
Office and Support										in micro number
Supervisor's Office			100							
Laboratorian			64							
Laboratory										
Open Laboratory		1	800		800					eq space, OSC for flex part of lab
Anaerobic Room		1	200			200				
Bacti BSL2/3		1	200			200				
Microscope Room		1	100			100				
Equipment Room		1	200				200			ref, fzr, co2 inc, inc, -20,
Environmental Bacti										in chemistry
sub-total	**0**			***0***	***800***	***500***	***200***	***0***	***1,500***	
Office Circulation at 20%				***0***					***0***	
Bacteriology	**0**			***0***	***800***	***500***	***200***	***0***	***1,500***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
TB Laboratory										
Office and Support										
Supervisor's Office			100	0						
Laboratorian			64	0						
Laboratory										
Tuberculosis Suite										
Shared prep lab within BSL-3 Suite		1	200				200			HEPA filtered exhaust
TB Isolation BSL-3		1	200				200			HEPA filtered exhaust
TB Molecular BSL-3		1	200				200			HEPA filtered exhaust
In-Suite Sterilizer		1	100				100			Double Door pass thru unit
Gowning Entry Area		1	100				100			
Microscope Room		1	100			100				
sub-total	**0**			***0***	***0***	***100***	***800***	***0***	***900***	
Office Circulation at 20%				***0***					***0***	
TB Laboratory	**0**			***0***	***0***	***100***	***800***	***0***	***900***	
Biological Terrorism Laboratory										
Office and Support										
Supervisor's Office			100	0						
Laboratorian			64	0						
Laboratory										
High Hazards BSL-3 Suite										HEPA filtered exhaust suite
Gowning Entry Area		1	165				165			Shower out capability
Shared prep lab within BSL-3 Suite		1	400				400			
BT BSL-3		1	200				200			magna pure
FERN BSL-3		1	200				200			
Special Projects BSL-3		1	200				200			
In Suite Sterilizer		1	100				100			Double Door pass thru unit
Equipment Decontamination Room		1	100				100			Area for gas decon of equipment
Equipment Room		1	200				200			
Microscope Room		1	100				100			
Animal Room - ABSL2		1	200				200			
SEM Room		1	200				200			isolated slab
SEM Prep		1	100				100			
sub-total	**0**			***0***	***0***	***0***	***2,165***	***0***	***2,165***	
Office Circulation at 20%				***0***					***0***	
Biological Terrorism Laboratory	**0**			***0***	***0***	***0***	***2,165***	***0***	***2,165***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Virology/Immunology										see microbiology division for numbers
Office and Support										
Supervisor's Office			100	0						
Laboratorian			64							
Laboratory										
Rabies Labs		1	300			300				BSC, Necropsy area, large heads,
Virology		1	800		800					
Serology		1	600		600					
Immunology		1	800		800					BSC, 2 centrifuges,
Microscope Room		1	100			100				Viro and Immuno, FA,
Viral Isolation BSL3		1	200			200				
Tissue Culture BSL3		1	200			200				
Special Projects BSL3		1	200			200				
West Nile BSL3		1	200			200				qiagen m48 robot
Equipment Room		2	200				400			
Supply Storage		1	200		200					
sub-total	**0**			***0***	***2,400***	***1,200***	***400***	***0***	***4,000***	
Office Circulation at 20%				***0***					***0***	
Virology/Immunology	**0**			***0***	***2,400***	***1,200***	***400***	***0***	***4,000***	
Molecular Biology										
Office and Support										
Supervisor's Office			100	0						
Laboratorian			64							
Laboratory										
Extractions Lab		1	400			400				(2) BSC's, (1) FH
Reagent Prep Lab		1	200			200				
Amplification Labs		1	400			400				(2) snorkels, one for open sys / one for closed
Open Lab and PFGE		1	600		600					(2) snorkels, closed molecular process
sub-total	**0**			***0***	***600***	***1,000***	***0***	***0***	***1,600***	
Office Circulation at 20%				***0***					***0***	
Molecular Biology	**0**			***0***	***600***	***1,000***	***0***	***0***	***1,600***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Newborn Screening										
Office and Support										
Supervisor's Office			100							
Laboratorians			64							
Laboratory										
Tandem MS Lab		1	400			400				
Punch Room		1	200			200				
Open Lab		1	800		800					
Equipment Room		1	200			200				
sub-total	**0**			***0***	***800***	***800***	***0***	***0***	***1,600***	
Office Circulation at 20%				***0***					***0***	
Newborn Screening	**0**			***0***	***800***	***800***	***0***	***0***	***1,600***	
BUREAU OF CHEMICAL AND ENVIRONMENTAL SERVICES										
Administration										Includes spaces for all divisions of CES
Office and Support										
Bureau Director	1	1	200	200						
Supervisor's Office	5	5	100	500						
Laboratorians	22	22	64	1,408						Cubical/Drydesk
Copy Fax Area		1	80	80						
Records Storage		1	300	300						
Huddle Room		1	100	100						4-5p
sub-total	**28**			***2,588***	***0***	***0***	***0***	***0***	***2,588***	
Office Circulation at 20%				***501***					***501***	
Administration	**28**			***3,089***	***0***	***0***	***0***	***0***	***3,089***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Organic Chemistry										Includes spaces for all divisions of CES
Office and Support										
Supervisor's Office			100	0						
Laboratorians			64	0						
Laboratory										
Extraction Lab - Volatiles		1	400			400				4 extraction FH - (1) zymarks FH, (1) 12' FH, (2) 6' for extraction
Instrument Lab - Volatiles		1	600			600				5 GCMS, 2 ECD GC, 2 FID GC, 1 HPLC, (1) FH
Extraction Lab - Semi-volatiles		1	1,000		1,000					(1) walk in FH for roto shaker, (1) 6' FH,
Instrument Lab - Semi-volatiles		1	1,000			1,000				FH
Standards Lab & Standards Storage		1	200			200				Shared resource to CES
Equipment Room		1	200				200			
Evidence Storage		1	100			100				
Methods Development / Surge Lab		1	400			400				
Chemical Stock Room		1	200			200				
sub-total	**0**			***0***	***1,000***	***2,900***	***200***	***0***	***4,100***	
Office Circulation at 20%				***0***					***0***	
Organic Chemistry	**0**			***0***	***1,000***	***2,900***	***200***	***0***	***4,100***	
Environmental Services										
Office and Support										
Supervisor's Office			100	0						see division numbers
Laboratorians			64	0						
Laboratory										
Environmental Water Microbiology		1	800		800					(1) FH, CO2 Inc,
Equipment room		1	200		200					incubators, ref, alcove
Microscopy Room		1	100			100				no windows
Methods Development Lab		1	200		200					
Media Prep Lab		1	600		600					Share with Enviro Micro, (1) clean bench
Media Prep Autoclaves		1	300				300			
Media Storage		1	100			100				
						0				
sub-total	**0**			***0***	***1,800***	***200***	***300***	***0***	***2,300***	
Office Circulation at 20%				***0***					***0***	
Environmental Services	**0**			***0***	***1,800***	***200***	***300***	***0***	***2,300***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Radio Chemistry										
Office and Support										
Supervisor's Office			100	0						see division numbers
Laboratorians			64	0						
Laboratory										
Isolation/ Standards/ Waste Room		1	200			200				small vials and trays, (1) FH
Radiochemistry Prep Room		1	800			800				(3) PolyFH, (1) FH for heat digestion under heat lamps
Radiochemistry Instrument/ Counting		1	800			800				heavy floor loading
Balance Area		1	50			50				alcove, protect from acid fumes
sub-total	**0**			***0***	***0***	***1,850***	***0***	***0***	***1,850***	
Office Circulation at 20%				***0***					***0***	
Radio Chemistry	**0**			***0***	***0***	***1,850***	***0***	***0***	***1,850***	
Inorganic Chemistry										
Office and Support										see division numbers
Supervisor's Office			100							
Laboratorian			64							
Laboratory										
Digestion and Distillation		1	400			400				separate from inst
Biological Oxygen Demand Lab		1	200			200				
Inorganic Chemistry Lab										UPS and Gen for instruments
FIA		1	400		400					5 inst, exhaust, OSC
Ovens		1	200		200					2 TSS and 2 TDS, needs canopy hood
IC Work		1	200		200					3 inst
Wet Chem		1	400		400					
Balance Room		1	100		100					alcove
Methods Development		1	200			200				FH
Supply Storage		1	200		200					shared with metals,
sub-total	**0**			***0***	***1,300***	***800***	***0***	***0***	***2,100***	
Office Circulation at 20%				***0***					***0***	
Inorganic Chemistry	**0**			***0***	***1,300***	***800***	***0***	***0***	***2,100***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
Metals Laboratory										
Office and Support										see division numbers
Supervisor's Office			100							
Laboratorian			64							
Laboratory										
Instrument Room		1	800		800					2 icpms, 2 icp, 3 mercury analyzer, 1 AA, space for sampler enclosures
Metals Prep - Clean Metals		1	400		400					(2) poly downdraft FH
Metals Prep - Trace Metals		1	400		400					(2) poly FH
sub-total	**0**			***0***	***1,600***	***0***	***0***	***0***	***1,600***	
Office Circulation at 20%				***0***					***0***	
Metals Laboratory	**0**			***0***	***1,600***	***0***	***0***	***0***	***1,600***	
Chemical Terrorism Laboratory										
Office and Support										
Supervisor's Office			100							
Laboratorians			64							
Laboratory										
Chemical Terrorism Lab		1	1,000				1,000			ICPMS, 2 GC/MS, Solid Phase extractor, (2) LCMS/MS, BSC, clean metal FH,
Biomonitoring		1	1,000				1,000			1 FH, Cent,
Shared Entry Vestibule		1	100				100			
sub-total	**0**			***0***	***0***	***0***	***2,100***	***0***	***2,100***	
Office Circulation at 20%				***0***					***0***	
Chemical Terrorism Laboratory	**0**			***0***	***0***	***0***	***2,100***	***0***	***2,100***	

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes
BUREAU OF LABORATORY IMPROVEMENT										
Laboratory Improvement										
Office and Support										
Director	1	1	100	100						
QA Officer	1	1	64	64						
Clinical Lab Certification manager	1	1	100	100						inspect state labs, clinical
Clinical Lab Microbiologist	2	2	64	128						
Environmental Lab Certification manager	1	1	100	100						
Environmental Lab Certification Micro/Chemist	4	4	64	256						
Safety Officer	1	1	100	100						
Occupational Health officer	1	1	64	64						
Training Director										*Same as Clinical Cert. Manager*
Tech Services Section Chief	1	1	100	100						
Lab Techs	10	10	64	640						
Interview Room - Clinical		1	100	100						
Small Conference Room		1	150	150						shared, 8-10p
Copy Fax Area			80	0						
Records Storage		1	80	80						2 - 4 high file
Training Classroom		0	800					0		40 person
Training Workroom		0	100					0		training support / staging
Training Materials storage		0	100					0		
Laboratory										
Training Lab		0	1,000		0					Could be shared with Ag
Training BSL3		0	200			0				
Fume Hood Room		0	200			0				
Training Lab Storage		0	100			0				
Training Support Equipment		0	100			0				autoclave / gas manifolds / lab coats
A/V Support room		0	100			0				
Glass wash and Decontamination		1	600				600			(2) washers/driers, (2) autoclaves, (1) nitric acid hood, (1) FH for 4 hydrochloric baths, multi sink basin, (1) oven
Glass wash and Decon Equipment		1	300				300			
Chemistry/Micro Test Kit Prep		1	200		200					need separate are because of contamination of prepared samples
Chemistry/ Micro Test Kit Materials Storage		1	400		400					need separate are because of contamination of prepared samples, need to clear QA before release,

MODULE 1

DEPARTMENT OF HEALTH - Module 1 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Room Notes	
Chemistry/ Micro Test Prepared Kit Storage		1	200			200					
Clinical Specimen Kit Prep - Newborn Screening		1	100		100					need separation from facility because of contamination, different from most states	
Neighborhood Safety Supply Closets		2	50		100					1 per area or floor	
Customer Drop off Area		1	100		100						
Mail Room		1	200					200		scales, boxes, carts, close to dock	
Central Accessioning		1	800		800					need ref area for protozoan/crypto	
After Hours Drop Off and Storage		1	200			200				Ref storage, coolers,	
Unknowns Accessioning (BT/CT)		1	200				200			could be shared? DOA? AG?	
Unknowns Evidence Storage		1	50				50				
Unknowns Vestibule		1	100				100				
sub-total	**23**			***1,982***	***1,700***	***400***	***1,250***	***200***	***5,532***		
Office Circulation at 20%				***396***					***396***		
Laboratory Improvement	**23**			***2,378***	***1,700***	***400***	***1,250***	***200***	***5,928***		
Air Monitoring											
Office and Support											
Supervisor's Office			100							DEQ	
Laboratorian			64							No space in current facility	
Laboratory											
Room Name											
Room Name											
sub-total	**0**			***0***	***0***	***0***	***0***	***0***	***0***		
Office Circulation at 20%				***0***					***0***		
Air Monitoring	**0**			***0***	***0***	***0***	***0***	***0***	***0***		
Laboratory Support											
Office and Support											
Records Storage			80								
Evidence Storage											
Laboratory											
Room Name											
Room Name											
sub-total	**0**			***0***	***0***	***0***	***0***	***0***	***0***		
Office Circulation at 20%				***0***					***0***		
Laboratory Support	**0**			***0***	***0***	***0***	***0***	***0***	***0***		
TOTAL DEPARTMENT PROGRAM				***11,791***	***12,000***	***10,050***	***7,415***	***600***	***41,856***		41195
(NET ASSIGNABLE SQUARE FEET)											661
Percentage of Program				*28%*	*29%*	*24%*	*18%*	*1%*			
Total 2017 Staffing	**89**										

MODULE 2

DEPARTMENT OF AGRICULTURE & FOOD - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Laboratory Administration										
Office and Support										
Lab Director	*1*	1	200	200						
Administrative Assistant	*1*	2	64	128						reception, records
IT/ DFCM Positions		2	100	200						
Reception/ Security Area		0	120	0						
Lobby		0	600					0		
Conference Room & Library		1	400	400						moveable wall system
Meeting Room		0	200	0						moveable wall system
Break Room		0	600	0						
Records / Filing / Workroom		1	200	200						
Copy / Print / Scan / Fax		1	80	80						
Neighborhood coffee station		1	80	80						
Admin Record Archives		1	100					100		
Mail Room		1	100					100		
sub-total	***2***			***1,288***	***0***	***0***	***0***	***200***	***1,488***	
Circulation at 20%				***258***					***258***	
Laboratory Administration	***2***			***1,546***	***0***	***0***	***0***	***200***	***1,746***	
Metrology										
Office and Support										
Supervisor's Office	*1*	1	100	100						
Laboratorians	*1*	1	64	64						
Laboratory										
Large Mass Lab		1	600				600			balance isolation slab, shop table (lead punching), tool storage cabinets, wheel load weigher
Large Volume		1	800				800			prover, hydraulic lift, vehicles, drains, water tank? DI water,
Small Mass/ Length Testing		1	400				400			25' length, isolated slab for small mass
Small Volume		1	200				200			
Press Scale		1	100			100				need bench space
Paint Room		1	100				100			state owned weights
Secure Staging		1	200			200				NIST, receiving
Testing Equipment Room		1	400			400				metric set, provers,
Initial Staging at dock		1	400					400		need 24' clear for crane, and rail for loading weights
sub-total	***2***			***164***	***0***	***700***	***2,100***	***400***	***3,364***	
Office Circulation at 20%				***33***					***33***	
Metrology	***2***			***197***	***0***	***700***	***2,100***	***400***	***3,397***	

MODULE 2

DEPARTMENT OF AGRICULTURE & FOOD - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Motor Fuels										
Office and Support										
Supervisor's Office	*1*	1	100	100						
Laboratorians	*1*	1	64	64						
Laboratory										
Engine Lab		1	400				400			(1) engine, 1 future, ice machine,
Fuels Lab		1	600				600			FTIR, volumetric dist unit, flash cup tester, benchtop, REID Vapor Pressure tester TBA
Fuels Mixing Lab		1	100				100			
Sample Storage		1	100				100			waiting to be analyzed, ref storage
Fuels Storage		1	100				100			
Secure Area - outside										provers - 9 parking spots
sub-total	***2***			***164***	***0***	***0***	***1,300***	***0***	***1,464***	
Office Circulation at 20%				***33***					***33***	
Motor Fuels	***2***			***197***	***0***	***0***	***1,300***	***0***	***1,497***	
Seed/ Entomology Lab										
Office and Support										
Supervisor's Office	*1*	1	100	100						
Laboratorians	*4*	4	64	256						
Laboratory										
Seed Prep		1	200		200					4' FH for test with 18x12x8 sink
Seed Germination		1	200		200					1 reach-in ref, 3 larger dbl door, 1 single chamber, future unit double door, growth chamber currently wood box
Seed Storage		1	200			200				less RH than rest
Dividing Area		1	200			200				FH
Fluorescence test room		1	55			55				needs to be darkened for test
Seed Purity Stations		1	400		400					seed blower, scales, (4) stations,
Entomology		1	200			200				
Field Storage		1	200			200				
Glass wash										undercounter
sub-total	***5***			***356***	***800***	***855***	***0***	***0***	***2,011***	
Office Circulation at 20%				***71***					***71***	
Seed/ Entomology Lab	***5***			***427***	***800***	***855***	***0***	***0***	***2,082***	

MODULE 2

DEPARTMENT OF AGRICULTURE & FOOD - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Bacteriology										
Office and Support										
Supervisor's Office	*1*	1	100	100						
Laboratorians	*3*	3	64	192						
Laboratory										
Dairy Plating		1	800			800				FH,
Food Chem Lab/Food Testing		1	2,600		2,600					needs microscopy adjacent, can be in open lab, dairy component, FH
Food Pathogen Testing BSL2/3		1	200			200				BSC
Food Bioterrorism		1	200			200				
Microscope Room		1	100			100				
Equipment Room		1	200			200				
Glass Wash Area and Autoclave		1	400				400			2 autoclaves,
Media Prep		1	200			200				
Records Storage		1	100					100		
sub-total	***4***			***292***	***2,600***	***1,700***	***400***	***100***	***5,092***	
Office Circulation at 20%				***58***					***58***	
Bacteriology	***4***			***350***	***2,600***	***1,700***	***400***	***100***	***5,150***	

MODULE 2

DEPARTMENT OF AGRICULTURE & FOOD - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Chemistry										
Office and Support										
Supervisor's Office	*1*	1	100	100						
Laboratorians	*7*	7	64	448						
Laboratory										
Microscopy		1	100			100				IR, light, away from chemicals
Balance Area		1	50		50					part of open lab
Pesticide Residue Chemistry		1	800			800				
Storage room		1	100			100				
Methods Development		1	800			800				
Storage room		1	100			100				
Reference Standards Storage		1	200			200				
Equipment Galley		1	200			200				oven, cent, fzr, ref,
Food Lab		0	2,000		0					part of Bacti
Feed and Fertilizers		1	2,000		2,000					(3) FH, (1) canopy hood, need 1 perc fume hood,
Glass wash		1	400				400			
F&F Sample Staging Area		1	400			400				staging and storing
Grinding		2	200			400				separate for feed and fert
Prep Lab for instruments		1	200			200				
Instrument Lab		1	800			800				(2) now (2) future MS,
sub-total	***8***			***548***	***2,050***	***4,100***	***400***	***0***	***7,098***	
Office Circulation at 20%				***110***					***110***	
Chemistry	***8***			***658***	***2,050***	***4,100***	***400***	***0***	***7,208***	

MODULE 2

DEPARTMENT OF AGRICULTURE & FOOD - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Lab Support										
Laboratory										
Sample Receiving Manager	*0*	0	100	0						
Central Accessioning		1	600					600		
Loading Dock		0	120					0		
Refrigerated Sample Storage		1	200					200		
Lab Record Archive Storage		1	200					200		
General Storage Room		0	600					0		
Neighborhood Cylinder Storage Room		2	100					200		
Chemical Storage		0	600					0		FH, Hazmat is part of room
								0		
Training Lab		0	800					0		Require if Training is not part of phase 1, Bacti, Fuels, Metrology
sub-total	***0***			***0***	***0***	***0***	***0***	***1,200***	***1,200***	
Office Circulation at 20%				***0***					***0***	
Lab Support	***0***			***0***	***0***	***0***	***0***	***1,200***	***1,200***	
TOTAL DEPARTMENT PROGRAM (NET ASSIGNABLE SQUARE FEET)				***3,374***	***5,450***	***7,355***	***4,200***	***1,900***	***22,279***	
Percentage of Program				*15%*	*24%*	*33%*	*19%*	*9%*		
Total 2017 Staffing	***23***									

MODULE 2

OFFICE OF CHIEF MEDICAL EXAMINER - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Laboratory Administration										Todd Grey
Office and Support										
Chief Medical Examiner	*1*	1	200	200						
Deputy Chief ME Office	*1*	1	150	150						
Forensic Pathologists	*4*	4	150	600						
Managements Services Coordinator	*1*	1	150	150						
Resident Assistant & Med. Student Office	*4*	2	100	200						2 desks per office
Secretarial Staff	*5*	5	64	320						
Abstractor Work Area	*1*	1	64	64						
Break Room		1	300	300						
Library		1	100	100						
Pathologist's Conference Room		1	120	120						Depositions taken, adjacent to CME
Main ME Conference Room		1	250	250						Staff meeting area
Reception Lobby		1	200	200						sitting area, display area
Copy / Print / Scan / Fax / Supply		1	100	100						
Filing		1	100	100						Filing cabinets
Record Archives		1	200	200						High density storage
sub-total	***17***			***3,054***	***0***	***0***	***0***	***0***	***3,054***	
Circulation at 20%				***611***					***611***	
Laboratory Administration	***17***			***3,665***	***0***	***0***	***0***	***0***	***3,665***	

MODULE 2

OFFICE OF CHIEF MEDICAL EXAMINER - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Autopsy/Morgue										Todd Grey
Office and Support										
Supervisor's Office	*1*	1	100	100						desk, bookcase, cabinet
Autopsy Assistant Office	*4*	4	100	400						desk, bookcase, cabinet
Histologist Office	*1*	1	100	100						
Photographer's Office	*1*	1	100	100						desk, bookcase, cabinet
Copy / Print / Scan / Fax / Supply		1	100	100						
Laboratory										
Transport Reception		1	1,300					1,300		3 dock bays-1 for investigative vehicles-(45' long, standard trailer-15' long), 2 for morgue
Body Receiving		1	400				400			body scale in floor, color balanced lighting for photographs,
Body Receiving Data Recording		1	300	300						computer station data input area, bill counter,
Evidence Storage		1	20				20			Evidence storage lockers, secured area, separate HVAC control required
X-Ray Radiology Room		1	600				600			lead lined room, x-ray equipment (general & dental), digital processing, seamless finishes, s.s. casework, floor drain, 44" door, 2- wall mounted film viewers, light control, telephone
Special Procedures Autopsy		1	600				600			seamless finishes, s.s. casework, floor drain, double doors, 2- wall mounted film viewers, light control, telephone, high ceilings required, odor control HVAC filtering, viral/bacterial containment, negative pressure, s.s. ductwork, laminar flow air movement, aspirators on sinks, scullery type sink w/ body table lockdown, 4-storage bins
Special Procedures Body Storage		1	200				200			walk-in cooler, seamless finishes, floor drain, 8'-0" ceiling, 44" wide door, h/c hose bibs, steamline for hose cleaning
General Body Storage		1	1,500				1,500			walk-in cooler, wall mounted body storage racks (48 storage stations), seamless finishes, floor drain, 8'-0" ceiling, 44" wide door, h/c hose bibs, steamline for hose cleaning, sprinklered throughout,
Refrigerated Tissue Storage		1	200				200			Walk-in cooler, storage racks
Frozen Tissue Storage		1	200				200			Walk-in freezer, storage racks

MODULE 2

OFFICE OF CHIEF MEDICAL EXAMINER - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Biohazardous Waste Storage		1	100				100			Special ventilation, flammable storage cabinets
Tissue Harvesting		1	400				400			HEPA filtration on ventilation, freezer, refrigerator, seamless finishes, floor drain w/ flushing rim, s.s. casework
Tissue Harvesting Storage Room		1	200				200			wall mounted shelving
Tissue Harvesting Janitor		1	50				50			mop sink, storage shelves, mop rack
Locker Rooms - Men		1	300				300			24 lockers, bench, showers stalls, sinks, tiled floors & walls, clean & soiled laundry storage cabinets, hose bib, floor drains
Locker Rooms - Women		1	300				300			12 lockers, bench, showers stalls, sinks, tiled floors & walls, clean & soiled laundry storage cabinets, hose bib, floor drains.
Laundry Room		1	100				100			washer, dryer, storage bins, folding table
Autopsy Store Room - Consumable		1	550				550			gloves, bags, syringes, test tubes, etc.
Autopsy Store Room - Chemical		1	100				100			chemical
Histology Lab		1	700				700			2 fume hoods, casework, Tissue Processor (required local exhaust) 2-sinks, long term glass slide storage, island benches, 2-flammable storage cabinets, eyewash/shower station, seamless finishes, compressed air & vacuum at one station,
General Autopsy		1	1,320				1,320			5 stations @ 250 s.f. each, s.s. tables & sinks, h/c hose bib, floor drains w/ flushing rim, color correction lighting w/ controls, vacuum suction, dissecting pans, body table, dictation microphones, CCTV, scale & cutting board, sinks w/ tissue disposals, wall mounted x-ray view boxes, OR lighting, white boards, evidence lockers, power from ceiling, 2' fume hood for formaldehyde transfer,
Autopsy Janitor Closet		1	50				50			Plastic body wrap in Janitorial closet, floor mounted mop sink
Wet Tissue Storage		1	200				200			
Morgue Clerk After Hours Quarters		1	300	300						Apartment-like space, kitchette (sink, ref, microwave), toilet room (no shower), cable TV.,
sub-total	***7***			***1,400***	***0***	***0***	***8,090***	***1,300***	***10,790***	
Office Circulation at 20%				***280***					***280***	

MODULE 2

OFFICE OF CHIEF MEDICAL EXAMINER - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Autopsy/Morgue	*7*			*1,680*	*0*	*0*	*8,090*	*1,300*	*11,070*	

MODULE 2

OFFICE OF CHIEF MEDICAL EXAMINER - Module 2 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Investigative										Todd Grey
Office and Support										
Chief Investigator's Office	*1*	1	150	150						desk, bookcase, cabinet
Deputy Chief Investigator's Office	*1*	1	100	100						desk, bookcase, cabinet
Investigators Open Office Area	*5*	5	64	320						Cubicle work stations
Conference/Training Room		1	400	400						Can be combined w/ other departments
Photographic Slide Storage Room		1	120	120						Storage Shelves
Evidence Storage Room		1	300	300						near Body Receiving, secured space
Field Apparel Closet		1	50	50						closet rods, & shelves
Photographic Work Room/Area		1	100	100						Slide viewing table, digital in future
Copy / Print / Scan / Fax / Supply		1	100	100						Table top equipment
sub-total	***7***			***1,640***	***0***	***0***	***0***	***0***	***1,640***	
Office Circulation at 20%				***328***					***328***	
Investigative	***7***			***1,968***	***0***	***0***	***0***	***0***	***1,968***	
TOTAL DEPARTMENT PROGRAM (NET ASSIGNABLE SQUARE FEET)				***7,313***	***0***	***0***	***8,090***	***1,300***	***16,703***	
Percentage of Program				*44%*	*0%*	*0%*	*48%*	*8%*		
Total 2010 Staffing	***31***									

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Laboratory Administration										
Office and Support										
Director	*1*	1	200	200						
Dep. Director	*1*	1	150	150						
Manager	*2*	2	100	200						
Admin. Support	*2*	2	64	128						
Conference Room		1	200	200						
Huddle Rooms		2	120	240						
Copy / Print / Scan / Fax / Supply		1	150	150						
Coffee Service		1	60	60						
Filing Room		1	100	100						
Public Relations Display		1	100	100						
sub-total	***6***			***1,528***	***0***	***0***	***0***	***0***	***1,528***	
Circulation at 20%				***306***					***306***	
Laboratory Administration	***6***			***1,834***	***0***	***0***	***0***	***0***	***1,834***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Identification										Karen
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner	*14*	14	64	896						
Copy / Print / Scan / Fax / Supply	*1*	1	100	100						10' x 10' room, 4 locker cabinets (36" each
Castings Storage	*1*	1	100	100						
Automated Fingerprint Identifiation System (AFIS)	*1*	1	400	400						Locate near lab environment, 30' x 30' room, 3 terminals, 2 additional computers for 10/P retrieval
Laboratory										
Latent Prints		1	1,300		1,300					10 work stations, Access to 14 evidence lockers, 1-8' chemical fume hood w/ large sink w/ footpeddles,
Bloodstain Patterning/Reconstruction		1	200			200				Combine w/ Computer Vestibule, large op
Footware/Tire		1	200			200				2 work stations, Combine w/ Computer Ve
Chemical Processing Area		1	200			200				under counter dishwasher
Questioned Documents		1	200			200				2- work stations, 20' x 32' room, computer
Photography/Digital Imaging		1	400			400				two vented hoods for chemical processing (1 w/ sink w/ hands free sink & sprayer), 5 workstations w/ computer with curtains around each station, camera, MP4, ALS, scanners, printers (all computer linked), room to be painted black, horseshoe shaped workstation, digital comparator w/ photographic capabilities, centralized to enable access to FW/Tire, QDE, Latent Prints, BSP, Capture bullets & shells, windowless space.
Chemical Storage Room		1	100			100				shelving units, flammable storage cabinets,
sub-total	***18***			***1,596***	***1,300***	***1,300***	***0***	***0***	***4,196***	
Office Circulation at 20%				***319***					***319***	
Identification	***18***			***1,915***	***1,300***	***1,300***	***0***	***0***	***4,515***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Forensic Biology - Serology										Pilar
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner's Workstation	*12*	12	64	768						
Copy / Print / Scan / Fax / Supply		1	100	100						locate near electrophoresis room
Records Storage		1	100	100						7 fiile storage cabinets
Laboratory										
Trace Rooms		3	200		600					min 15' x 16', chemical ventilation, movable tables, light control, sink required, data jacks, bench space for ALS & computer
Serology Room		1	1,000		1,000					Includes 12 evidence pass thru, 10 min. workstations, open benchtop, power supply, data connections, leg space on 2 of 4 sides, door/drawer combinations, 2 BSC, bench space for serological tests, 2 compound microscopes w/ comuter attachments & data
Freezer Room		1	400		400					1 freezer, 1 side by side for reagents, 1-freezer for derivation evidence for short term storage, all w/ monitoring, locks, & UPS, vacuum systems, gas, di water, sink area, walk-in freezer.
Reagent Preparation Room		1	200		200					1- 6' fume hood w/ chem storage below, vacuum system, separate sinks for dish washing & rinsing, referigerator w/ UPS, Autoclave, benchtop, storage for glass ware for tall areas, Ultra pure water filtration system, Acid/base, flammable storage cabinets under fume hood.
DNA Extraction Area		1	1,300		1,300					10 stations @ 100 s.f., benchspace for Robot, benchspace for 96 well plates centrifuge, reagent/evidence freezer (-20 degree), 2 BSC's for organic extractions, data jacks at computer terminals (CODIS & UETS), sink area near 11' x 11' work stations.

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Pre Amplification Room		1	300			300				Adjacent to DNA Extraction & PCR Amplication Room, large bench area, 4 BSC's w/ a workbench nearby, large bench area, power supply, Data jacks to CODIS server, ref/freezer (monitored, locking, UPS)
Amplification Equipment Area		1	200			200				Combine w/ Electrophoresis Room, bench space for 6 thermocyclers, & 2 real time instruments, UPS for all equipment, Data jacks to CODIS server, next to Pre-amp area, must have a closing door w/ one-way access (enter only) combine w/ Electrophoresis
Electrophoresis Room		1	400			400				Combine w/ Amplification Equip. Area., climate controlled area, UPS throughout, fume hood, 2 sink areas w/ bench space attached, one way work flow, 1 entrance door w/ a separate exit door, exit must be made to the corridor, plate activated door - for access without having to turn a doorknob. Ref, Ultra Low Freezer, benchtop space for 4 instruments, data jacks for CODIS server, 4 electrophoresis units.
sub-total	***13***			***1,068***	***3,500***	***900***	***0***	***0***	***5,468***	
Office Circulation at 20%				***214***					***214***	
Forensic Biology - Serology	***13***			***1,282***	***3,500***	***900***	***0***	***0***	***5,682***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
CODIS										Todd
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner's Workstation	*5*	5	64	320						Data Interpretation
CODIS Technician	*2*	2	64	128						
Copy / Print / Scan / Fax / Supply		0	100	0						Shared
Records Storage		1	250	250						
Laboratory										
Sample Accession Area		1	100		100					
DNA Extraction Area		1	700		700					6 stations @ 100 s.f., short term sample storage lockers (may be in locked bench cabinets)
Quantification		1	100			100				Include with Serology, 1 CODIS dedicated fume hood
Pre-Amplification Room		1	200			200				Include with Serology, 1 CODIS dedicated fume hood
Amplification		1	100			100				Include with Serology, 4 thermo cyclers, quantification instrumentation (ABR Realtime PCR & laptop computer)
Electrophoresis Room		1	200			200				Include with Serology, 1 CODIS dedicated fume hood
sub-total	***8***			***798***	***800***	***600***	***0***	***0***	***2,198***	
Office Circulation at 20%				***160***					***160***	
CODIS	***8***			***958***	***800***	***600***	***0***	***0***	***2,358***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Chemistry/ Trace										Scott, Stu, MIke
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner	*8*	8	64	512						
Library		1	200	200						shelves, table & chairs
Copy / Print / Scan / Fax / Supply		1	100	100						
Records Storage		1	100	100						
Laboratory										
Central Chemistry Lab		1	3,300		3,300					includes pass thru closets, 8 "u-shaped" work stations, 6- 4' hoods (chemical & caustic rated) at 6 workstations, 2 - 6' fume hoods, 1- 8' walk-in fume hood w/ floor drain for testing drug roceedures
Eastern Lab Relocation		1	800		800					to be included in Central Chemistry Lab if determined
SEM Room		1	200			200				liquid nitrogen tank required, vibration sensitve equipment, SEM requires-30 amp, light control,
Trace Room		2	200			400				benchtop & sink in each room,
Specialized Instrumentation Room		1	200			200				Inlcudes some microscopy - scope, future mass spec., special utility requirements
Chemical Storage		1	100			100				Flammable cabinets, acids, & corrosives
Stockroom		1	100			100				glassware, shelves, cabinets, chemistry supplies
Cylinder Storage		1	100			100				UHP Helium, argon, nitrogen
sub-total	***9***			***1,012***	***4,100***	***1,100***	***0***	***0***	***6,212***	
Office Circulation at 20%				***202***					***202***	
Chemistry/ Trace	***9***			***1,214***	***4,100***	***1,100***	***0***	***0***	***6,414***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Firearms/Toolmarks										Jay
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner	*3*	3	64	192						
NIBIN Tech	*1*	1	64	64						
Copy / Print / Scan / Fax / Supply		1	100	100						
Records Storage		1	100	100						
Laboratory										
Firearms & Toolmarks Lab		1	600		600					6' fume hood, light control, includes Microscopy, evidence pass-thru closets
NIBIN AV Media		1	400			400				Computer input & data base
Gun Vault		1	300				300			Gun vault, High density storage units
Workshop		1	200			200				Tool room area, fume hood
Indoor Range & Ammo Storage		1	1,300				1,300			3' x 8' shoot tank, 20' x 60', accoustical treatment on walls & ceilings
Chemical Processing/Exam Lab		1	200			200				6' fume hood,
sub-total	***5***			***556***	***600***	***800***	***1,600***	***0***	***3,556***	
Office Circulation at 20%				***111***					***111***	
Firearms/Toolmarks	***5***			***667***	***600***	***800***	***1,600***	***0***	***3,667***	
QA/Safety/Evidence										Louize, Jay
Office and Support										
Supervisor's Office	*1*	1	100	100						
Shared Office	*1*	1	100	100						
File Storage		1	300		300					
QA File Storage		1	100		100					
Laboratory										
Evidence Receiving Lobby		1	200		200					Entrance area separate from public
Case Consultation		1	100		100					
Evidence Packaging		1	100		100					wall shelf along one wall
Evidence Receiving/Admin		1	200		200					
Evidence Lab		1	200			200				Small sink, benchtop, 1- 6' BSC, 4' fume hood
Evidence Vault		1	600				600			Camera monitoring w/ recording, high density Storage, 2 stand-up refrig.
Chemical Storage		1	100				100			Fire Debris, chemical related
Clandestine Lab Evidence Vault		1	100				100			Clandestine Lab storage
Freezer Storage		1	100				100			Walk-in Freezer, used by Forensic Biology
sub-total	***2***			***200***	***1,000***	***200***	***900***	***0***	***2,300***	
Office Circulation at 20%				***40***					***40***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
QA/Safety/Evidence	*2*			*240*	*1,000*	*200*	*900*	*0*	*2,340*	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Photo/Video										Mike
Office and Support										
Supervisor's Office	*1*	1	100	100						
Examiner	*1*	1	64	64						Included for expansion
Copy / Print / Scan / Fax / Supply		1	100	100						Could be combined w/ another department if directly adjacent
Records Storage		1	100	100						File cabinets & shelf space for A/V media, no special HVAC requirements
Laboratory										
Video Training Media Production		1	300				300			Accoustical wall & ceiling treatment, light control, tiled flooring, increased level of power requirements, high heat gain equipment
Video Control Room		1	100				100			tiled flooring, includes A/V Storage (40 s.f.) - floor-to-ceiling lockable storage cabinets
Forensic Video/Audio		1	200				200			Contains specialty equipment w/ high heat gain (computers)
sub-total	***2***			***364***	***0***	***0***	***600***	***0***	***964***	
Office Circulation at 20%				***73***					***73***	
Photo/Video	***2***			***437***	***0***	***0***	***600***	***0***	***1,037***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Crime Scene Response										Todd, Trent, Elisa, Stu, Scott
Office and Support										
Planning and Debreifing		1	200	200						Desk & table for 6, computer, marker board
Laboratory										
Vehicle Large Evidence Bays		1	1,300			1,300				High bay area, (see document), pass-thru closets, 2 vehicle space, hose bib, floor drains
Covered Exterior Vehicle Bay		2	600			1,200				30' x 20' each
Evidence Prep		1	100			100				10 ACH, drying room, mult-purpose storage & staging, 6'- fume hood, double door access
Equipment Storage		1	100			100				Response gear & re-supply, shelve,
Training Equipment Storage		1	100					100		Training supplies & equipment, shelves
Locker Rooms/Showers		2	200					400		Men & women, 15 full-height lockers each & benches
Laundry Room		1	100					100		Washer/dryer, shelves, table, tub sink
Chemical Storage		1	50			50				storage cabinet, freezer/refrigerator
Biowaste Discposal		1	100			100				departmental biowaste staging room
sub-total	***0***			***200***	***0***	***2,850***	***0***	***600***	***3,650***	
Office Circulation at 20%				***40***					***40***	
Crime Scene Response	***0***			***240***	***0***	***2,850***	***0***	***600***	***3,690***	

MODULE 3

DEPARTMENT OF PUBLIC SAFETY - Module 3 Program

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Forensic Toxicology										Gambreli
Office and Support										
Bureau Director	1	1	200	200						
Supervisor's Office	*1*	1	100	100						
Examiners	*10*	10	64	640						
Technician/Clerical	*3*	3	64	192						
Library/Conference Room		0	200	0						
Copy / Print / Scan / Fax / Supply		1	100	100						
Records Storage		1	100	100						
Laboratory										
Evidence Lobby		1	100	100						Access from Restricted Parking
Evidence Receiving		0	200	0						Secured from Evidence Lobby
Packaging Storage		1	200	200						Shelving
Evidence Cooler		1	100				100			Storage Shelves, access from Sample Prep Lab
Evidence Receiving Lab		1	100			100				BSC, sink
Sample Prep Lab		1	1,200		1,200					4- 6' Fume hoods, casework, sinks
Sample Extraction Labs		3	200			600				Each room to have a BSC, sink, benchspace
Instrumentation Room		1	800		800					GCMS's. (12), local exhaust
Chemical Storage		1	50					50		Chemicals stored in flammable storage cabinets
Cylinder Storage Room		1	100					100		
sub-total	***14***			***1,632***	***2,000***	***700***	***100***	***150***	***4,582***	
Office Circulation at 20%				***326***					***326***	
Forensic Toxicology	***14***			***1,958***	***2,000***	***700***	***100***	***150***	***4,908***	
TOTAL DEPARTMENT PROGRAM (NET ASSIGNABLE SQUARE FEET)				***10,745***	***13,300***	***8,450***	***3,200***	***750***	***36,445***	
Percentage of Program				*29%*	*36%*	*23%*	*9%*	*2%*		
Total 2017 Staffing	***77***									

UNIFIED STATE LABORATORY - Shared Facilities

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Unified Lab Areas										
Public Lobby		1	200	200						
Lobby Rest Rooms		2	50					100		
Receptionist	1	1	150	150						Badging
Locker Room		0	300					0		
Lactation Room		1	46					46		
Pantry		2	50	100						One per floor in core
Dry Training Lab		1	1,000		1,000					20p, movable tables, OSC? Gases,
Training Classroom		1	800					800		40 person
Training Workroom		1	100					100		training support / staging
Training Materials storage		1	100					100		
Wet Training Lab		1	1,000		1,000					
BSL3		2	200			400				
Fume hood		1	200			200				
Training Storage Equipment		1	100	100						autoclave / gas manifolds / lab coats
Training Workroom		1	100	100						
A/V Support Room		1	50	50						
Cafeteria		1	712	712						100p
Kitchen		0	2,500	0						
Vending Area		1	200	200						
Seminar Room		1	1,500	1,500						100p
Large Conference Room		2	400	800						25p
Small Conference Room		2	200	400						12p
Class Room		1	500	500						30p
Library		1	240	240						
Testimony Room		0	200	0						video linking
Secure Receiving Dock - Staging		5	150					750		
Dock Manager/ After hours Receiving	1	1	150	150						
Courier Washroom		1	40					40		
Building Engineer	1	1	200	200						DFCM
Sample Review Room		1	100	100						
										conf 2-3p for review of sample receipt
Gas Cylinder Storage Room - Flammables		1	100					100		
Gas Cylinder Storage Room - Oxidizers		1	100					100		
Bulk Chemical Storage		1	600					600		
Gas Cylinder Storage Room		1	200					200		
General Supply Stock Room		1	220					220		
Reagent Stock Room		1	220					220		
Bulk Storage - Warehouse		0	2,000					0		
Biohazard Waste		1	200					200		
Chemical Waste		1	200					200		

UNIFIED STATE LABORATORY - Shared Facilities

Projected Area Requirements (Net Assignable Square Feet)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Recycling Room		1	200					200		
Lab Coat Storage		1	100					100		
DTS Server Room		4	200					800		all 4 groups into one if DTS impliments 4 rooms for program
DTS Work Room		1	300					300		workstations
Janitorial Staff	*2*	*1*	*150*	*150*						*grounds and janitorial*
sub-total	***5***			***5,652***	***2,000***	***600***	***0***	***5,176***	***13,428***	
Office Circulation at 0%				***0***					***0***	
TOTAL SHARED FUNCTIONS (NET ASSIGNABLE SQUARE FEET)	***5***			***5,652***	***2,000***	***600***	***0***	***5,176***	***13,428***	

FULL BUILDOUT - BUILDING INFRASTRUCTURE AREAS

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Circulation										
Primary Circulation: Basement		500	6.5					3,250		6.5' wide corridor
Primary Circulation: First Floor		500	6.5					3,250		6.5' wide corridor
Primary Circulation: Second Floor		500	6.5					3,250		6.5' wide corridor
Primary Circulation: Third Floor		500	6.5					3,250		6.5' wide corridor
Ghost Corridor: First Floor		250	6.5					1,625		6.5' wide corridor
Ghost Corridor: Second Floor		250	8.0					2,000		6.5' wide corridor
Ghost Corridor: Third Floor		250	8.0					2,000		6.5' wide corridor
Future expansion / staff corridor		0	6.5					0		6' wide + door alcoves
Door alcoves		16	15					240		
2 Story Space (35' High Space)		1	2,700					2,700		
Stairs: Basement		2	200					400		
Stairs: First Floor		5	200					1,000		
Stairs: Second Floor		5	299					1,495		
Stairs: Third Floor		5	200					1,000		
Stairs: Penthouse		2	200					400		
sub-total									***25,860***	
Core Elements										
Passenger Elevators: Basement		2	80					160		
Passenger Elevators: First Floor		2	80					160		
Passenger Elevators: Second Floor		2	80					160		
Passenger Elevators: Third Floor		2	80					160		
Passenger Elevators: Penthouse		0	80					0		
Freight Elevators: Basement		2	80					160		
Freight Elevators: First Floor		2	80					160		
Freight Elevators: Second Floor		2	80					160		
Freight Elevators: Third Floor		2	80					160		
Freight Elevators: Penthouse		2	80					160		
Elevator machine rooms		2	120					240		
Janitorial Closets		4	65					260		
Restrooms M & W: Ground		1	250					250		
Restrooms M & W: First Floor		1	250					250		
Restrooms M & W: Second Floor		1	250					250		
Restrooms M & W: Third Floor		1	250					250		
Increase for shower allowance		4	52					208		For Ground Floor
Telecom Main Entrance Room		1	200					200		
Telecom: Ground		2	80					160		
Telecom: First Floor		4	80					320		
Telecom: Second Floor		4	80					320		

FULL BUILDOUT - BUILDING INFRASTRUCTURE AREAS

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Telecom: Third Floor		4	80					320		
Data Main Entrance Room		1	200					200		
Data: Ground		2	110					220		
Data: First Floor		4	110					440		
Data: Second Floor		4	110					440		
Data: Third Floor		4	110					440		
Secuity Main Entrance Room		1	150					150		
Secuity: Ground		2	100					200		
Secuity: First Floor		4	100					400		
Secuity: Second Floor		4	100					400		
Secuity: Third Floor		4	100					400		
Electrical: Main Entrance Room		0	400					0		
Electrical: First Floor		4	80					320		
Electrical: Second Floor		4	80					320		
Electrical: Third Floor		4	80					320		
Electrical: Penthouse		1	80					80		
Air Shafts: First Floor		2	160					320		
Air Shafts: Second Floor		2	160					320		
Air Shafts: Third Floor		2	160					320		
Plumbing Chases: First Floor		50	10					500		
Plumbing Chases: Second Floor		50	10					500		
Plumbing Chases: Third Floor		50	10					500		
sub-total									***10,758***	

FULL BUILDOUT - BUILDING INFRASTRUCTURE AREAS

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Architectural Elements										
Exterior wall thickness		4,000	13					4,333		exterior wall 16" thick (avg.)
Structural Columns per typical floor		300	4					1,200		17000 sf per floor per wing
Interior Walls at 5% of net spaces		4%	130,711					5,228		
Premium for Soils										
Premium for Seismic										
sub-total									***10,762***	
Penthouse										
Air Handlers		3	3,000					0		roof mounted
Filters		3	300					900		includes space around equipment
Cooling Towers		4	1,000					0		roof mounted
sub-total									***900***	
Mechanical Space										
Chiller		1	1,000					0		pad mounted
Boiler		2	800					1,600		Service Level
Pumps		1	1,000					1,000		Service Level
Compressor		1	80					80		Service Level
Steam PRV		0	150					0		Service Level
DI Water System		1	80					80		Service Level
Compressed Air		1	80					80		
Vacuum Pump		1	80					80		Service Level
Neutralization		1	150					150		Service Level
Building Automation System (BAS)		1	120					120		Service Level
Fire Pump Room		1	150					150		Service Level
Switch Gear		1	500					500		Service Level
Automatic Transfer Switch (ATS)		1	100					100		Service Level
Emergency Generator		1	800					800		Service Level
UPS Panel Room		1	300					300		Service Level
UPS Battery		1	500					500		Service Level
sub-total									***4,740***	
TOTAL BUILDING INFRASTRUCTURE PROGRAM									***53,020***	
Net to Gross Factor									*71%*	

BUILDING INFRASTRUCTURE AREA - Module 1

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Circulation										
Primary Circulation: Basement		0	0					0		6.5' wide corridor
Primary Circulation: First Floor		220	0					0		6.5' wide corridor
Primary Circulation: Second Floor		220	0					0		6.5' wide corridor
Primary Circulation: Third Floor		220	0					0		6.5' wide corridor
Ghost Corridor: First Floor		220	0					0		6.5' wide corridor
Ghost Corridor: Second Floor		220	0					0		6.5' wide corridor
Ghost Corridor: Third Floor		220	0					0		6.5' wide corridor
Future expansion / staff corridor		0	6.5					0		6' wide + door alcoves
Door alcoves		10	15					150		
2 Story Space (35' High Space)		0	2,700					0		
Stairs: Basement		0	300					0		
Stairs: First Floor		2	200					400		
Stairs: Second Floor		2	200					400		
Stairs: Third Floor		2	200					400		
Stairs: Penthouse		1	200					200		
sub-total									***1,550***	
Core Elements										
Passenger Elevators: First Floor		1	80					80		
Passenger Elevators: Second Floor		1	80					80		
Passenger Elevators: Third Floor		1	80					80		
Passenger Elevators: Penthouse		0	80					0		
Freight Elevators: First Floor		1	100					100		
Freight Elevators: Second Floor		1	100					100		
Freight Elevators: Third Floor		1	100					100		
Freight Elevators: Penthouse		1	100					100		
Elevator machine rooms		2	120					240		
Janitorial Closets		2	64					128		
Restrooms M & W: Ground		1	200					200		
Restrooms M & W: First Floor		1	180					180		
Restrooms M & W: Second Floor		1	180					180		
Restrooms M & W: Third Floor		1	180					180		
Increase for shower allowance		0	50					0		For Ground Floor
Telecom Main Entrance Room		1	180					180		
Telecom: Ground		1	80					80		
Telecom: First Floor		1	80					80		
Telecom: Second Floor		1	80					80		
Telecom: Third Floor		1	80					80		
Data Main Entrance Room		1	180					180		
Data: Ground		1	80					80		
Data: First Floor		1	80					80		
Data: Second Floor		1	80					80		
Data: Third Floor		1	80					80		

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Secuity Main Entrance Room		1	180					180		
Secuity: Ground		1	80					80		
Secuity: First Floor		1	80					80		
Secuity: Second Floor		1	80					80		
Secuity: Third Floor		1	80					80		
Electrical: Main Entrance Room		1	80					80		
Electrical: First Floor		1	80					80		
Electrical: Second Floor		1	80					80		
Electrical: Third Floor		1	80					80		
Electrical: Penthouse		1	80					80		
Air Shafts: First Floor		0	180					0		
Air Shafts: Second Floor		2	150					300		
Air Shafts: Third Floor		2	150					300		
Plumbing Chases: First Floor		30	8					240		
Plumbing Chases: Second Floor		30	8					240		
Plumbing Chases: Third Floor		30	8					240		
sub-total									***4,728***	
Architectural Elements										
Exterior wall thickness		2,500	13					2,708		exterior wall 15" thick (avg.)
Structural Columns per typical floor		120	4					480		18000 sf per floor
Interior Walls at 5% of net spaces		4%	60,193					2,402		
Premium for Soils										
Premium for Seismic										
sub-total									***5,590***	
Penthouse										
Air Handlers		1	3,000					0		Roof Mounted
Filters		1	300					300		includes space around equipment
Cooling Towers		1	1,000					0		roof mounted
sub-total									***300***	

Projected Area Requirements Net Square Feet (NASF)

	Staff 2017	Qty	Room Area	Office & Support	Open Lab	Enclosed Lab	Specialty Lab	Building Support	Total	Notes
Mechanical Space										
Chiller		1	0					0		pad mounted
Boiler		1	400					400		Service Level
Pumps		1	400					400		Service Level
Compressor		1	80					80		Service Level
Steam PRV		0	0					0		Service Level
DI Water System		1	50					50		Service Level
Compressed Air		1	50					50		
Vacuum Pump		1	50					50		Service Level
Neutralization		1	150					150		Service Level
Building Automation System (BAS)		1	100					100		Service Level
Fire Pump Room		1	100					100		Service Level
Switch Gear		1	400					400		Service Level
Automatic Transfer Switch (ATS)		1	100					100		Service Level
Emergency Generator		1	0					0		Outdoor Unit
UPS Panel Room		1	400					400		Service Level
UPS Battery		1	600					600		Service Level
sub-total									***2,880***	
TOTAL BUILDING INFRASTRUCTURE PROGRAM									***15,048***	
Net to Gross Factor									*71%*	

Laboratory Space Requirements: Module #1 of Unified State Laboratory

Department of Health Laboratories	Existing Square Footage	Programmed Square Footage
Microbiology	6,200	15,103
Chemistry	7,250	17,139
Laboratory Improvement	7,600	5,928
Management Services	2,400	2,589
Director's Office – Administration	500	1,097
Forensic Toxicology	2,550	4,908
Building Support		13,428
Total Net Square Footage	26,500	60,193
Total Gross Square Footage	40,730	75,241

Laboratory Space Requirements: Module #2 of Unified State Laboratory

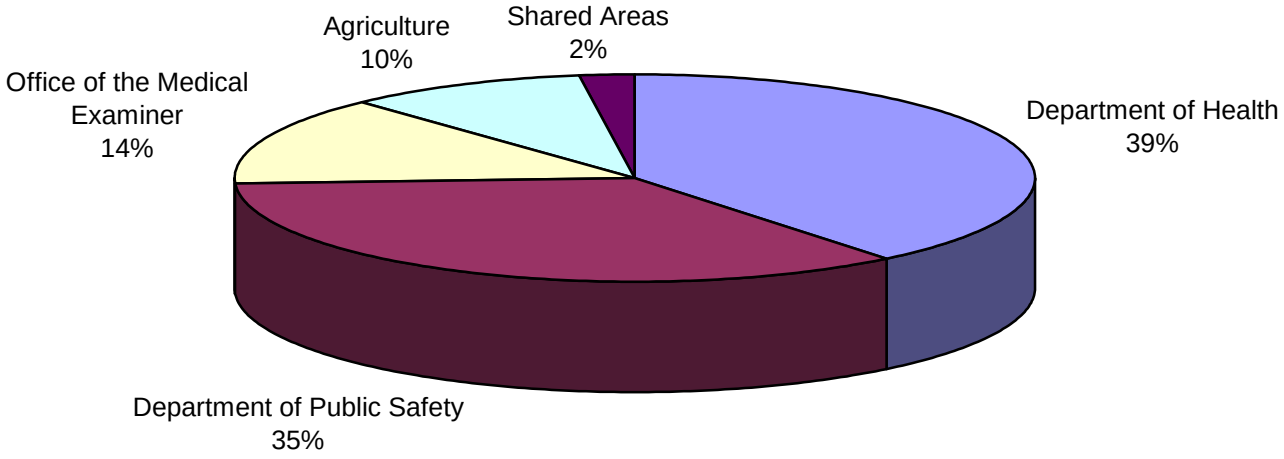
Department of Agriculture and Food and Office of the Medical Examiner Laboratories	Existing Square Footage	Programmed Square Footage
Department of Agriculture and Food	20,500	22,279
Offcice of the Mediacl Examiner	10,000	16,703
Building Support		10,000
Shipping / Receiving Area		2,428
Total Net Square Footage	30,500	51,410
Total Gross Square Footage - DOAF	3,700	
Total Gross Square Footage - OME	16,803	
Total Gross Square Footage - Module 2	20,503	59,973

Laboratory Space Requirements: Module #3 of Unified State Laboratory

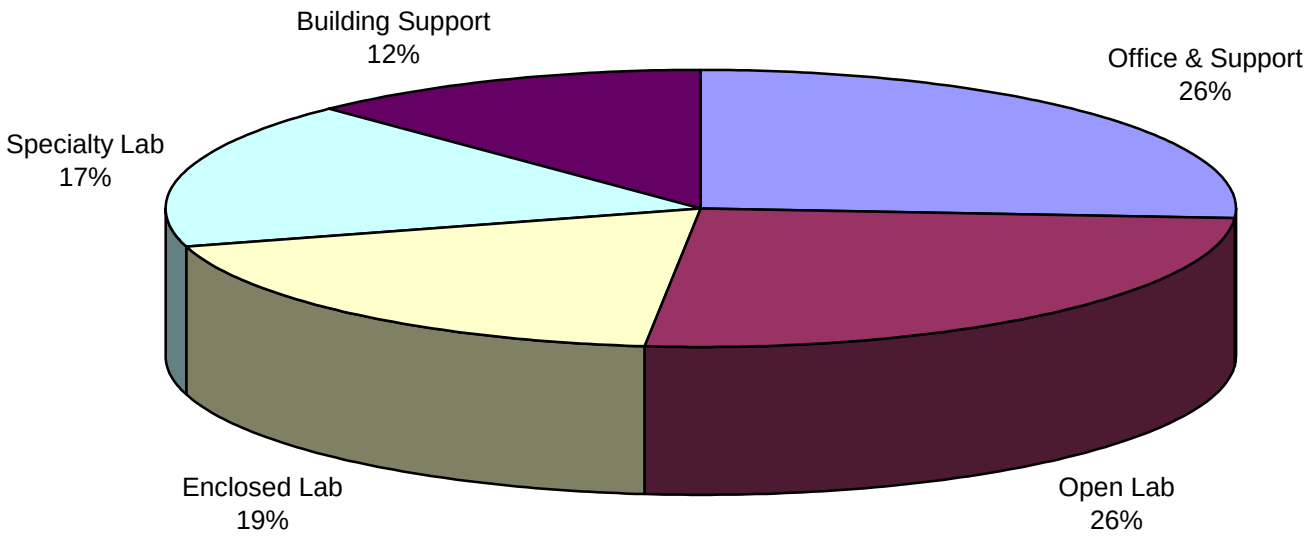
Department of Public Safety	Existing Square Footage	Programmed Square Footage
Forensic Laboratories	22,000	31,536
Building Support		10,000
Shipping / Receiving Area		1,900
Total Net Square Footage	22,000	43,436

Total Gross Square Footage - Module 3	38,714	48,518

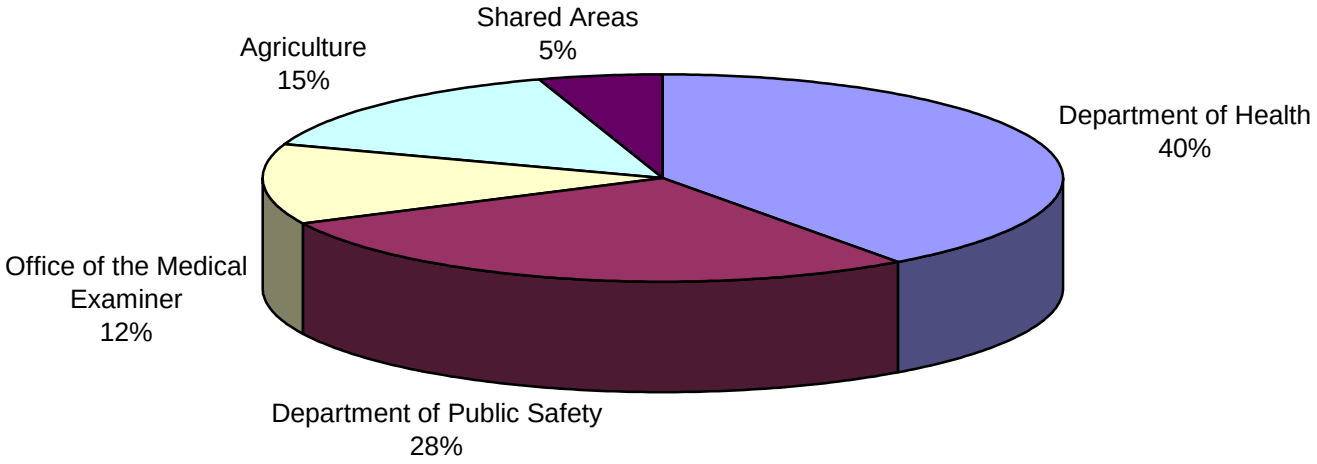
Staff 2017


Agriculture
10%
Shared Areas
2%
Office of the Medical
Examiner
14%
Department of Health
39%
Department of Public Safety
35%

Program Components



Departmental Square Footage Allocation



Site Analysis

Introduction – 2.1
Proposed Sites – 2.2
Evaluation Criteria – 2.3
DoD Setback Requirements – 2.4
Site Components – 2.5

Introduction

The State of Utah identified five locations in the Salt Lake Valley as having the potential to become the site of the Unified State Laboratory. These sites were selected based upon the physical space needs of the project as determined through an initial planning exercise completed by the Planning and Programming Steering Committee. From the initial planning exercise it was concluded that the facility would require a parcel of land approximately 5 acres in size and possess the required utility infrastructure. In order to defray capital costs, land currently owned by the State would be selected.

In addition to the space requirements, the new Unified State Laboratory site would need to provide an easily defensible security perimeter and regulated parking. These are issues that the existing locations of the four departments find unsatisfactory. Another critical element the selected site must have is adequate and nearby access to the region's interstate highway system. Many large capacity trucks make frequent deliveries to the facilities. Close proximity and access to Interstate 15 or 215 would be mandatory to the active transport process of the state's laboratories.

Other important site elements include access to municipal transportation systems for staff members, amenities such as local restaurants and other service oriented establishments, views to the surrounding landscape, a location central to the Salt Lake Valley, and subsurface soil conditions conducive to support a multi-story building and drainage. These as well as other qualitative aspects were considered and analyzed in the evaluation portion of this section.

The five sites identified by the State and evaluated in this Site Analysis as listed in the pre-programming documentation are:

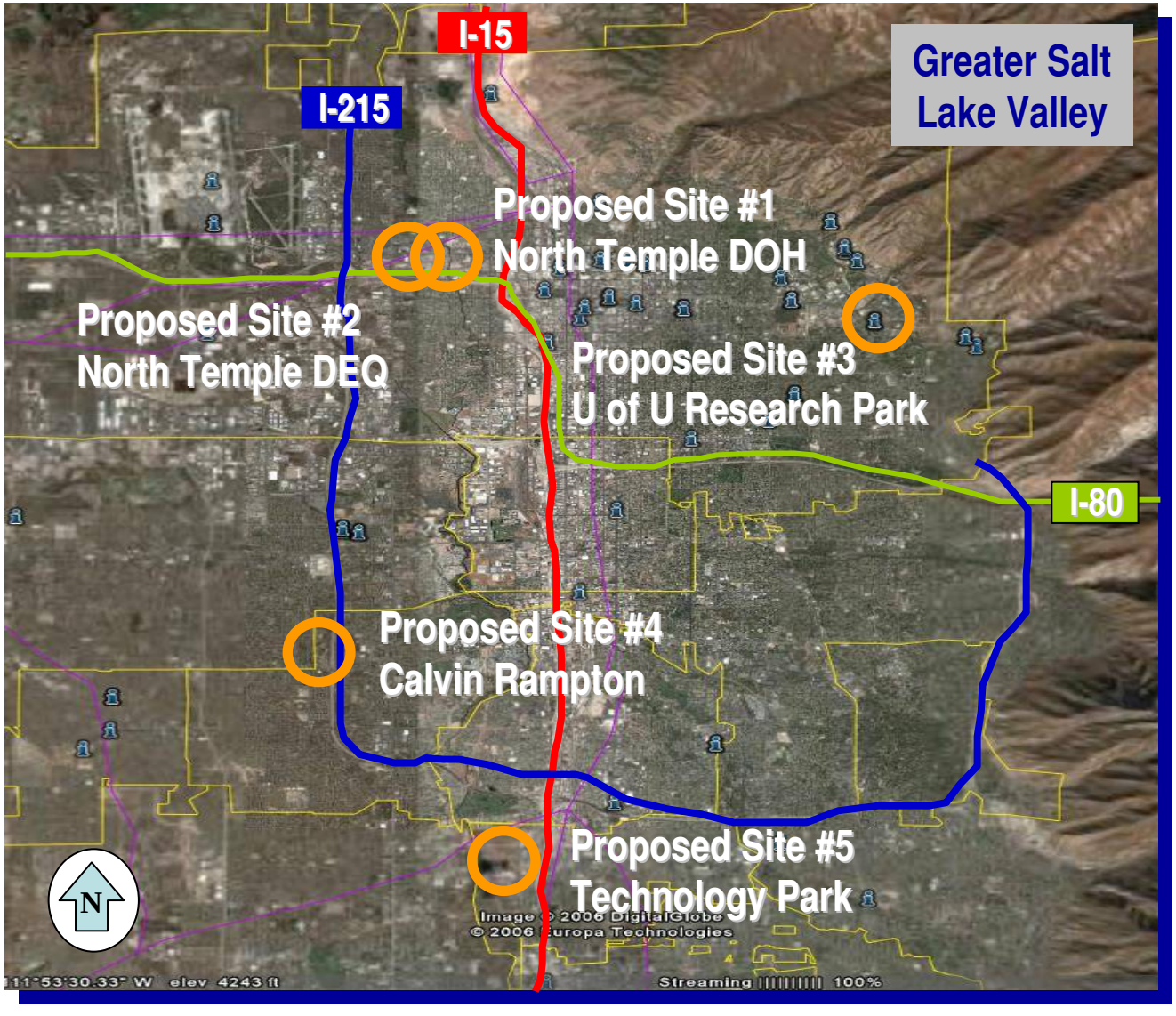
1. North Temple Site #1 – between the current DOH and DAF
2. North Temple Site #2 – near the current DEQ
3. University of Utah Research Park – below the Huntsman Headquarters.
4. Calvin Rampton Site – near the current Crime Lab
5. Proposed Technology Park – 7200 South 700 West

The results of the Site Analysis ranks the sites for the construction of all three modules of the Unified State Laboratory accordingly;

Ranking

#1 Calvin Rampton Site - near the current Crime Lab
#2 Proposed Technology Park -7200 South 700 West
#3 University of Utah Research Park – below the Huntsman Headquarters.*
#4 North Temple Site #1 – between the current DOH and DAF
#5 North Temple Site #2 – near the current DEQ

* If it were determined that Module 1 would be the only portion of the program to be constructed, then the site in University of Utah Research Park would be the preferred location of the project due to Public Health Laboratory's strong relationship to the University of Utah and the hospital environment that exists near the site.



Site #1 – North Temple… between DOH & DAF

Site #2 – North Temple… near DEQ

Site #3 – University of Utah Research Park

Site #4 – Calvin Rampton Site… near current Crime Lab

Site #5 – Proposed Technology Park @ 7200 South 700 West

Area currently designated as Site #1 – approximately 6.4 Acres

Panoramic View of Site #1

View looking East

View looking North

View looking West

View looking South

OBSERVATIONS

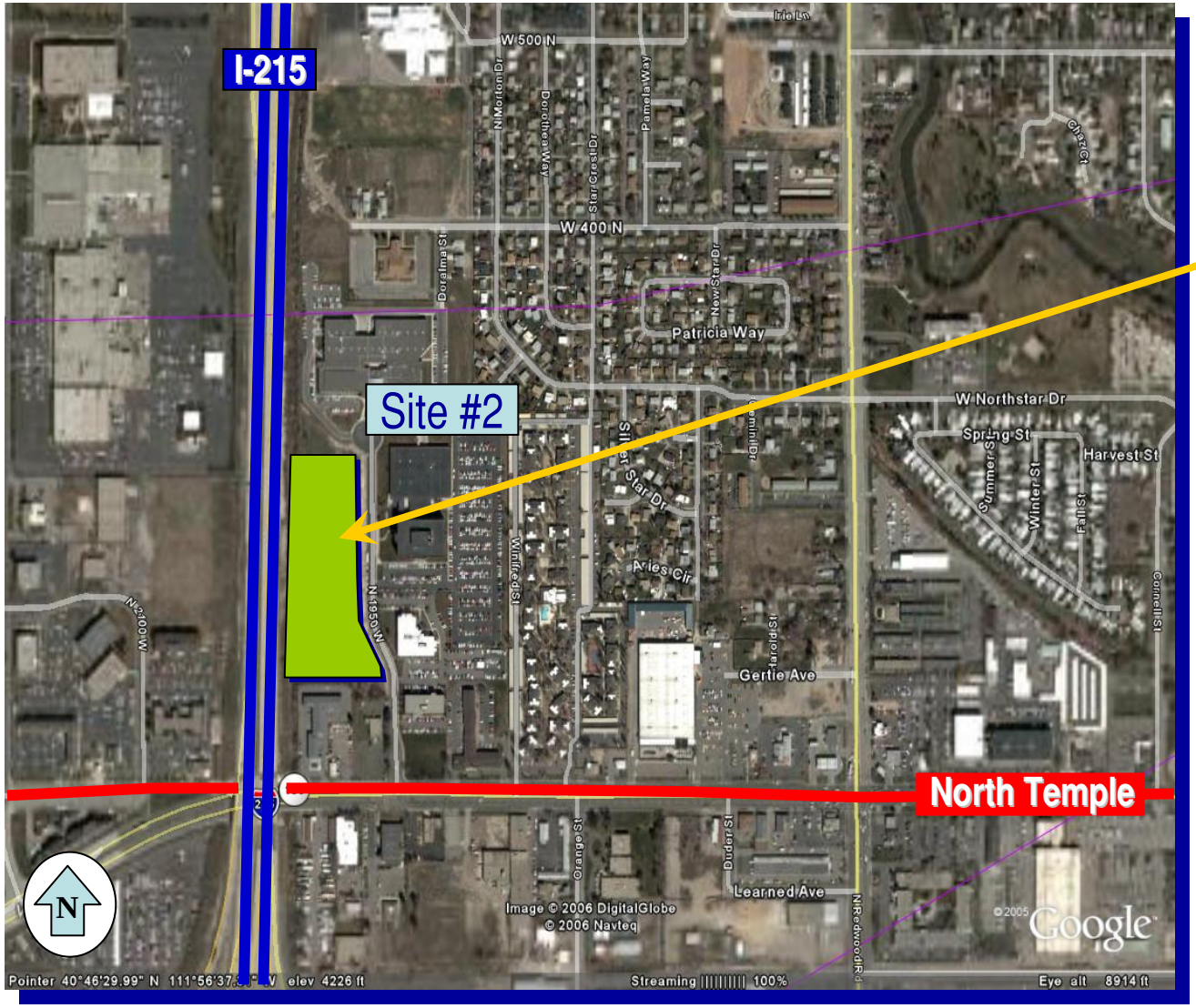
3 - 4 Acres are available for construction
Soils are generally soft to firm clay with some sand lenses
Distant views to surrounding mountains & landscape
Located between DOH & DAF

POSITIVE ASPECTS

- Near existing related facilities
- Existing contiguous parking
- Good Proximity to major thoroughfares & Transportation routes
- Future TRAX line on North Temple
- Flat site - ease of development
- Utility services availability
- Currently owned by the State

NEGATIVE ASPECTS

- Proximity to Residential Neighborhoods
- Basement limitations due to high ground water table (2-6 feet below existing grade)
- Structural fill (1-3 feet) required for foundations
- Requires incorporating existing Public Park.
- Questionable security standoff
- Limited expansion capabilities



Area currently designated as Site #2 – approximately 5.4 Acres

Panoramic View of Site #2

View looking East

View looking North

View looking West

View looking South

OBSERVATIONS

7 – 8 Acres are available for construction
Adjacent to Interstate 215
Undeveloped site
Soils are generally soft to firm clay with some sand lenses
Distant views to surrounding mountains & landscape

POSITIVE ASPECTS

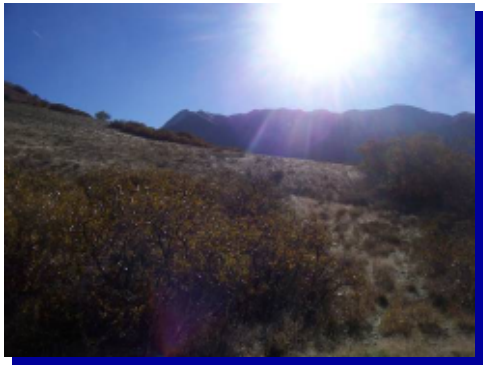
- Good proximity to major thoroughfares & transportation routes
- Future TRAX line on North Temple
- Flat undeveloped site
- Utility services availability
- Currently owned by the State

NEGATIVE ASPECTS

- Noise and vibration concerns due to proximity to I-215.
- Air monitoring could not tolerate the conditions
- Basement construction limitations due to high ground water table (2-6 feet below existing grade)
- Structural fill (1-3 feet) required
- Narrow site conditions
- Questionable security standoff

Area currently designated as Site #3 – approximately 3.5 Acres

Panoramic View of Site #3



View looking East

View looking North

View looking West

View looking South

OBSERVATIONS

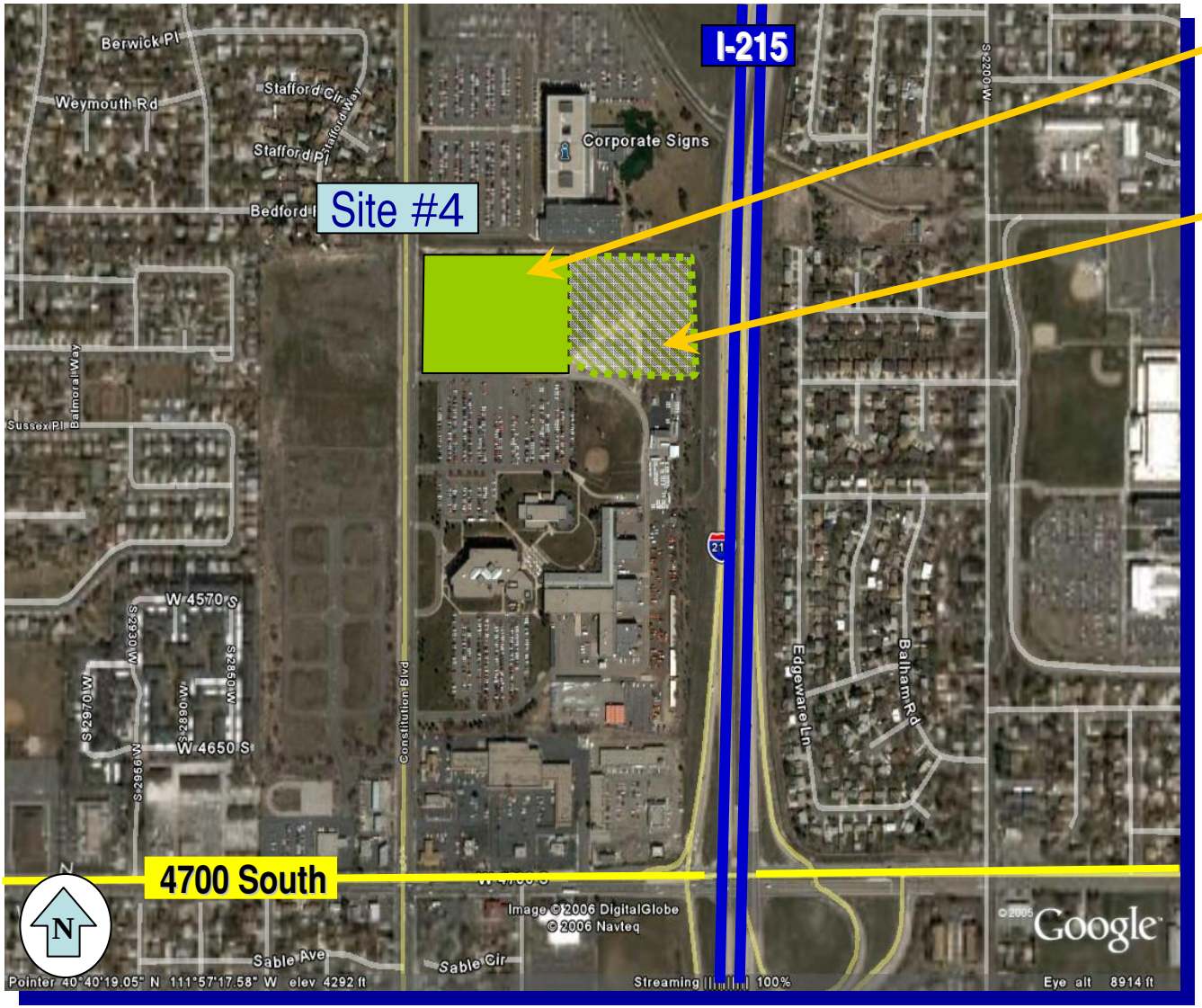
7 – 8 Acres are available for construction
Undeveloped sloping site on the bench
Located near the University of Utah & Hospital

POSITIVE ASPECTS

- Great views to the valley & distant mountains
- Access to the university research setting
- Proximity to public health organizations & hospitals
- High bearing capacity soil

NEGATIVE ASPECTS

- Total area limitations
- Research Park has height limitations
- Truck deliver access to the park is difficult
- Steep sloping site
- Utility services access
- Not currently owned by the State
- Future development limitations



Area currently designated as the available site – approximately 7 Acres

Area of additional acreage to be considered by the State for availability for the site of the Unified State Lab – approximately 6 Acres

Panoramic View of Site #4

View looking East

View looking North

View looking West

View looking South

OBSERVATIONS

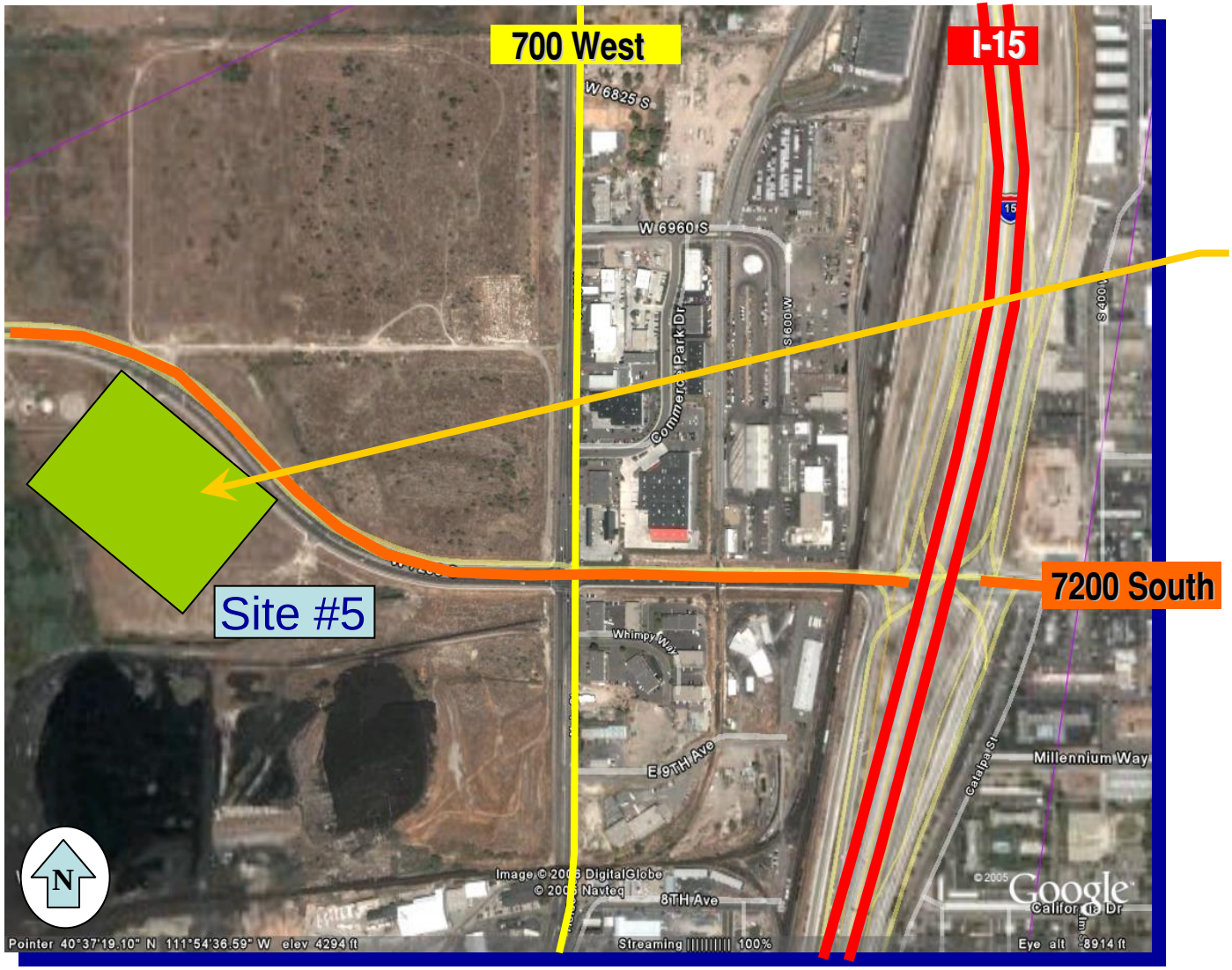
4 - 6 Acres are available for construction
Located adjacent to I-215
Centrally located in the Salt Lake Valley

POSITIVE ASPECTS

- Currently owned by the State of Utah
- Near existing related facilities
- Existing contiguous parking
- Close proximity to major thoroughfares & Transportation routes
- Views to the surrounding landscape & distant mountains
- Good future development possibilities w/ additional available land
- Strong political support

NEGATIVE ASPECTS

- Site is situated in the flight path for SLC Airport



Area currently designated as Site #5 – approximately 11 Acres

Panoramic View of Site #5

View looking East

View looking North

View looking West

View looking South

OBSERVATIONS

8 - 10 Acres are available for construction
Gradually sloping site
Under current development
Centrally located in Salt Lake Valley

POSITIVE ASPECTS

- Close Proximity to major thoroughfares
- Future TRAX spur scheduled for 2009
- Future Hospital to be constructed nearby
- Good future development possibilities
- Possible financial benefits from developer

NEGATIVE ASPECTS

- Existing Superfund Site
- Indecisive ownership & contractual arrangements

Available Acreage
- Min. of 9 acres required

Image Potential to the Public
- Positive, safe, inviting

Residential Proximity
- Adequate buffer zone between the site & the nearest residential neighborhood

Transportation
- Staff/sample/evidence/public

Potential for Site Security
- Meets DoD Standoff Requirements

Amenities
- Restaurants, business, support services

Infrastructure
- Roads, utility availability – power, water, sewer

Neighbors
- Public perception, security, commonalities

Future Land Use/Availability
- Space for expansion and/or addition

Current Zoning
- Appropriate, limitations, setback requirements

Environmental Considerations
- Appropriate land use, remediation needs

Orientation
- Views, day lighting options, prevailing winds

Purchase Price/Impact Fees
- Economical, leasing options

Political/Partnering Impacts
- Legislative support, business relationship potential

Geology/Topography
- Subsurface conditions, soil capacity, site drainage

Evaluation Matrix

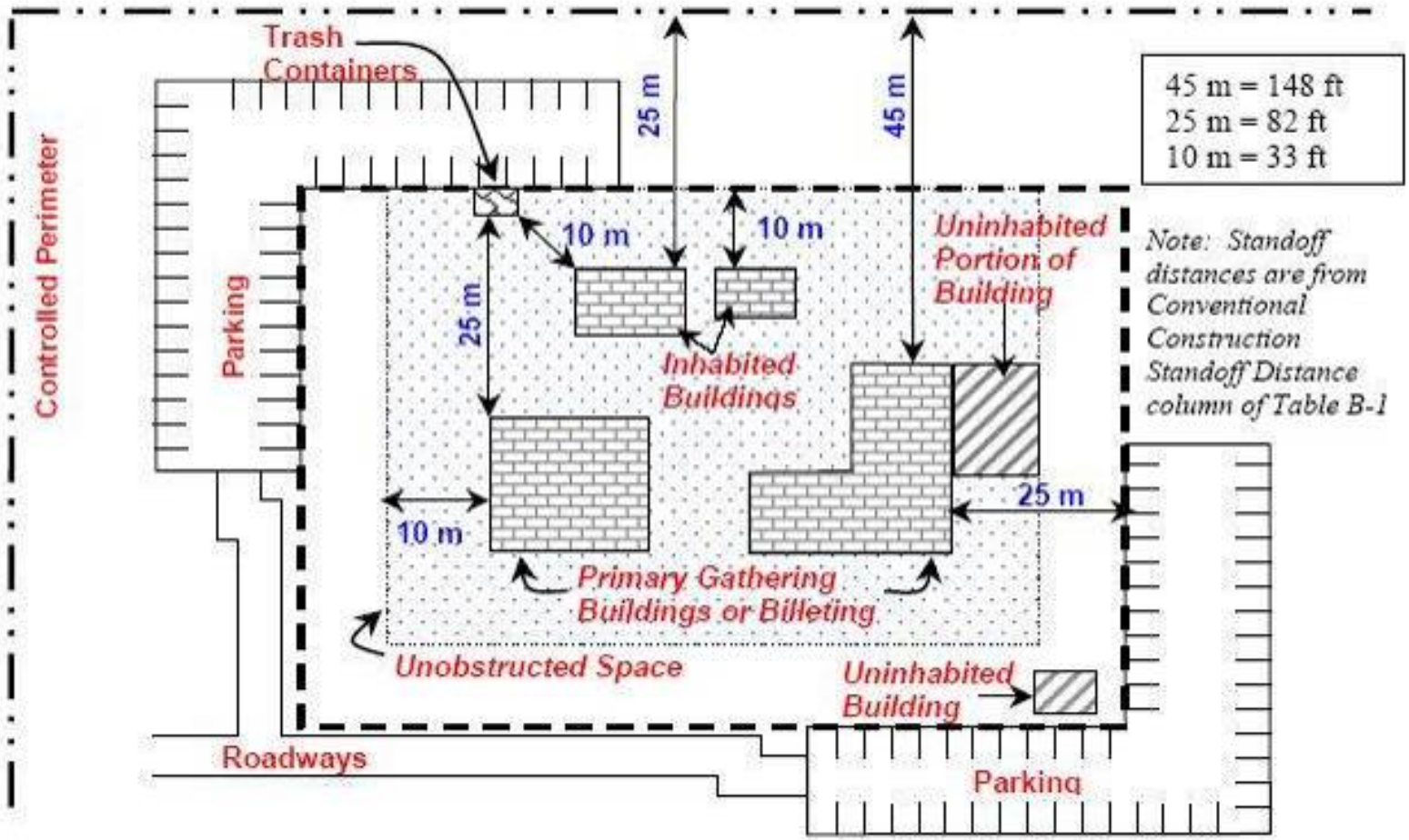
Based upon the criteria used to evaluate the 5 sites, the recommended location for the proposed Unified State Laboratory is Site #4 Calvin Rampton. The only limiting factor of Site #4 is the available acreage to meet DoD standoff requirements. This however, can be mitigated with the acquisition of additional acreage adjacent to the designated site that is currently under utilized or being vacated by other state agencies. Further discussions and decisions by the State of Utah concerning the development of the land adjacent to the proposed site is required. If only Module 1 were to be constructed then based upon the important relationship the Department of Health has to the University of Utah, Site #3 would be the preferred location of the project.

Ranking	Site Location	Available Acreage	Image	Residential Proximity	Transportation Access	Amenities	Secure Perimeter	Infrastructure	Zoning	Purchase Price	Neighbors	Future Land Use	Geography/Topo	Orientation	Political/Partner	Environmental
5	**Site #1 – North Temple DOH**	Poor	Neutral	Poor	Neutral	Neutral	Neutral	Neutral	Good	Neutral	Poor	Poor	Neutral	Neutral	Neutral	Neutral
4	**Site #2 – North Temple DEQ**	Poor	Neutral	Neutral	Neutral	Neutral	Poor	Neutral	Good	Neutral	Poor	Poor	Neutral	Neutral	Neutral	Neutral
3	**Site #3 – U of U Research Park**	Poor	Good	Good	Neutral	Neutral	Good	Neutral	Good	Poor	Neutral	Neutral	Poor	Good	Good	Neutral
2	**Site #5 – Technology Park**	Good	Neutral	Neutral	Good	Neutral	Good	Good	Good	Neutral	Good	Good	Good	Neutral	Neutral	Neutral
1	**Site #4 – Calvin Rampton**	Good	Neutral	Neutral	Good	Neutral	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good

Good Neutral Poor

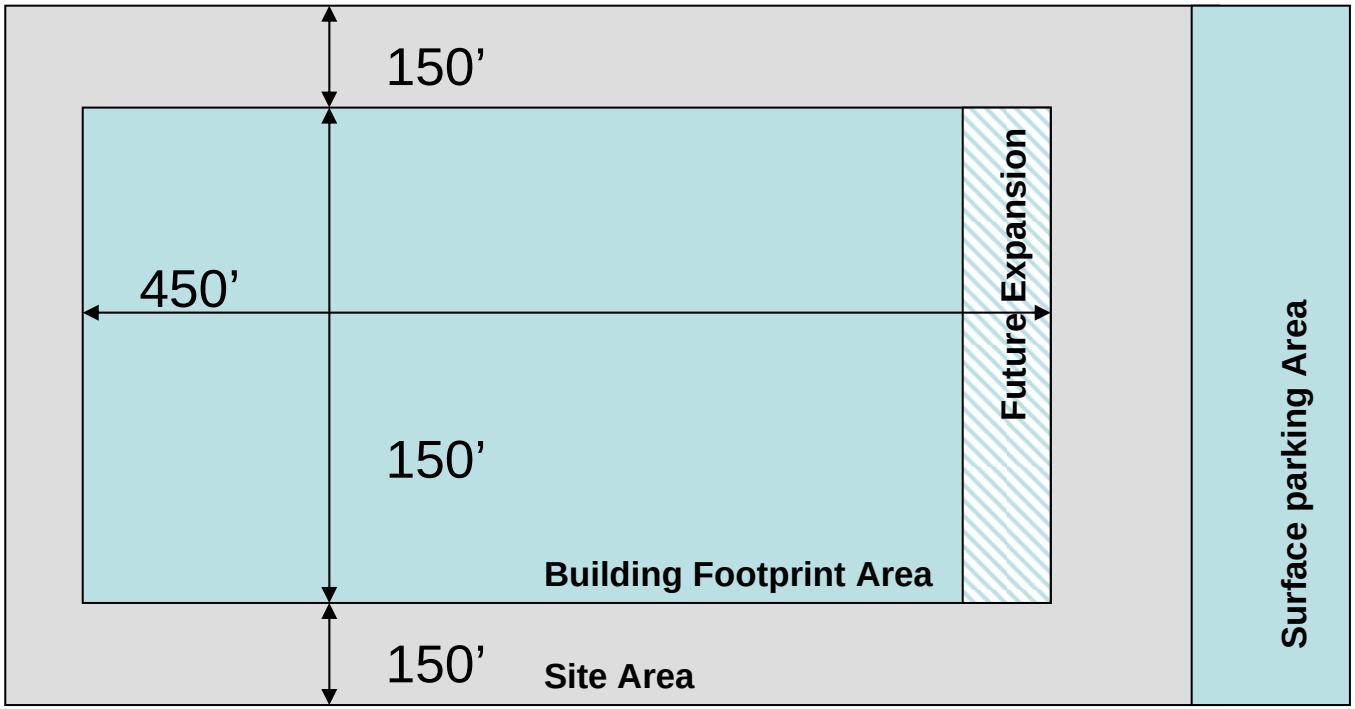
Per the Department of Defense's Unified Facilities Criteria (UFC) operational, logistic, and security requirements must be integrated into the overall design of buildings, equipment, landscaping, parking, roads, and other features. The most cost-effective solution for mitigating explosive effects on buildings is to keep explosives as far as possible from them. Standoff distance must be coupled with appropriate building hardening to provide the necessary level of protection to the building occupants. The diagram on the next page identifies the minimum standoff distances required for the Unified State Laboratory. Achieving theses distances in the placement of the facility on the site will allow for the building to be built with minimal additional construction costs. Where these standoff distances cannot be achieved because land is unavailable, these standards allow for building hardening to mitigate the blast effects. Additional detail of the security setback requirements can be found in the Unified Facilities Criteria (UFC) DoD Minimum Antiterrorism Standard for Buildings published by the Department of Defense.

The diagram below is illustrates the Department of Defense building setback requirements for various elements of a high risk facility such as the Unified State Laboratory. These requirements have been establish to minimize the costs associated with building hardening requirements, necessary to ensure a more safe working environment for the occupants.



This diagram illustrates some of the key components that combine to impact the size of the site required by all three modules of the Unified State Lab. In order to ensure that each can be appropriately accommodated approximately 9.2 acres of developable land would be required. Of the five sites proposed for the project only site number 5 meets this critical criteria.

- Building Footprint Area = 67,500 gsf (Two wings @ 30k/wing+50' expansion)
- Site w/perimeter = 337,500 gsf
- Parking = 65,000 gsf (Surface parking 200 Cars@ 330gsf/car)
- Site required for total build-out of all three modules = 9.2 acres
- Height Requirements = 74' (3 Floors@16'+26'Penthouse)



Building Performance Requirements

The following is a breakdown of the Building Performance Requirements for the Unified State Laboratory.

Code & Guidelines – 3.1
Individual Space Outlines – 3.2
Materials and Construction – 3.3
Mechanical Systems Description – 3.4
Plumbing and Fire Protection – 3.5
Electrical Systems Description – 3.6

Applicable Codes & Guidelines

The following building codes are applicable to the design and construction of the State of Utah Unified State Laboratory. While a detailed inclusive list of design codes and guidelines is not provided here; the intent is for the design and construction to consider and follow the latest accepted user and industry standards where applicable to ensure that the safety and welfare of the occupants is assured to the fullest extent possible.

Building Codes:
2006 International Building Code
2006 International Plumbing Code
2006 International Mechanical Code
2006 International Electrical Code
2006 International Fire Code
2006 International Energy Conservation Code

ADA: Drawings and specifications shall comply with all current accessibility requirements and Federal regulations. When there is a conflict between the ADA requirements and the State adopted codes, the more restrictive shall apply.

Design Guidelines:

Biosafety in Microbiological and Biomedical Laboratories, Latest Edition.
Agricultural Research Specifications (ARS)
Recommended Lighting for Exterior Environments
SMACNA: Sheet Metal and Air Conditioning Contractors National Association Architectural Sheet Metal Manual.
Unified Facilities Criteria (UFC) DoD Minimum Antiterrorism Standards for Buildings

State of Utah Energy Efficiency Program

As part of the State of Utah's request to reduce the energy consumption of all state owned and operated buildings, the Unified State Laboratory must consider in its design as many of the energy saving elements described in the recently developed and approved State of Utah Energy Efficiency Program as conceivably possible.

Individual Space Outlines

Program Overview

The proposed facility, including all three modules delineated in section 1.1 for the DOH, DPS, DAF, and OME is programmed at 183,731 gross square feet (including corridors, stairs, mechanical space, building support etc). The total net square feet programmed for the using all of the agencies combined is 130,711. The general description of the stacking and arrangement of the program for this facility is as follows:

A. First Floor

The first floor, or floors, depending upon the composition of the program for funding, should house all programs that require access at grade from a public entry. Programs on the first floor include: cafeteria, training laboratories and classrooms, building lobby and public entry, and staff entry. The laboratories located on the first floor (training laboratory and central accessioning laboratories) require both access at grade, and access from a secure specimen/service corridor. The Forensic Labs (evidence receiving dock) should have access at grade to their enclosed loading dock. The Office of the Medical Examiner may be a one or two story building. If designed as a two story building, the administrative function should be on the upper floor, yet accessible by the public. Given the sensitive nature and frequency of the morgue deliveries, the OME should have a loading dock that is separate and secure from the other loading docks of the building.

The DAF Metrology and Fuels Labs should be housed on the first floor near the loading dock. This should facilitate loading of equipment and weights and keep quantities of fuels out of the building.

The First Floor comprises all programs requiring access to a loading dock: central accessioning/receiving, warehouse, storage areas, building shops, and mechanical space. The accessioning laboratories are located next to the shipping and receiving docks on the service level. After samples are logged in, they are transported directly to the Public Health laboratories via the service elevator. An Unknowns Laboratory with a Class III glove box and walk-in fume hood is located adjacent to the accessioning laboratories for handling biological or chemical samples with a high-risk assessment or unknown origin.

The Bulk Storage Warehouse, Hazardous Material Storage areas, and shop functions are also located near the service elevator and the docks. The remainder of the service level is dedicated to mechanical equipment for the facility. The Training Lab should have access to the lobby, with “back door” access to the service corridor and Central Accessioning. Since the Training Lab should be configured similarly to a general laboratory, it can be used as surge space during public health events by reconfiguring and securing access to the public corridor.

The administrative offices for all groups should be located on the first floor to give each department its own identity. Depending upon site constraints and the one or two story configuration, OME may be more appropriate to assign their administration and

investigation components to the upper floor, leaving the autopsy components and delivery access to the lower floor.

B. Second Floor
The DOH Chemistry Labs, the DAF Chemistry Labs, the Forensic Toxicology Labs and support areas should be located on the second floor. Small office areas for staff supervisors and associated support should be located adjacent to the laboratory blocks. Areas that promote casual interaction (break room, conferencing) should also be located adjacent to the labs. Views should be maximized into the laboratories for supervision and public tours. Access to the second floor laboratories should be limited to laboratory staff and escorted visitors only.

C. Third Floor
The DOH Biology Labs, the DAF Biology Labs, the Forensic Laboratory and support areas are located on the third floor. Small office areas for staff supervisors and associated support should be located adjacent to the laboratory blocks. Areas that promote casual interaction (break room, conferencing) are also located adjacent to the labs. Views should be maximized into the laboratories for supervision and public tours. Access to the third floor laboratories should be limited to laboratory staff and escorted visitors only.

D. Mechanical Penthouse
All the building air handling units, exhaust fans, and related HVAC equipment are housed in an enclosed rooftop penthouse, if the project budgets permits. Otherwise the air handling units, exhaust fans and other related HVAC equipment appropriate for exterior conditions may have to be located on the roof behind screening elements. The mechanical penthouse or equipment area should be located directly above the BSL-3 laboratories and other utility intensive laboratories providing efficient distribution of utilities, maintenance, and modification of these areas. Mechanical systems and building infrastructure should be located in a mechanical room in the lower level with provisions for access to the exterior for replacement of large equipment in the future.

E. Disbursed Components
Conference facilities should be both centralized and distributed. The main conference center and break room should be centrally located on the first floor. The communicating stair should encourage connectivity to the upper floors. Conference, huddle, break room, and toilet facilities should be organized around this central node to encourage interaction between the occupants of the building, and to facilitate a logical “way-finding” system for the building.

Blocking and Stacking

The program components should be organized into the following categories:

A. Microbiology Laboratories

B. Chemistry Laboratories

C. Forensic Laboratories

D. Medical Examiner

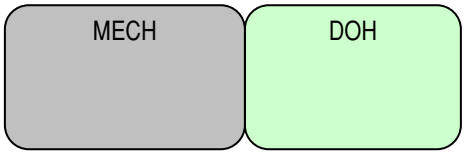
E. Administration

F. Central Accessioning

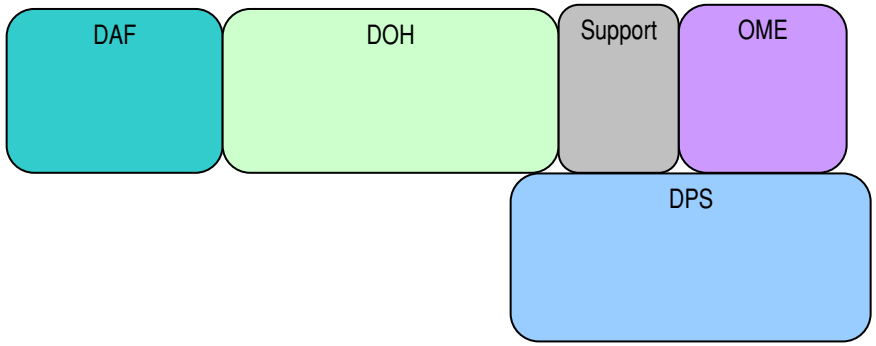
G. Building Infrastructure

The following diagrams illustrate the organization of the program components into an overall building composition:

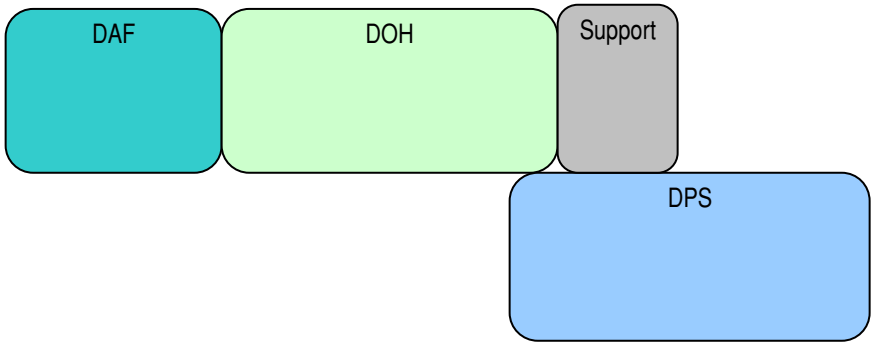
Service Level Blocking Diagram



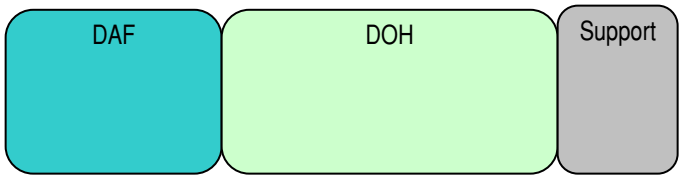
First Floor Blocking Diagram



Second Floor Blocking Diagram



Third Floor Blocking Diagram



Building Flow

The program functions within the building should be organized in response to the site context, the required segregation of personnel, work and material flows within the facility, security separations, and the development of an efficient and flexible

laboratory floor plate. The personnel work and material flows within the facility include:

A. Visitors
Visitors should use the main lobby entrance on the first floor and have immediate access to the laboratory training rooms, non-lab training conference rooms, and support areas. The security desk has visual control over the lobby and provides a registration and waiting area for visitors prior to being escorted through the facility. Departmental staff should escort visitors to their respective areas of business. Escorted visitors to the laboratories should be brought to the lab's visitor's entries located off of the central light well.

B. Laboratory Materials
Laboratory materials enter at the loading docks located at the north of the building. Incoming and outgoing materials should be staged on the Loading Dock and transported via a secure freight elevator up to the laboratories on the second and third floors or stored in the dock area for pickup.

C. Samples and Specimens
Samples and specimens should be brought into the building at the Loading Dock. Couriers proceed to an intake foyer where the packages are received and put through the shared Central Accessioning Laboratories prior to transport to the individual laboratories. Any samples of unknown origin can be placed into a Class III glove box or walk-in fume hood for further analysis prior to transport to the main laboratories.

D. Employees
Employees should use a dedicated employee entrance. Access to individual laboratory areas is controlled via proximity card readers. The personnel elevator is located in a semi-secure zone directly accessible off the main lobby. This staff entry is on the path of travel from the staff parking area to the building.

E. Evidence
Evidence received by the health lab should be at the loading dock and channeled to the Central Accessioning or the Unknowns Lab for processing before being move up to the lab floor for testing. The evidence for the forensic lab from evidence contributors should enter through a dedicated evidence entry at the back of the building in a more secure area of the site. The evidence entry comes into an evidence receiving lobby controlled by the forensic laboratory's evidence staff. In the next phase of work, the design team should look at an alternative approach to combine the evidence entry with the health lab accessioning area. Even if such a combined entry is implemented, the design should maintain a dedicated exterior evidence entry point, which can bee seen in the current design. This will help accommodate future needs as the lab and evidence staff grows.

F. Crime Scene Evidence
Due to the requirement to maintain strict chain of evidence at every aspect of the Crime Lab process, staff and visiting police officers submitting crime scene evidence for processing should enter and exit through a dedicated entry.

G. Crime Scene Response
A separate loading dock area should be dedicated exclusively to Crime Scene Response.

H. Medical Examiner
The Receiving Dock for the Medical Examiner should be completely separate from the other receiving docks of the facility due to the sensitive nature of the morgue operations.

Process Flow

Utah Unified State Laboratory - Program Descriptions Public Health and Agriculture Labs

A. Current Public Health and Agriculture Laboratory Issues

Since September 11, 2001 the mission of the state public health laboratory has expanded from serving the health and well-being of the state's residents to protecting and responding to the threat of terrorism. In the past, public health laboratories focused on diagnostic testing of the environment such as identifying water, ground, and air pollutants. The laboratories also conducted testing of residents for state and federal mandates for the tracking of illnesses and diseases. The future holds both a local view of response balanced with a national view organized in the Laboratory Response Network, or LRN. The LRN Mission is to maintain an integrated national and international network of laboratories that are fully equipped to respond quickly to acts of chemical or biological terrorism, emerging infectious diseases, and other public health threats and emergencies. The LRN should help channel resources and knowledge to all members and coordinate the efforts of response. This response has been seen in the resources channeled to the Gulf Coast after Hurricane Katrina where many states provided testing and on-site assistance.

The effort to respond to unknown events as well as the increased testing now required have led many states to work toward revamping and re-equipping their facilities to handle these threats. The federal government, through the National Institutes of Health, the Centers for Disease Control and Prevention, the United States Department of Agriculture, and the Department of Homeland Security, has been providing grants for equipment, facilities and training of staff. Many states have taken this opportunity to construct new facilities which should not only house this new equipment, but should also bring the laboratory up to date for ventilation, safety, security, biosafety, and control of access.

The specific changes in the mission of public health and agriculture labs include bioterrorism, chemical terrorism, radiological terrorism, and unknown sample accessioning. How these are received and processed requires new methods. The concept of a central accessioning facility to handle this function has been adopted by many states. The Central Accessioning Lab is responsible for the initial triage of samples, unpacking in a biosafety cabinet or fume hood, bar-coding the sample, logging into the LIMS, and organizing samples for delivery to the labs. The Unknowns Accessioning Lab is dedicated to evidence receiving, handling and storing. The lab should have a Class III glove box with receiving chamber, working chamber and dunk tank. This will insure that the sample will be secure, as well as contained.

The ability of the public health and agriculture laboratories as a first responder to events and outbreaks has created the need for a 24-hour operation and continuous operation during events. This has affected the building systems by requiring larger emergency generators, uninterruptible power to critical systems and equipment, redundant mechanical systems, selective decontamination ability to keep the facility running during decontamination, and the ability to headquarter and isolate the responders.

The ability to respond to all of the issues above requires that the laboratory have a significant number of staff capable and field personnel to deal with an event. The advent of the Training Laboratory for the public health lab has been developed. This lab includes a wet lab for new procedures and techniques, isolation for BSL-3 labs, fume hood and other similar equipment training. This lab can also function as a surge lab for event management. The placement of these labs in the building has been developed to allow open access for external staff training and to allow isolation for response to an event. The isolation can also allow an outside agency such as CDC, FBI, NIH etc. to "take over" the lab in an event for any unique personnel or security issue.

One of the trends that is impacting the day-to-day operation of the public health laboratories is the speed with which equipment changes. The ability of the lab to adapt to these changes should be critical in designing for the long term. The shift from fixed casework and bench top work to instruments for molecular analysis and automation has created a need for flexible work environments. The building response for this has been providing instrument tables and overhead service carriers. This allows reconfiguration to be made at little or no cost.

B. The State of Utah Public Health and Agriculture Laboratories

Below are the detailed descriptions of the function and the needs for each department in the Public Health Laboratory.

1. Administrative and Staff Support
   The offices for this group should be placed on the first floor. This creates a front door and identity to the department and the labs for the receiving of guests. All visitors should sign-in at the building lobby and be escorted to the administration area if they are not employees. The suite has a conference room, a filing area, an administrative support area, and offices for the departments.

2. Customer Service
   The Customer Service area handles all shipping and receiving for the facility. The largest component of this area is the preparation, receiving and distribution of test kits. These kits are prepared for a variety of tests including water testing, chemical analysis of volatiles, synthetics, pesticides, and radio nuclides. The group requires public interface for the distribution of kits to the general public and secure receiving for state couriers and third party shippers. Due to its dual nature, the location of this function requires special attention in its placement in the facility.

3. Laboratory Principles
   Personnel enter the laboratories from the communicating stair or elevator off secure corridors. Dedicated dry desk workstations should be provided along the window wall. Materials and samples enter the laboratories from the Central Specimen Corridor and can travel along a "ghost" specimen corridor between the open laboratories and support laboratories. Hazardous activities and fume hoods should be located at the back of the floor to minimize potential exposure to laboratory personnel at the workstation areas. Standard laboratory casework should be fixed painted steel cabinetry or wood with epoxy resin countertops.

   Open laboratories should be used wherever possible to facilitate future changes within each department and foster cross-departmental interaction. Natural daylight should be introduced into the laboratory areas through glazing on both sides of the building, except when it conflicts with the function of the laboratory. The interior corridors should each be glazed from 4'-0" AFF to ceiling to maximize this daylighting and transparency across the interior spaces as well as promoting safety in the ability to see into each laboratory.

   Building core elements (elevators, mechanical shafts, and stairs) and other spaces that do not benefit from daylight or views should be located at both ends of the building and the center of the building to minimize impact on the flexibility of the open laboratory.

   Wall protection should include a combination of stainless steel corner guards, aluminum wall rails, and fiber-reinforced cement panels at areas in the laboratories and corridors with a high degree of cart traffic.

4. Training Wet Lab
   The location of this lab should straddle the public and secure zones of the building. The lab should be adjacent to the conferencing, cafeteria, and classroom areas, which should allow it to function in a variety of settings on the public side. The lab is also connected via a secure door to the accessioning area. This should facilitate the lab being used for an event or surge capacity. The lab has two training BSL-3 labs, a fume hood training lab, storage room, and the lab is classed as BSL-2 spaces. This space can accommodate 10-12 trainees at any one time.

5. Microbiology
   The microbiology labs handle a wide range of samples for HIV, Gonorrhea, Chlamydia, Bacteria, Food, Influenza, Serology, etc.

   The microbiology group has a large quantity of six-foot wide biological safety cabinets on the second floor. A number of rooms should be designated for handling BSL-3 agents. Each of these rooms generally requires a Class II, Type A2 Biosafety cabinet with a thimble connection. Sterilizers should be used for decontamination of biological waste on the floor.

   a. The Bio-Terrorism Suite may become a shared BSL-3 suite which should include the Tuberculosis Labs, Food Terrorism, Mycology and the Viral BSL-3 Lab. This allows the sharing of the Changing Room, BSL-3 rooms, a pass-

through autoclave, an equipment decontamination room, a microscope room, a storage room, and a cylinder closet. The co-location of these spaces should better consolidate the HVAC, electrical, and piped services needed to maintain these labs.

As the changing needs of this section emerge, a Special Project Lab has been developed to develop methods and stage new equipment prior to entering the main lab. This lab should also serve as a surge lab for the seasonal fluctuation of samples and evidence.

6. Environmental Chemistry Lab
The chemistry group has a high concentration of fume hoods. Most should be six-foot and eight-foot wide bench top hoods with a vertical rising sash. Solvent and acid storage cabinets should be located either under or near the hood. Laminar flow polypropylene fume hoods should be required for specialized chemistry analysis using high concentration of acids. Shared safety equipment (fire extinguishers, emergency showers, etc.) is located along the "ghost" service corridor for central access to all occupants.

The Chemical Terrorism Lab is used to investigate chemically-related events. This lab should also serve to detect trace elements in the environment. The lab should have an anteroom to control dust and particulate. The lab is designed to be flexible with tables and overhead service carriers for instruments. This should allow the lab to respond to a variety of events and changes to equipment. A portion of the lab should be left open for equipment to store evidence and samples.

7. Laboratory Support:
The Public Health lab and the Agriculture Labs can share its Central Accessioning, Unknowns Accessioning, Glass Wash, and Media Prep.

The Central Accessioning Lab should be placed adjacent to the dock and the specimen elevator to facilitate the flow of the samples and evidence to the laboratories. The sharing of this function should eliminate the need for additional accessioning in the individual labs.

The Glass Wash Room should be house combination washer/dryer units, stainless steel scullery sinks, and tables for washing glassware. The Media Prep Laboratory should be have multiple autoclaves with clean steam generators for sterilizing glassware.

Utah Unified State Laboratory - Program Descriptions Office of the Medical Examiner

A. Current Medical Examiner Issues

The Office of the Medical Examiner (OME) is responsible for the medicolegal investigation and certification of all deaths by violence, gunshot, suicide or accident (except highway accidents), sudden death while in apparent health, unattended deaths, drug related deaths and cases where the death may be due to a cause that may endanger the health of the general

public. The OME is also a vital facility in times of disaster. The OME's office should be the chief state investigator of all disasters including earthquakes, airplane crashes, mine fires, terrorist attacks and other similar events.
The OME performs approximately 2000 investigations and nearly 1500 autopsies per year. This represents approximately 25% of all deaths in the state.

The OME serves a number of specific constituencies. The strongest physical relationships are with the State Laboratory and the University of Utah, School of Medicine. A major function of the OME is toxicological analysis of specimens obtained through the Medical Examiner's investigations. Nearly all the analyses are performed by the State Lab and a continuation of this arrangement is expected.

The OME is also heavily involved with the teaching and training of medical students, post-graduate medical scientists, and professionals in related health fields. This close relationship is reflected in the appointment of the Chief and the Assistant Medical Examiner to faculty positions at the University of Utah Medical School.

Law enforcement agencies and the legal community are the other major constituencies of the OME. The results of the Medical Examiner's investigation can lead to the filing or withdrawal of criminal charges in an individual case. The work the OME also has bearing in matters of civil liability and workmen's compensation. The collection, documentation, and preservation of evidence is the responsibility of the OME. The OME is also involved in the teaching of law enforcement personnel and law students.

B. The Office of the Medical Examiner

Below are the detailed descriptions of the function and the needs for each department in the Office of the Medical Examiner:

1. Laboratory Administration

The Laboratory Administration of the Office of the Medical Examiner serves as the administration component of the agency. It contains the offices of the key administration personnel including the Chief Medical Examiner, Deputy Chief Medical Examiner, Forensic Pathologists, the Management Services Coordinator, Resident Assistant and Medical Student Office and Secretarial Staff. In addition, it includes storage space for office supplies, filing and other administrative functions. The laboratory administration area should be located on the ground floor for ease in accessibility by the public, but also accessible by those assigned to work in the Autopsy/Morgue or Investigation Divisions of the OME.

The architectural detailing and finishes for the Laboratory Administration Division of the OME would include those typical of an office environment. Flooring would include carpeting in office areas and resilient flooring in service areas. Walls should be painted gypsum board, with sound attenuation considerations in private offices. Ceilings should be constructed of suspended acoustical tile in aluminum tracks.

The mechanical system should be standard general heating, ventilation and air conditioning for a typical office environment.

2. Autopsy/Morgue

The Autopsy Division of the OME is dedicated to the investigative requirements of suspiciously deceased individuals as described in the previous section. The various spaces included are, but not limited to Transport Reception, Body Receiving, General Body Storage, General Autopsy, Special Procedures Storage and Autopsy, X-Ray Radiology, Histology Lab, Tissue Harvesting, Locker Rooms, Laundry Room, and various storage rooms.

The majority of the spaces included in the Autopsy Division of the OME must be constructed of impervious, durable finishes due to the requirements of heavy cart traffic movement and frequent washing with heavy detergents and cleansers. Floors should be constructed of troweled-in-place epoxy finish with a coved base on the walls. Walls should either be constructed of concrete masonry units or impact resistant gypsum board with stainless steel wall guards for protection. Ceilings should be non-absorbing surface such as painted suspended gypsum board. Doors must be solid and washable, with vision panels for safety. Door widths must consider movement of large rolling autopsy tables, and other large pieces of equipment. A layout of the General Autopsy Room is provided in the Appendix following the OME Adjacency Diagrams.

Public access is restricted with entrance controlled by card key or other similar security device. Though the hours of operation generally begin in the early morning and end in the late afternoon, some consideration should be given to limited 24 hours service of operation.

Special air exhaust systems with filtering for odor and viral/bacteriological control must be included. Air intake to other mechanical units serving the building must be located away and upstream from the exhaust discharge of the morgue service units. Most rooms within the morgue should be negative in pressure to the corridor serving the space to ensure an inward flow of air into the space. Ductwork should be constructed of stainless steel, as indicated in the Building Performance Requirements section of this report.

Plumbing fixtures and services must include provisions frequent cleaning, retractable hoses, floor drains, and mop sinks.

3. Investigation

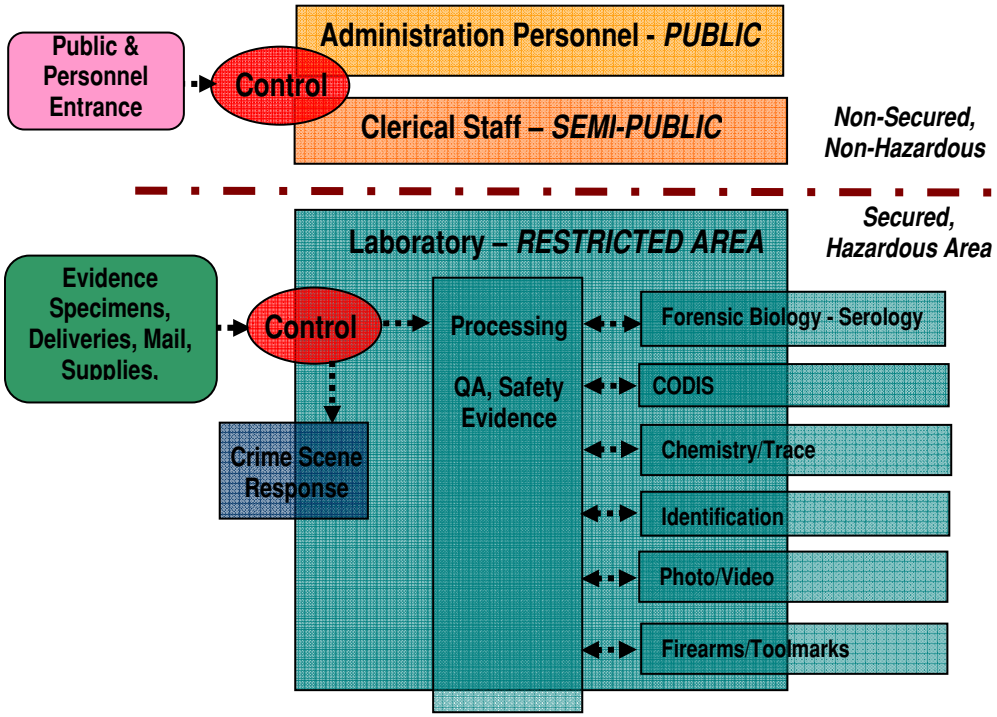
The Investigative Division of the OME is composed of offices for the Chief Investigator and Chief Deputy, open offices for other investigators, a Conference Room, a Work Room, an Evidence Storage Room, a Slide Storage Room, and a Field Apparel Closet. It should be located near or adjacent to the Laboratory Administration Division of the OME. The main function of the Investigation Division of the OME is for the collection and distribution of evidence and death reports. It also supports investigators who are assigned to investigative

cases in the field. These types of spaces are more administrative in nature. The Work Room, Slide Storage and Evidence Storage Rooms contain millwork as a work surface and storage.

Finishes would include carpet on the floors in office areas and vinyl composition in work room areas. Walls should be painted gypsum board. Ceilings should be suspended acoustical tile in a metal grid system. Walls should contain acoustical treatment for privacy between work areas and offices areas.

Utah Unified State Laboratory - Program Descriptions Department of Public Safety

The diagram below illustrates the laboratory evidence process flow through the Public Safety Department. Additional information for the Department of Public Safety related to each individual division can be found in the Space Use Program, the Detailed Program and the Appendix.



Materials and Construction

A. Building Exterior Systems

1. Exterior Wall Systems

   a. The majority of the facade will comprise an aluminum composite panel with a fluoropolymer finish fastened to a metal stud back-up wall.

   b. Portions of the façade will comprise corrugated metal panels with a fluoropolymer finish fastened to metal stud framing.

   c. Stud backup walls for the metal panels shall have exterior gypsum board sheathing with vapor barrier rigid polyisocyanurate insulation, and an interior gypsum wall board finish. The R-value of the exterior wall shall be determined based on the Utah Energy Code criteria.

   d. Bullet resistance and security requirements of the exterior walls of the building shall be determined in the Design phase of the project.

   e. Steel framed aluminum clad canopies shall be provided at the main entry, vehicle bay entry, and evidence entry.

   f. Overhead coiling doors shall be provided at vehicle bays and loading docks.

2. Roof System

   a. Appropriate roofing, curb and flashing material, shall be selected during the Design phase of the project.

3. Skylights
   Skylights shall have aluminum frames with a fluropolymer finish and be glazed with double-pane insulated low-E safety glazing. Curbs for the skylights will be metal stud framed, with fully flashed exterior gypsum board sheathing.

4. Window Systems

   a. Window frames shall be aluminum with a fluropolymer coating. Window glazing shall be a combination of clear low-e double pane insulated glass and double pane insulated spandrel glass.

5. Storefront Systems

   a. There shall be areas of storefront at the main entry and the cafeteria. The storefront framing shall be aluminum with a fluoropolymer coating. The glazing shall be double-pane insulated low-e glass.

   b. Storefront doors shall be aluminum with a fluoropolymer coating. The glazing shall be single-pane low-e glass.

   c. Tempered glass shall be used in locations that are required by code to be safety glass.

   d. A revolving door will be provided at the main entrance.

B. Building Interior Systems

1. Partitions

a. Typical partitions shall consist of 3 5/8" full height metal studs with sound attenuation blankets and 5/8" gypsum wall board on each side. The gypsum wall board will typically terminate 6" above the finish ceiling, except in areas required to be full height due to fire or sound rating requirements.

b. Full-height 6" c.m.u. partitions shall be provided at vehicle bay areas, gun evidence storage rooms, and other areas required to be bullet resistant or subject to impact.

c. Gypsum wall board at fire-rated partitions shall be Type X or equivalent.

d. Wet areas shall receive water-resistant gypsum wall board.

2. Doors

a. Typical door frames and borrowed light frames shall be fully welded painted steel. Door frames may have sidelights, transoms or a combination of both.

b. Typical doors shall be solid core wood veneer with clear glass vision panels. Doors at some mechanical equipment rooms and loading areas shall be painted steel.

c. Light-tight darkroom doors shall be relocated from the existing facilities.

3. Stairs

a. There shall be a metal pan concrete filled stairs typically. The use of a central communicating stair shall be determined in the Design phase of the project.

4. Elevators

Manufacturer's standard elevator cabs shall be selected during the Design phase of the project.

5. Finishes

a. Wall Finishes

1). Lobby and Entry: A combination of glass, metal, and painted gypsum wallboard (GWB). Frameless glass front wall system for the two conference rooms in lobby.

2). Corridors: A feature display wall along one side of the corridor. The wall shall be made of wood, patterned glass, and metal with special lighting incorporated into the wall. Wood paneling at exterior wall of main elevator.

3). Lobby: Curved floor-to-ceiling glass wall along the opening. The glass to be a combination of clear, frosted, and patterned glass and to be installed frameless. The railing system for the central stair is to be made of butt-

joint glass panels and metal rail. The design to be finalized in the Design phase of the project.

4). Conference Rooms and Classrooms: The walls are a combination of glass and gypsum wallboard (GWB). Refer to architectural plans for more detail. Site-assembled fabric-wrapped acoustical / tackable panels above credenzas. One wall in each class room / conference room shall receive site-assembled acoustical / tackable panels with built-in white boards, Acoustical fabric on movable partitions.

5). Servery: The back wall shall have decorative porcelain tiles with multi-color pattern.

6). Cafeteria: Interior walls to have accent paint.

7). Lab Office Area: All walls in this area to be painted.

8). Administration Office Area: All walls in this area to be painted.

9). Toilet Rooms: Glazed ceramic tile in thin-set mastic shall be used on walls. They shall be full-height, 4" x 4" glazed tiles on tile backer board.

10). Laboratories: The typical wall finish in laboratories shall be painted gypsum wall board. BSL-3 walls shall be epoxy painted gypsum wall board. Additional finishes such as ceramic tile at Glass wash and wall coverings to be determined in the Design phase of the project.

11). Loading: Painted CMU.

12). Mechanical spaces: All walls to be painted, no wall base needed.

13). Stairs: All walls to be painted.

14). Elevator: Wood paneling on the walls in the passenger elevator. Metal panels in the freight elevators.

b. Floor Systems

1). Lobby and Entry: Recessed walk-off grid to be provided at building entry area. Slate in mud-set to be used in lobby area with two different finishes and sizes installed in a pattern. 4" high solid wood base. Depress slab to accommodate the grid and slate. Additional materials to be selected during the Design phase.

2). Corridors: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base.

3). Lobby: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base.

4). Conference Rooms and Classrooms: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base.

5). Servery: Thin-set decorative porcelain tiles

6). Cafeteria: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base. Recessed walk-off grid to be provided at entry area

7). Lab Office Area: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base.

8). Administrative Office Area: Carpet tile at $35.00 / Sq. Yard installed with straight 4" high rubber base.

9). Toilet Rooms: Floor tiles shall be 2" x 2" thin-set unglazed porcelain ceramic mosaic in a 12" x 12" two-color checker board pattern. 4" x 4" tile cove base to match wall tile.

10). Laboratories: Floor systems in laboratories shall include vinyl composition tile, seamless vinyl flooring, ceramic tile, and epoxy resign flooring.

11). Loading: Sealed concrete flooring.

12). Mechanical spaces: Sealed concrete flooring.

13). Stairs: Rubber treads and flooring with raised pattern.

14). Elevator: Carpet for main elevator and sheet vinyl for others.

c. Ceiling Systems

1). Lobby and Entry: A combination of wood slat, 2" x 2" acoustical tile, and painted gypsum wallboard (GWB).

2). Corridors: 2" x 2" acoustical ceiling tile, and painted gypsum wallboard (GWB) soffit.

3). Lobby: 2" x 2" acoustical ceiling tile, and painted gypsum wallboard (GWB) soffit.

4). Conference Rooms and Classrooms: 2" x 2" acoustical ceiling tile at center, and painted gypsum wallboard (GWB) soffit around the room.

5). Servery: 2" x 2" acoustical ceiling tile, and painted gypsum wallboard (GWB) soffit.

6). Cafeteria: Floating plank acoustical ceiling tile.

7). Lab Office Area: 2" x 4" acoustical ceiling tile.

8). Administrative Office Area: 2" x 2" acoustical ceiling tile

9). Toilet Rooms: 2" x 2" acoustical ceiling tile, and painted gypsum wallboard (GWB) soffit.

10). Laboratories: Typical laboratory ceilings shall be 2' x 2' lay-in acoustical ceiling panels in a 15/16" suspended metal ceiling grid. BSL-3 Laboratories shall have epoxy painted gypsum wall board. Darkroom ceilings shall have black ceiling panels and grid. Additional finishes will be determined in the Design phase of the project.

11). Loading: No ceiling in the loading dock bays.

12). Mechanical spaces: No ceiling

13). Stairs: Painted gypsum board ceiling

14). Elevator: To be determined.

d. Built-in Millwork

1). Entry: Built-in reception desk with wood, metal, and glass.

2). Corridors: Display millwork. Refer to the wall description.

3). Lobby: Two circular structures made of wood, glass, and metal to accommodate special functions.

4). Conference Rooms and Classrooms: Built-in wood case work to be provided as shown on architectural plans.

5). Servery: Millwork to be plastic laminate with solid surfacing counter top.

6). Cafeteria: Millwork to be plastic laminate with solid surfacing counter top.

7). Lab Office Area: All millwork to be plastic laminate finish.

8). Administration Office Area: All millwork to be plastic laminate finish.

9). Toilet Rooms: Solid surfacing countertop and apron with under-mount sink.

C. Furniture Systems

1. Open lab office area to have modular system furniture. Private offices to have freestanding case goods. Finishes will be plastic laminate and metal.

2. Private offices in administration area to have freestanding case goods. Open workstations to be modular system furniture. Finishes will be wood and metal.

3. Miscellaneous furniture in lobby, classroom, conference rooms, and cafeteria to be selected based on requirement.

4. High-Density Storage systems will be located as required in the Design phase of the project.

D. Laboratory Casework

1. Typical laboratory casework shall consist of wood cabinets, epoxy resin countertops, and adjustable epoxy shelving above the countertops.

2. Additional information regarding specific laboratory casework shall be determined during the Design phase of the project.

Applicable Codes & Guidelines

The following building codes are applicable to the design and construction of the State of Utah Unified State Laboratory as it pertains to the mechanical systems of the facility. While a detailed inclusive list of design codes and guidelines is not provided here; the intent is for the design and construction to consider and follow the latest accepted user and industry standards where applicable to ensure that the safety and welfare of the occupants is assured to the fullest extent possible.

The design of the new suites will be governed by the requirements of the 2006 International Building Code. The following Codes and Standards will also be directing the design of the facility:

- Utah Building Code
- Utah Energy Code
- ASHRAE Standard 15-2001, Safety Code for Mechanical Refrigeration
- ASHRAE Standard 55-2004, Thermal Environmental Conditions for Human Occupancy
- ASHRAE Standard 62-2001, Ventilation for Acceptable Indoor Air Quality
- ASHRAE Standard 90.1-2001, Energy Standard for Building Except Low-Rise Residential Buildings
- ASHRAE Standard 110-1995, Method of Testing Performance of Laboratory Fume Hoods
- ASHRAE Guideline 1-1996, The HVAC Commissioning Process
- NFPA 30-2003, Flammable and Combustible Liquids Code
- NFPA 45-2000, Fire Protection for Laboratories Using Chemicals
- NFPA 90A-2002, Installation of Air Conditioning and Ventilating Systems
- NFPA 101-2003, Life Safety Code
- Biosafety in Microbiological and Biomedical Laboratories, Fourth Edition
- ANSI Z9.5-2003, American National Standard for Laboratory Ventilation
- SMACNA, HVAC Duct Construction Standards, Metal and Flexible, Second Edition
- Others as defined by specific users

Project Requirements

Environmental Conditions

a. Equipment will be sized and selected to conform to the above codes and standards and will be based on the following climatic and environmental conditions.

1) Ambient Weather Conditions:

Summer	93°F db
	78°F wb
Winter	5°F db
	3°F wb

2) Indoor Design Criteria

Space temperature and humidity for occupied spaces will be maintained within plus/minus 2 deg F. and plus/minus 5% RH. Unoccupied spaces will not have humidity control:

a) Office, Office Support Area, Conference Rooms, etc.

Summer	75°F/50% RH
Winter	72°F/35% RH

b) Laboratory (Based on lab thermal load during the Schematic Design Phase)

Summer	72°F/50% RH
Winter	72°F/35% RH

c) Unoccupied Spaces

Summer	10°F above ambient
Winter	60°F

b. Minimum Ventilation Rates (Outside Air)
1) Space ventilation rates will be in compliance with ASHRAE Standard 62.
2) All laboratory areas will utilize single pass, 100% outside air ventilation.

c. Space Minimum Air Change Rates
1) All occupied areas will be supplied with conditioned air at a minimum of 4 air changes per hour.
2) Toilet rooms, janitor closets and other type spaces will be exhausted at a minimum of 2 CFM per square foot or 75 CFM per water closet and urinal, whichever is higher.
3) Laboratory spaces will be supplied with conditioned air at a minimum of 8 air changes per hour

d. Space Pressure Relationships
1) The building will be positive relative (air moving out of the building) to the outdoors to reduce infiltration and drafts.
2) Laboratory spaces will be negative relative to adjacent corridors (air moving into the laboratory space). The direction of airflow in the laboratory areas will be from least hazardous to most hazardous.
3) Clean spaces will be positive relative to adjacent corridors (air moving out of the laboratory space).

e. Filtration
1) All supply air will be filtered with 30% efficient pre-filters and 85-95% filters.
2) HEPA (99.99% efficient) filters will filter the supply air in clean spaces.
3) Exhaust air from the Bioterrorism, Tuberculosis Suites will pass through HEPA (99.99%) filter banks prior to being discharged.
4) Exhaust air from the Chemical Terrorism Suite will pass through HEGA filter banks prior to being discharged.
5) Exhaust air from the Unknown Accessioning Suite will pass through HEPA (99.99/5) and HEGA filter banks prior o being discharged.

f. Acoustics and Vibrations
1) The mechanical equipment will be designed to meet the following interior space acoustic requirements:

Office	35-40 NC
Conference Room	25-30 NC
Laboratory	45-50 NC
Mechanical/Electrical	55 NC

2) Attenuation of the impact of the site mounted mechanical equipment will be evaluated to reduce the acoustic impact of the surrounding areas.
3) All mechanical equipment will be isolated from the building structure as recommended by ASHRAE 1999 Applications, Chapter 46 and as recommended by the vibration consultant.

g. Hours of Operation
   1) The HVAC equipment shall operate continuously, but with occupied and unoccupied operating conditions. The hours of operation for all spaces, except as noted, shall be 10 hours a day, 5 day a week. During unoccupied periods the airflow in the laboratories can be turned down 50% of full flow. The temperature in the office spaces will be allowed to reset to 85°F in the summer and 65°F in the winter. The areas will have override controls for times when the spaces are occupied beyond the set hours of operation.

Build Out Options

System Type

a. Chilled Water:
   1) Chilled water for the building HVAC and process loads will be provided by water cooled chillers.
   2) Primary chilled water pumps will be constant volume, split-case pumps for circulation through the chillers. Three pumps will be installed each sized at 50% capacity.
   3) Secondary chilled water pumps will be variable volume, split-case pumps for circulation of chilled water to the air handling unit coils. Two pumps will be provided, each with VFD's.
   4) Two Cooling Towers for the chillers will be located on the building roof. Cooling towers will be induced draft packaged units. The cooling tower fans will be VFD controlled.
   5) Condenser water pumps will be constant volume, base-mounted, end suction pumps for circulation of condenser water between the cooling towers and the chillers. Three pumps will be installed each sized at 50% capacity.
   6) Estimated System Parameters:

Cooling Load:	1600 tons
Chillers:	(2) @ 800 tons
Chiller EWT:	42°F
Chiller LWT:	56°F
Cooling Towers:	(2) Cells
Condenser EWT:	85°F
Condenser LWT:	95°F

   7) Chilled water piping material will be: sizes 2" and smaller will be either Type L copper with sweat fittings or schedule 40 black steel with threaded fittings. Pipe sizes larger than 2" will be schedule 40 black steel with welded fittings.
   8) Piping shall be insulated with fiberglass pipe insulation at the thickness required by the North Carolina State Energy Code.

b. Steam and Condensate System
   1) Steam for the building HVAC and process loads will be provided by high pressure gas fired boilers.
   2) Local jurisdiction may require a full-time boiler operator for high pressure boilers. This will be fully investigated during design phase.
   3) Pressure reducing valves will throttle the 125 psig steam pressure down to 80 psig for process steam loads.
   4) Pressure reducing valves will throttle the 80 psig steam pressure down to 15 psig for humidification and to produce heating hot water.
   5) Estimated System Parameters:

Humidification Load:	8,475 lbs/hr @ 15 psig
Heating Load:	34,000 lbs/hr @ 15 psig
Process Load:	1,620 lbs/hr @ 80 psig

6) Steam piping will be schedule 40 welded steel or seamless black steel pipe. Condensate piping will be schedule 80 welded steel or seamless black steel pipe.
7) Piping shall be insulated with fiberglass pipe insulation at the thickness required by the North Carolina State Energy Code.

c. Hot Water Heating Systems
1) Steam will be utilized to create a building heating water loop. Heat exchangers will separate the steam from the building system.
2) VFD controlled pumping systems will circulate hot water to the two building heating systems.
3) A 20°F temperature differential will be maintained on all other hot water coils.
4) Heating hot water piping material will be:
a) 2" and smaller will be either Type L copper with sweat fittings or schedule 40 black steel with threaded fittings.
b) 2" and larger will be schedule 40 black steel with welded fittings.
5) Piping shall be insulated with fiberglass pipe insulation at the thickness required by the North Carolina State Energy Code.

d. Preheat/Heat Recovery System
1) In winter months a heat recovery coil will be utilized to capture waste heat from the exhaust stream.
2) Steam will be utilized to add additional required heat to the system to bring the temperature of the water up to 90°F for use in the air handling unit preheat/heat recovery coils.
3) A VFD controlled pumping system will circulate the preheat/heat recovery water.

e. Air Handling Units:
1) Four custom modular air-handling units located in the Penthouse will provide conditioned supply air. The air handling units will be provided with the following components:
a) Filter bank, including pre-filter and final filter;
b) Integral face & bypass hot water preheat/heat recovery coil;
c) Humidifiers;
d) Cooling coils;
e) Supply fans. Two fans will be provided, with each fan sized for 42,000 cfm, 60% of the estimated load;
f) Sound attenuators
g) Discharge plenum
2) The air-handling unit will be mounted on a base frame, which will be mounted on a concrete housekeeping pad.
3) Outside air will be taken from a wall-mounted louver at a location that minimizes the chance for re-entrainment of exhaust air from lab hoods, as well as from trucks at the loading dock.
4) The supply air fans will be modulated by variable frequency drives to maintain the remote duct pressure set point.
5) It is expected that the air-handling units will have air returned from the office spaces.
a) Preliminary air-handling unit is four at 70,000 cfm.
6) There will be a return fan with an economizer cycle.

f. Exhaust Systems:
1) All general exhaust air will be exhausted by the laboratory exhaust manifold system. The manifold will terminate into multiple high velocity, induced flow exhaust fans mounted on the roof.

a) Preliminary exhaust air fan system is 274,000 cfm. Assume eight @ 35,000 cfm each.
b) Each BSL-3 room will be isolated using bubble tight dampers.

2) The exhaust from the Bioterrorism Suite, Tuberculosis Suite, Chemical Terrorism Suite and Central Accessioning Suite will be individually exhausted to the roof by an individual exhaust system. The exhaust fans will be high velocity, induced flow exhaust fans mounted on the roof. Each space will be isolated by bubble tight dampers
   a) The exhaust air from the BT Suite and the TB Suite will pass through a HEPA filter bank, which is located in the penthouse, prior to being discharged to the outside. The HEPA filters will be located in welded stainless steel housing complete with automatic bubble-tight dampers (inlet and outlet) bag-in/bag-out ring, decontamination ports with isolation valves, test injection ports and a scan section.
      (a) The size of the BT Suite exhaust system will be 7,500 cfm. Assume two fans sized at 4,500 cfm each.
      (b) The size of the TB Suite exhaust system will be 4,325 cfm. Assume two fans sized at 2,600 cfm each.
   b) The exhaust air from the CT Suite will pass through a HEGA (high efficiency gas adsorption) filter bank, with is located in the penthouse, prior to being discharged to the outside. The HEGA filters will be tuned for chemical terrorism agents.
      (a) The size of the CT Suite exhaust system will be 3,350 cfm. Assume two fans sized at 2,000 cfm each.
   c) The exhaust air from the Unknown Accessioning Suite will pass though HEPA and HEGA filter banks, which are located in the Penthouse, prior to being discharged to the outside. The HEGA filters will be tuned for chemical terrorism agents. The filters will be located in welded stainless steel housing complete with automatic bubble-tight dampers (inlet and outlet) bag-in/bag-out ring, decontamination ports with isolation valves, test injection ports and a scan section.
      (a) The size of the Unknown Accessioning system will be 1,600 cfm. Assume two fans sized at 1,000 cfm each.
3) Exhaust fans will be a high velocity, induced flow exhaust fan mounted on the roof.
4) A heat recovery device will be located in the common manifold of the general exhaust to recover waste heat from the exhaust air stream.

g. Air Distribution:
   1) Air distribution for the public and office areas will be variable air volume. Variable volume boxes and series type fan powered boxes will modulate the supply air to maintain the space temperature set point. Variable volume boxes will be used only in interior spaces (cooling only) and will have a minimum setting to maintain proper ventilation rates.
   2) Air distribution for laboratory areas will be two-position constant volume. Air distribution from high fume hood concentration areas will be variable volume, based on sash position. The air valve will be a laboratory grade control device capable of controlling airflow to within +/- 5% of the airflow set point.

3) Each laboratory module will be provided with dedicated supply and exhaust valves. In open labs, supply and exhaust valves will serve areas of two bench spaces maximum. The laboratory air valves will be located in accessible location away from hazardous laboratory functions.
4) The supply air valve will be provided with a hot water reheat coil for maintaining the space temperature set point.
5) Fume hoods will also be provided with a dedicated exhaust valve.
6) Supply air ductwork will be galvanized steel, insulated with 1-1/2 inch thick fiberglass duct wrap with all service jacket.
7) Exhaust air ductwork will generally be galvanized steel although Type 304 stainless steel with Class A seals will be used on fume hood run-outs. Exhaust air ductwork from the CT, BT, TB and Central Accessioning Suites will be Type 304 stainless with welded joints and seams. Exhaust ductwork from high humidity spaces, such as Glass wash and from autoclave exhaust grilles will be Type 304 with welded joints and seams until connected to a main duct where the exhaust volume is 200% greater than the branch duct volume.
   a) Exhaust air ductwork will connect to biological safety cabinets with indirect connections, unless specifically defined as a rigid connection.
   b) The Class III biological safety cabinets will be rigidly connected to the exhaust ductwork.
8) All ductwork will be constructed in accordance with SMACNA standards, unless stricter requirements are stated herein.
9) Supply air will be delivered to the space through ceiling mounted supply diffusers. Diffuser types will be selected based on architectural finish and space requirements. Diffusers in laboratory areas will be selected and located to prevent supply air negatively affecting primary containment devices. General exhaust air will be exhausted through grilles that complement the supply diffusers.

h. Special Systems:
   1) Process Cooling System
      a) High heat producing areas, such as Shared Equipment Rooms, will be served by local fan coil units fed from the process cooling loop.
      b) Walk-in coolers and freezers will have water cooled condensing units that are fed from the process cooling loop.
   2) Environmentally Sensitive Spaces
      a) Environmentally sensitive spaces will be provided with separate air handling equipment to maintain the space temperature and humidity.
      b) Computer room quality units will be utilized to provide the close operation and control required maintaining the space conditions.
   3) Unoccupied Ventilation
      a) All mechanical and electrical spaces will be mechanically ventilated to maintain space temperature set points.

i. Balancing:
   1) All air handling systems (supply and exhaust) will be balanced for the specified airflow rate and system static pressure. The accepted tolerance will be +/- 5%.
   2) Medium pressure, high pressure and critical system duct systems will be pressure and leak tested in accordance with SMACNA standards. Acceptable leakage rates are as follows:

a) Medium and high pressure ducts: 1% of total system volume maximum leakage.

j. Insulation and Pipe Identification:
1) All piping, components and equipment subject to sweating, heat loss or freezing will be insulated with appropriate thickness of fiberglass insulation with a fire-resistant jacket.
2) All piping in accessible areas will be indicated with system and direction of flow through color-coded labels.

k. Controls:
1) The requirements of the control system will include the complete stand-alone distributed digital controllers (DDC), networked together to provide automated control and monitoring functions of various mechanical and electrical equipment. The system can be monitored or controlled either locally through a portable operators terminal (Laptop PC) connected to a remote DDC or from an central supervisory station (PC), which will be determined through further discussions during the design phase.
2) The Building Automation System (BAS) will be primarily electronic. The Constant Volume and Variable Volume terminal boxes will have electronic DDC terminal controller with electronic damper actuator and electronic hot water reheat control valve. Floating control will not be permitted. Pneumatic actuation will be considered where speed of response is critical. A duplex instrument air compressor with refrigerated dryers and dual pressure reducing valve stations will be provided. Instrument air will be used to drive the pneumatic actuators associated with the mechanical equipment.
3) Each DDC will include all hardware, software, signal conditioning and termination devices to provide full monitoring and control of their data environment.
4) Networked controllers will be connected by a minimum 19.2K baud communication data highway. Each DDC will be capable of peer-to-peer communication for sharing of point status and value information. Communication from one DDC to another will not depend on a central host computer or other DDC panels.
5) All major controllers will be provided with normal/emergency power and local UPS.

Assumptions

General Selection / Sizing Criteria

a. Failure Modes: to control exposure to hazardous conditions and to protect environmentally sensitive areas due to normal power failure, the following systems will be on emergency power. Individual control components will be evaluated for proper failure mode operation to support the failure mode operation. Complete failure operation logic will be coordinated with the Owner.

1) All laboratory exhaust systems;

2) Supplemental cooling systems;
3) Air handling unit supply fans (laboratory make-up air).
4) Hot water heating system, as required to maintain minimum space temperatures;
5) All control systems;
6) Control compressors;
7) Laboratory Equipment;

b. Reliability & Redundancy
1) Major mechanical systems and subsystems that serve critical areas will be selected with multiple components to ensure that equipment operation can continue in the event of equipment failure.
2) Fan systems will be selected at multiple components, with the total fan capacity equal to 120% of the estimated load.

c. Safety Factors
1) Calculated peak loads for all mechanical equipment will be increased to account for system losses (water systems) and leakage (air systems.) The safety factors for different systems are as follows:
a) Air Systems – 15%
b) Cooling Water – 5%
c) Heating Hot Water – 15%

d. Maintenance
1) All mechanical systems and devices will be designed to facilitate regular maintenance functions. There will be adequate service clearance to all equipment, which enhances movement of personnel and equipment. Equipment will be kept out of congested and difficult to reach locations. Equipment requiring maintenance will be kept out of hazardous areas to the greatest extent possible.
2) Adequate clearance will be provided at all equipment to enable removal and replacement of equipment, without requiring prior disassembly.

e. Quality
1) All specified equipment will be of commercial quality suitable for the intended applications.
2) Any specific equipment preferences of the Owner will be identified and incorporated into the design provided that they are consistent with the budget.

f. Energy Conservation
1) All mechanical systems will be sized and selected to optimize the use of non-renewable energy.
2) Electric motors will be high efficiency type.
3) Equipment will be selected to operate as efficiently as possible.
4) Energy recovery will be used. An exhaust air heat recovery run-around loop will extract heat from the laboratory exhaust coil(s) and transfer the heat to the outside air intake coil(s) at the air handling units. The glycol solution will be 30% propylene glycol.

g. Flexibility & Growth
1) Systems will be selected to enable change at the space level by either control modification or by changing out specific pieces of equipment.
2) No space will be allocated for future building HVAC systems that provide additional system capacity.

Applicable Codes & Guidelines

The following building codes are applicable to the design and construction of the State of Utah Unified State Laboratory as they pertain to the plumbing and fire protection systems of the facility. While a detailed inclusive list of design codes and guidelines is not provided here; the intent is for the design and construction to consider and follow the latest accepted user and industry standards where applicable to ensure that the safety and welfare of the occupants is assured to the fullest extent possible.

The design of the new suites will be governed by the requirements of the 2006 International Building Code. The following Codes and Standards will also be directing the design of the facility:

- Utah Building Code
- Utah Energy Code
- ASHRAE Standard 90.1-2001, Energy Standard for Building Except Low-Rise Residential Buildings
- NFPA 30-2003, Flammable and Combustible Liquids Code
- NFPA 45-2000, Fire Protection for Laboratories Using Chemicals
- NFPA 101-2003, Life Safety Code
- Biosafety in Microbiological and Biomedical Laboratories, Fourth Edition
- Others as defined by specific users

Build Out Options:

System Type

a. Domestic Water
   1) Domestic water will be supported by the city water systems, a line will be run to the main located in the street.
   2) The estimated size of the main water service pipe required by the facility is 10" diameter. This provides for both water and fire suppression requirements. Water service will be controlled by a monitored post indicator valve. Four additional post indicator valves will be installed in the existing site loop to facilitate future isolation of loop sections.
   3) Domestic water will be separated into a potable water system for general building areas and non-potable water system for use in the laboratories. Reduced pressure backflow preventer assemblies will be provided for both systems.
   4) Duplex water pressure booster pumps will be provided, if required, to maintain a minimum of 50psig at the most remote flush valve or safety shower and eight psig at the most remote lavatory faucet. The domestic water pump assembly system will include vertically mounted end-suction pumps and motors using variable frequency drives. The pump skid will be tied into emergency power.
   5) Both the potable and non-potable water systems will be designed to maintain a maximum velocity of eight fps in mains, four fps in branches at designed flow conditions. Design of the domestic and laboratory water systems will be based upon fixture unit values and adjusted/increased to allow for projected water demand for various mechanical or laboratory equipment.

6) The systems will be designed to prevent water hammer conditions by utilizing shock arrestors for required individual fixtures, quick closing valves and batteries of fixtures.
7) Shut-off valves will be provided at branch connections for the isolation of piping sections for maintenance and repair.
8) Vacuum breakers will be provided at all laboratory faucets ,fume hood water outlets and hose bibs
9) Underground water service piping will be cement-mortar lined ductile iron with push-on or mechanical joints.
10) Potable water service piping inside the building will be galvanized steel with grooved coupling (Victaulic) joints for 4" and larger diameter pipe and Type "L" copper with lead-free solder joint wrought copper or brass fittings for 3" or less diameter pipe.
11) The building potable water supply system will be designed to provide sufficient hot and cold-water service for the laboratory and office fixtures.
12) Drinking water fountains will be provided throughout the building as required by code.
13) Hose bibs will be provided in toilet rooms and mechanical rooms. Non-freeze wall hydrants will be provided at the main entries and as determined desirable or at 100 ft intervals around the perimeter of the building.
14) Water piping will be insulated to prevent condensation on cold piping, and to reduce thermal losses on hot piping. Types and thicknesses will be as required by the Washington State Energy Code.

b. Water Heaters
1) Water heaters will be gas fired with nickel or copper lined storage tanks. Two water heaters will be provided for both the potable and non-potable systems. The heaters are sized for N+1 redundancy. The water will be heated to 120 degrees F and distributed to the points of use.
2) Circulating pumps will be provided to assure availability of hot water throughout the systems. The recirculated mains will be brought to within 25 ft of all points of hot water use.

c. Deionized Water
1) Deionized water will provided as needed to laboratory sinks or equipment from the central recirculating building deionized system. Faucets and fittings for these installations will be polypropylene lined chrome plated brass gooseneck fittings.
2) Deionized piping water will be polypropylene with socket fusion joints or solvent welded PVC manufactured for purified water
3) Point-of-use polishers or supplemental purified water equipment for special laboratory uses will be provided by the occupants of the various laboratories as required.

d. Laboratory and Building Gas Systems
1) Compressed air and vacuum will be provided by existing central building services.
2) Compressed air piping will be Type L copper with solder joints and wrought copper fittings. Vacuum piping will be Type L copper with solder joints and wrought copper fittings.
3) Other specialty gases will be provided by local cylinders and manifold installations as required (the cylinders and manifolds will be provided and installed by laboratory occupants).

e. Sanitary and Laboratory Waste Drainage Systems
1) Existing city systems will support sanitary and lab waste drainage.

2) Sanitary waste from fixtures and equipment in general building areas will be routed by gravity through a separate waste and vent system to the sanitary sewer service.
3) Aboveground sanitary waste piping will be hubless, cast iron soil pipe with no hub, stainless steel coupling assembly and neoprene rubber gasketed joints. Underground sanitary waste piping will be Bell and Spigot, service weight cast iron soil pipe with neoprene rubber compression-type gasket joints.
4) Laboratory waste from fixtures and equipment in the laboratories will be routed by gravity through a separate laboratory waste and vent system. The laboratory waste will be routed through a central acid neutralizing basin before being discharged into the sanitary sewer service.
5) Laboratory waste and vent piping will be flame retardant polypropylene. Piping within casework will have mechanical joints and concealed piping in ceilings and floors will have electric resistance fusion joints.
6) Flow rates and pipe sizes will be calculated based on drainage fixture unit values and adjusted/increased to allow for projected wastewater discharge from various type of mechanical equipment. Complete accessibility will be provided to all cleanouts.

f. Storm Water Drainage System
1) Storm waste from roof drains and area drains will be conveyed by a separate gravity system outside the building.
2) Aboveground storm piping will be hubless cast iron soil pipe with no hub, stainless steel coupling assembly and neoprene rubber gasketed joints. Horizontal storm piping below the roof will be insulated with 1" thick fiberglass insulation with vapor barrier jacket to protect against condensation. Underground storm piping will be Bell and spigot, service weight cast iron soil pipe with neoprene rubber compression-type gasket joints.
3) Perimeter foundation and under-slab drainage will be provided per the Geotechnical Engineering recommendations on the soil boring analysis.
4) Secondary roof drains shall be provided where the roof perimeter construction extends above the roof in such a manner that water can be entrapped if the primary drains are allow buildup. The secondary roof drain system shall discharge above grade in a location which would normally be observed by the building occupants or maintenance personnel.

g. Fire Protection
1) Entire building to be fully sprinklered with an automatic wet sprinkler system.
2) Current flow test data will determine if a fire pump is required to satisfy system hydraulic demands.
3) Entire fire protection system to comply with NFPA and Factory Mutual requirements.
4) Density and sprinkler spacing will be designed to provide a level of protection consistent with the occupancy hazard.
5) The need for Pre-action and/or Dry Pipe sprinkler systems will be determined as the project progresses.
6) The need for Clean Agent Suppression systems will be determined as the project progresses.

h. Plumbing Fixtures
1) Plumbing fixtures will be selected to be ADA compliant for the physically disabled where required.

2) Laboratory fixtures and equipment will have brass supply trim and acid-resistant traps and waste piping.
3) Emergency showers and eyewashes will be provided where required.

i. Insulation and Pipe Identification
1) All piping, components and equipment subject to sweating, heat loss or freezing will be insulated with appropriate thickness of fiberglass insulation with a fire-resistant jacket.
2) All piping in accessible areas will be indicated with system and direction of flow through color-coded labels.

Assumptions:

General Selection / Sizing Criteria

a. Failure Modes: to control exposure to hazardous conditions and to protect environmentally sensitive areas due to normal power failure, the following systems will be on emergency power. Individual control components will be evaluated for proper failure mode operation to support the failure mode operation. Complete failure operation logic will be coordinated with the Owner.
1) Booster Pumps
2) Laboratory Equipment;

b. Reliability & Redundancy
1) Major systems and subsystems that serve critical areas will be selected with multiple components to ensure that equipment operation can continue in the event of equipment failure.

c. Maintenance
1) All systems and devices will be designed to facilitate regular maintenance functions. There will be adequate service clearance to all equipment, which enhances movement of personnel and equipment.
2) Adequate clearance will be provided at all equipment to enable removal and replacement of equipment, without requiring prior disassembly.

d. Quality
1) All specified equipment will be of commercial quality suitable for the intended applications.
2) Any specific equipment preferences of the Owner will be identified and incorporated into the design provided that they are consistent with the budget.

e. Energy Conservation
1) All systems will be sized and selected to optimize the use of non-renewable energy.
2) Electric motors will be high efficiency type.
3) Equipment will be selected to operate as efficiently as possible.

f. Flexibility & Growth
1) Systems will be selected to enable change at the space level by either control modification or by changing out specific pieces of equipment.
2) No space will be allocated for future systems that provide additional system capacity.

Applicable Codes & Guidelines

The following building codes are applicable to the design and construction of the State of Utah Unified State Laboratory as they pertain to the electrical systems of the facility. While a detailed inclusive list of design codes and guidelines is not provided here; the intent is for the design and construction to consider and follow the latest accepted user and industry standards where applicable to ensure that the safety and welfare of the occupants is assured to the fullest extent possible.

The design shall comply with the technical requirements of the State Building Code, the 2006 International Building Code (IBC), all state and local codes and ordinances, National Fire Protection Association (NFPA), including the NFPA 101 Life Safety Code, NFPA72 National Fire Alarm Code, NFPA 110 Emergency and Standby Power Systems, NFPA 70 National Electrical Code, and National Electrical Safety Code.

Electrical Standards and Criteria

All work should be in accordance with the following standards and criteria as a minimum:

- ADA (American Disabilities Act)
- ANSI C2, National Electrical Safety Code
- ANSI C37, Circuit Breakers, Switchgear, Substations and Fuse Standards Collection
- IEEE 142, IEEE Recommended Practice for Grounding of Industrial and Commercial Power Systems
- IEEE 242, IEEE Recommended Practice for Protection and Coordination of Industrial and Commercial Power Systems
- IEEE 315, Graphic Symbols for Electrical and Electronics Diagrams
- IEEE 399, IEEE Recommended Practice for Industrial and Commercial Power System Analysis
- IEEE 493, IEEE Recommended Practice for the Design of Reliable Industrial and Commercial Power Systems
- EIA/TIA-568, Commercial Building Telecommunications Cabling Standard
- EIA/TIA-569, Commercial Building Standard for Telecommunications Pathways and Spaces
- EIA/TIA-606, The Administration Standard for The Telecommunications Infrastructure of Commercial Buildings
- EIA/TIA-607, Commercial Building Grounding and Bonding Requirements for Telecommunications
- BICSI, Telecommunications Standards
- Code of Federal Regulations (CFR)
- Factory Mutual Engineering and Research Corp.
- Illuminating Engineering Society (IES)
- National Association of Corrosion Engineers (NACE)
- National Electrical Manufacturer's Association (NEMA)
- NFPA 20, Fire Pumps
- NFPA 70, National Electrical Code
- NFPA 72, Fire Alarm Systems
- NFPA 90A, Air Conditioning and Ventilation Systems
- NFPA 101 Life Safety
- NFPA 110, Standard for Emergency and Stand-By Power Systems
- NFPA 780, Lightning Protection Systems
- Underwriters' Laboratories, Inc. (UL).
- National Electrical Manufacturers Association (NEMA)

Build Out Options:

Scope of Work

The power service and distribution system will consider the present and future facility usage. The facility will require a combination of 480/277 volt service for lighting and mechanical equipment loads and 208/120 volt service user equipment, convenience and smaller loads. The capacity of the service will be determined based on actual mechanical system and fixed equipment loads plus an allowance for lighting, office and laboratory user equipment loads.

The type of service will be coordinated with the local utility and will be based on reliability as well as available system types. Vault versus pad mount and indoor service substation type design will be evaluated to determine the most suitable system.

The incoming service should have utility sources with a utility company transformer to provide service to the facility. The building service will be 480/277 volt, 3 phase, 4 wire from this transformer.

The electrical service system will include spare capacity for future demand.

The utility transformer system will be set up in an N+1 redundancy.

The service transformer and feeder locations and routing need to consider the reliability, continuity as well as necessary security for the facility. The locations and routing should be remote from public access and should consider protection against disruption from outside sources such as nearby excavation or flooding.

Two underground concrete duct banks with wiring in PVC-40 conduits will be provided from each utility service transformer to indoor double ended switchboard.

In order to minimize maintenance requirements and maintain high reliability, only copper conductive elements should be used in the power distribution system.

A) Switchgear – 480 Volt

1. Switchgear will be, sectional NEMA Type I, free standing, indoor, dead front, low-voltage double ended switchgear with copper bussing, electrically operated main-tie-main configuration and feeder sections in accordance with the latest applicable standards of NEMA and UL. Rating shall be 480/277 volts, 3-phase, 4-wire service. Draw-out breakers will be used for the all switchgear and switchboard (normal and emergency) in the facility.

2. Distribution In general, panel boards will be located to suit the loads served. Laboratories generally have dedicated panel boards for each lab or each common lab group. Distribution panels are generally located on each floor to serve the branch panel boards on the floor. Ease of maintenance, safety and economic factors will all influence the location and quantity of panels.

3. Branch panels serving BSL3 areas will be installed outside the BSL3 spaces.

4. Power for general lighting and mechanical equipment will be distributed by means of 480/277 volt, 3 phase panel boards.

5. Power for receptacles will be distributed by means of 208/120 volt, 3 phase panel boards.

6. Equipment shall be sized as a minimum for the following volt amps (VA) per square foot:

AREA Volt Amps (VA)/SF

	Lighting	Power	Mech.
Office	3.5	5.0	15.0
Lobby	3.5	2.0	15.0
Corridor	3.5	1.0	10.0
Laboratory	3.5	10.0	20.0
Equipment	Size per load		

7. All main distribution panels to be provided with surge protection.

b) Transformers

Provide transformers and distribution panels for 208/120 volt power distribution.

480 to 208/120 volt, 200% neutral 3 phase, 4 wire K-13 transformers for 120 and 208 volt loads will be located inside of the electrical rooms to provide power for 208/120 volt panel boards.

c) Panel boards

480/277 volt panel boards will be provided for the 277 volt fluorescent lighting.

208/120 volt Distribution panels will be located in each electrical room to serve 120 volt panels on each floor.

208/120 volt panel boards will be located outside each lab area to serve 208 and 120 volt equipment and receptacles in each lab on each of the floors.

480/277 volt panel boards for the mechanical equipment will be located in the mechanical rooms.

All panel boards shall be copper busing with bolt-on breakers.

d) Conduit System

Conduit inside the building will be rigid steel or intermediate metal. EMT may be used for feeder and branch circuits in dry locations only. Minimum conduit size will be ¾ inch. PVC-40 conduit will be used when encased in concrete underground, and for separate ground wires in building. All conduit penetrations through walls and floors will be sealed.

Flexible metal conduit will be used for connections to motors (between a rigid conduit and terminal box on a motor), connections to equipment subject to movement, connections from the conduit system to an electrified furniture system and recessed lighting fixtures. Liquid tight flexible metal conduit will be used for equipment mentioned above, in lieu of flexible conduit, in wet or damp locations.

A ground conductor will be provided in all feeder and branch circuit metallic and nonmetallic conduits.

e) Wiring

All branch circuit power, lighting, and control wiring shall be copper, 98% conductivity, solid except stranded for size #8 and larger, with THW or THHN-THWN insulation.

Minimum size shall be #12 AWG except #14 AWG for control conductors.
Voltage drop shall not exceed 3% for branch circuits, 5% overall.

f) Convenience Outlets

Receptacles, NEMA 5 – 20R, 20-amp grounding type, commercial grade to be provided in the equipment rooms, corridors, lobbies, and other finished areas.

GFCI receptacles will be provided in laboratories within 6'-0" of sinks, restrooms and at roof and exterior equipment locations.

Conduit, wiring, and device installation in bio-safety level 3 (BSL-3) areas:

All device boxes and conduits shall be recessed mounted and shall be sealed. All wiring shall be provided in threaded rigid galvanized steel (RGS) or intermediate metal conduits (IMC)(only when recessed). All device boxes shall be cast type. Once wiring is installed, the wiring shall be surrounded by a one inch barrier of silicone caulking around the conductors within the device box hub. Gasketed device cover plates shall be used, with an additional continuous bead of silicone caulk between the device plate and the adjacent wall, ceiling, or floor surface. Where device boxes and conduits are surface mounted, and where the device box meets the wall, ceiling, or floor surface, a continuous bead of silicone caulk shall be provided.

g) Motor Control

Motor control with combination fused or non-fused disconnects as required, will be located at loads served.

The control will be provided with control transformers, pilot lights, hand-off-auto selector switches, manual resets, auxiliary contacts, and U.L. type RK-5 fuses when required.

h) Emergency/Standby Power System

An emergency/standby generator system will be provided to supply power to loads within 10 seconds of a power outage. The generator will serve loads required to be on emergency by code as well as selected loads for critical operation.

Fuel source availability will consider on-site availability as well as the reliability of fuel delivery services. The generator will include a sub base tank, which is sized for approximately 24 hours of operation at full load.

The emergency power system will include 25% spare capacity. Generators shall be rated for 480/277 Volt service. The emergency distribution system will provide power the following loads:

- Emergency egress lights.
- Exit lights.
- Fire Alarm system.
- Security Systems.
- Telephone equipment.
- One elevator per bank – switchable.
- Fire Pump if provided.
- Building automation system.
- Emergency Mechanical exhaust system if provided.
- Lab Exhaust.
- Freeze Protection.
- Freezers.
- Critical equipment as defined by the owner.
- Selected receptacles (as defined by owner) within the labs.
- All mechanical or LAB equipment that are required to remain operational to maintain containment of BSL3 material and laboratories.

i) Surge Suppression

Comply with UL 1449 as follows:

Device Ratings	Single Surge	Pulse rating	Category
Service Entrance	125,000 amps	1000 events	C
Panel board	65,000 amps	1000 events	B

Surge suppressers will be provided at each service entrance and panel board.

Surge suppresser will be provided immediately adjacent to device or conductor being protected.

j) Lightning Protection

Lightning protection system should comply with NFPA 780. System shall be installed for a UL Master Label A.

Down leads will be concealed in PVC conduit in concrete columns or will be attached to structural steel columns.

Material will be copper as required to conform to NFPA 780.

k) Grounding

The grounding electrode conductor from the main service disconnects shall extend to concrete encased rebar, the exterior metallic water service, and to the interior water pipes per NEC 250 requirements.

The equipment grounding shall extend from the service disconnects to loads by means of the metallic conduit and grounding conductors in non-metallic conduit.

The grounding electrode conductor from 480 to 208/120 volt transformers shall connect to building steel or the nearest interior water pipe per NEC 250-26 requirements.

Provide a static grounding system in the motor fuels lab.

All grounding connections shall be minimum compression clamp type except buried connections will be exothermic (Cadweld) welded.
Ground conductors will be installed in all raceway systems.
Raceway systems will not be used as the sole grounding path.

Grounding will be provided for flammable liquid storage cabinets.

l) Interior Lighting

Lighting will consist of 2' x 4' fluorescent fixtures with energy saving 3 - 32 watt T-8 lamps and electronic ballast. Direct-Indirect lighting will be provided in the labs. Special lighting fixtures will be used in public spaces.

Surface mounted sealed class 100 clean room type fluorescent lighting fixtures with energy saving 3 - 32 watt T-8 lamps and electronic ballast shall be utilized in BSL3 areas. All raceways and back boxes shall be sealed.

Stairwells will be illuminated with wall mounted fluorescent fixtures, 4-foot, 2 lamp, electronic ballast, with acrylic lens.

Mechanical rooms, telephone rooms, electric rooms, unfinished shell space, and similar spaces will be illuminated with 4 or tandem 8-foot fluorescent strips, 2 lamp, electronic ballast. These fixtures will be locally switched with commercial grade, 15-amp switches with gray, stainless steel covers.

Fluorescent lamps, 4 feet long, will be cool-white, 32 watt energy-saving type.

The following illumination levels will be provided:

- Workstation 50 to 70 FC
- Office 50 to 70 FC
- Laboratories 50 to 100 FC
- Conference Room 50 FC
- Lobby 30 to 50 FC
- Corridor 20 FC
- Toilets 20 FC
- Service, Mechanical 20 FC
- Communication Closets 50 FC

Emergency and exit lighting will be furnished in compliance with code and will be fed from the generator. Battery backup for critical lighting (which cannot tolerate any interruption) will be provided.

m) Exterior Lighting

Exterior lighting will consider the security and appearance of the facility. These areas will be lit to an average of 0.5 foot-candle in accordance with the criteria of the Illuminating Engineering Society of North America at a uniformity ratio of 4 to 1, open parking, vehicular traffic, and low activity.

Landscape lighting will be provided.

Security lighting provided in other areas will be metal halide building mounted wall packs.

n) Lighting Control Equipment

Exterior Lighting Control System - Exterior lighting will be operated through magnetic contactors controlled by the Building Automation System.

Interior Lighting Control System – Interior lighting will consist of local wall switches, occupancy sensors as well as automatic lighting control.

o) Voice/Data System

The systems will be comprised of entrance facilities, equipment rooms, telecommunication outlets, and cable distribution.

Fiber optic distribution will be considered for service and backbone systems and future horizontal fiber optic cabling will be taken into consideration.

Telephone backboards will be located on each floor. Main service conduits will be provided into the first floor telephone room.

Incoming conduits will be stubbed 6" AFF in building's main telephone service equipment room.

Distribution will from the main telephone service room to each branch telephone closet.

The design will include backbone cable, horizontal cable, outlets, and patch panels as defined by the owner.

Provide No. 16 galvanized iron "pull-wire" or nylon zip string in each telephone conduit opening.

Provide equipment backboards. Provide two (2) 4' X 8' X ¾" fireproof plywood secured to wall.

Provide grounding for each backboard tied back to main switchgear ground.

Provide cable management consisting of cable tray above ceiling for common runs and conduit and boxes for individual outlet runs.

p) Fire Alarm System

Provide a complete standalone fire alarm system to comply with State Building Code, NFPA 101 and all authorities having jurisdiction over this project.

Fire alarm system shall be addressable, fully compatible with the BAS system, and be able to be supervised at the Central BAS station. The system will include, but shall not be limited to, the following:

- Manual pull stations at each door opening to the exterior of the building. In addition, provide pull stations such that no point on a floor is more than 150 feet distance from a station. (Assume two additional pull stations per floor.)
- Voice alarm speakers with ADA synchronized flashing lights and speakers located so as to be audible throughout the building and visible from all corridor and means of egress locations within the building. Provide additional ADA flashing lights in toilet rooms and meeting rooms.
- Smoke detectors in all mechanical equipment rooms, electrical rooms, telephone rooms, computer rooms, and lobbies. Minimum one per 900 square feet, 15 feet from wall and maximum 30 foot centers.
- Smoke detectors in supply and return ducts or each air handler system in outside air intake fans.
- The central control panel with CRT and printer is to be located in a manned security area.
- Provide dual channel audio.
- Provide control panel with switches and indicated lights for all fans and HVAC units.
- Monitoring of all sprinkler system alarm valves, flow switches, tamper switches, etc.
- Interface with a standalone pre-action sprinkler control panel. (Note – smoke detectors for the pre-action system will be independent of the base building system).
- Relays for fan shutdown to start the smoke exhaust.
- 24-hour battery backup

q) Security

Security of this facility and the containment laboratories address protection of the facility and its occupants as well as protection or integrity of the agents maintained.

The bio-security program includes security management, security plan development, risk analysis and countermeasure, which includes physical security solutions.

Physical Security will employ a layered approach to control access of personnel and materials to and from the facility.

a) Perimeter Security – Property Protection Area
   1. Physical barriers: fences
   2. Monitoring and detection: cameras, low light level, visual observation
   3. Access Control: staff, visitors, deliveries
b) Building Security
   1. Set back from perimeter security
   2. Building hardening: glazing, blast resistance – if required
   3. Access Control: Single point of access? Staff, visitors, deliveries
c) Security Personnel and Monitoring – Entry control, screening, cameras
   1. Laboratory security
   2. Layered access: entrance to building, access to common areas, access to Basic Laboratory and BSL3 areas

3. Material access: freezers containing stock BSL 3 materials to be kept with suite
4. Monitoring: security station

r) CCTV Security Cameras:

Locations
CCTV cameras will be provided around the building perimeter providing monitoring of the building entrances and loading area. Cameras will be mounted in laboratories and corridors as required by the owner. All building entrances will be monitored by CCTV cameras. Other camera locations will be determined in design.

s) Raceway and Cabling

Provide all raceway and cabling required for a complete installation.

Head End Equipment

Provide head-end equipment and fiber optic connection to location to be determined.
Card Access System:
Access Control Devices

The facility will be served by an extensive electronic controlled access system. Most access control devices will be proximity card readers, although touch-pads and biometric iris scanners will also be used. All locations where select agents are stored or handled are to be protected by biometric iris scanning devices.

Install raceway system, signal and power circuits as required for the system.

Cost Analysis

The following section is a Cost Analysis for the Unified State Laboratory. It was developed by the nationally recognized estimating firm of Faithful+ Gould. Its content concentrates on a detailed breakdown of the cost to construct Module 1. An estimate of the cost to construct Modules 2 and 3 is provided in the summary of the analysis.

Appendix

The Appendix contains additional information gathered during the Workshops with the Agencies and during the programming process. It is provided as supporting information, and may be useful in developing a deeper understanding of the facility during its design.

Department of Public Safety

The Utah Bureau of Forensic Services Criminalistics Laboratory System is designed to assist law enforcement and prosecutors in analyzing evidence taken from crime scenes across the State of Utah. Our primary focus areas are homicides, sexual assaults, drug identification, photography, fingerprints, trace evidence, firearms and tool marks. The Laboratory System uses state-of-the-art technology and equipment in the analysis of evidence. For example DNA testing has become an integral part of laboratory services. Several high priority cases have been solved using DNA technology.

Criminalists employed at the State Crime Lab are highly trained and educated in their fields of specialty. All of the criminalists have at minimum a bachelor's degree in chemistry, biology, micro and molecular biology, etc. Several possess higher degrees including doctorates. They also receive extensive training in their areas of expertise. Each is qualified to provide expert courtroom testimony. There have been recent changes in how crime laboratories are scrutinized, and for this reason, the Utah Criminalistics Laboratory System is very pleased to have attained national accreditation in each of its disciplines. Less than half of the crime labs in the country are accredited laboratories, while all of the crime laboratories in Utah have received accreditation.

One of the most significant issues the crime labs deal with is clandestine methamphetamine labs. Illicit meth labs are being taken down all over the state of Utah and the increase of these labs has been alarming to law enforcement officials. Methamphetamine is an insidious drug which imposes serious health risks to the offenders and investigating police agencies. When the Crime Lab is called out to help with the investigation of a meth lab, all appropriate steps are taken to ensure the health and safety of everyone involved. Manufacture of methamphetamine in the state of Utah is a first degree felony and Crime Laboratory personnel go to extreme measures to ensure the integrity of the evidence in order to achieve a successful prosecution of those who are involved in this most dangerous activity.

The Criminalistics Laboratory System in the state of Utah is comprised of the Central Crime Laboratory in Salt Lake City, and satellite laboratories in Ogden, Cedar City, and Price, Utah. The satellite laboratories primarily focus on drug identification and will branch out into other areas of evidence analysis as the need arises. Two criminalists staff the northern lab, one criminalist the southern lab, one criminalist the eastern lab, and 17 criminalists at the central laboratory. The staff also provides extensive training to law enforcement officers and prosecutors from across the state in crime scene investigation, evidence collection and preservation. They also teach classes in the various science disciplines used at the lab.

Forensic Biology

The Forensic Biology Section is responsible for the detection, identification, and comparison of biological evidence. This section is staffed by a Supervising Criminalist, five Criminalists, and three Crime Laboratory Specialists. The Forensic Biology Section caseload consists primarily of sexual assault cases and homicides. Occasionally, a burglary, robbery, or assault case might involve biological evidence.

Biological evidence may be present as blood, semen, saliva, hairs, or other cellular material.

A Typical case begins with screening (Serology) for the presence of biological evidence. Simple chemical tests (Kastle-Meyer, acid phosphatase detection, amylase diffusion plates, and microscopy) will reveal the presence of a biological stain. Additional testing (ie. Microscopy,

Immunological for species of origin) may also be performed to verify the case is a candidate for DNA analysis.

The Utah Bureau of Forensic Services analyzes forensic samples using Short Tandem Repeat (STR) Polymerase Chain Reaction - (PCR) systems. This technology allows the simultaneous typing of several loci (areas of on the DNA molecule).

Casework samples are amplified using Applied Biosystems AmpFISTR® Profiler-Plus® and COfiler® kits. The Amplified product is analyzed using the ABI 310 Capillary Electrophoresis system.

If probative evidence is present, it may is preserved for future analysis. At present, only violent crimes against a person qualify for DNA analysis. DNA analysis is commenced once the investigating officer submits standards (blood from the suspect and/or victim) and requests a DNA comparison. Cases lacking a suspect are initiated by an investigating officer's request that a DNA case be worked in the absence of a suspect.

CODIS - The DNA Database

The DNA profiles from forensic specimens and convicted felons are submitted to a national database.

The Combined DNA Index System -- (CODIS) system is a program that is headed by the Federal Bureau of Investigation - (FBI). The objective of this database is to link serial crimes on a national level, much like the Automated Fingerprint Index System -- AFIS. This system has had tremendous successes by solving several high profile crimes that would otherwise not have been solved.

Forensic Chemistry

The Forensic Chemistry Section routinely analyzes specimens for the presence of controlled substances, and on special request toxic materials (ie. poisons). This section is staffed by a Supervising Criminalist and five Criminalists. In addition, the Trace Evidence disciplines are under the organization of the Forensic Chemistry Section.

The trace evidence disciplines include: Arson, Glass, Hair & Fiber and Paint.

A routine case involving suspected controlled substances usually requires the following steps:

- Visual examination of the evidence (may include microscopy)
- Presumptive testing (ie. color tests for screening)
- Instrumental analysis

Generally the identification of Marijuana consists of two steps:

1. Microscopic observation of the leaf fragments to determine if the fine cover hairs, and the bear-claw shaped cystolithic hairs are present.
2. A color test (Duquenois / Levine) commonly employed to test for the presence of marijuana resins

The identification of marijuana resin may also be confirmed by GC/MS or thin layer chromatography when either of the two above tests is in question. (ie. the marijuana is burned such that the microscopic analysis is not possible, drug paraphenilia.)
The identification of an off-white powder substance may include the presumptive test for several controlled substances, depending on the Criminalist's initial visual observations. The following tests are routinely used, (and many others are available.)

- Scott's Test (cocaine)

- Marquis Test (methamphetamine and amphetamine / heroin and other opiates)
- Nitroprusside Test (methamphetamine)
- Chen's Reagent (psuedoephedrine / ephedrine)

Instrumental Analysis is used to confirm the findings of the presumptive tests. A primary standard (ie. a known cocaine or methamphetamine sample) is run under the same conditions for comparison purposes.

Crime Scene Investigation

The Utah Bureau of Forensic Services strives to assist local, state, and federal agencies in the investigation of major incidents. In addition, the laboratory maintains a team specially trained to deal with clandestine laboratories (individuals who manufacture illegal drugs). Bloodstain pattern interpretation and/or crime scene reconstruction may also be used to provide further details beyond the usual question of "who did it" to reveal such questions such as "was it in self defense" or "could have been suicide", etc.

Firearms & Tool Marks

The Firearms and Tool Marks Section is responsible for the comparison of firearms, casings, projectiles and other evidence that may be associated through tool marks. Tool marks result whenever two items come into contact with sufficient force, such that one or both of the items bear markings resulting from the other item.

The most important method utilized in Firearms and Tool Marks Section is microscopy. The comparison Microscope allows two items to be viewed simultaneously. Evidence projectiles, casings, and other items bearing tool marks are compared to known items in order to determine consistency or inconsistency, both in class characteristics and individual characteristics. In addition, the firearms section maintains a database program called NIBIN.

The NIBIN program is headed by the Bureau of Alcohol Tobacco and Firearms. This program is a success because firearms are often transported across state lines, after having been used to commit crimes. If a cartridge casing is located at a crime scene, it can be added to the NIBIN database and searched against known casings, and casings from other crimescenes. Even if the firearm used in the crime is located much later, or in another state, the firearm can be compared to the NIBIN database. Although the original cartridge casing must still be compared to the indexed firearm, the database has the ability to link serial shootings and cold cases that otherwise would have no leads.

The Firearms / Tool Marks section of the laboratory was recently relocated to the Northern Utah Crime Laboratory. This move will allow the Firearms section to grow, and has provided the Central Utah Laboratory with much needed space. Evidence can still be submitted at the Central Laboratory, as periodic transfer of evidence (between laboratories) will be maintained.

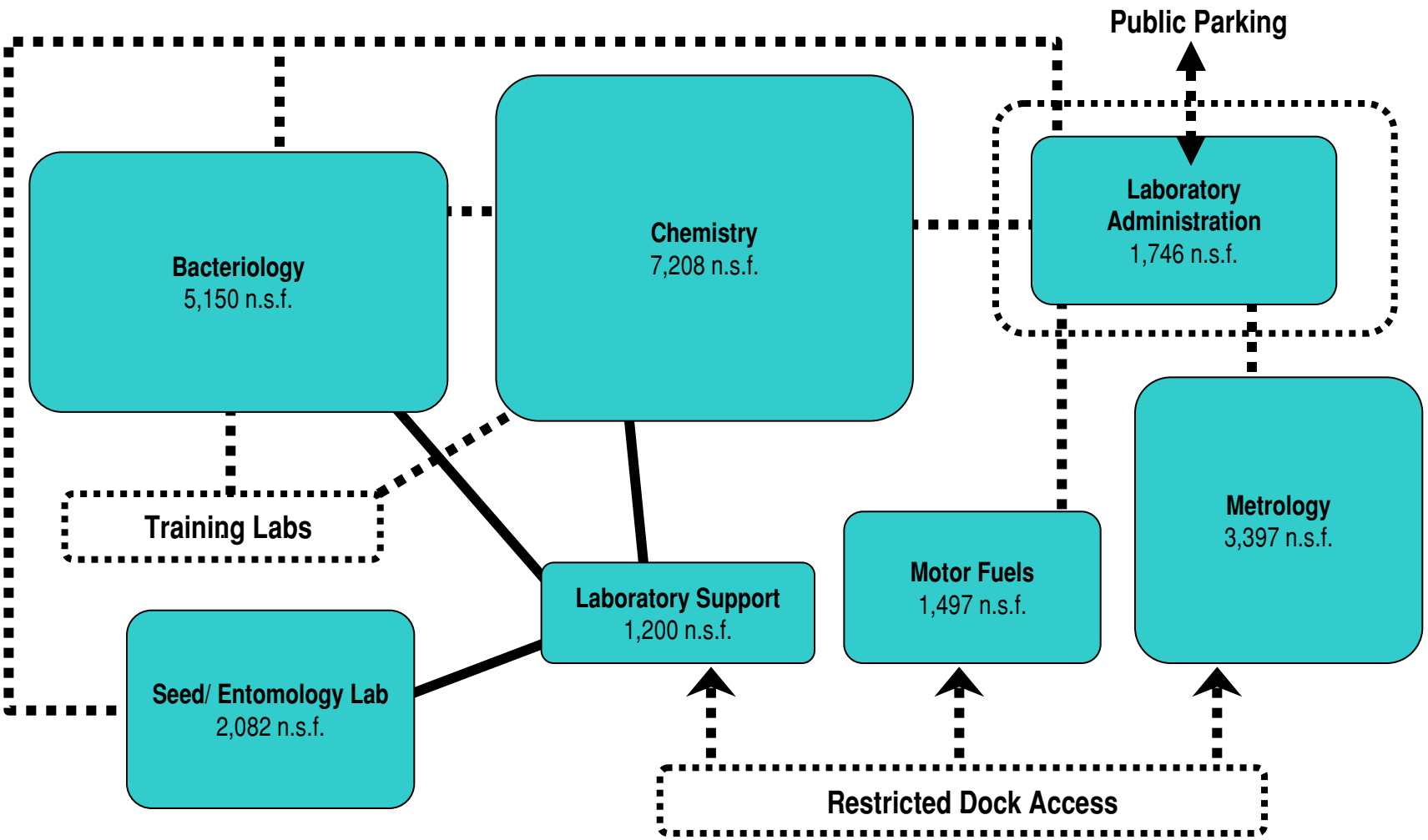
Office of the Medical Examiner

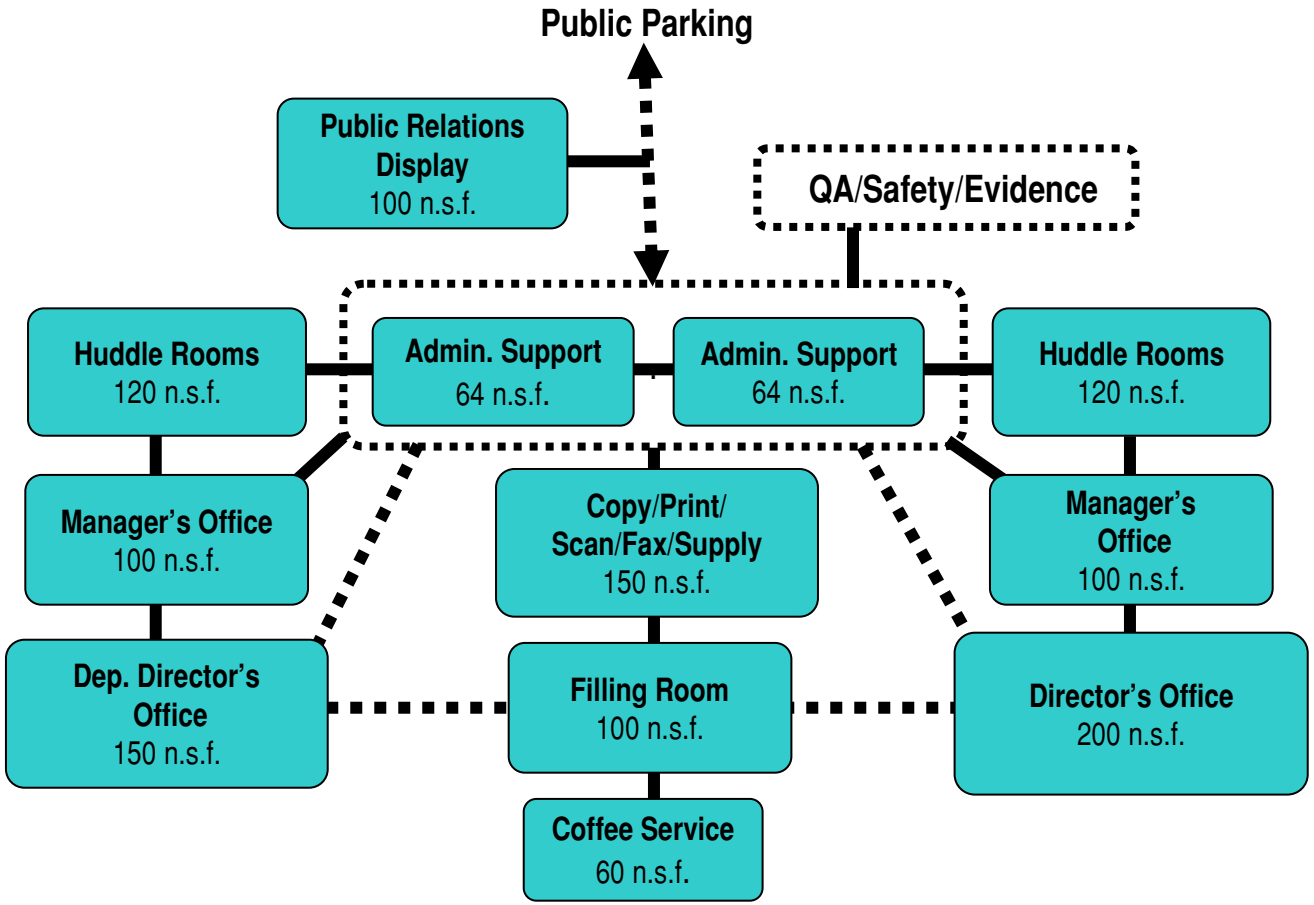
The Office of the Medical Examiner, State of Utah, is a statewide system for the investigation of sudden and unexpected death. Established in 1972 as a division of the Utah Dept. of Health, the OME is based in Salt Lake City. The central office staff is comprised of four forensic pathologists (Todd C. Grey, M.D. - Chief Medical Examiner, Edward A. Leis, M.D. - Deputy Chief Medical Examiner, Maureen J. Frikke, M.D. and Robert L. Deters, M.D., Assistant Medical Examiners), three autopsy assistants, two full time investigators(John E. Foster - Chief Investigator and Robert Blanchard), and four administrative staff. Part-time employees provide after hours staffing and histology services. Part-time investigators (both contracted and employed) are utilized throughout the state. Cases from areas outside of the Wasatch front which do not require the expertise of a forensic pathologist, are examined by Deputy Medical Examiners in local jurisdictions. These individuals are physicians in the community who will perform external examinations and complete death certificates as representatives of the OME. Cases requiring an autopsy will be brought to Salt Lake City for examination at the central office.

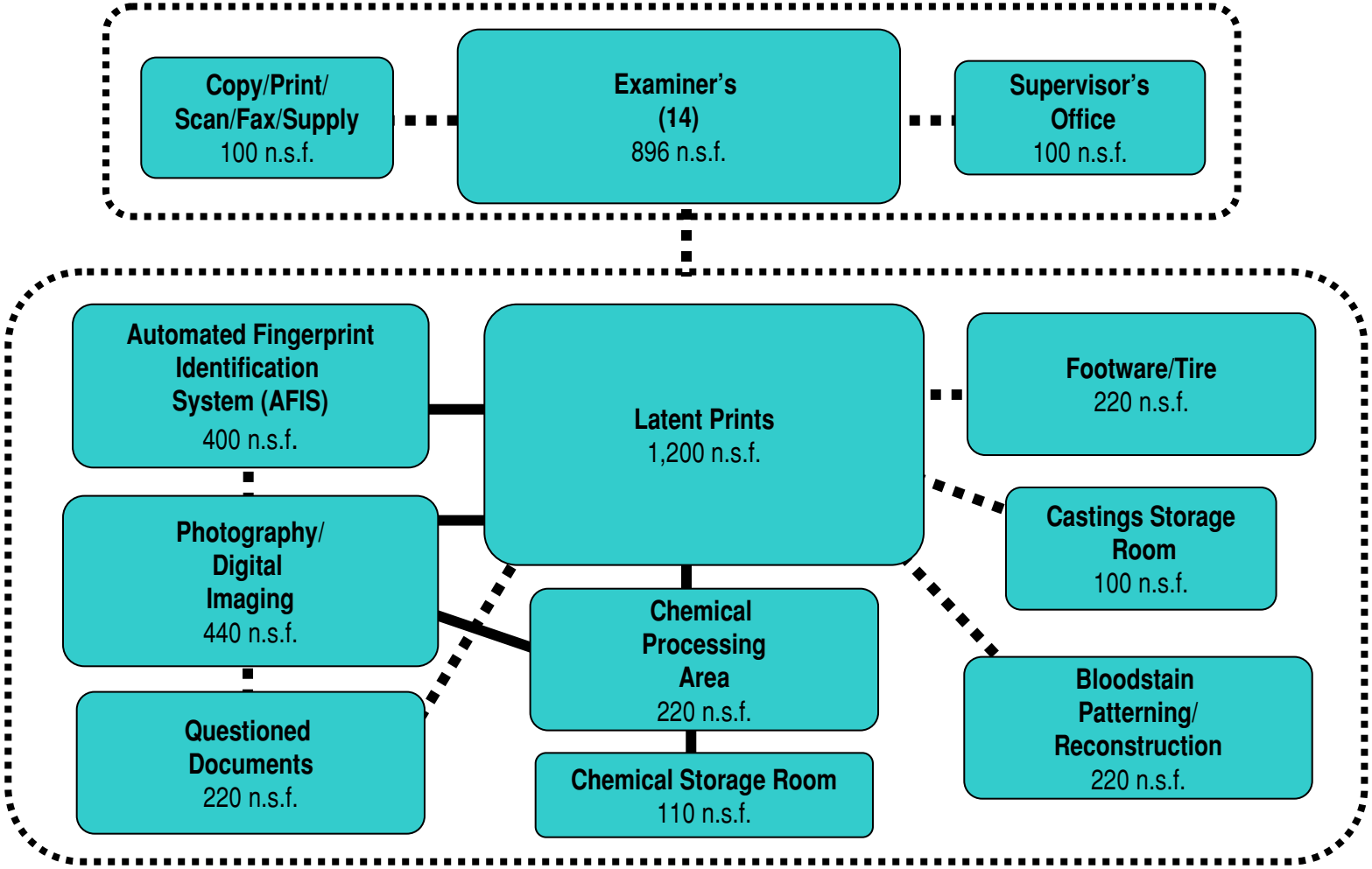
The central office is located on the east bench of the city, adjacent to the University of Utah School of Medicine and Primary Children's Medical Center. The facility is housed in a 16,000 sq. ft. building that was completed in 1991.

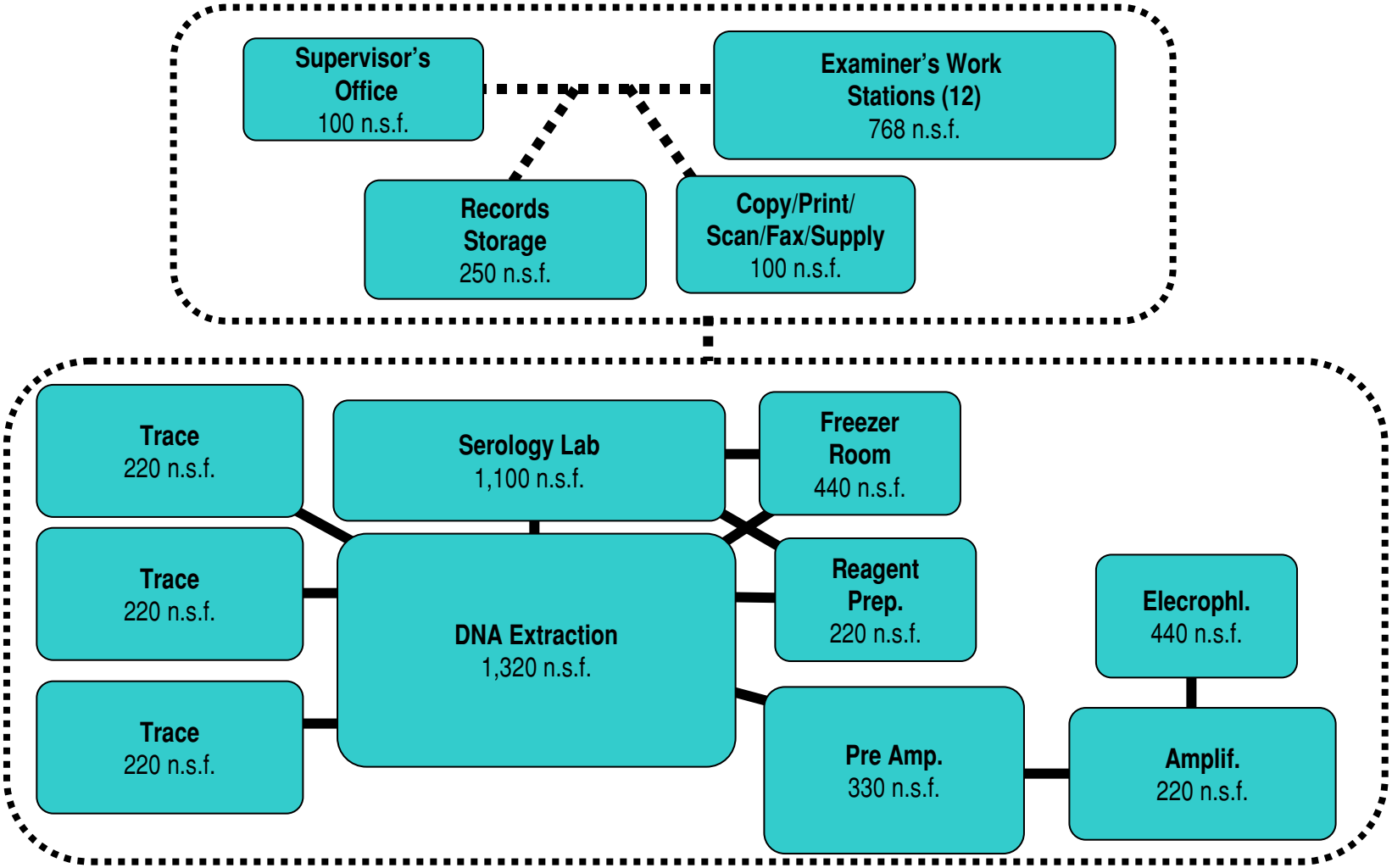
On the lower level are the body reception area, two separate examination areas (one four station area for general use and a single station room for special procedures and decomposed cases), an X-ray suite, tissue harvesting room, histology lab, and evidence room, as well as locker rooms, autopsy assistant office and storage areas.

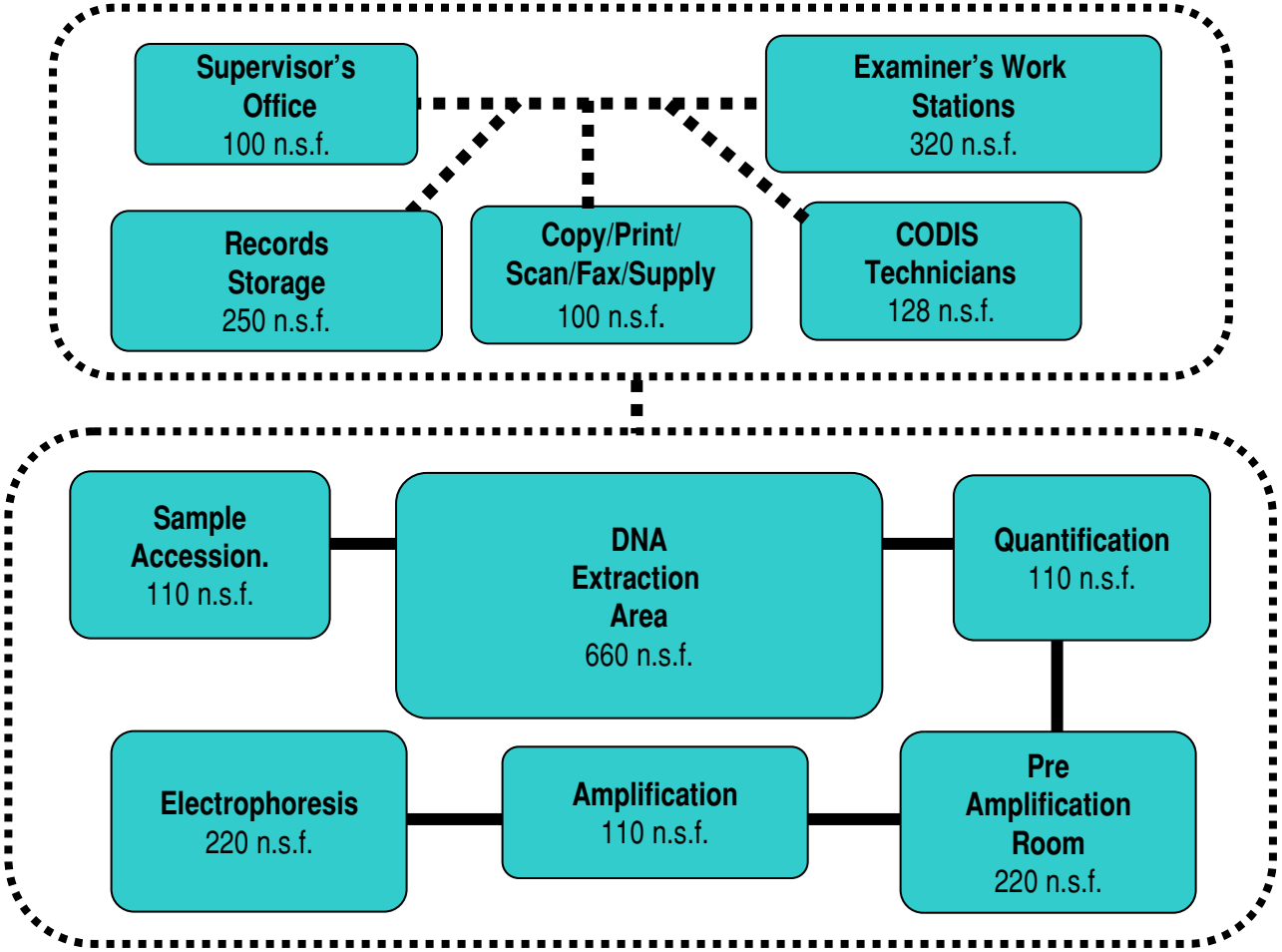
There is also a 1500 sq. ft. body refrigeration area. On the upper level are offices for the physicians, investigators and administrative staff along with two conference rooms, reception area, a library, photographic darkroom and records storage area. Toxicology services are provided by the Utah State Health Dept. laboratory which is located next to the medical examiner facility.

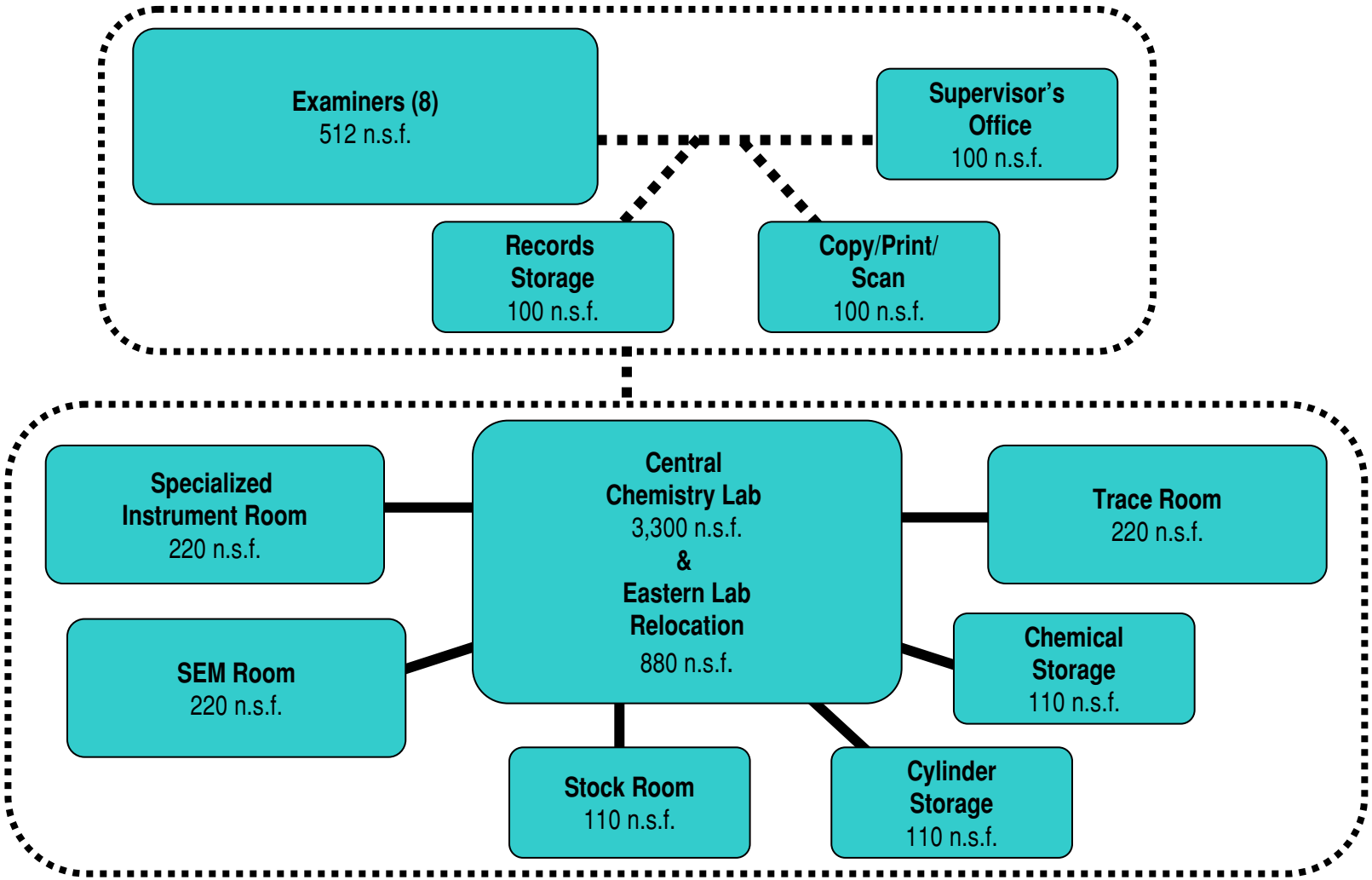

Public Parking
Bacteriology
5,150 n.s.f.
Chemistry
7,208 n.s.f.
Laboratory Administration
1,746 n.s.f.
Training Labs
Metrology
3,397 n.s.f.
Laboratory Support
1,200 n.s.f.
Motor Fuels
1,497 n.s.f.
Seed/ Entomology Lab
2,082 n.s.f.
Restricted Dock Access

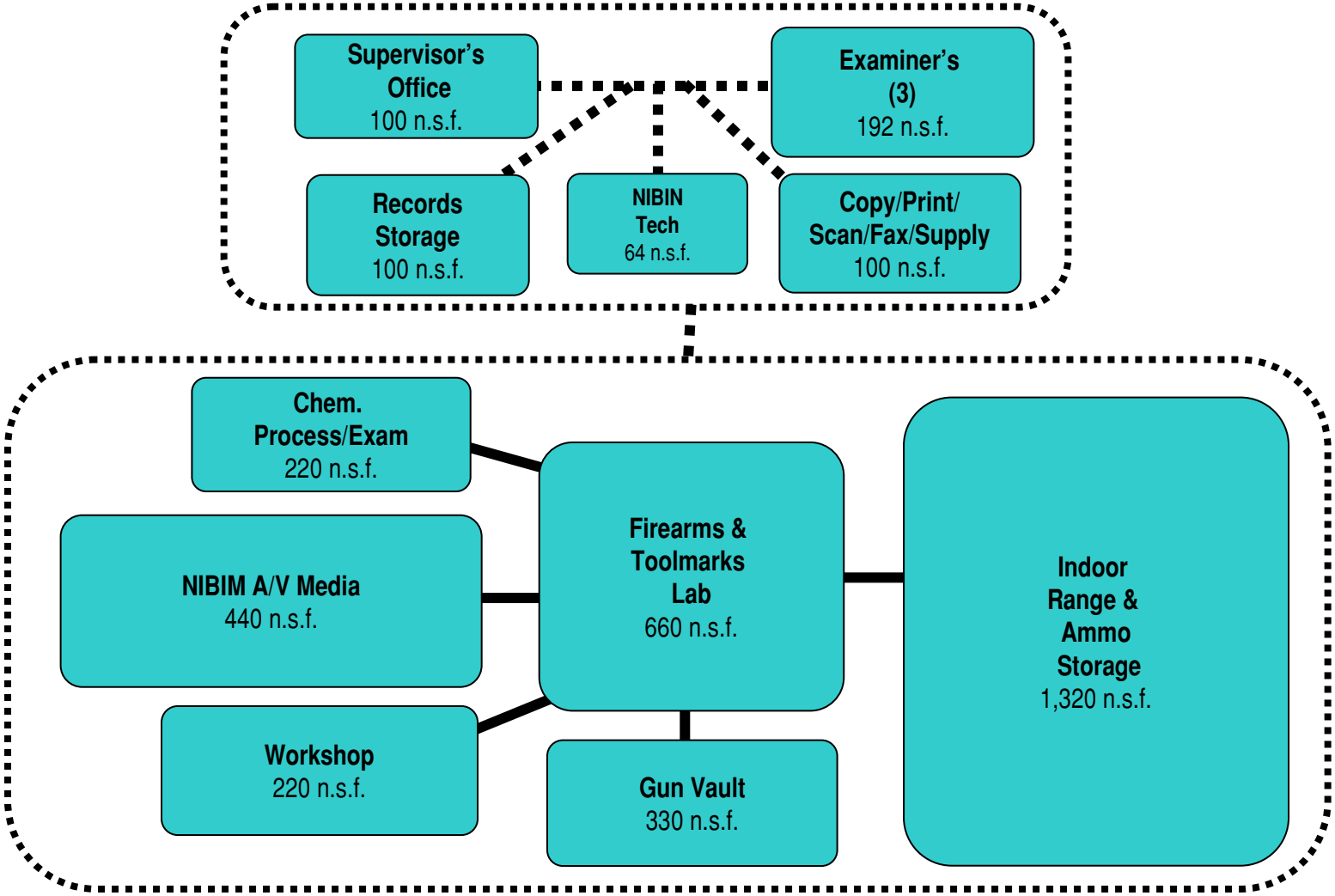

Public Parking
Public Relations Display
100 n.s.f.
QA/Safety/Evidence
Huddle Rooms
120 n.s.f.
Admin. Support
64 n.s.f.
Admin. Support
64 n.s.f.
Huddle Rooms
120 n.s.f.
Manager's Office
100 n.s.f.
Copy/Print/ Scan/Fax/Supply
150 n.s.f.
Manager's Office
100 n.s.f.
Dep. Director's Office
150 n.s.f.
Filling Room
100 n.s.f.
Director's Office
200 n.s.f.
Coffee Service
60 n.s.f.

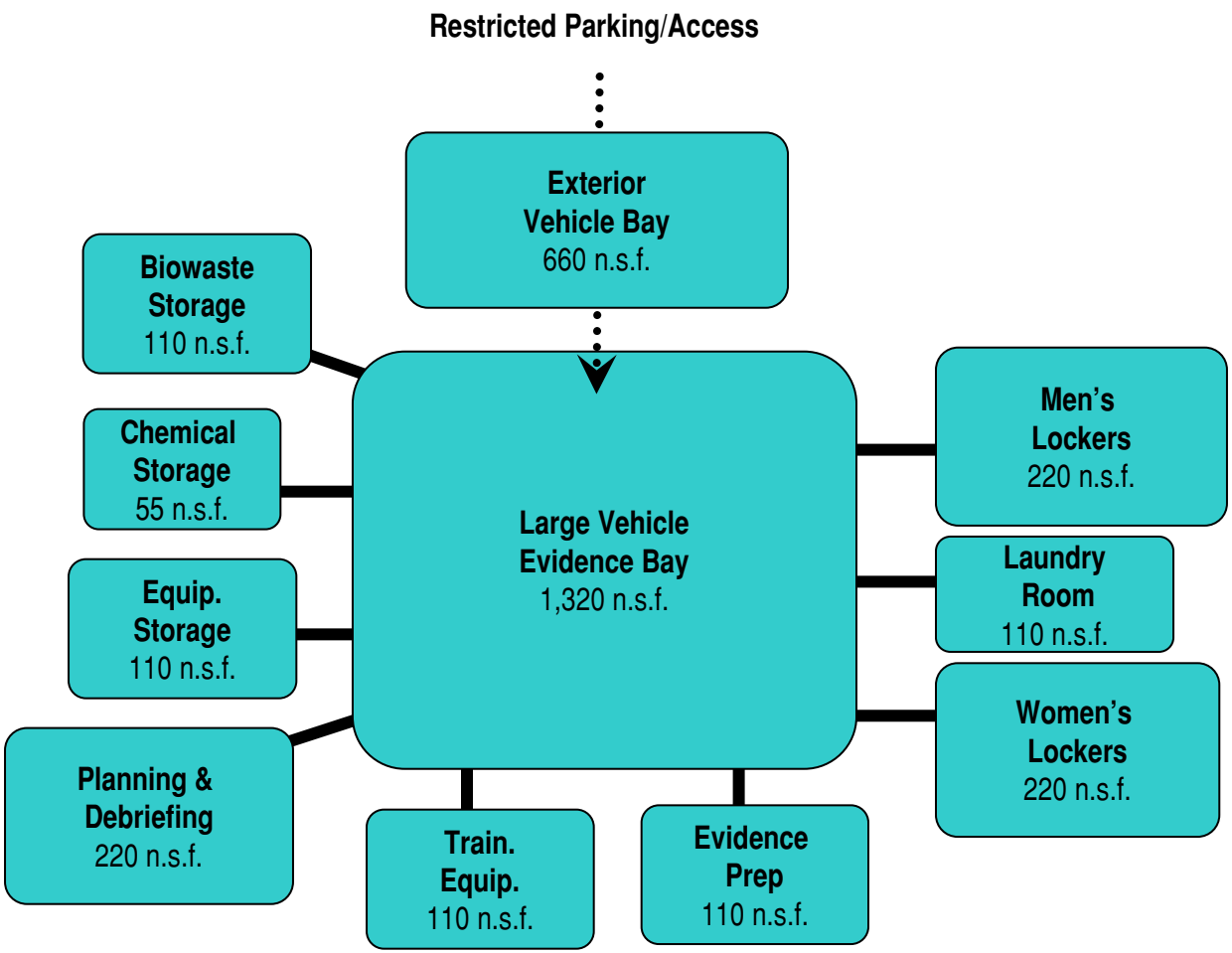

Copy/Print/
Scan/Fax/Supply
100 n.s.f.
Examiner's
(14)
896 n.s.f.
Supervisor's
Office
100 n.s.f.
Automated Fingerprint
Identification
System (AFIS)
400 n.s.f.
Latent Prints
1,200 n.s.f.
Footware/Tire
220 n.s.f.
Photography/
Digital
Imaging
440 n.s.f.
Castings Storage
Room
100 n.s.f.
Chemical
Processing
Area
220 n.s.f.
Bloodstain
Patterning/
Reconstruction
220 n.s.f.
Questioned
Documents
220 n.s.f.
Chemical Storage Room
110 n.s.f.


Supervisor's Office
100 n.s.f.
Examiner's Work Stations (12)
768 n.s.f.
Records Storage
250 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
Trace
220 n.s.f.
Serology Lab
1,100 n.s.f.
Freezer Room
440 n.s.f.
Trace
220 n.s.f.
DNA Extraction
1,320 n.s.f.
Reagent Prep.
220 n.s.f.
Elecrophl.
440 n.s.f.
Trace
220 n.s.f.
Pre Amp.
330 n.s.f.
Amplif.
220 n.s.f.


Supervisor's Office
100 n.s.f.
Examiner's Work Stations
320 n.s.f.
Records Storage
250 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
CODIS Technicians
128 n.s.f.
Sample Accession.
110 n.s.f.
DNA Extraction Area
660 n.s.f.
Quantification
110 n.s.f.
Electrophoresis
220 n.s.f.
Amplification
110 n.s.f.
Pre Amplification Room
220 n.s.f.


Examiners (8)
512 n.s.f.
Supervisor's Office
100 n.s.f.
Records Storage
100 n.s.f.
Copy/Print/ Scan
100 n.s.f.
Specialized Instrument Room
220 n.s.f.
Central Chemistry Lab
3,300 n.s.f.
&
Eastern Lab Relocation
880 n.s.f.
Trace Room
220 n.s.f.
SEM Room
220 n.s.f.
Chemical Storage
110 n.s.f.
Stock Room
110 n.s.f.
Cylinder Storage
110 n.s.f.

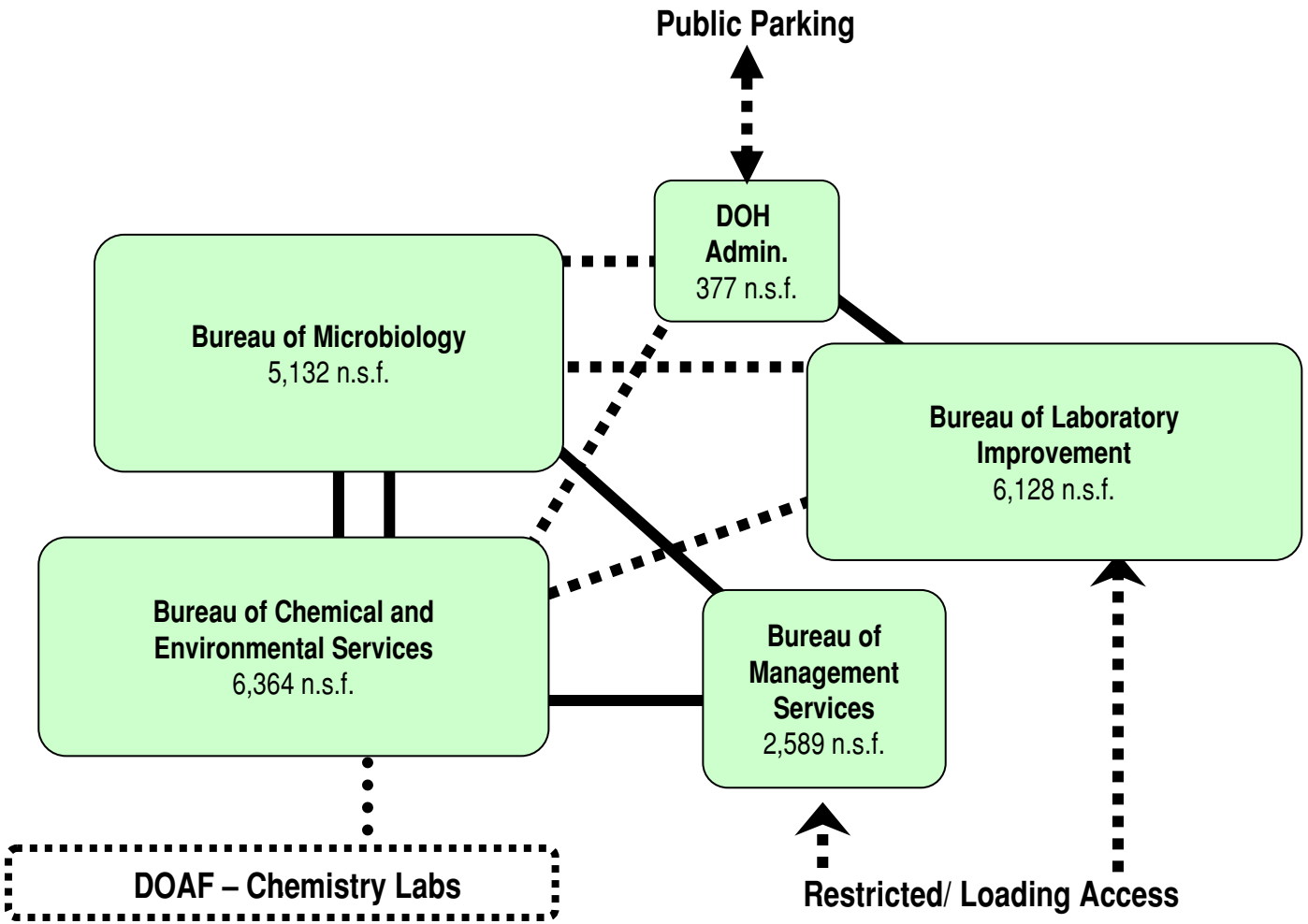

Supervisor's Office
100 n.s.f.
Examiner's (3)
192 n.s.f.
Records Storage
100 n.s.f.
NIBIN Tech
64 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
Chem. Process/Exam
220 n.s.f.
NIBIM A/V Media
440 n.s.f.
Firearms & Toolmarks Lab
660 n.s.f.
Indoor Range & Ammo Storage
1,320 n.s.f.
Workshop
220 n.s.f.
Gun Vault
330 n.s.f.

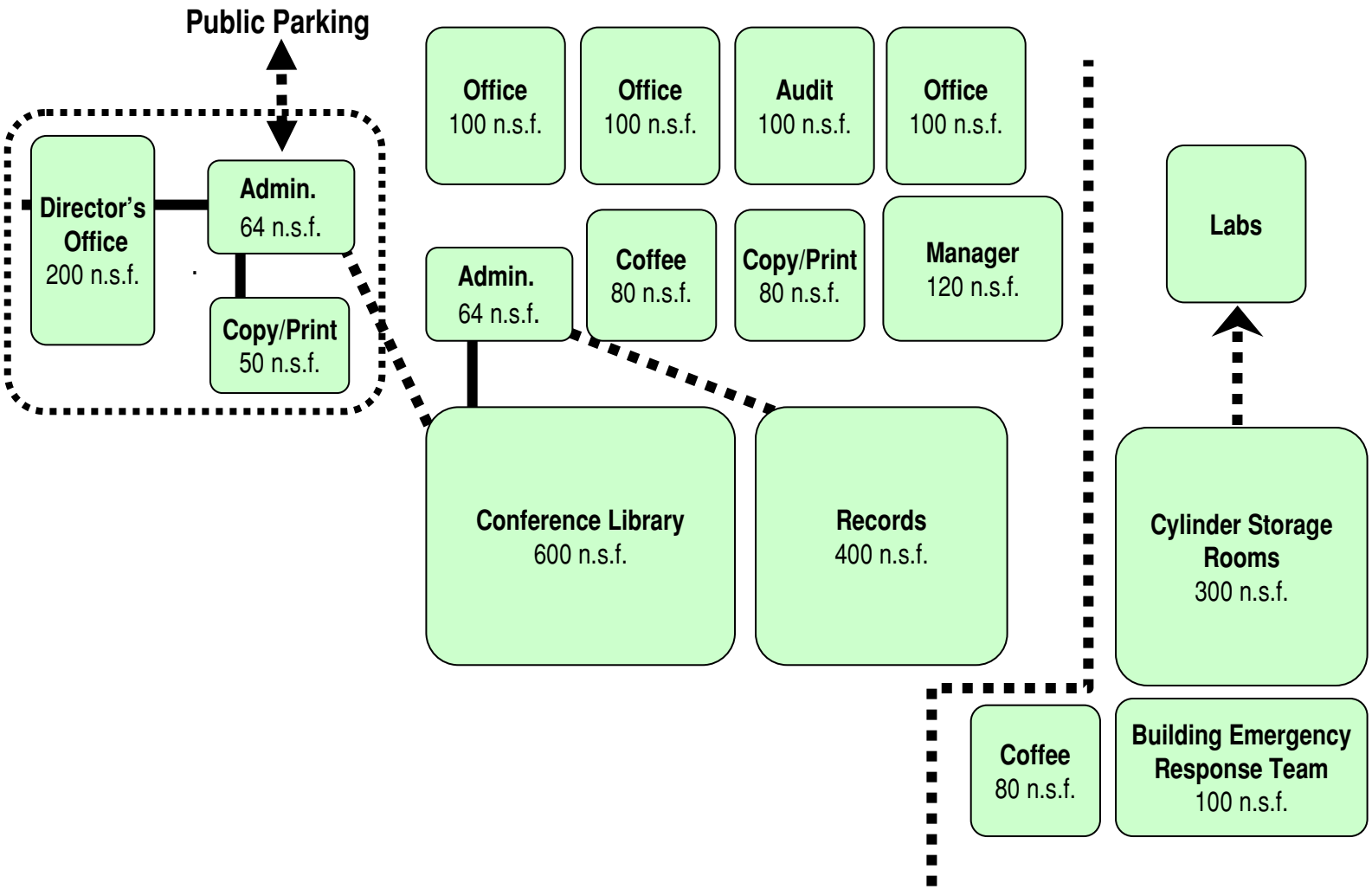

Restricted Parking/Access
Exterior Vehicle Bay 660 n.s.f.
Biowaste Storage 110 n.s.f.
Chemical Storage 55 n.s.f.
Equip. Storage 110 n.s.f.
Planning & Debriefing 220 n.s.f.
Large Vehicle Evidence Bay 1,320 n.s.f.
Train. Equip. 110 n.s.f.
Evidence Prep 110 n.s.f.
Men's Lockers 220 n.s.f.
Laundry Room 110 n.s.f.
Women's Lockers 220 n.s.f.

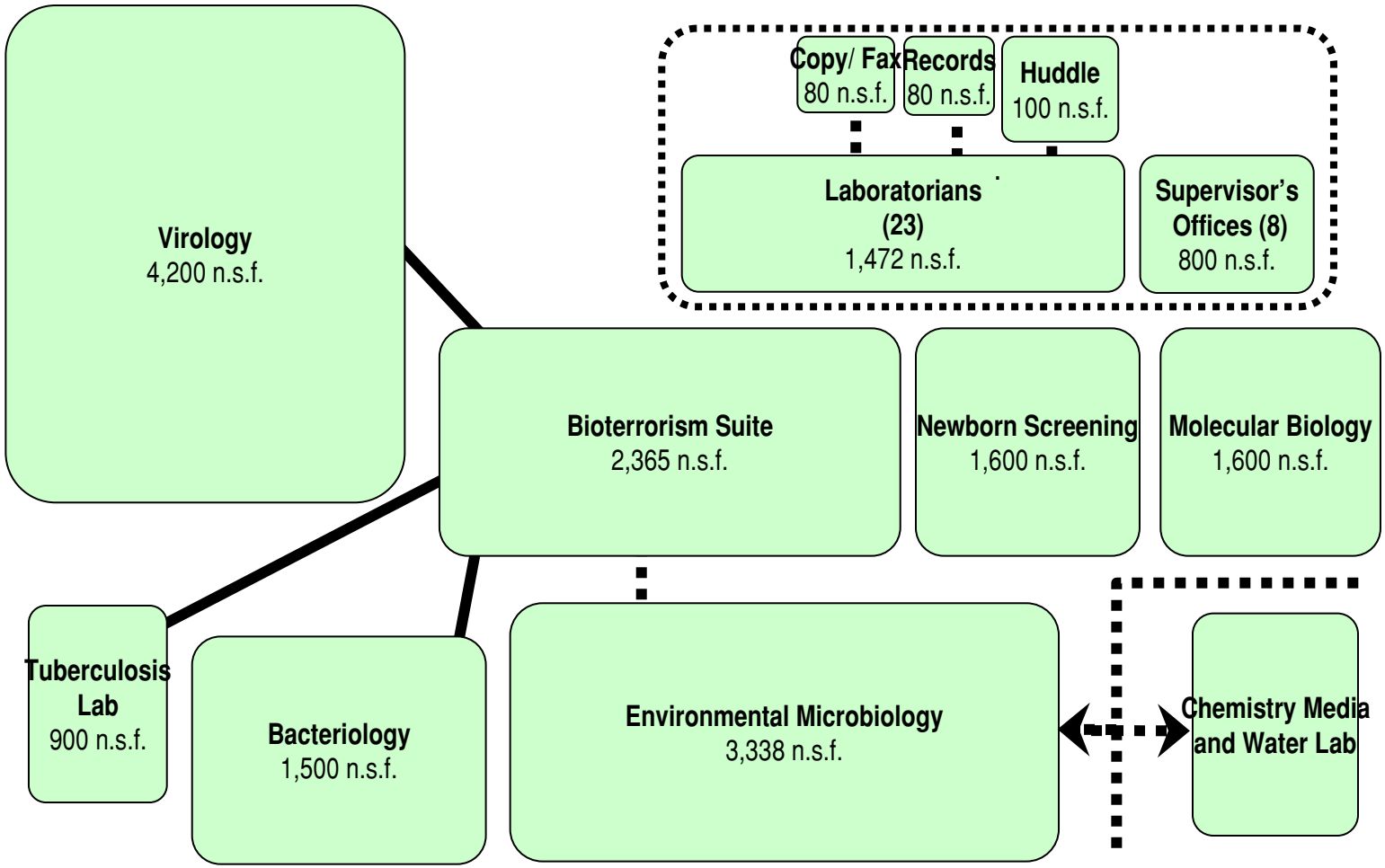
The following sheets show the Functional Relationship diagrams for each Agency in the Unified State Laboratory. These diagrams also show the relationship of each department in each Agency. The Key Legend below identifies the relationship between each space indicated in the diagram. There is additional information in the Detailed Program in the remarks column that further describe the use of the lab and the support labs associated with each lab.

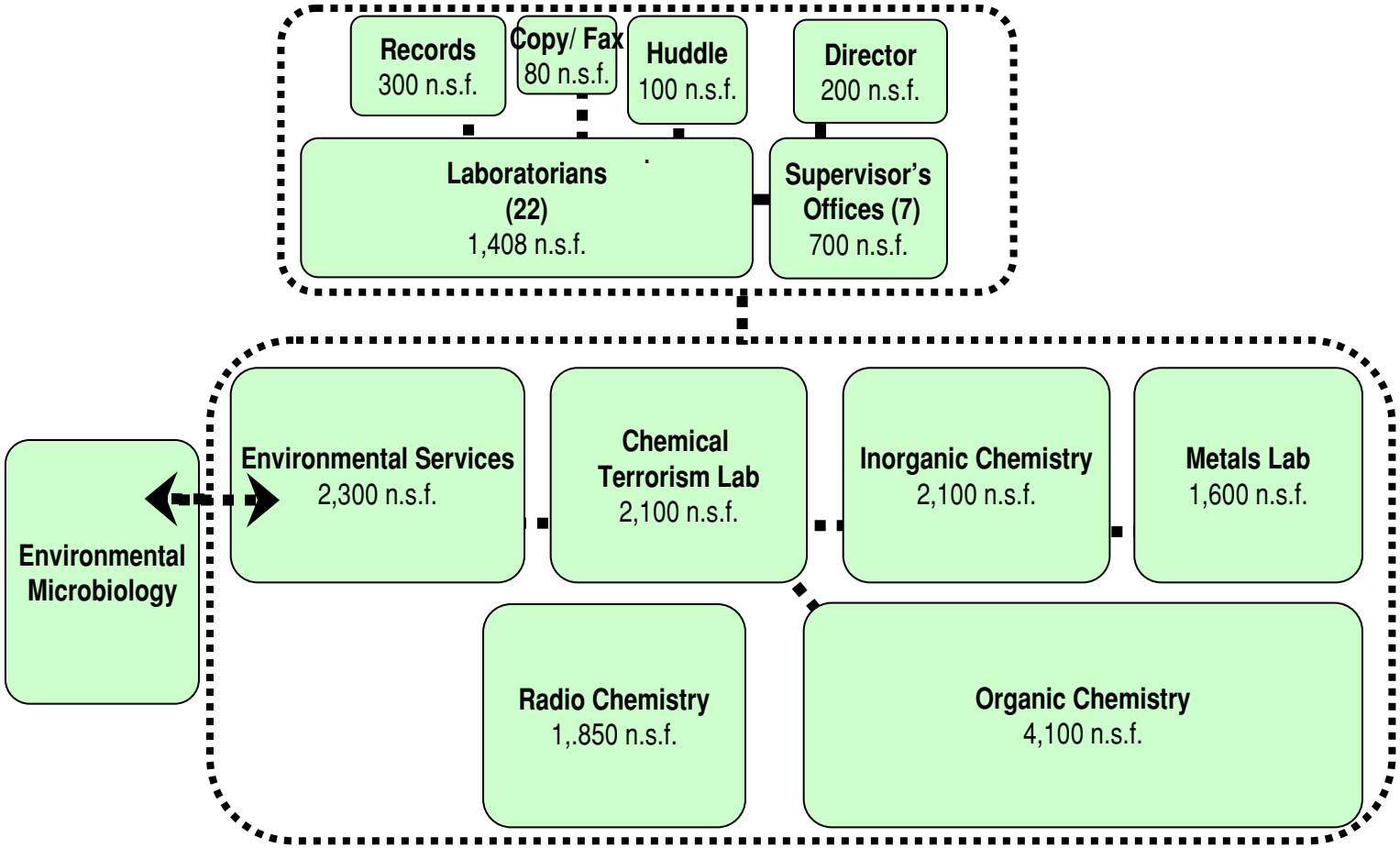
Key Legend

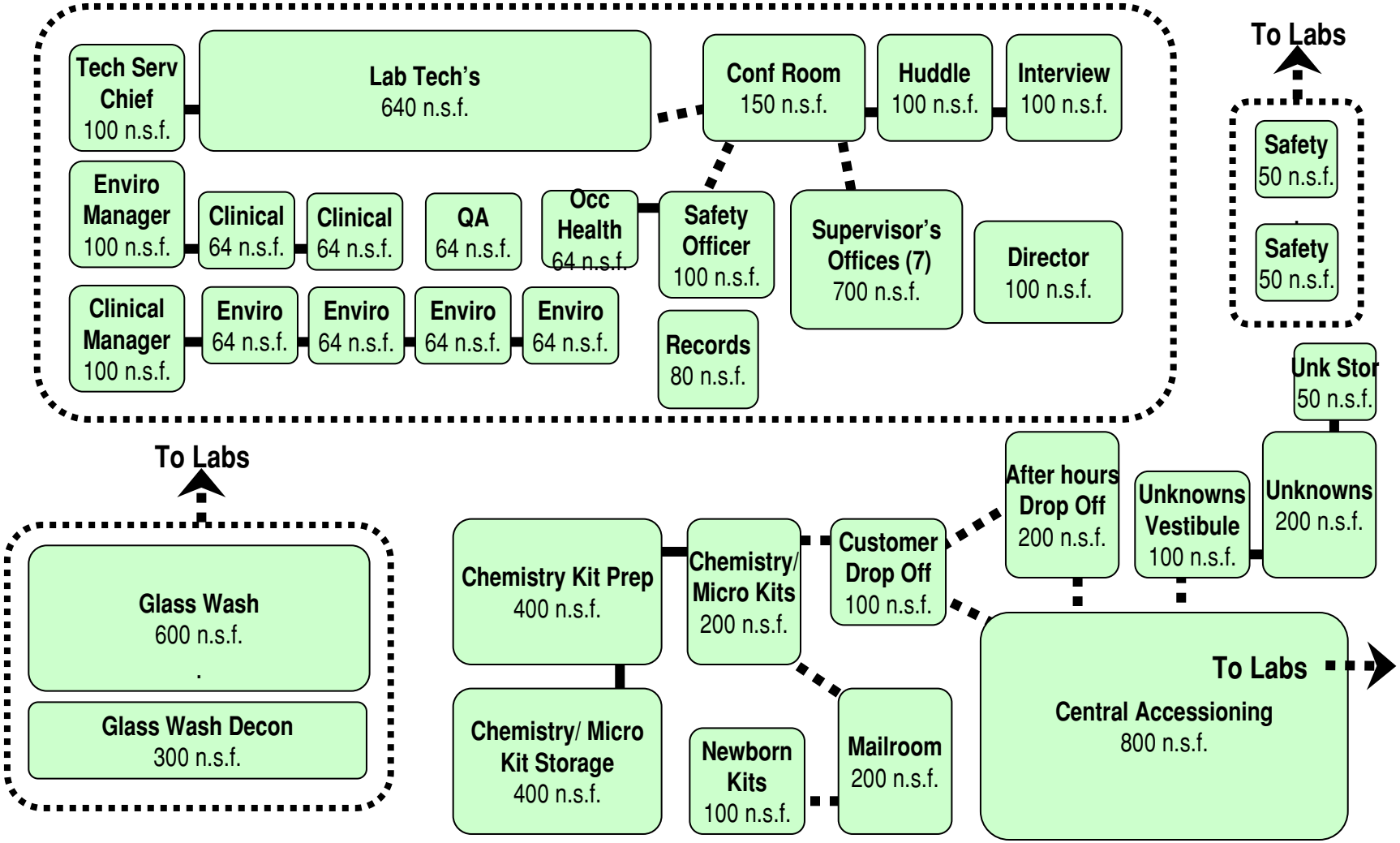
- Accessible to rolling tables
- Adjacent
- Accessible; Adjacency not required
- Future Adjacency

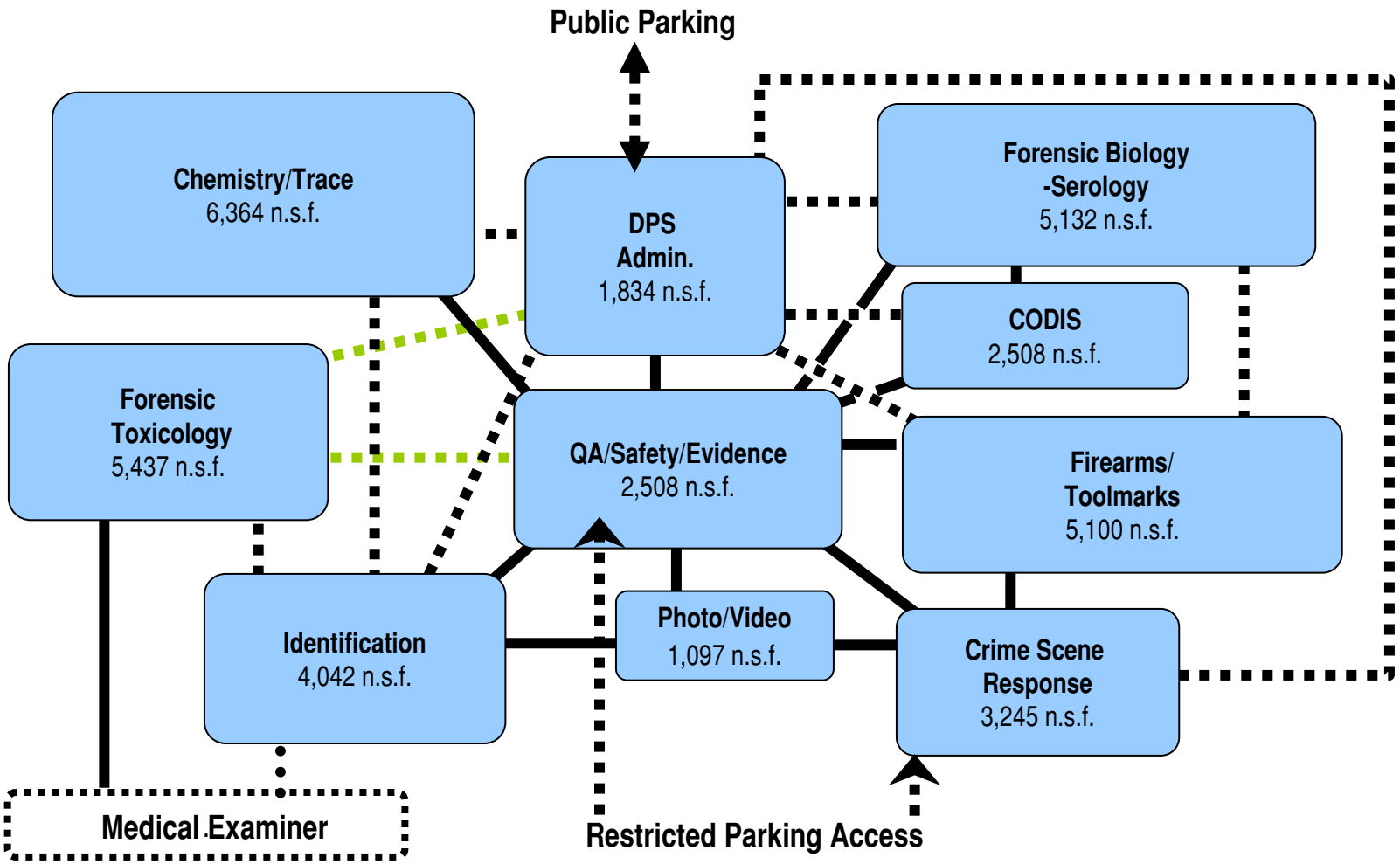

Public Parking
DOH Admin.
377 n.s.f.
Bureau of Microbiology
5,132 n.s.f.
Bureau of Laboratory Improvement
6,128 n.s.f.
Bureau of Chemical and Environmental Services
6,364 n.s.f.
Bureau of Management Services
2,589 n.s.f.
DOAF – Chemistry Labs
Restricted/ Loading Access

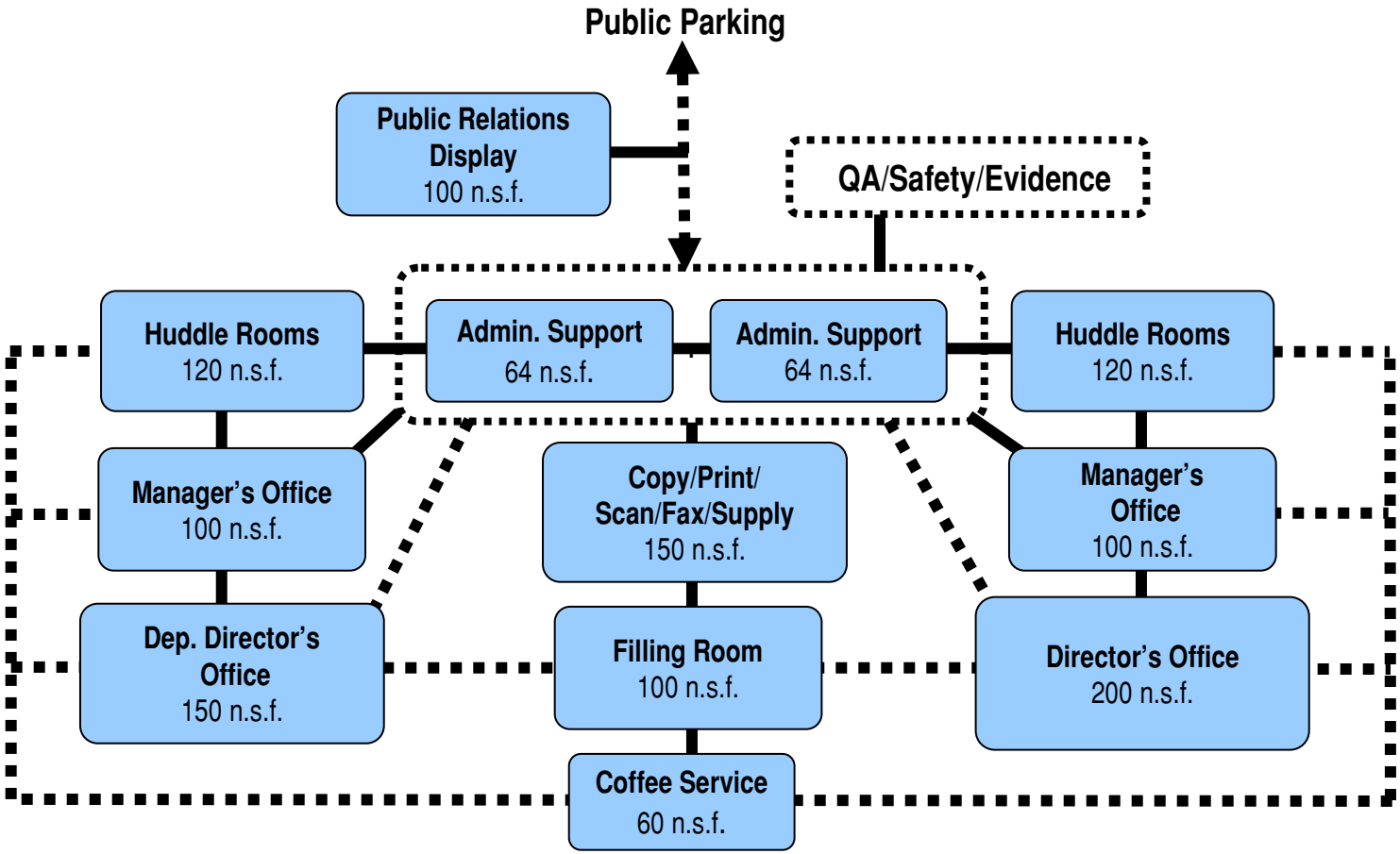

Public Parking
Director's Office
200 n.s.f.
Admin.
64 n.s.f.
Copy/Print
50 n.s.f.
Office
100 n.s.f.
Office
100 n.s.f.
Audit
100 n.s.f.
Office
100 n.s.f.
Admin.
64 n.s.f.
Coffee
80 n.s.f.
Copy/Print
80 n.s.f.
Manager
120 n.s.f.
Labs
Conference Library
600 n.s.f.
Records
400 n.s.f.
Cylinder Storage Rooms
300 n.s.f.
Coffee
80 n.s.f.
Building Emergency Response Team
100 n.s.f.

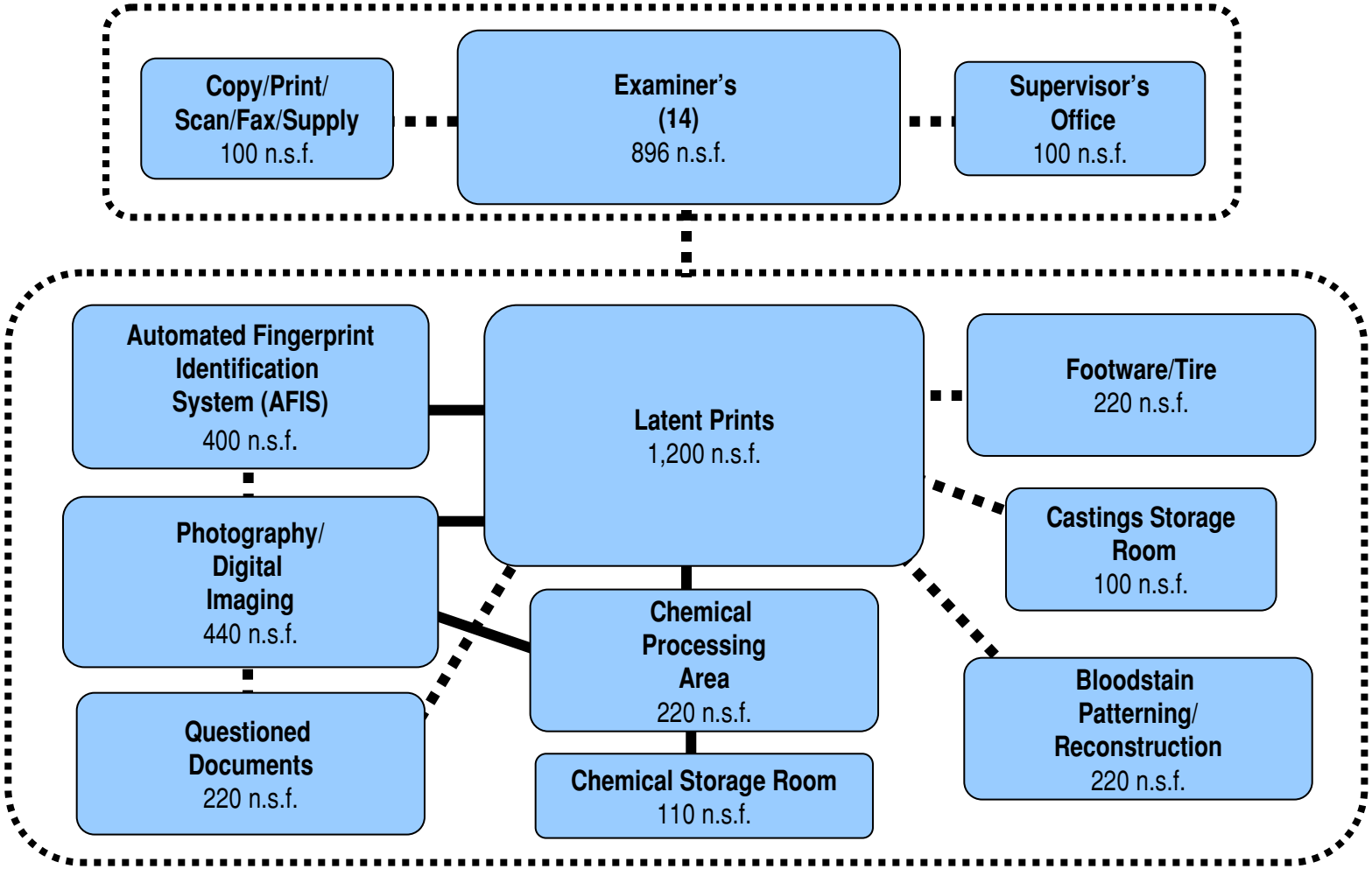

Virology
4,200 n.s.f.
Copy/ Fax
80 n.s.f.
Records
80 n.s.f.
Huddle
100 n.s.f.
Laboratorians
(23)
1,472 n.s.f.
Supervisor's
Offices (8)
800 n.s.f.
Bioterrorism Suite
2,365 n.s.f.
Newborn Screening
1,600 n.s.f.
Molecular Biology
1,600 n.s.f.
Tuberculosis
Lab
900 n.s.f.
Bacteriology
1,500 n.s.f.
Environmental Microbiology
3,338 n.s.f.
Chemistry Media
and Water Lab

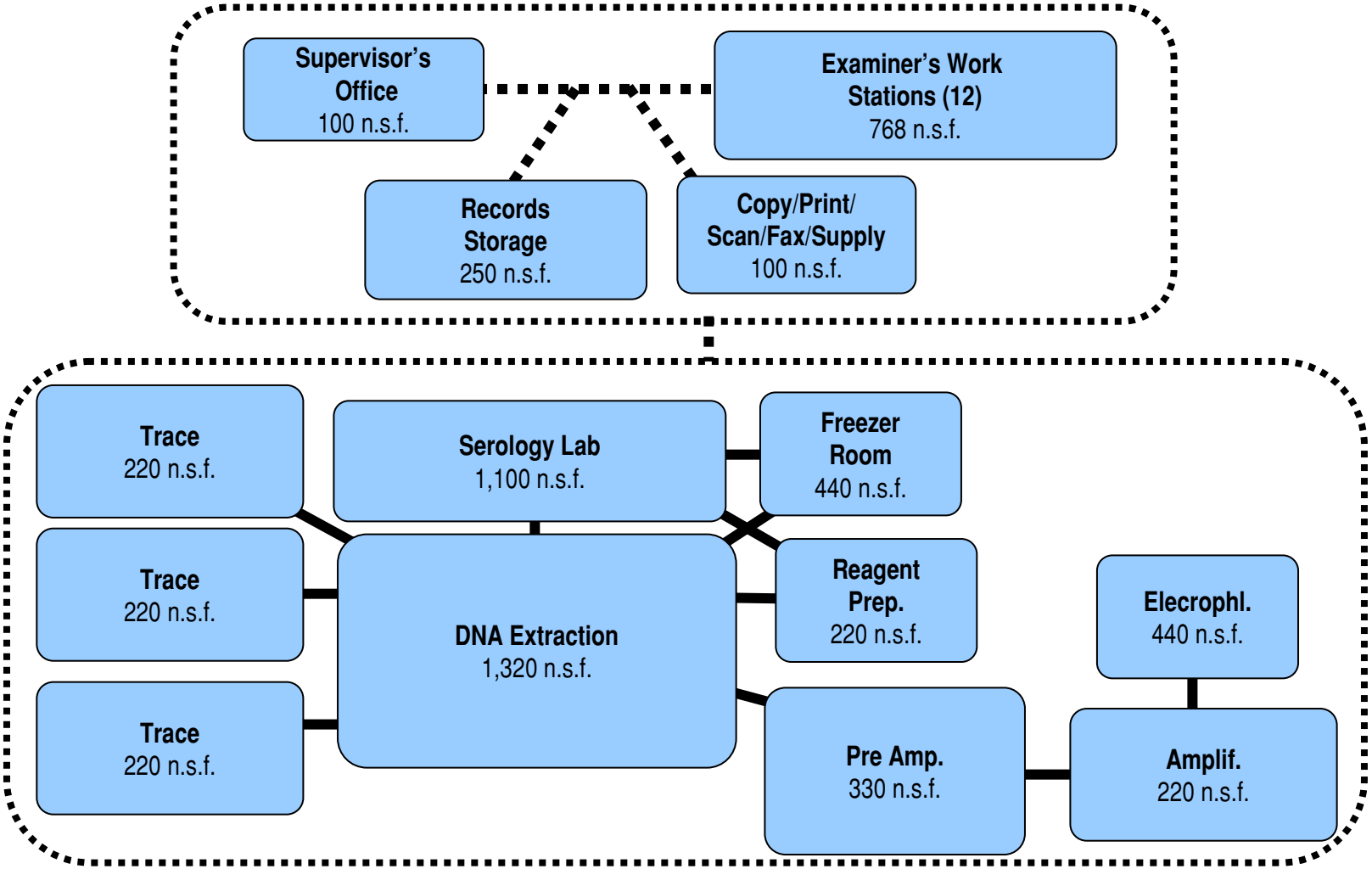

Records
300 n.s.f.
Copy/ Fax
80 n.s.f.
Huddle
100 n.s.f.
Director
200 n.s.f.
Laboratorians
(22)
1,408 n.s.f.
Supervisor's
Offices (7)
700 n.s.f.
Environmental Microbiology
Environmental Services
2,300 n.s.f.
Chemical
Terrorism Lab
2,100 n.s.f.
Inorganic Chemistry
2,100 n.s.f.
Metals Lab
1,600 n.s.f.
Radio Chemistry
1,.850 n.s.f.
Organic Chemistry
4,100 n.s.f.

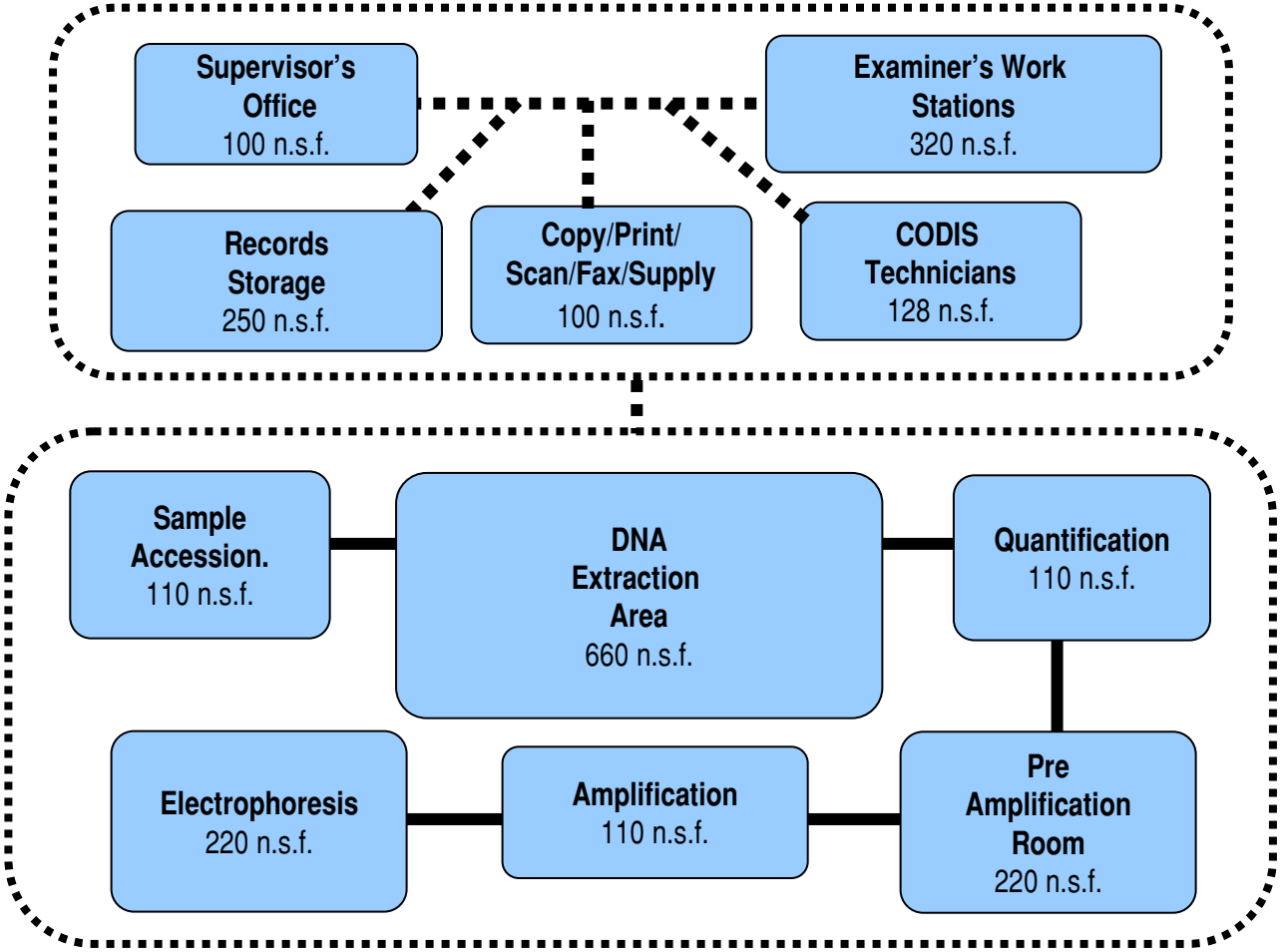

Tech Serv Chief 100 n.s.f.
Lab Tech's 640 n.s.f.
Conf Room 150 n.s.f.
Huddle 100 n.s.f.
Interview 100 n.s.f.
To Labs
Safety 50 n.s.f.
Safety 50 n.s.f.
Enviro Manager 100 n.s.f.
Clinical 64 n.s.f.
Clinical 64 n.s.f.
QA 64 n.s.f.
Occ Health 64 n.s.f.
Safety Officer 100 n.s.f.
Supervisor's Offices (7) 700 n.s.f.
Director 100 n.s.f.
Clinical Manager 100 n.s.f.
Enviro 64 n.s.f.
Enviro 64 n.s.f.
Enviro 64 n.s.f.
Enviro 64 n.s.f.
Records 80 n.s.f.
Unk Stor 50 n.s.f.
To Labs
After hours Drop Off 200 n.s.f.
Unknowns Vestibule 100 n.s.f.
Unknowns 200 n.s.f.
Glass Wash 600 n.s.f.
Glass Wash Decon 300 n.s.f.
Chemistry Kit Prep 400 n.s.f.
Chemistry/ Micro Kits 200 n.s.f.
Customer Drop Off 100 n.s.f.
To Labs
Central Accessioning 800 n.s.f.
Chemistry/ Micro Kit Storage 400 n.s.f.
Newborn Kits 100 n.s.f.
Mailroom 200 n.s.f.

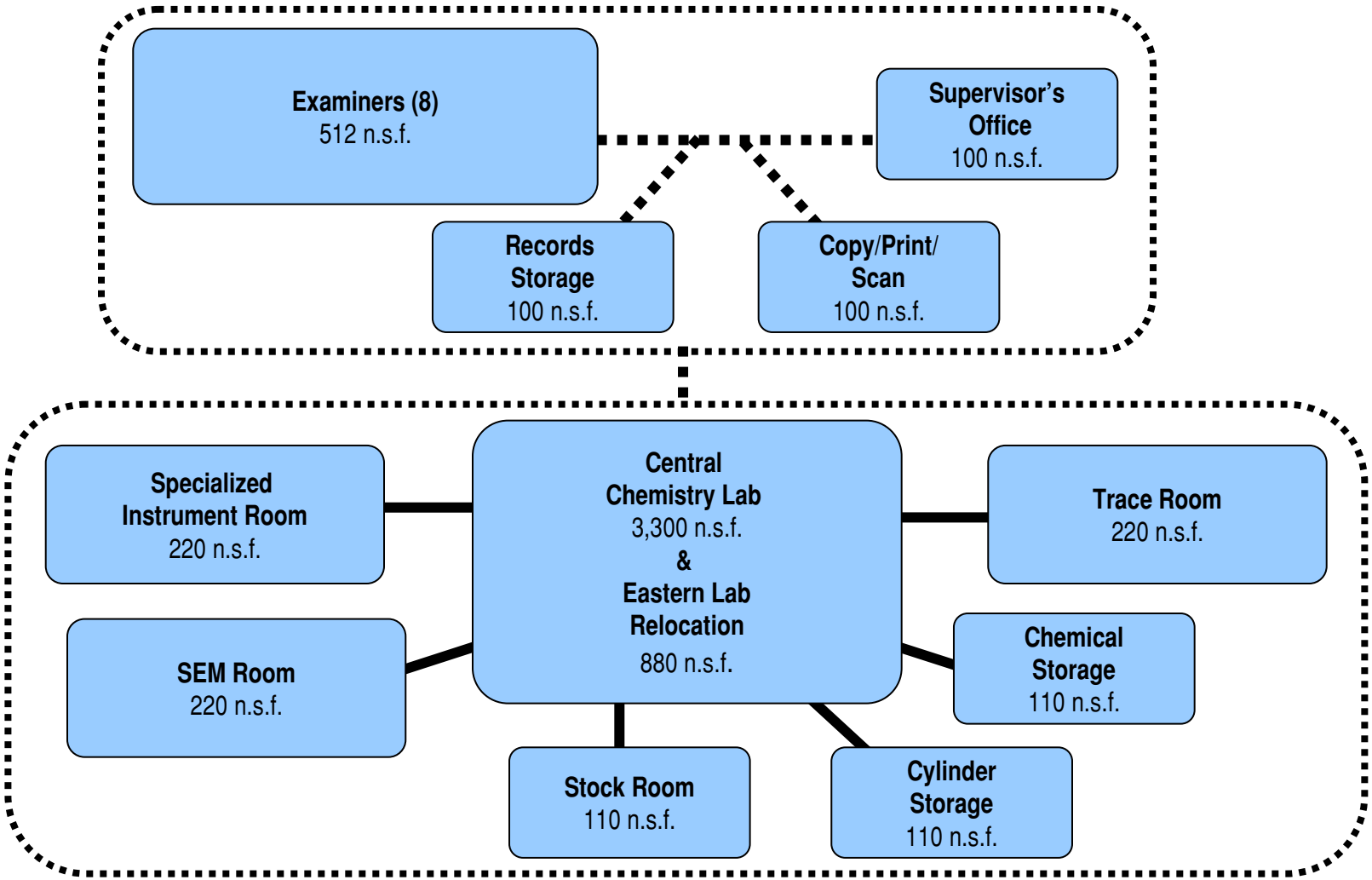

Public Parking
Chemistry/Trace
6,364 n.s.f.
DPS
Admin.
1,834 n.s.f.
Forensic Biology
-Serology
5,132 n.s.f.
CODIS
2,508 n.s.f.
Forensic
Toxicology
5,437 n.s.f.
QA/Safety/Evidence
2,508 n.s.f.
Firearms/
Toolmarks
5,100 n.s.f.
Identification
4,042 n.s.f.
Photo/Video
1,097 n.s.f.
Crime Scene
Response
3,245 n.s.f.
Medical Examiner
Restricted Parking Access

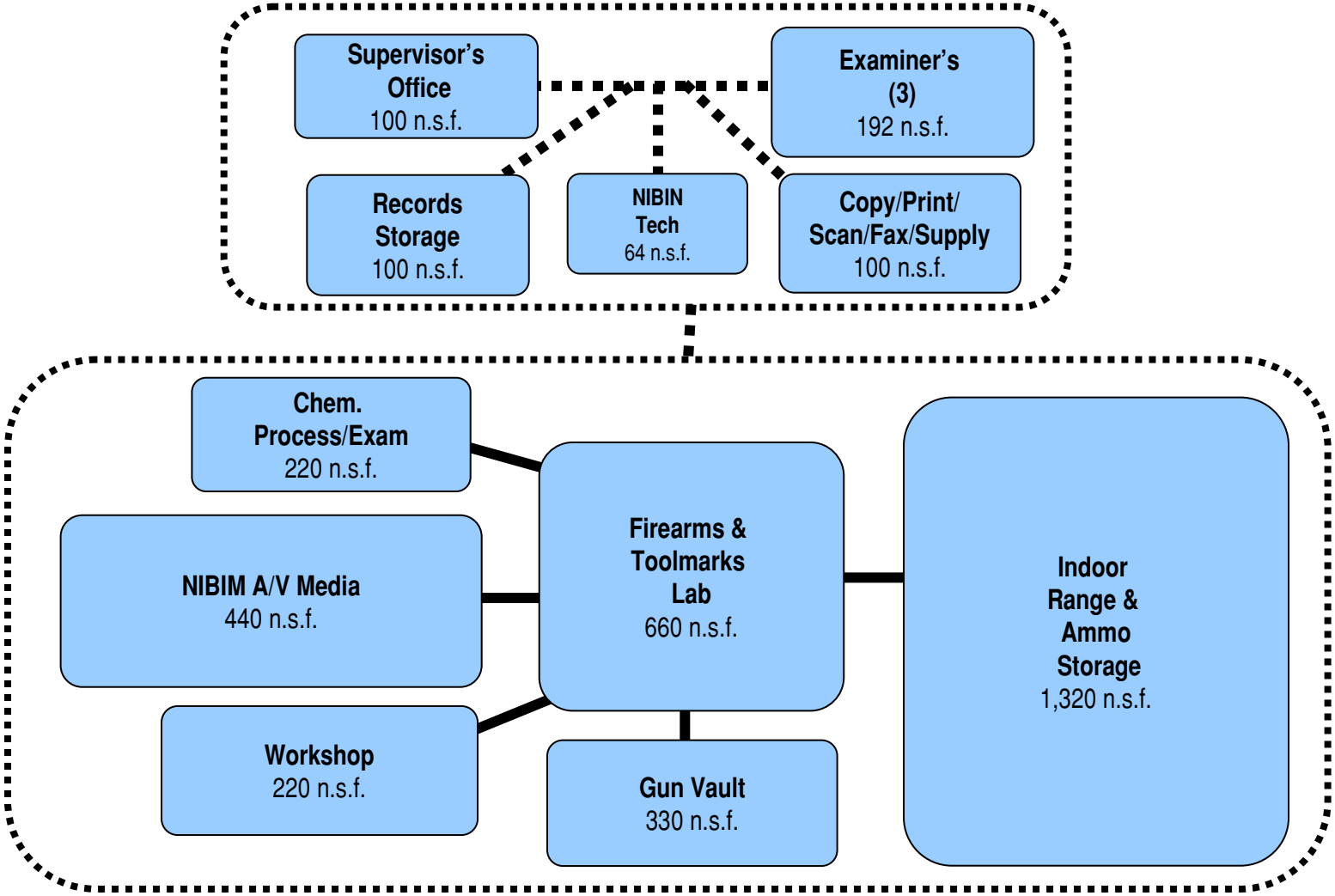

Public Parking
Public Relations Display
100 n.s.f.
QA/Safety/Evidence
Huddle Rooms
120 n.s.f.
Admin. Support
64 n.s.f.
Admin. Support
64 n.s.f.
Huddle Rooms
120 n.s.f.
Manager's Office
100 n.s.f.
Copy/Print/ Scan/Fax/Supply
150 n.s.f.
Manager's Office
100 n.s.f.
Dep. Director's Office
150 n.s.f.
Filling Room
100 n.s.f.
Director's Office
200 n.s.f.
Coffee Service
60 n.s.f.

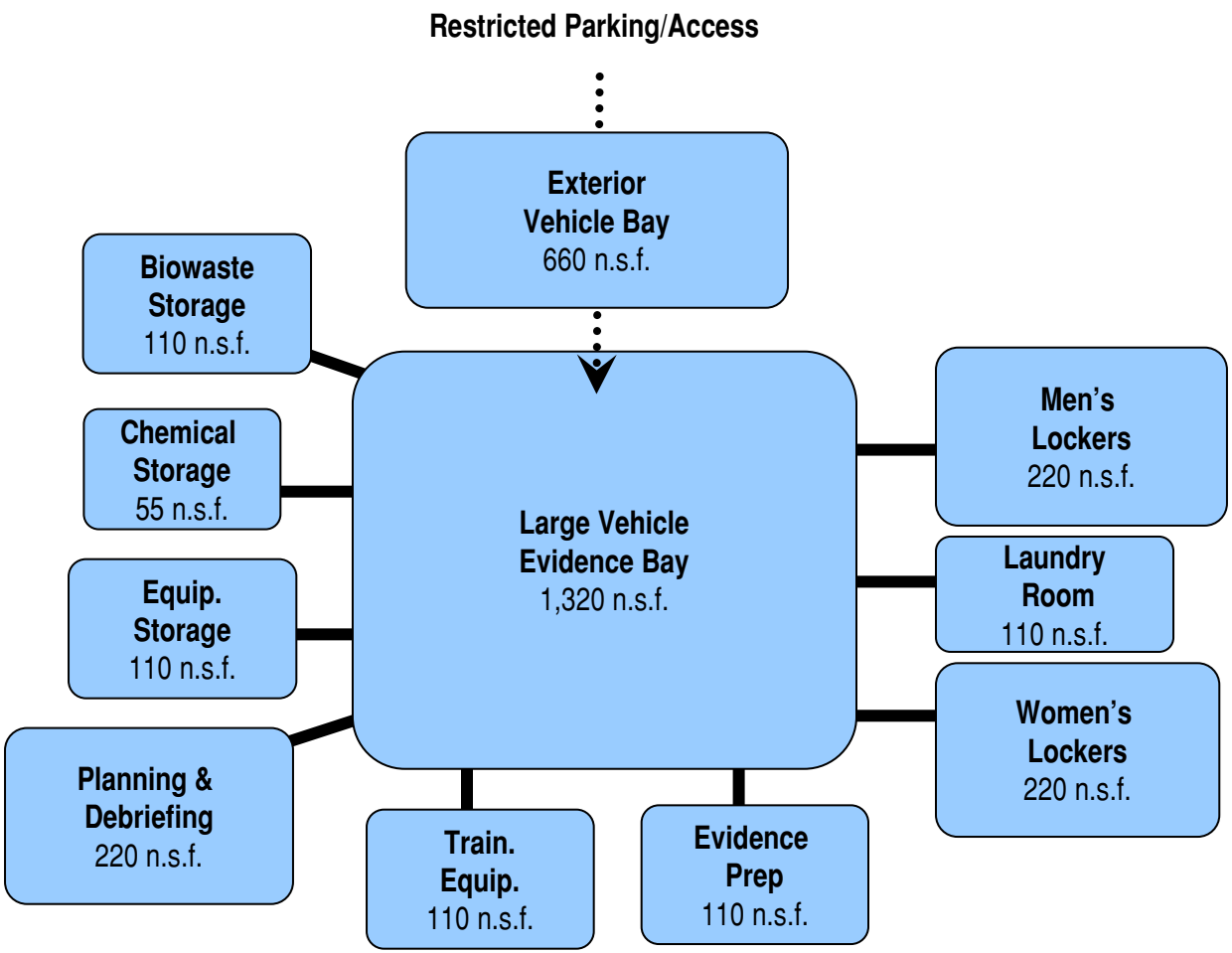

Copy/Print/
Scan/Fax/Supply
100 n.s.f.
Examiner's
(14)
896 n.s.f.
Supervisor's
Office
100 n.s.f.
Automated Fingerprint
Identification
System (AFIS)
400 n.s.f.
Latent Prints
1,200 n.s.f.
Footware/Tire
220 n.s.f.
Photography/
Digital
Imaging
440 n.s.f.
Castings Storage
Room
100 n.s.f.
Chemical
Processing
Area
220 n.s.f.
Bloodstain
Patterning/
Reconstruction
220 n.s.f.
Questioned
Documents
220 n.s.f.
Chemical Storage Room
110 n.s.f.

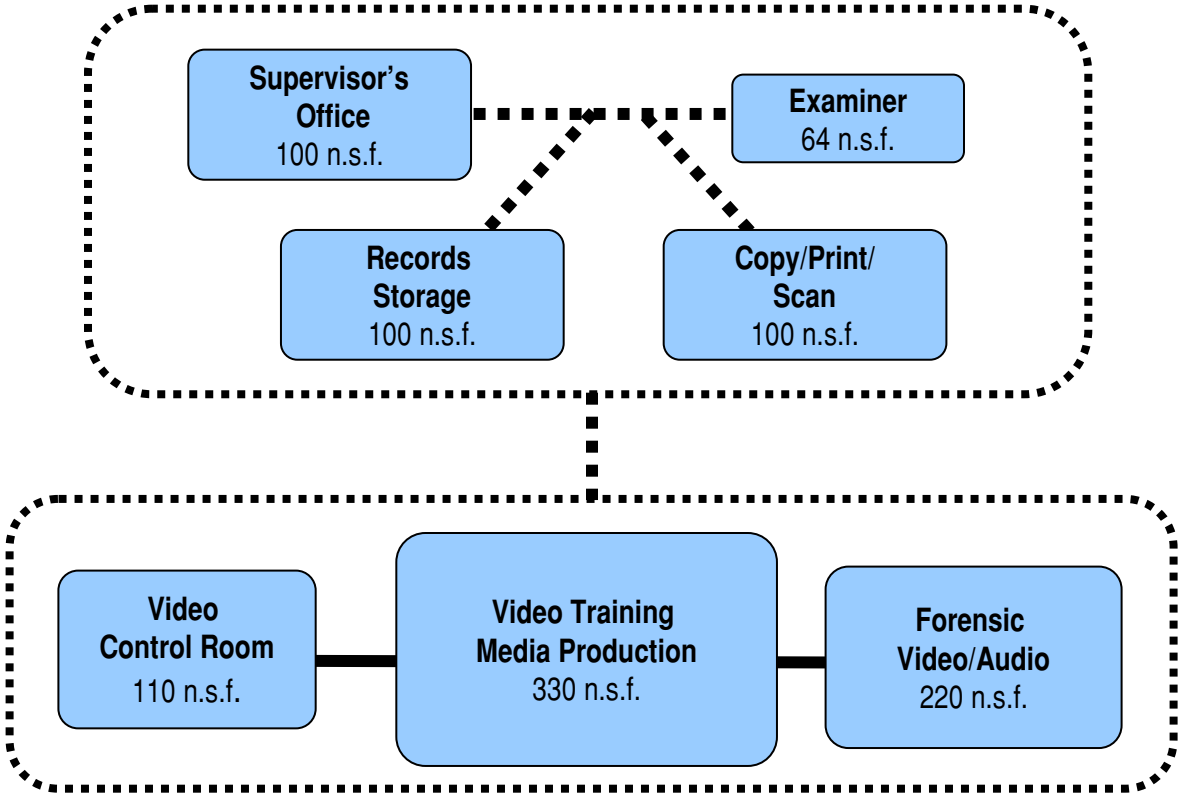

Supervisor's Office
100 n.s.f.
Examiner's Work Stations (12)
768 n.s.f.
Records Storage
250 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
Trace
220 n.s.f.
Serology Lab
1,100 n.s.f.
Freezer Room
440 n.s.f.
Trace
220 n.s.f.
DNA Extraction
1,320 n.s.f.
Reagent Prep.
220 n.s.f.
Elecrophl.
440 n.s.f.
Trace
220 n.s.f.
Pre Amp.
330 n.s.f.
Amplif.
220 n.s.f.


Supervisor's Office
100 n.s.f.
Examiner's Work Stations
320 n.s.f.
Records Storage
250 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
CODIS Technicians
128 n.s.f.
Sample Accession.
110 n.s.f.
DNA Extraction Area
660 n.s.f.
Quantification
110 n.s.f.
Electrophoresis
220 n.s.f.
Amplification
110 n.s.f.
Pre Amplification Room
220 n.s.f.

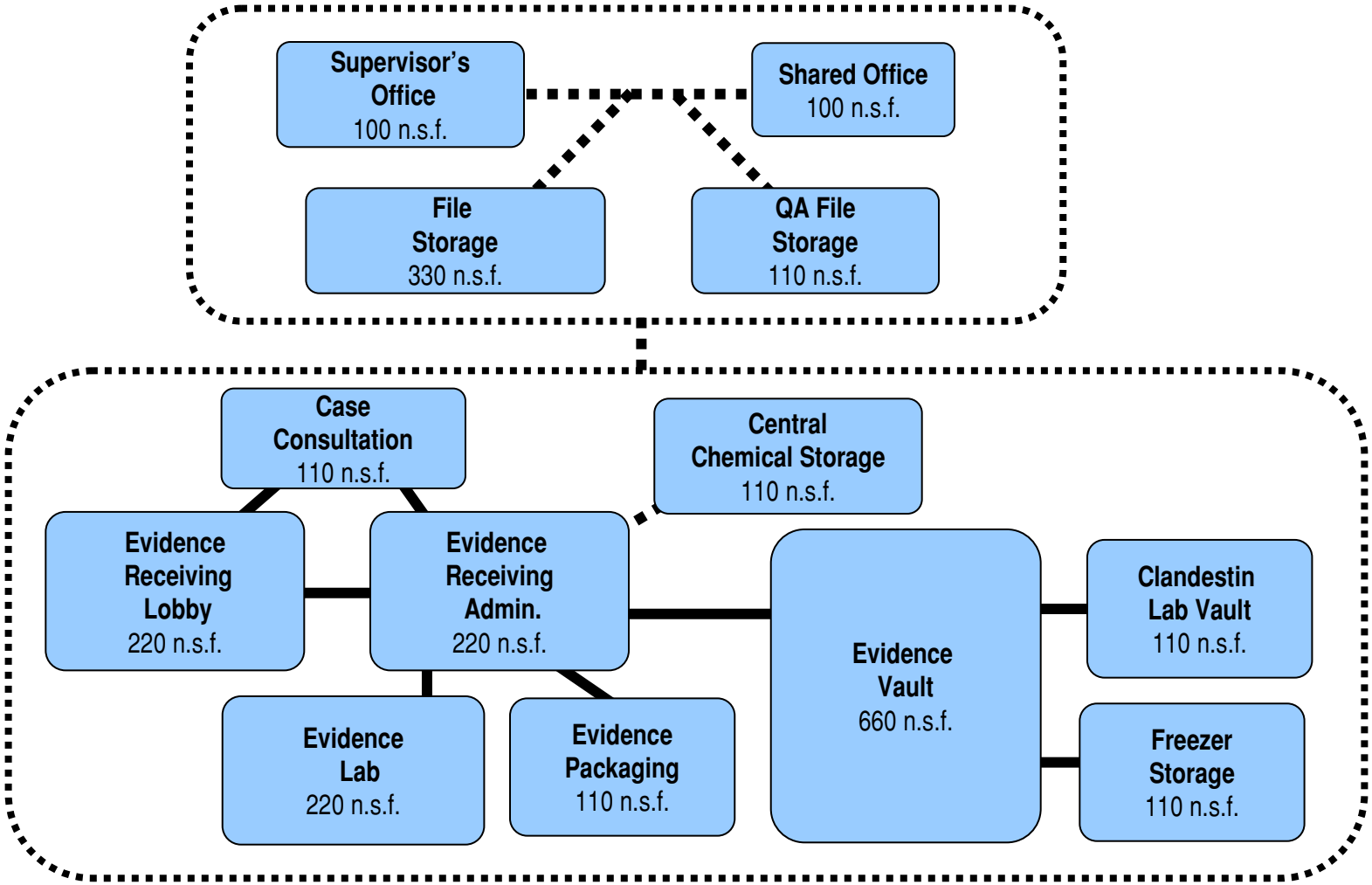

Examiners (8)
512 n.s.f.
Supervisor's Office
100 n.s.f.
Records Storage
100 n.s.f.
Copy/Print/ Scan
100 n.s.f.
Specialized Instrument Room
220 n.s.f.
Central Chemistry Lab
3,300 n.s.f.
&
Eastern Lab Relocation
880 n.s.f.
Trace Room
220 n.s.f.
SEM Room
220 n.s.f.
Chemical Storage
110 n.s.f.
Stock Room
110 n.s.f.
Cylinder Storage
110 n.s.f.

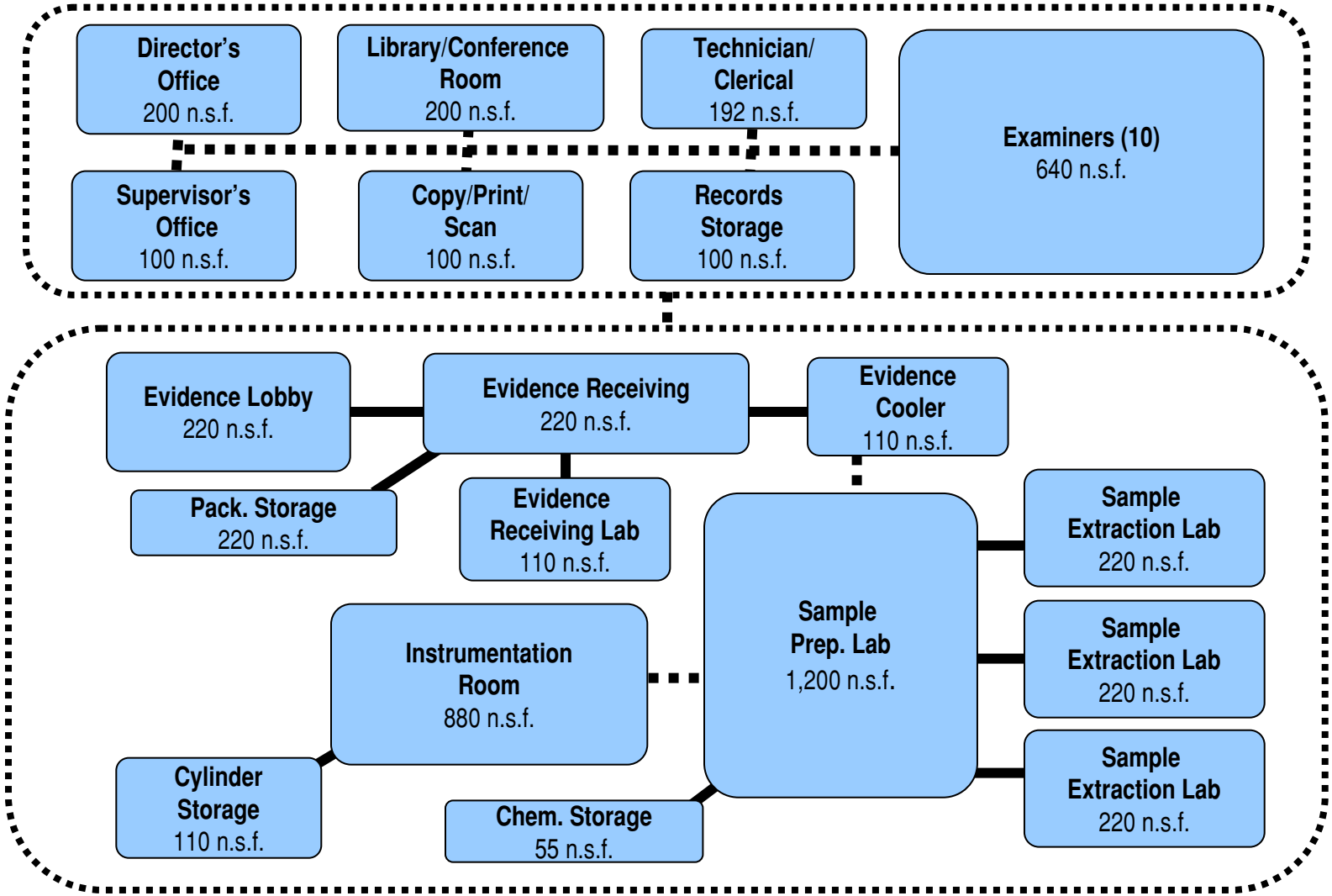

Supervisor's Office
100 n.s.f.
Examiner's (3)
192 n.s.f.
Records Storage
100 n.s.f.
NIBIN Tech
64 n.s.f.
Copy/Print/ Scan/Fax/Supply
100 n.s.f.
Chem. Process/Exam
220 n.s.f.
NIBIM A/V Media
440 n.s.f.
Firearms & Toolmarks Lab
660 n.s.f.
Indoor Range & Ammo Storage
1,320 n.s.f.
Workshop
220 n.s.f.
Gun Vault
330 n.s.f.

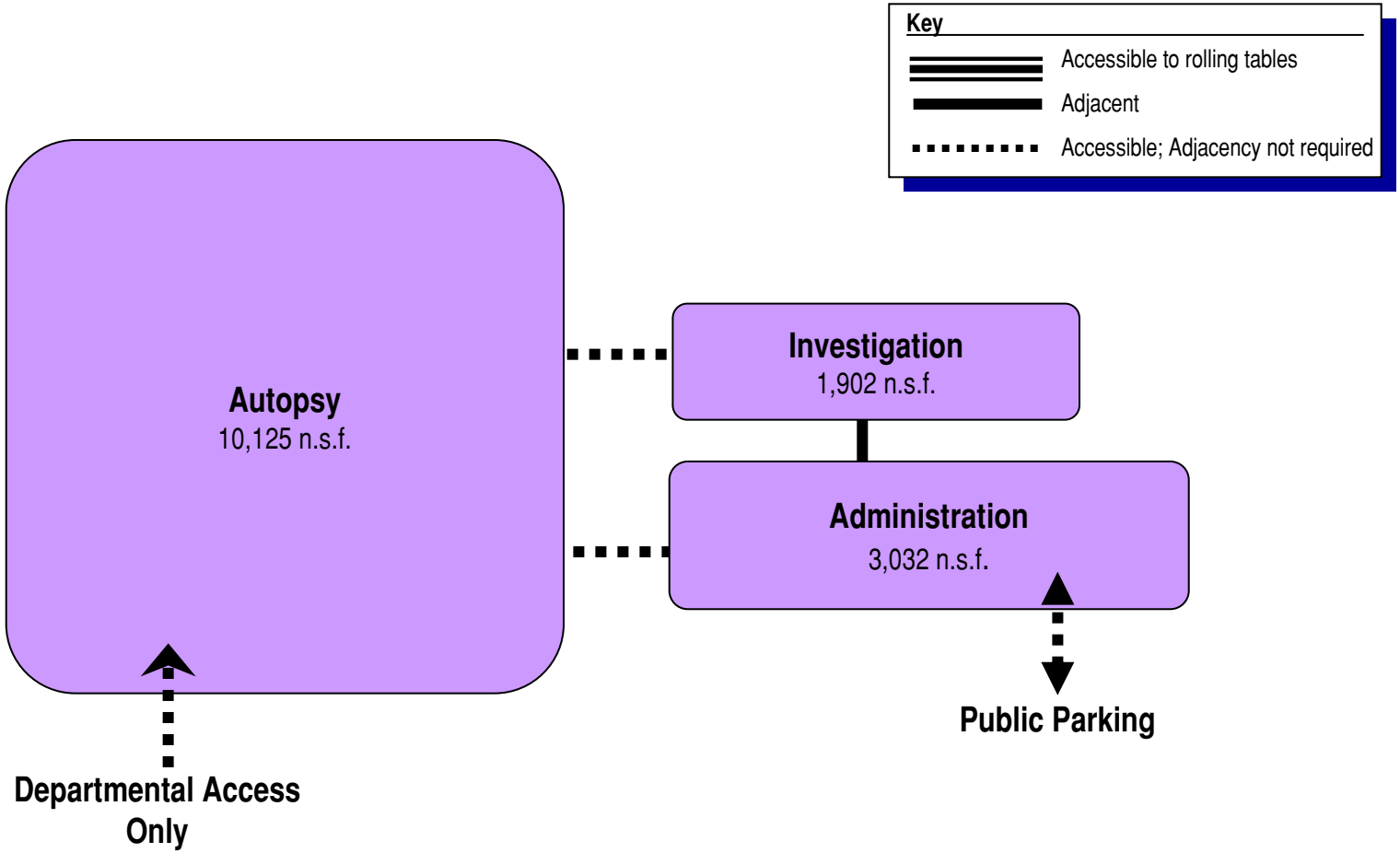

Restricted Parking/Access
Exterior Vehicle Bay 660 n.s.f.
Biowaste Storage 110 n.s.f.
Chemical Storage 55 n.s.f.
Equip. Storage 110 n.s.f.
Planning & Debriefing 220 n.s.f.
Large Vehicle Evidence Bay 1,320 n.s.f.
Train. Equip. 110 n.s.f.
Evidence Prep 110 n.s.f.
Men's Lockers 220 n.s.f.
Laundry Room 110 n.s.f.
Women's Lockers 220 n.s.f.

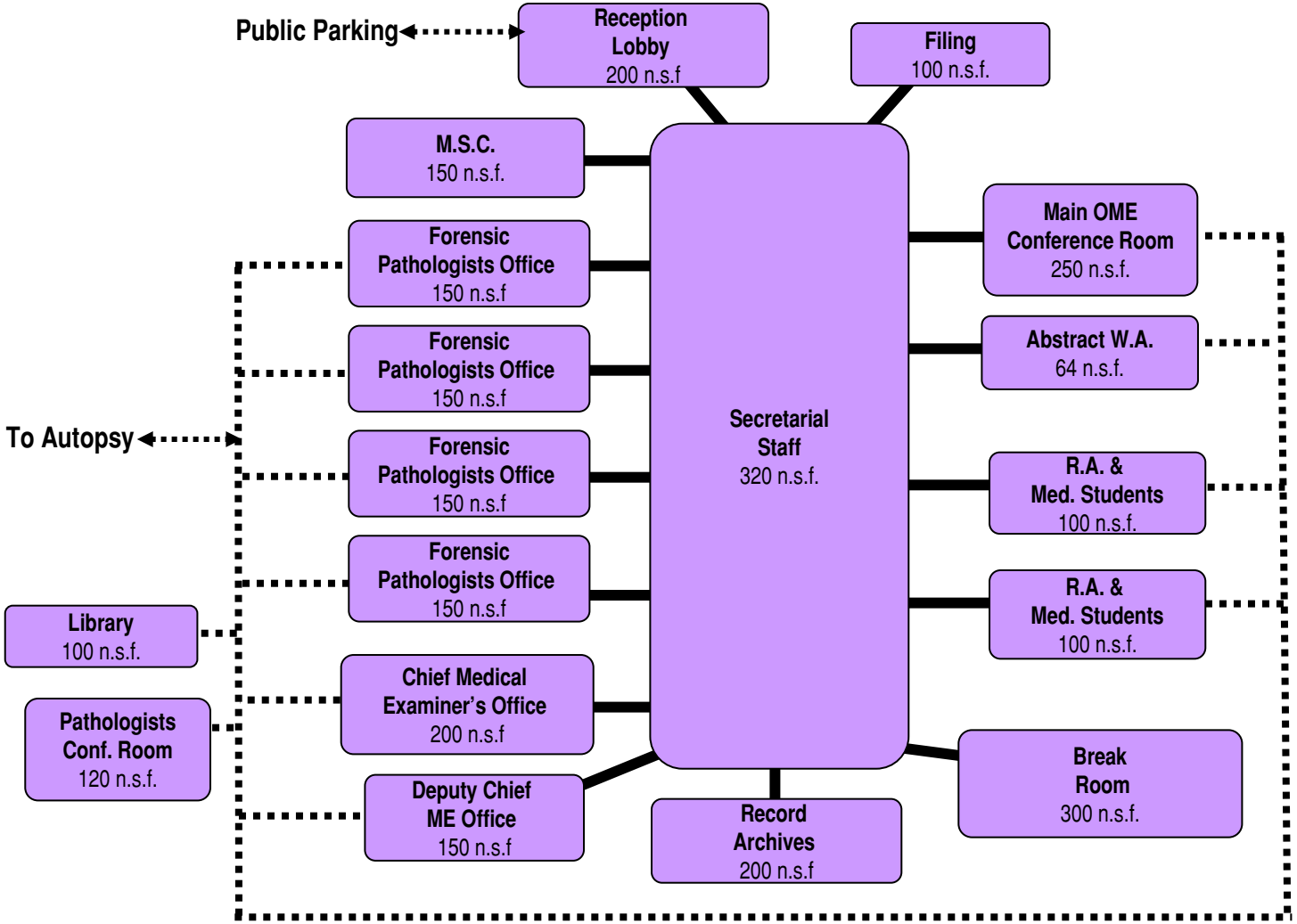

Supervisor's Office
100 n.s.f.
Examiner
64 n.s.f.
Records Storage
100 n.s.f.
Copy/Print/ Scan
100 n.s.f.
Video Control Room
110 n.s.f.
Video Training Media Production
330 n.s.f.
Forensic Video/Audio
220 n.s.f.

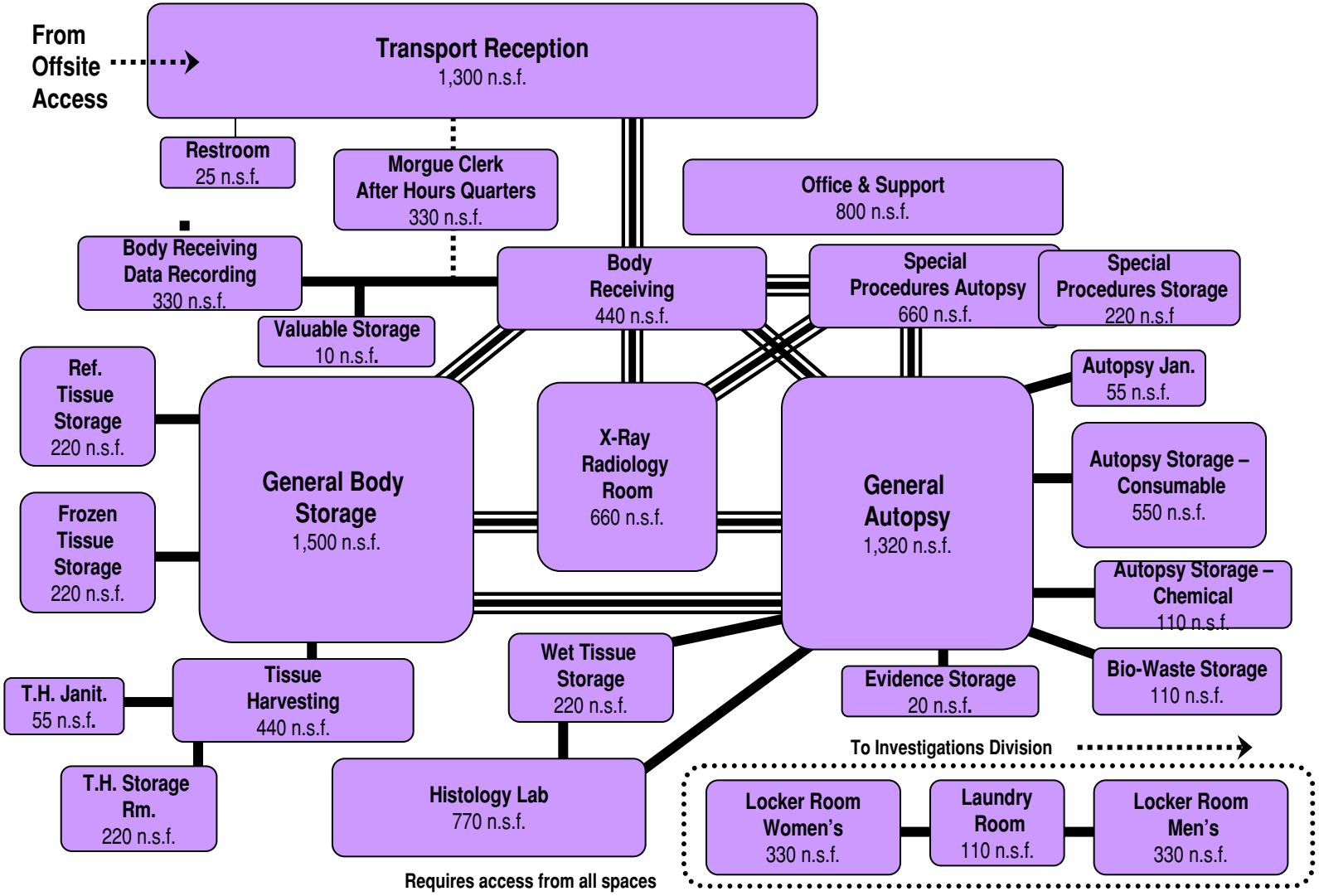
Functional Adjacency Diagram – DPS QA/Safety/Evidence

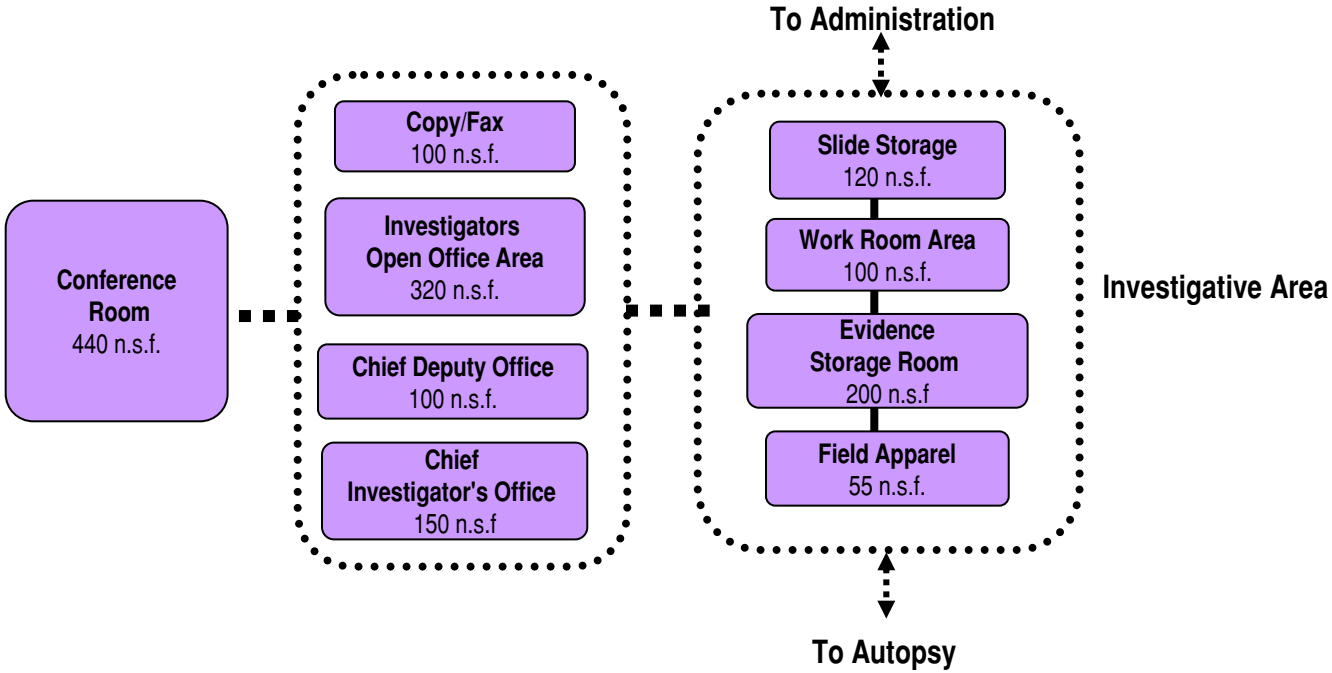


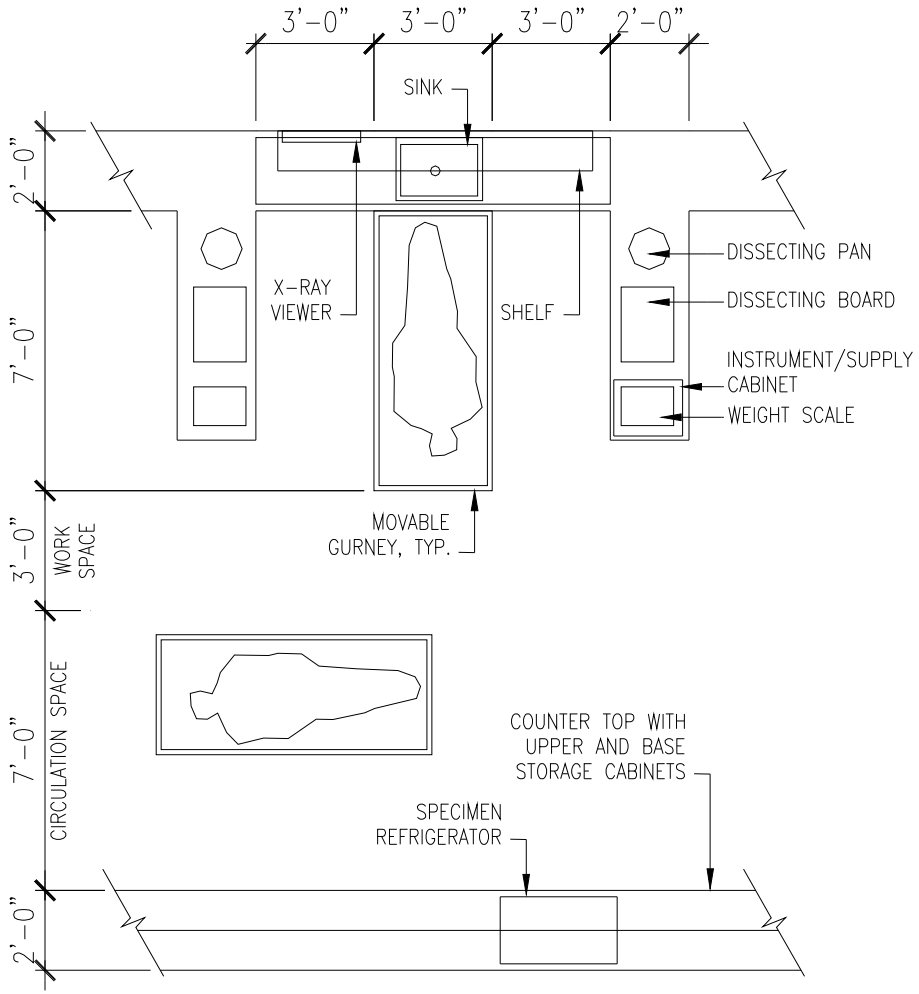

Director's Office
200 n.s.f.
Library/Conference Room
200 n.s.f.
Technician/ Clerical
192 n.s.f.
Examiners (10)
640 n.s.f.
Supervisor's Office
100 n.s.f.
Copy/Print/ Scan
100 n.s.f.
Records Storage
100 n.s.f.
Evidence Lobby
220 n.s.f.
Evidence Receiving
220 n.s.f.
Evidence Cooler
110 n.s.f.
Pack. Storage
220 n.s.f.
Evidence Receiving Lab
110 n.s.f.
Sample Extraction Lab
220 n.s.f.
Sample Prep. Lab
1,200 n.s.f.
Instrumentation Room
880 n.s.f.
Sample Extraction Lab
220 n.s.f.
Cylinder Storage
110 n.s.f.
Chem. Storage
55 n.s.f.
Sample Extraction Lab
220 n.s.f.


Key
Accessible to rolling tables
Adjacent
Accessible; Adjacency not required
Autopsy
10,125 n.s.f.
Investigation
1,902 n.s.f.
Administration
3,032 n.s.f.
Public Parking
Departmental Access Only


Public Parking
Reception Lobby 200 n.s.f
Filing 100 n.s.f.
M.S.C. 150 n.s.f.
Forensic Pathologists Office 150 n.s.f
Forensic Pathologists Office 150 n.s.f
Forensic Pathologists Office 150 n.s.f
Forensic Pathologists Office 150 n.s.f
To Autopsy
Library 100 n.s.f.
Pathologists Conf. Room 120 n.s.f.
Chief Medical Examiner's Office 200 n.s.f
Deputy Chief ME Office 150 n.s.f
Secretarial Staff 320 n.s.f.
Record Archives 200 n.s.f
Main OME Conference Room 250 n.s.f.
Abstract W.A. 64 n.s.f.
R.A. & Med. Students 100 n.s.f.
R.A. & Med. Students 100 n.s.f.
Break Room 300 n.s.f.


From Offsite Access
Transport Reception
1,300 n.s.f.
Restroom
25 n.s.f.
Morgue Clerk After Hours Quarters
330 n.s.f.
Office & Support
800 n.s.f.
Body Receiving Data Recording
330 n.s.f.
Body Receiving
440 n.s.f.
Special Procedures Autopsy
660 n.s.f.
Special Procedures Storage
220 n.s.f
Valuable Storage
10 n.s.f.
Ref. Tissue Storage
220 n.s.f.
General Body Storage
1,500 n.s.f.
X-Ray Radiology Room
660 n.s.f.
General Autopsy
1,320 n.s.f.
Autopsy Jan.
55 n.s.f.
Autopsy Storage – Consumable
550 n.s.f.
Frozen Tissue Storage
220 n.s.f.
Autopsy Storage – Chemical
110 n.s.f.
Wet Tissue Storage
220 n.s.f.
Evidence Storage
20 n.s.f.
Bio-Waste Storage
110 n.s.f.
T.H. Janit.
55 n.s.f.
Tissue Harvesting
440 n.s.f.
To Investigations Division
T.H. Storage Rm.
220 n.s.f.
Histology Lab
770 n.s.f.
Locker Room Women's
330 n.s.f.
Laundry Room
110 n.s.f.
Locker Room Men's
330 n.s.f.
Requires access from all spaces


To Administration
Conference Room
440 n.s.f.
Copy/Fax
100 n.s.f.
Investigators Open Office Area
320 n.s.f.
Chief Deputy Office
100 n.s.f.
Chief Investigator's Office
150 n.s.f
Slide Storage
120 n.s.f.
Work Room Area
100 n.s.f.
Evidence Storage Room
200 n.s.f
Field Apparel
55 n.s.f.
Investigative Area
To Autopsy


3'-0"
3'-0"
3'-0"
2'-0"
SINK
2'-0"
7'-0"
X-RAY VIEWER
SHELF
DISSECTING PAN
DISSECTING BOARD
INSTRUMENT/SUPPLY CABINET
WEIGHT SCALE
MOVABLE GURNEY, TYP.
3'-0"
WORK SPACE
7'-0"
CIRCULATION SPACE
COUNTER TOP WITH UPPER AND BASE STORAGE CABINETS
SPECIMEN REFRIGERATOR
2'-0"

State of Utah
Unified State Laboratory

Detailed Planning & Programming Workplan & Schedule

CUH2A architecture. engineering. planning.

WORK SESSION AGENDA

1

SCOPE MEETING
Project Start-Up
Contract Negotiations
Goals & Objectives
Confirm Schedule
Information Gathering
Committee Selections
Codes & Regulations
Standard & Guidelines
Consultant Preparation
Proposed Site Documentation

2

BENCHMARKING TOUR
Three Day Trip
Virginia DCLS
Minnesota Public Health
Arizona Public Health

3

WORKSHOP #1
Programming Preview
Departmental Tours
Programming Interviews
Space Verification & Allocation
Adjacency Matrix
Fixed Equipment List Development

Site Analysis
Proposed Site Reviews

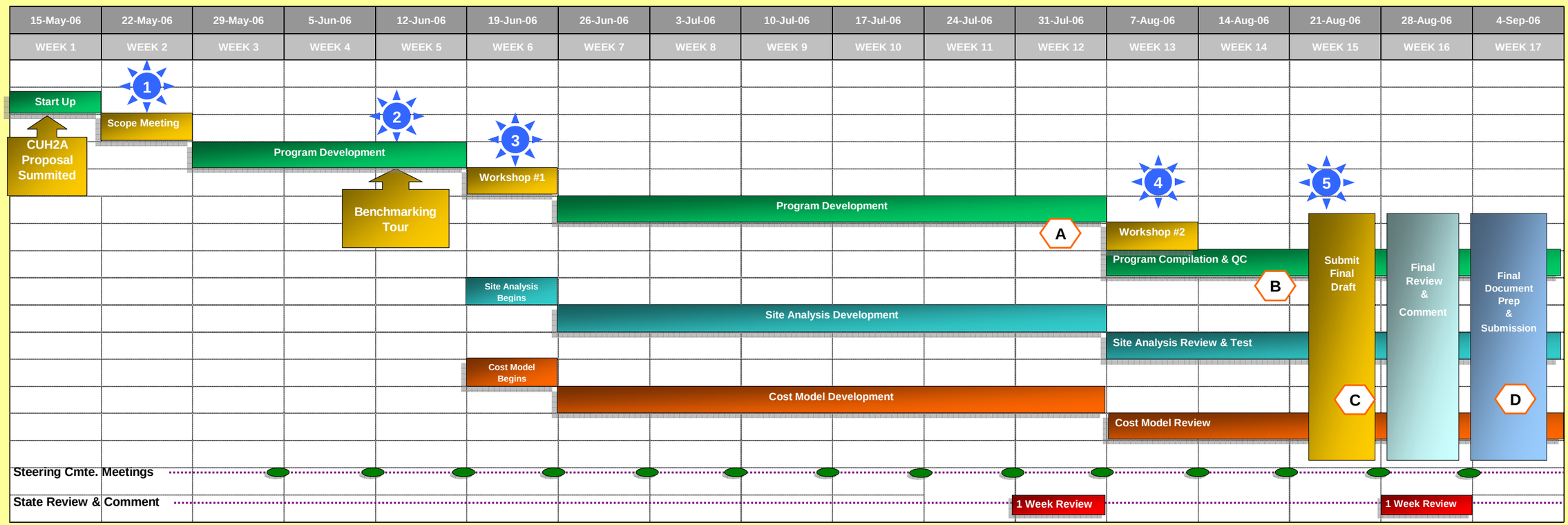
4

WORKSHOP #2
Programming Review
Follow-up Programming Interviews
Preliminary Program Review
Preliminary Space Tabulation'
Equipment Verification
Preliminary Block & Stack Diagrams
Engineering Equipment Review
Preliminary Cost Model Review
Site Analysis
Site Test & Fit

5

DRAFT ACCEPTANCE
Program Endorsement
Present Draft PPD
Blocking & Stacking Diagrams
Cost Model Review
Code Requirements
Document Comments
Site Analysis
Present Site Analysis & Site Diagrams

SCHEDULE OF EVENTS



DELIVERABLES

A

Interim Submittal:
- Preliminary Program Spreadsheet
- Space Tabulation

B

Interim Submittal:
- Revised Space Tabulation
- Prelim. Fixed Equipment Summary
- Prelim. Code Summary
- Prelim. Engineering Systems Selection
- Cost Model
- Site Diagrams

C

Draft Submittal:
- Program Requirements
- Space Tabulation
- Fixed Equipment Summary
- Engineering Systems Selection
- Executive Summary
- Code & Standard Requirements
- Massing Diagram
- Security Requirements
- Site Analysis & Recommendation
- Cost Model

D

Final Submittal:
- Program Requirements
- Space Tabulation
- Fixed Equipment Summary
- Engineering Systems Selection
- Executive Summary
- Code & Standard Requirements
- Massing Diagram
- Security Requirements
- Site Analysis & Recommendation
- Cost Model

Program Cost Model Estimate

The State of Utah
Unified State Laboratory
Salt Lake City, Utah

CUH2A
200 South Wacker Drive, Suite 3100
Chicago, IL 60606

October 11, 2006

Provided By:
Faithful + Gould
222 South Riverside Plaza Suite 2240
Chicago, IL 60606
phone: 312.655.8510
FGOULD.COM

The State of Utah

Unified State Laboratory

Program Cost Model Estimate — **3 floors** — **75,248 square feet**

11-Oct-06

		Construction Start	Prices current August 2006						
		Duration		24 months				Module 2	Module 3
		Gross Square Footage	Module 1	75,248				59973	$ 48,518
			Department of Health + Forensic Toxicology					***Office of the Medical Examiner + Dept. of Agriculture***	***Department of Public Safety***
			Amount	Total Cost	Cost / GSF		%	Total Cost	Total Cost
A10		**FOUNDATIONS**							
	A1010	Standard foundations	$217,750		$2.89				
	A1020	Special foundation conditions	$0		$0.00				
	A1030	Lowest Floor Construction	$118,747	$336,497	$1.58	$4.47	1.34	$268,191	$216,966
A20		**Basement Construction**							
	A2010	Basement excavation	$24,607		$0.33				
	A2020	Basement walls	$107,800	$132,407	$1.43	$1.76	0.53	$105,530	$85,373
B10		**SUPERSTRUCTURE**							
	B1010	Upper Floor Construction	$1,294,103		$17.20				
	B1020	Roof Construction	$553,146	$1,847,249	$7.35	$24.55	7.33	$1,472,275	$1,191,067
B20		**EXTERIOR CLOSURE**							
	B2010	Exterior walls	$914,770		$12.16				
	B2020	Windows	$928,750		$12.34				
	B2030	Exterior Doors	$36,800	$1,880,320	$0.49	$24.99	7.46	$1,498,633	$1,212,390
B30		**ROOFING**							
	B3010	Roof Coverings	$279,367		$3.71				
	B3020	Roof Openings	$0	$279,367	$0.00	$3.71	1.11	$222,658	$180,130
C10		**INTERIOR CONSTRUCTION**							
	C1010	Partitions	$760,571		$10.11				
	C1020	Interior Doors	$437,830		$5.82				
	C1030	Specialties/Millwork	$37,550	$1,235,951	$0.50	$16.43	4.91	$985,065	$796,915
C20		**STAIRCASES**							
	C2010	Stair Construction	$201,300		$2.68				
	C2020	Stair Finishes	$20,000	$221,300	$0.27	$2.94	0.88		
C30		**INTERIOR FINISHES**							
	C3010	Wall Finishes	$74,474		$0.99				
	C3020	Floor Finishes	$196,619		$2.61				
	C3030	Ceiling Finishes	$312,490	$583,583	$4.15	$7.76	2.32	$465,122	$376,282
D10		**CONVEYING SYSTEMS**							
	D1010	Elevator	$163,000		$2.17				
	D1020	Escalators & Moving Walkways			$0.00				
	D1030	Other Conveying Systems		$163,000	$0.00	$2.17	0.65	$129,913	$105,099
D20-D40		**MECHANICAL**							
	D20	Plumbing	$1,056,648		$14.04				
	D30	HVAC	$5,539,467		$73.62				
	D40	Fire Protection	$285,941		$3.80				
	D45	Special Mechanical Systems	$0	$6,882,056	$0.00	$91.46	27.31	$5,485,065	$4,437,403
D50		**ELECTRICAL**							
	D5010	Service and Distribution	$1,377,663		$18.31				

The State of Utah

Unified State Laboratory

Program Cost Model Estimate — **3 floors** — **75,248 square feet**

11-Oct-06

	D5020	Lighting and Power	$815,938		$10.84			
	D5030	Communication & Security Systems	$811,168		$10.78			
	D5040	Other Electrical Systems	$0	$3,004,769	$0.00	$39.93	11.93	$2,394,830	$1,937,411
			Amount	Total Cost	Cost / GSF		%		
E10		**EQUIPMENT**							
	E1010	`	$2,980,240	$2,980,240	$39.61	$39.61	11.83	$2,375,279	$1,921,595
E20		**FURNISHINGS**							
	E2010	Fixed Furnishings	$19,763		$0.26				
	E2020	Movable Furnishings	$0	$19,763	$0.00	$0.26	0.08	$15,751	$12,743
F10		**SPECIAL CONSTRUCTION**							
	F1010	Special Construction	$0	$0	$0.00	$0.00	0.00	$0	
F20		**SELECTIVE BUILDING DEMOLITION**							$0
	F1010	Building Elements Demolition	$0		$0.00				
	F1020	Hazardous Components Abatement	$0	$0	$0.00	$0.00	0.00	$0	$0
G		**SITE PREPARATION/SITE DEVELOPMENT**							
	G10	Site preparation/Demolition	$142,396		$1.89				
	G20	Site improvements	$292,830		$3.89				
	G30	Civil/Mechanical Utilities	$275,000		$3.65				
	G40	Electrical Utilities	$175,000		$2.33				
	G50	Other Site Construction	$0	$885,226	$0.00	$11.76	3.51	$705,534	$570,775
		TOTAL DIRECT COST (Trade Costs)		$20,451,727		$271.79	81.17	$16,300,222	$13,186,837
		MARK UP							
		General Contractors GCOH & P	12.00%	$2,454,207		$32.62	9.74	$1,956,027	$1,582,420
		SUBTOTAL CONSTRUCTION		$22,905,934		$304.41	90.91	$18,256,249	$14,769,258
		CONTINGENCIES/ESCALATION							
		Design & Pricing Contingency	10%	$2,290,593		$30.44	9.09	$1,825,625	$1,476,926
		Escalation	NOTE: Excluded as Client request; recommend 6% per annum						
		Construction Contingency	NOTE: Excluded as Client request; recommend 5%						
		TOTAL CONSTRUCTION COST	**$**	**25,196,527**		**$334.85**	100.00	**$20,081,874**	**$16,246,184**

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	Code	Item Description				Quantity	Unit	Unit Cost	Total
1		**Building Configuration**							
2		**G**ross **S**quare **F**ootage	75248	sf					
3		Perimeter		lf					
4		Slab-on-grade	27,937	sf					
5		Basement Dimensions		x			x		
6		Upper Floor Area	46931	sf					
7		Roof Area	27,937	sf					
8		Total number of Occupied Floors	3	ea					
9		Canopy Area	0	sf					
10		Height of Building above grade	49	lf					
11		Typical Bay Size	30		x	30			
12		# of Columns	40	ea					
13		Live Load, #/sf		lb					
14		Exterior Wall Ratio							
15		Glazing							
16									
17									
18		**FLOORS**							Floor Elevation
19									
20			Eventual Total			Phase I	Core		
21		Roof - Penthouse	380				380		,+49
22		3rd Floor	20,908			19978	930		,+16
23		2nd Floor	26,023			25093	930		,+16
24		1st Floor	27,937			22699	5238		,+17
25		Basement	None						
26		Total Building Area	75,248	GSF					
27									
28									
29									
30									
31									

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	Code	Item Description			Quantity	Unit	Unit Cost		Total
32	***A10***	***FOUNDATIONS***							
33	**A1010**	**Standard Foundations**							
34		Perimeter wall footings - 4' x 1'6"			925	lf	100.00	$	92,500
35		Perimeter foundation wall (not basement)	925	3	2775	sf	30.00	$	83,250
36		Isolation of Microscope room			1	ls	10,000.00	$	10,000
37		Column footings			40	ea	800.00	$	32,000
38		**Standard Foundations Total**						**$**	**217,750**
39									
40									
41	**A1020**	**Special Foundations**							
42		Assume none required						$	-
43		**Special Foundations Total**						**$**	**-**
44									
45									
46	**A1030**	**Lowest Floor Construction**							
47		6" Slab-on-grade, 5" granular bed	1st floor		27,937	sf	4.00	$	111,747
48		Elevator pits			2	ea	3,500.00	$	7,000
48		**Lowest Floor Construction Total**						**$**	**118,747**
49									
50									
51	***A20***	***BASEMENT CONSTRUCTION***							
52	**A2010**	**Basement Excavation**							
53		Services Tunnel							
54		Excavation	220	10	815	cy	8.00	$	6,519
55		Excavation working space			489	cy	8.00	$	3,911
56		Backfill			489	cy	4.00	$	1,956
57		Disposal			815	cy	15.00	$	12,222
58									
59		**Basement Excavation Total**						**$**	**24,607**

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	Code	Item Description			Quantity	Unit	Unit Cost		Total
60									
61									
62	**A2020**	**Basement Walls**							
63		Services Tunnel							
64		Slab	220	10	2200	sf	7.00	$	15,400
65		Wall - incl waterproofing	220	10	4400	sf	18.00	$	79,200
66		Premium for roof	220	10	2200	sf	6.00	$	13,200
67									
68		**Basement Walls Total**						**$**	**107,800**
69									
70									
71	***B10***	***SUPERSTRUCTURE***							
72									
73	**B1010**	**Upper Floor construction**							
74		2nd Floor			26023	sf	21.00	$	546,473
75		3rd Floor			20908	sf	21.00	$	439,075
76		Mechanical Penthouse			10000	sf	21.00	$	210,000
77		Seismic reinforcement			1	ls	98,554.81	$	98,555
78									
79		**Upper Floor construction Total**						**$**	**1,294,103**
80									
81									
82	**B1020**	**Roof Construction**							
83		Roof Structure			27937	sf	18.00	$	502,860
84		Seismic reinforcement			1	ls	50,286.00	$	50,286
85								$	-
86		**Roof construction Total**						**$**	**553,146**
87									
88									

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	Code	Item Description			Quantity	Unit	Unit Cost		Total
89	***B20***	***EXTERIOR CLOSURE***							
90	**B2010**	**Exterior wall**							
91		Brick Cladding - 65%							
92		1st Floor	764	17	8442	sf	24.00	$	202,613
93		2nd Floor	706	16	7342	sf	24.00	$	176,218
94		3rd Floor	654	16	6802	sf	24.00	$	163,238
95		Penthouse	402	16	6432	sf	24.00	$	154,368
96		(Deduct Curtainwall 35% & 25% for windows)			(13992)	sf	24.00	$	(335,801)
97		Roof Parapets; 24" high	1343	2	2686	sf	25.00	$	67,150
98		Brick sill detailing			1412	lf	150.00	$	211,746
99		Brick jambs			1412	lf	50.00	$	70,582
100		Brick head/lintels			1412	lf	75.00	$	105,873
101									
102		Cement plaster soffits			5488	sf	18.00	$	98,784
103									
104		**Exterior wall Total**						**$**	**914,770**
105									
106									
107	**B2020**	**Windows**							
108		Curtain Wall - 35% of total enclosure			7905	sf	75.00	$	592,888
109		Sunscreen - south long elevation	220	2	440	lf	250.00	$	110,000
110		Windows, punched openings - 25%			5647	sf	40.00	$	225,862
111									
112		**Windows Total**						**$**	**928,750**
113									
114									
115	**B2030**	**Exterior Doors**							
116		Main entrance doors			1	ea	10,000.00	$	10,000

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	Code	Item Description	Quantity	Unit	Unit Cost		Total
117		Handicapped accessible side doors	2	ea	6,000.00	$	12,000
118		Fire escape doors	2	ea	1,500.00	$	3,000
119		Personnel Doors	4	ea	1,200.00	$	4,800
120		Loading dock doors	2	ea	3,500.00	$	7,000
121		**Exterior Doors Total**				**$**	**36,800**
122							
123							
124	***B20***	***ROOFING***					
125	**B3010**	**Roof Coverings**					
126		Built up roofing system, incl. Flashings, gutters	27937	sf	10.00	$	279,367
127						$	-
128		**Roofing Total**				**$**	**279,367**
129							
130	**B3020**	**Roof Openings**					
131		No skylights				$	-
132		**Roof Openings**				**$**	**-**
133							
134							
135	***C10***	***INTERIOR CONSTRUCTION***					
136	**C1010**	**Partitions**					
137		Drywall & Masonry partitions	5301	lf	109.97		582,971
		3-5/8" Metal stud, 1 layer 5/8" drywall each	*9,513*	*sf*			
138		*side*					
		3-5/8" Metal stud, 1 layer 5/8" drywall each	*15,814*	*sf*			
139		*side; 1 hour fire rated*					
		3-5/8" Metal stud, 1 layer 5/8" drywall each	*79,251*	*sf*			
140		*side, 2-1/2" sound insulation*					
		3-5/8" Metal stud, 1 layer 5/8" drywall o.s.,2	*3,967*	*sf*			
		layers other, 2-1/2" sound insulation WET					
141		*WALL*					
142		*Shaft Wall*	*6,963*	*sf*			
143		*8" CMU*	*5,253*	*sf*			

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	Code	Item Description			Quantity	Unit	Unit Cost		Total
144		*10" CMU*			*0*	*sf*			
145		*Drywall column surrounds*			*0*	*sf*			
146									
147		Premium allowance for glazed int. windows			5920	sf	30.00	$	177,600
148		**Partitions Total**						**$**	**760,571**
149									
150									
151	**C1020**	**Interior Doors**							
152		Interior Doors & Frames			1	ls	437,830.00	$	437,830
153		*3'0" x 7'0" HM Frame; wood door*			*121*	*ea*			
154		*4'0" x 7'0" HM Frame; wood door*			*2*	*ea*			
					53	*ea*			
155		*4'0" x 7'0" HM Frame; wood door x 2 per space*							
					6	*ea*			
156		*4'0" x 7'0" HM Frame; wood door x 4 per space*							
157		*2 / 3'0" x 7'0" HM Frame; pair wood door*			*4*	*ea*			
		2 / 4'0" x 7'0" HM Frame; pair wood door x 2			*14*	*ea*			
158		*per space*							
159		*3'0" x 7'0" HM Frame & sidelight; wood door*			*47*	*ea*			
160		*3'0" x 7'0" HM Frame; hollow metal door*			*7*	*ea*			
161		*2 / 3'0" x 7'0" HM Frame; hollow metal door*			*4*	*ea*			
162		**Interior Doors Total**						**$**	**437,830**
163									
164									
165	**C1030**	**Specialties/Millwork**							
166		Cabinets, Shelving & Cupboards			1	ls	37,550.00	$	37,550
167		**Specialties Total**						**$**	**37,550**
168									
169									
170	**C2010**	**Stair Construction**							
171		Fire Escape stairs	2	87	174	tread	950.00	$	165,300
172		Landings	2	400	800	sf	45.00	$	36,000

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	Code	Item Description	Quantity	Unit	Unit Cost		Total
173		**Stair Construction Total**				**$**	**201,300**
174							
175							
176	**C2020**	**Stair Finishes**					
		Fire Escape stairs	2	ea	10,000.00	$	20,000
177		**Stair Finishes Total**				**$**	**20,000**
178	***C30***	***INTERIOR FINISHES***					
179	**C3010**	**Wall Finishes**					
180			1	ls	74,474.04	$	74,474
		Latex Paint to walls for half the space of	*15,585*	*sf*			
181		*vertical shafts/elevators etc.*					
182		*Latex Paint to walls*	*117,171*	*sf*			
183		*Epoxy Paint to walls*	*10,722*	*sf*			
184		*Ceramic Tile 100%*	*2,923*	*sf*			
		Vinyl Wall covering Wainscot / Crash Rail /	*0*	*sf*			
185		*Paint*					
186		*Wood Panels/Acoustic panels*	*0*	*sf*			
187		**Wall Finishes Total**				**$**	**74,474**
188							
189							
190	**C3020**	**Floor Finishes**					
191		Floor	1	ls	175,470.37	$	175,470
192		*VCT*	*41,810*	*sf*			
193		*Seamless vinyl*	*13,552*	*sf*			
194		*Carpet - 1*	*10,666*	*sf*			
195		*Ceramic or Quarry Tile*	*841*	*sf*			
196		*Terrazzo*	*0*	*sf*			
197		*Sealed concrete*	*2,020*	*sf*			
198							

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	Code	Item Description	Quantity	Unit	Unit Cost		Total
199							
200		Base	1	ls	21,148.81	$	21,149
201		*4" Rubber*	*11,257*	*lf*			
202		*Seamless cove vinyl*	*1,401*	*lf*			
203		*Ceramic or Quarry Tile*	*325*	*lf*			
204		*Terrazzo thin set*	*0*	*lf*			
205		**Floor Finishes Total**				**$**	**196,619**
206							
207							
208							
209	**C3030**	**Ceiling Finishes**					
210			1	ls	262,490.25	$	262,490
211		*Paint to underside of structure*	*1,880*	*sf*			
212		*2'0" x 2'0" ACT*	*56,814*	*sf*			
213		*Latex Painted suspended drywall*	*740*	*sf*			
214		*Epoxy painted suspended drywall*	*9,215*	*sf*			
215		*Coffered lobby ceiling*	*0*	*sf*			
216		*Clean room ceiling*	*0*	*sf*			
217							
218		Bulkhead allowances	1	ls	50,000.00	$	50,000
219		**Ceiling Finishes Total**				**$**	**312,490**
220							
221							
222	***D10***	***CONVEYING SYSTEMS***					
223	**D1010**	**Elevator**					
224		Hydraulic Passenger	1	ea	68,000.00	$	68,000
225		Hydraulic Freight	1	ea	95,000.00	$	95,000
226		**Elevator Total**				**$**	**163,000**
227							
228							
229	***D20-D40***	***MECHANICAL***					
230	**D20**	**Plumbing**					

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	Code	Item Description	Quantity	Unit	Unit Cost	Total
231		Equipment	75,248	sf	1.85	139,208
232		Plumbing Fixtures	75,248	sf	0.98	73,743
233		Sanitary / Vent System	75,248	sf	1.55	116,634
234		Storm Drainage System	75,248	sf	1.70	127,921
235		Domestic Water System	75,248	sf	1.40	105,347
236		Subsoil Drainage System	600	lf	12.50	7,500
237		Special / Lab. Systems	23,157	sf	21.00	486,297
238						
239		**Plumbing Total**				**$ 1,056,648**
240						
241	**D30**	**HVAC**				
242		Equipment / Sheet Metal / Piping				
243		Office and office support	27,448	sf	45.00	1,235,160
244		Laboratories and Lab. Support	32,800	sf	87.00	2,853,600
245		Building support & circulation	15,000	sf	30.00	450,000
246		Tunnel	2,200	sf	15.00	33,000
247		Control / Instrumentation / Test & Balance				
248		Office and office support	27,448	sf	8.00	219,584
249		Laboratories and Lab. Support	32,800	sf	18.00	590,400
250		Building support & circulation	15,000	sf	6.00	90,000
251		Testing and Balancing	75,248	sf	0.90	67,723
252						
253		**HVAC Total**				**$ 5,539,467**
254						
255						
256	**D40**	**Fire protection**				
257		Automatic Sprinkler System				
258		Equipment	75,248	sf	0.80	60,198
259		Sprinkler Heads	75,248	sf	0.50	37,624
260		Distribution Piping	75,248	sf	2.00	150,495
261		Specialties	75,248	sf	0.50	37,624
262						

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	Code	Item Description	Quantity	Unit	Unit Cost		Total
263		**Fire protection Total**				**$**	**285,941**
264							
265	**D45**	**Special Mechanical Systems**					
266		**Special Mechanical Systems Total**				**$**	**-**
267							
268	***D50***	***ELECTRICAL***					
269	**D5010**	**Service and Distribution.**					
270		**New Work**					
271		Service and Distribution.	75,248	sf	15.00	$	1,128,713
272		New 1000kW diesel generator w/sound					
273		attenuated enclosure and all associated					
274		panels, auto transfer sw's and equipment	1	ls	248,950.00	$	248,950
275		**Service and Distribution Total**				**$**	**1,377,663**
276							
277	**D5020**	**Lighting and Power**					
278		Office and office support	27,448	sf	6.20	$	170,178
279		Laboratories and Lab. Support	32,800	sf	17.20	$	564,160
280		Building support & circulation	15,000	sf	5.00	$	75,000
		Tunnel	2,200	sf	3.00	$	6,600
281		**Lighting & Power Total**				**$**	**815,938**
282							
283							
284	**D5030**	**Communications & Security Systems**					
285		Fire Alarm System	75,248	sf	1.60	$	120,396
286		Security System	75,248	sf	1.80	$	135,446
287		Telephone System-empty raceway	75,248	sf	0.84	$	63,208
288		Communication/Computer System/UPS	75,248	sf	6.23	$	468,792
289		Grounding	75,248	sf	0.31	$	23,327
290		**Communications & Security Systems Total**				**$**	**811,168**
291							

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	Code	Item Description		Quantity	Unit	Unit Cost		Total
292								
293	**D5040**	**Other Electrical Systems**						
294		**Other Electrical Systems Total**					**$**	**-**
295								
296								
297	***E10***	***EQUIPMENT***						
298	**E10**	**Equipment, Generally**						
299		Fixed Equipment - Lab Casework	(see room detail pages)	1	ls	2,980,240	$	2,980,240
300		and Fume Hods, BSC'S, autoclaves, glasswash						
301								
302		**Equipment, Generally Total**					**$**	**2,980,240**
303								
304	***E20***	***FURNISHINGS***						
305	**E2010**	**Fixed Furnishings**						
306		Window Coverings		5647	sf	3.50	$	19,763
307		**Fixed Furnishings Total**					**$**	**19,763**
308								
309								
310	**E2020**	**Movable Furnishings**						
311		Excluded; assume FF & E						
312		**Movable Furnishings Total**					**$**	**-**
313								
314								
315	***F10***	***SPECIAL CONSTRUCTION***						
316	**F10**	**Special construction**						
317		**Special construction Total**					**$**	**-**
318								
319								
320	***F20***	***SELECTIVE BUILDING DEMOLITION***						

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	Code	Item Description			Quantity	Unit	Unit Cost		Total
321	**F2010**	**Building Elements Demolition**							
322		**Building Elements Demolition Total**						**$**	**-**
323									
324									
325	**F2020**	**Hazardous Components Abatement**							
326		Non Required							
327		**Hazardous Components Abatement Total**						**$**	**-**
328									
329									
330									
331	***G***	***SITE PREPARATION/DEVELOPMENT***							
332	**G10**	**Site Preparation**							
333		**Site assumed 130,000 sf**							
334		Remove topsoil; 12" deep			4815	cy	3.00	$	14,444
335		Remove excess topsoil from site			4813	cy	6.00	$	28,877
336		Bulk excavation			4815	cy	5.00	$	24,075
337		Imported fill			2500	cy	18.00	$	45,000
338		Additional terracing allowance			1	ls	30,000.00	$	30,000
339								$	-
340		**Site Preparation Total**						**$**	**142,396**
341									
342									
343	**G20**	**Site Improvements**							
344		Parking for 88 staff cars	88	340	3324	sy	22.00	$	73,138
345		Parking for 30 visitor cars	30	340	1133	sy	22.00	$	24,933
346		Secure fence for staff parking	88	340	735	lf	18.00	$	13,233
347		Access Gates			2	ea	5,000.00	$	10,000
348		Truck access and dock parking	60	60	400	sy	35.00	$	14,000
349		Street access			2	ea	25,000.00	$	50,000
350		Retaining walls			1	ls	50,000.00	$	50,000
351		Spread topsoil 12"			941	cy	8.00	$	7,526

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	Code	Item Description	Quantity	Unit	Unit Cost		Total
352		Landscaping	1	ls	50,000.00	$	50,000
353							
354						$	-
355		**Site Improvements Total**				**$**	**292,830**
356							
357							
358	**G30**	**Civil/Mechanical Utilities**					
359		Storm drainage	1	ls	100,000.00	$	100,000
360		Sanitary drainage	1	ls	25,000.00	$	25,000
361		Water system	1	ls	100,000.00	$	100,000
362		Excavation allowance	1	ls	50,000.00	$	50,000
363		**Civil/Mechanical Utilities Total**				**$**	**275,000**
364							
365							
366	**G40**	**Electrical Utilities**					
367		Site Lighting	1	ls	25,000.00	$	25,000
368		Site Electrical supply - ductbanks, cable & transformers	1	ls	100,000.00	$	100,000
369		Excavation allowance	1	ls	50,000.00	$	50,000
370		**Electrical Utilities Total**				**$**	**175,000**
371							
372							
373		**Other Site Construction**					
374		None				$	-
375		**Other Site Construction Total**				$	-
376					check	$	20,451,727

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REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area		Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
SHARED SPACE																			
	1ST FLOOR																		
2880.00	**Mechanical**																		
	Generator Room OUTSIDE				0	0													
	Switch Gear	1	20	20	400	400		40	17	17	G	J	H	A	C	B	$ -	$ -	$ 7,263
	Auto Transfer Switch	1	10	10	100	100		20	17	17	G	B	H	A	C	B	$ -	$ -	$ 3,585
	Building Automation System	1	10	10	100	100		20	17	17	G	B	B	B	C	B	$ -	$ -	$ 3,722
	Emergency Generator	Outside																	
	UPS Panel Room	1	20	20	400	400		40	17	17	G	B	B	B	C	C	$ -	$ -	$ 7,867
	UPS Battery	1	30	20	600	600		50	17	17	G	B	B	B	C	C	$ -	$ -	$ 10,044
	Boilers	1	20	20	400	400		40	17	17	G	J	H	A	C	B	$ -	$ -	$ 7,263
	Fire pump	1	10	10	100	100		20	17	17	G	B	H	A	C	B	$ -	$ -	$ 3,585
	Pumps & Compressor	1	20	24	480	480		44	17	17	G	B	H	A	C	B	$ -	$ -	$ 7,063
	Gasses	1	15	20	300	300		35	17	17	G	B	H	A	C	B	$ -	$ -	$ 5,713
	Core Elements																		
	Corridors	0																	
	Stairs	1	20	10	200	200		30	17	10	F	I	B	B	C	C	$ -	$ -	$ 5,424
	Elevators	2	10	9	90	180		38	17	17	F	A	A	D	D	A	$ -	$ -	$ 4,701
	Elevator machine room	2	12	10	120	240		44	17	17	F	J	H	A	C	A	$ -	$ -	$ 8,587
	Elevator Lobby	0																	
	Janitor's Closet	2	8	8	64	128		32	17	9	B	B	B	B	E	C	$ -	$ 300	$ 5,712
	Male Toilet	1	18	10	180	180		28	17	9	E	B	E	F	F	E	$ -	$ 4,500	$ 14,408
	Female Toilet	1	20	10	200	200		30	17	9	E	B	E	F	F	E	$ -	$ 5,000	$ 15,655
	Pantry	1	10	5	50	50		15	17	9	D	H	B	B	C	C	$ 1,500	$ 1,500	$ 6,573
	Telecom Room	1	18	10	180	180		28	17	12	C	B	B	B	C	C	$ -	$ -	$ 3,956
	Telecom Room	2	10	8	80	160		36	17	12	C	B	B	B	C	C	$ -	$ -	$ 5,446
	Data Room	1	18	10	180	180		28	17	12	C	B	B	B	C	C	$ -	$ -	$ 3,956
	Data Room	2	10	8	80	160		36	17	12	C	B	B	B	C	C	$ -	$ -	$ 5,446
	Security	1	18	10	180	180		28	17	12	C	B	B	B	C	C	$ -	$ -	$ 3,956
	Security	2	10	8	80	160		36	17	12	C	B	B	B	C	C	$ -	$ -	$ 5,446
	Electrical	2	10	8	80	160		36	17	12	C	B	B	B	C	C	$ -	$ -	$ 5,446
	Total					**5238**	**G** sf												$ 94,709
	2nd FLOOR Core Elements																		
	Corridors	0																	
	Stairs	1	20	10	200	200		30	16	10	F	I	B	B	C	C	$ -	$ -	$ 5,244
	Elevators	2	10	9	90	180		38	16	16	F	A	A	D	D	A	$ -	$ -	$ 4,427
	Elevator Lobby	0																	
	Male Toilet	1	9	10	90	90		19	16	9	E	B	E	F	F	E	$ -	$ 1,500	$ 7,942
	Female Toilet	1	9	10	90	90		19	16	9	E	B	E	F	F	E	$ -	$ 2,250	$ 8,692
	Pantry	1	10	5	50	50		15	16	9	D	H	D	B	C	C	$ -	$ 1,500	$ 5,076
	Telecom Room	1	10	8	80	80		18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Data Room	1	10	8	80	80		18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Security	1	10	8	80	80		18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Electrical	1	10	8	80	80		18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Total					**930**	**G** sf												$ 34,031

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REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area			Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
	3rd FLOOR Core Elements																			
	Corridors	0																		
	Stairs	1	20	10	200	200			30	16	10	F	I	B	B	C	C	$ -	$ -	$ 5,244
	Elevators	2	10	9	90	180			38	16	16	F	A	A	D	D	A	$ -	$ -	$ 4,427
	Elevator Lobby	0																		
	Male Toilet	1	9	10	90	90			19	16	9	E	B	E	F	F	E	$ -	$ 1,500	$ 7,942
	Female Toilet	1	9	10	90	90			19	16	9	E	B	E	F	F	E	$ -	$ 2,250	$ 8,692
	Pantry	1	10	5	50	50			15	16	9	D	H	D	B	C	C	$ -	$ 1,500	$ 5,076
	Telecom Room	1	10	8	80	80			18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Data Room	1	10	8	80	80			18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Security	1	10	8	80	80			18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Electrical	1	10	8	80	80			18	16	12	C	B	B	B	C	C	$ -	$ -	$ 2,650
	Total					**930**	**G**	sf												$ 9,671
	PENTHOUSE Core Elements																			
	Corridors	0																		
	Stairs	1	20	10	200	200			30	16	16	F	I	B	B	C	C	$ -	$ -	$ 5,359
	Elevators	1	10	10	100	100			20	16	16	F	A	A	D	D	A	$ -	$ -	$ 2,330
	Elevator Lobby	0																		
	Electrical	1	10	8	80	80			18	16	16	C	B	B	B	C	C	$ -	$ -	$ 2,696
	Total					**380**														
	Total Core Area					**7478**														
	1ST FLOOR																			
DEPARTMENT OF HEALTH																				
	FORENSIC TOXICOLOGY																			
	Supervisor's office	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	Evidence Lobby	1	10	10	100	100			20	17	9	D	H	B	B	C	C	$ -	$ -	$ 4,246
	Package Storage	1	20	10	200	200			30	17	9	D	B	B	B	C	C	$ -	$ 9,000	$ 13,543
	Evidence Cooler	1	10	10	100	100			20	17	9	D	A	A	D	B	A	$ -	$ 15,000	$ 16,716
	Evidence Receiving Lab	1	10	10	100	100			20	17	9	D	B	B	B	C	C	$ -	$ 4,500	$ 7,696
	Total					**600**	**N**	sf												$ 167,283
DEPARTMENT OF HEALTH																				
13429	**UNIFIED LAB AREAS**																			
	Lobby	1	20	10	200	200			30	17	9	D	H	D	B	C	C	$ -	$ -	$ 5,893
	Lobby Rest rooms	2	7.2	7	50	101			28	17	9	D	B	E	F	F	C	$ -	$ 3,000	$ 11,980
	Receptionist	1	15	10	150	150			25	17	9	D	H	D	B	C	C	$ -	$ 1,500	$ 6,645
	Lactation room	1	7.67	6	46	46			14	17	9	D	B	B	B	C	C	$ -	$ 1,500	$ 3,885
	Dry Training Lab	1	40	25	1000	1000			65	17	9	D	D	B	B	C	C	$ -	$ 45,000	$ 57,517
	Training Classroom	1	40	20	800	800			60	17	9	D	B	B	B	C	C	$ -	$ 36,000	$ 45,924
	Training Workroom	1	20	10	200	200			30	17	9	D	B	B	B	C	C	$ -	$ 9,000	$ 13,543
	Training Materials Storage	1	10	10	100	100			20	17	9	D	B	B	B	C	C	$ -	$ 4,500	$ 7,696
	Wet Training Lab	1	40	25	1000	1000			16	17	9	D	D	C	C	C	C	$ -	$ 150,000	$ 162,837
	BSL3	2	20	10	200	400			15	17	9	D	D	C	C	E	F	$ -	$ 60,000	$ 71,838
	Fume Hood	1	20	10	200	200			8	17	9	D	D	C	C	C	C	$ -	$ 40,000	$ 44,724
	Training Storage Equipment	1	10	10	100	100			5	17	9	D	B	C	C	C	C	$ -	$ 2,000	$ 4,329

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REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area			Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
	Training Workroom	1	10	10	100	100			5	17	9	D	B	C	C	C	C	$ -	$ 2,000	$ 4,329
	A/V Support Room	1	10	5	50	50			4	17	9	D	B	C	C	C	C	$ -	$ 1,200	$ 2,956
	Cafeteria	1	35.6	20	712	712			14	17	9	D	B	C	C	C	C	$ 3,000	$ 3,000	$ 14,741
	Vending Area	1	20	10	200	200			8	17	9	D	B	C	C	C	C	$ 1,000	$ -	$ 4,474
	Seminar Room	1	42.86	35	1500	1500			19	17	9	D	B	C	C	C	C	$ 2,000	$ 5,000	$ 23,448
	Large Conference Room	2	20	20	400	800			20	17	9	D	B	D	B	C	C	$ 2,000		$ 10,475
	Small Conference Room	2	20	10	200	400			15	17	9	D	B	D	B	C	C	$ 1,200		$ 6,837
	Class Room	1	25	20	500	500			11	17	9	D	B	C	C	C	C	$ 1,200		$ 7,760
	Library	1	20	12	240	240			8	17	9	D	B	C	C	C	C	$ -	$ 2,000	$ 5,886
	Secure Receiving Dock	1	50	15	750	750			65	17	17	D	H	D	B	C	C	$ -	$ 6,000	$ 18,658
	Dock Manager	1	15	10	150	150			25	17	9	D	H	D	B	C	C	$ -	$ -	$ 5,145
	Courier Washroom	1	6	6.7	40.2	40.2			13	17	9	D	H	D	B	C	C	$ -	$ 1,500	$ 4,882
	Building Engineer	1	20	10	200	200			30	17	9	D	H	D	B	C	C	$ -	$ -	$ 5,893
	Sample Review Room	1	10	10	100	100			20	17	9	D	H	D	B	C	C	$ -	$ -	$ 4,396
	Gas Cylinder Storage Room - Flammables	1	10	10	100	100			20	17	17	D	B	D	B	C	C	$ 2,000	$ 500	$ 5,949
	Gas Cylinder Storage Room - Oxidisers	1	10	10	100	100			20	17	17	D	B	D	B	C	C	$ -	$ 500	$ 3,949
	Bulk Chemical Storage	1	30	20	600	600			50	17	17	D	B	D	B	C	C	$ -	$ 200	$ 9,486
	Gas Cylinder Storage Room	1	20	10	200	200			30	17	17	D	B	D	B	C	C		$ 500	$ 5,496
	General Supply Stock Room	1	22	10	220	220			32	17	17	D	H	D	B	C	C	$ -	$ 500	$ 6,856
	Reagent Stock Room	1	22	10	220	220			32	17	17	D	H	D	B	C	C	$ -	$ 500	$ 6,856
	Biohazard Waste	1	20	10	200	200			30	17	17	D	B	D	B	C	C	$ 4,000	$ 500	$ 9,496
	Chemical Waste	1	20	10	200	200			30	17	17	D	B	D	B	C	C	$ -	$ 500	$ 5,496
	Recycling Room	1	20	10	200	200			30	17	17	D	B	D	B	C	C	$ -	$ 200	$ 5,196
	Lab Coat Storage	1	10	10	100	100			20	17	9	B	A	B	B	C	C	$ -	$ 200	$ 2,167
	IT Server Room	4	20	10	200	800			120	17	12	C	B	B	B	C	C	$ -	$ -	$ 16,810
	IT Work Room	1	20	15	300	300			35	17	12	C	B	B	B	C	C	$ -	$ -	$ 5,043
	Janitorial Staff	1	15	10	150	150			25	17	9	C	B	B	B	C	C	$ 3,000	$ -	$ 6,538
	Total					**13429**	**N**	sf												$ 646,031
	Bureau of Management Services																			
	Building Emergency Response Team	1	10	10	100	100			20	17	9	D	B	D	B	C	C	$ -	$ 200	$ 3,546
	Cylinder Storage Room	1	10	8	80	80			18	17	9	D	B	B	B	B	C	$ -	$ 500	$ 3,375
	Total					**180**	**N**	sf												$ 1,271,090
BUREAU OF LABORATORY IMPROVEMENT																				
5929	Laboratory Improvement																			
	Director	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	QA Officer et al. open plan	1	57.6	20	1152	1152			78	17	9	D	H	D	B	C	C		$ -	$ 15,858
	Clinical Lab Certification Manager	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	Environmental Lab Certification Manager	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	Safety Officer	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	Tech Services Section Chief	1	10	10	100	100			20	17	9	D	H	D	B	C	C		$ -	$ 4,396
	Interview Room Clinical	1	10	10	100	100			20	17	9	D	B	D	B	C	C	$ 2,000	$ -	$ 5,346
	Small Conference Room	1	15	10	150	150			25	17	9	D	B	D	B	C	C		$ 1,000	$ 5,095
	Records Storage	1	8	10	80	80			18	17	9	D	B	B	B	C	C		$ 500	$ 3,427
	Laboratory																			
	Glasswash & Decontamination	1	30	20	600	600			50	17	9	E	C	C	C	E	F	$ -	$ 200,000	$ 215,855
	Glasswash & Decon Equipment	1	20	15	300	300			35	17	9	E	C	C	C	E	F	$ -	$ 120,000	$ 129,689

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REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area			Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
	Chemistry/Micro Test Kit Prep	1	20	10	200	200			30	17	9	D	D	B	B	C	C	$ -	$ 9,000	$ 14,793
	Chemistry/Micro Kit Materials Storage	1	20	20	400	400			40	17	9	D	B	B	B	C	C	$ -	$ 18,000	$ 24,336
	Chemistry/MicroTest Prepared Kit Storage	1	20	10	200	200			30	17	9	D	B	B	B	C	C	$ -	$ 9,000	$ 13,543
	Clinical Specimen Kit Prep - Newborn	1	10	10	100	100			20	17	9	D	B	B	B	C	C	$ -	$ 4,500	$ 7,696
	Neighborhood Safety Supply Closets	2	10	5	50	100			30	17	9	D	B	B	B	C	C	$ -	$ 4,500	$ 9,546
	Customer Drop Off Area	1	10	10	100	100			20	17	9	D	B	B	B	C	C	$ 2,000	$ -	$ 5,196
	Mail Room	1	20	10	200	200			30	17	9	D	B	B	B	C	C	$ 2,000	$ -	$ 6,543
	Central Accessioning	1	40	20	800	800			60	17	9	D	G	C	C	C	F		$ -	$ 21,622
	After hours Drop Off Area	1	20	10	200	200			30	17	9	D	B	C	C	C	F	$ 1,200	$ -	$ 7,851
	Unkowns Accessioning (BT/CT)	1	20	10	200	200			30	17	9	D	B	C	C	E	F		$ -	$ 7,126
	Unkowns Evidence Storage	1	10	5	50	50			15	17	9	D	B	C	C	E	F		$ -	$ 3,313
	Unkowns Vestibule	1	10	10	100	100			20	17	9	D	B	C	C	E	F		$ -	$ 4,584
	Corridor	1	37	5.5	203.5	203.5			43	17	9	C	G	B	B	C	C	$ -	$ -	$ 8,589
397.12	Circulation (columns/shafts/walls)	1	193.62	1	193.62	193.62			195	17	9	D	A	A	A	A	A		$ -	$ 15,881
	Total					**5929**	**N**	sf												$ 73,476
	GROSSING																			
	Stairs	1	20	10	200	200			30	17	10	F	I	B	B	C	C	$ -	$ -	$ 5,424
	Corridor	1	71	6.5	461.5	461.5			78	17	9	D	G	B	B	C	C	$ -	$ -	$ 13,455
	Air Shafts	2	15	10	150	300			13	17	17	F	A	A	A	B	A	$ -	$ -	$ 1,343
	Plumbing Chases	30	4	2	8	240			45	17	17	B	A	A	A	B	A	$ -	$ -	$ 3,290
	Columns	40	2	2	4	160			40	17	17	B	A	A	A	B	A	$ -	$ -	$ 2,924
	Interior Partitions					749														
	Exterior Wall	1	450	1		450														
	Total					**2560**	**G**	sf												$ 26,435
	Total 1st floor					**22699**														
	2ND FLOOR																			
DEPARTMENT OF HEALTH																				
	FORENSIC TOXICOLOGY																			
	Bureau Director	1	20	10	200	200			30	16	9	D	H	D	B	C	C		$ -	$ 5,749
	Examiners and Technical	1	40	20.8	832	832			61	16	9	D	E	B	B	C	C	$ -	$ -	$ 13,297
	Copy/Print/Scan/Fax	1	10	10	100	100			20	16	9	D	B	B	B	B	C	$ 250	$ -	$ 3,293
	Record Filing. Archive Storage	1	10	10	100	100			20	16	9	D	D	B	B	B	C	$ -	$ 3,000	$ 7,293
	Sample Prep Lab	1	60	20	1200	1200			20	16	9	D	D	B	B	C	C	$ -	$ 90,000	$ 99,267
	Sample Extraction Lab	3	20	10	200	600			23	16	9	D	D	B	B	C	C	$ -	$ 45,000	$ 56,198
	Instrumentation room	1	40	20	800	800			15	16	9	D	B	B	B	C	C	$ -	$ 60,000	$ 65,803
	Chemical Storage	1	10	5	50	50			15	16	9	B	F	B	B	C	C	$ -	$ 2,000	$ 4,904
	Cylinder Storage room	1	10	10	100	100			20	16	9	B	F	B	B	C	C	$ -	$ 2,000	$ 5,488
	Corridor	2	25	6.5	163	325			63	16	9	C	G	B	B	C	C	$ -	$ -	$ 14,872
	Total					**4307**	**N**	sf												$ 873,409
1097	**Bureau of Management Services & Admin**																			
	Director's Office	1	40	20	800	800			60	16	9	D	H	D	B	C	C	$ -	$ -	$ 11,886
	Admin workstation & copy fax	1	11.4	10	114	114			21	16	9	D	H	D	B	C	C	$ -	$ -	$ 4,503
	Corridor	1	28.15	6.5	183	183			35	16	9	C	G	B	B	C	C	$ -	$ -	$ 7,756
2209	Manager	1	12	10	120	120			22	16	9	D	H	D	B	C	C	$ -	$ -	$ 4,590
	Offices	3	10	10	100	300			60	16	9	D	H	D	B	C	C	$ -	$ -	$ 12,901

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	Administrative asst and Audit	1	13.67	12	164.04	164.04			26	16	9	D	E	B	B	C	C	$ -	$ -	$ 7,319
	Record Filing. Archive Storage	1	25	16	400	400			41	16	9	D	D	B	B	B	C	$ -	$ 3,000	$ 10,361
	Cylinder Storage Room	1	10	8	80	80			18	16	9	D	B	B	B	B	C	$ -	$ 500	$ 3,289
	Copy/Print/Scan/Fax	1	10	8	80	80			18	16	9	D	B	B	B	B	C	$ 250	$ -	$ 3,039
	Neighborhood Coffee Station	1	10	10	100	100			20	16	9	D	B	B	B	B	C	$ 1,500	$ 4,000	$ 8,543
	Conference room & Library	1	30	20	600	600			50	16	9	D	D	D	B	B	C	$ 4,000	$ -	$ 13,896
	Corridor	2	28.07	6.5	182	365			69	16	9	C	G	B	B	C	C	$ -	$ -	$ 15,496
	Total					**3306**	**G**	sf												$ 88,082
BUREAU OF MICROBIOLOGY																				
3338	Environmental Microbiology																			
	Office & Support																			
	Supervisor's Office	8	10	10	100	800			160	16	9	D	H	D	B	C	C	$ -	$ -	$ 34,402
	Laboratorians	1	40	36.8	1472	1472			77	16	9	D	E	B	B	C	C	$ -	$ -	$ 17,520
	Huddle Room	1	10	10	100	100			20	16	9	D	B	B	B	C	C	$ 500	$ -	$ 3,600
	Copy/Fax	1	10	8	80	80			18	16	9	B	B	B	B	C	C	$ 200	$ -	$ 2,804
	Records Storage	1	10	8	80	80			18	16	9	B	B	B	B	C	C	$ -	$ 2,000	$ 4,604
	Corridor	2	38.92	6.5	253	506			91	16	9	C	G	B	B	C	C	$ -	$ -	$ 17,704
	Laboratory																			
	Mycology enclosed Lab	1	20	10	200	200			8	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 18,733
	Equipment Room	1	10	10	100	100			20	16	9	D	D	B	B	B	C	$ -	$ 7,500	$ 11,793
1500	Bacteriology																			
	Open Lab	1	40	20	800	800			15	16	9	D	D	B	B	C	C	$ -	$ 60,000	$ 67,053
	Anerobic Room	1	20	10	200	200			8	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 18,733
	Bacti BSL2/3	1	20	10	200	200			8	16	9	D	D	C	C	E	F	$ -	$ 15,000	$ 20,883
	Microscope room	1	10	10	100	100			5	16	9	D	B	B	B	C	C	$ -	$ 7,500	$ 9,323
	Equipment Room	1	20	10	200	200			30	16	9	D	D	B	B	B	C	$ -	$ 15,000	$ 20,562
900	Tuberculosis Lab																			
	TB Prep BSL3	1	20	10	200	200			8	16	9	D	D	C	C	E	F	$ -	$ 15,000	$ 20,883
	TB Isolation within BSL-3	1	20	10	200	200			8	16	9	D	D	C	C	E	F	$ -	$ 15,000	$ 20,883
	TB Molecular BSL-3	1	20	10	200	200			8	16	9	D	D	C	C	E	F	$ -	$ 15,000	$ 20,883
	In suite Sterilizer	1	10	10	100	100			5	16	9	D	B	C	C	E	F	$ -	$ 25,000	$ 27,922
	Microscope room	1	10	10	100	100			5	16	9	D	B	B	B	E	F	$ -	$ 7,500	$ 9,940
	Gowning entry area	1	10	10	100	100			20	16	9	D	H	B	B	E	F	$ -	$ -	$ 5,005
2165	Bio-Terrorism Lab																			
	Gowning entry area	1	13.75	12	165	165			26	16	9	D	H	B	B	E	F	$ -	$ -	$ 6,226
	Shared Prep Lab within BSL-3 Suite	1	20	20	400	400			40	16	9	D	H	C	C	E	F	$ -	$ 30,000	$ 41,976
	BT BSL-3	1	20	10	200	200			30	16	9	D	H	C	C	E	F	$ -	$ 15,000	$ 23,032
	FERN BSL3	1	20	10	200	200			30	16	9	D	H	C	C	E	F	$ -	$ 30,000	$ 38,032
	Special Projects BSL#	1	20	10	200	200			30	16	9	D	H	C	C	E	F	$ -	$ 30,000	$ 38,032
	In suite Sterilizer Room	1	10	10	100	100			20	16	9	D	F	C	C	E	F	$ -	$ 25,000	$ 30,138
	Equipment Decontamination	1	10	10	100	100			20	16	9	E	B	C	C	E	C	$ -	$ 7,500	$ 11,674
	Equipment Room	1	20	10	200	200			30	16	9	D	D	B	B	B	C	$ -	$ 15,000	$ 20,562
	Microscope room	1	10	10	100	100			5	16	9	D	B	B	B	C	C	$ -	$ 7,500	$ 9,323
	Animal Room - ABSL2	1	20	10	200	200			8	16	9	D	D	C	C	E	F	$ -	$ 15,000	$ 20,883
	SEM Room	1	20	10	200	200			8	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 18,733
	SEM Prep	1	10	10	100	100			5	16	9	D	D	B	B	C	C	$ -	$ 7,500	$ 10,573
4000	Virology/Immunology																			
	Rabies Suite																			
	Rabies Lab	1	20	15	300	300			9	16	9	D	D	C	C	E	F	$ -	$ 22,500	$ 29,964

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Program Cost Model Estimate

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REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area			Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
	Virology/Serology/Immunology	1	60	36.666	2200	2200			24	16	9	D	E	C	C	E	F	$ -	$ 164,997	$ 203,819
	Microscope room	1	10	10	100	100			5	16	9	D	B	C	C	E	F	$ -	$ 7,500	$ 10,422
	Viral Culture BSL3	1	20	10	200	200			8	16	9	D	B	C	C	E	F	$ -	$ 30,000	$ 34,633
	TissueCulture BSL3	1	20	10	200	200			8	16	9	D	B	C	C	E	F	$ -	$ 30,000	$ 34,633
	Special Projects BSL3	1	20	10	200	200			8	16	9	D	B	C	C	E	F	$ -	$ 30,000	$ 34,633
	Wet Nile BSL3	1	20	10	200	200			8	16	9	D	B	C	C	E	F	$ -	$ 30,000	$ 34,633
	Equipment Room	2	20	10	200	400			60	16	9	D	D	C	C	E	F	$ -	$ 30,000	$ 46,464
	Supply Storage	1	20	10	200	200			8	16	9	D	B	C	C	E	F	$ -	$ 15,000	$ 19,633
1600	Molecular Biology																			
	Extractions Lab	1	25	16	400	400			10	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 34,861
	Reagent Prep Lab	1	20	10	200	200			8	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 18,733
	Amplification Lab	1	25	16	400	400			10	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 34,861
	Open Lab and PFGE	1	30	20	600	600			13	16	9	D	D	B	B	C	C	$ -	$ 45,000	$ 50,947
1600	Newborn Screening																			
	Tandem MS Lab	1	25	16	400	400			10	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 34,861
	Punch Room	1	20	10	200	200			8	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 18,733
	Open Lab	1	40	20	800	800			15	16	9	D	D	B	B	C	C	$ -	$ 60,000	$ 67,053
	Equipment Room	1	20	10	200	200			30	16	9	D	D	B	B	B	C	$ -	$ 15,000	$ 20,562
	Total					**15103**	**N**	sf												$ 542,340
	GROSSING																			
	Stairs	1	20	10	200	200			30	16	10	F	I	B	B	C	C	$ -	$ -	$ 5,244
	Corridor	1	70	6.5	455	455			77	16	9	D	G	B	B	C	C	$ -	$ -	$ 12,969
	Air Shafts	2	15	10	150	300			13	16	16	F	A	A	A	B	A	$ -	$ -	$ 1,264
	Plumbing Chases	30	4	2	8	240			45	16	16	B	A	A	A	B	A	$ -	$ -	$ 3,096
	Columns	40	2	2	4	160			40	16	16	B	A	A	A	B	A	$ -	$ -	$ 2,752
	Interior Partitions					572														
	Exterior Wall	1	450	1		450														
	Total					**2377**	**G**	sf												$ 25,325
	Total 2nd floor					**25093**														
	3RD FLOOR																			
BUREAU OF CHEMICAL AND ENVIRONMENTAL SERVICES																				
3089	Office & Support																			
	BureauDirector	1	16.67	12	200	200			29	16	9	D	H	D	B	C	C	$ -	$ -	$ 5,636
	Office	5	10	10	100	500			100	16	9	D	H	D	B	C	C	$ -	$ -	$ 21,501
	Laboratorians	1	40	35.2	1408	1408			75	16	9	D	E	B	B	C	C	$ -	$ -	$ 17,098
	Copy/Fax	1	10	8	80	80			18	16	9	B	B	B	B	C	C	$ 250	$ -	$ 2,854
	Records Storage	1	20	15	300	300			35	16	9	B	B	B	B	C	C	$ -	$ 2,000	$ 6,812
	Huddle Room	1	10	10	100	100			20	16	9	D	B	B	B	C	C	$ 500	$ -	$ 3,600
	Corridor	2	39	6.5	250	501			90	16	9	C	G	B	B	C	C	$ -	$ -	$ 17,626
4100	Organic Chemistry																			
	Extraction Lab - volatiles	1	20	20	400	400			40	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 37,394
	Instrument Lab - volatiles	1	30	20	600	600			50	16	9	D	D	B	B	C	C	$ -	$ 45,000	$ 54,140
	Extraction Lab - semi-volatiles	1	50	20.00	1000	1000			70	16	9	D	E	B	B	C	C	$ -	$ 75,000	$ 89,831
	Instrument Lab - semi-volatiles	1	50	20.00	1000	1000			70	16	9	D	D	B	B	C	C	$ -	$ 75,000	$ 87,631
	Standard Lab & Storage	1	20	10	200	200			30	16	9	D	B	B	B	C	C	$ -	$ 5,000	$ 9,399
	Equipment Room	1	20	10	200	200			30	16	9	B	B	B	B	C	C	$ -	$ 5,000	$ 9,005

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Program Cost Model Estimate

11-Oct-06

REFERENCE	SPACE	# of spaces	Length	Width	Area	Total Area		Partition Length	Partition Height	Ceiling Height	Partition Type	Door Type	Floor Type	Base Type	Wall Finish	Ceiling Finish	063 Millwork Cost	111 Equipment Cost	TOTAL COST
	Evidence Storage	1	10	10	100	100		20	16	9	J	B	B	B	C	C	$ -	$ 2,500	$ 6,144
	Development/Surge Lab	1	20	20	400	400		40	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 37,394
	Chemical Stock Room	1	20	10	200	200		30	16	9	B	F	B	B	C	C	$ -	$ 2,000	$ 6,655
2300	Environmental Sciences																		
	Environmental Water Microbiology	1	40	20	800	800		60	16	9	D	B	B	B	C	C	$ -	$ 60,000	$ 69,636
	Equipment Room	1	20	10	200	200		30	16	9	B	B	B	B	C	C	$ -	$ 5,000	$ 9,005
	Microscopy Room	1	10	10	100	100		20	16	9	D	D	B	B	C	C	$ -	$ 7,500	$ 11,850
	Methods Development Lab	1	20	10	200	200		30	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 20,649
	Media Prep LAB	1	30	20	600	600		50	16	9	B	B	B	B	C	C	$ -	$ 45,000	$ 52,234
	Media Prep Autoclaves	1	20	15	300	300		35	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 21,522
	Media Storage	1	10	10	100	100		20	16	9	D	B	B	B	C	C	$ -	$ 5,000	$ 8,100
1850.00	Radio Chemistry																		
	Isolation/Standards/Waste Room	1	20	10	200	200		30	16	9	D	B	B	B	C	C	$ -	$ 15,000	$ 19,399
	Radiochemistry Prep Room	1	40	20	800	800		60	16	9	D	D	B	B	C	C	$ -	$ 60,000	$ 70,886
	Radiochemistry Instrument/Counting	1	40	20	800	800		60	16	9	D	D	B	B	C	C	$ -	$ 60,000	$ 70,886
	Balance Area	1	10	5	50	50		15	16	9	B	B	B	B	C	C	$ -	$ 3,750	$ 6,004
2300	Inorganic Chemistry																		
	Digestion and Distillation	1	20	20	400	400		40	16	9	D	D	B	B	C	C	$ -	$ 30,000	$ 37,394
	Biological Oxygen Demand Lab	1	20	10	200	200		30	16	9	D	D	B	B	C	C	$ -	$ 15,000	$ 20,649
	FIA/Ovens/IC/Wet Chem	1	43.33	30	1300	1300		73	16	9	D	D	B	B	C	C	$ -	$ 97,493	$ 111,748
	Methods Development	1	20	10	200	200		30	16	9	D	B	B	B	C	C	$ -	$ 15,000	$ 19,399
	Supply Storage	1	20	10	200	200		30	16	9	D	B	B	B	C	C	$ -	$ 10,000	$ 14,399
1600	Metals Laboratory																		
	Instrument Room	1	40	20	800	800		60	16	9	D	D	B	B	C	C	$ -	$ 40,000	$ 50,886
	Metals Prep - clean	1	20	20	400	400		40	16	9	D	D	B	B	C	C	$ -	$ 20,000	$ 27,394
	Metals Prep - trace	1	20	20	400	400		40	16	9	D	B	B	B	C	C	$ -	$ 20,000	$ 26,144
2100	Chemical Terrorism Laboratory																		
	Chemical Terrorism Lab	1	50	20	1000	1000		70	16	9	D	D	B	B	C	C	$ -	$ 75,000	$ 87,631
	Biomonitoring	1	50	20	1000	1000		70	16	9	D	D	B	B	C	C	$ -	$ 75,000	$ 87,631
	Shared entry Vestibule	1	10	10	100	100		20	16	9	D	B	B	B	C	C	$ -	$ -	$ 3,100
	Total					**17339**													
	Bureau of Management Services																		
	Cylinder Storage Room	1	10	10	100	100		20	16	9	D	B	B	B	C	C	$ -	$ 500	$ 3,600
	Neighborhood Coffee Station	1	10	8	80	80		18	16	9	D	B	B	B	C	C	$ 2,000	$ 3,200	$ 8,040
	Total					**180**													
	Grossing																		
	Stairs	1	20	10	200	200		30	16	10	F	I	B	B	C	C	$ -	$ -	$ 5,244
	Corridor	1	70	6.5	455	455		77	16	9	D	G	B	B	C	C	$ -	$ -	$ 12,969
	Air Shafts	2	15	10	150	300		13	16	16	F	A	A	A	B	A	$ -	$ -	$ 1,264
	Plumbing Chases	30	4	2	8	240		45	16	16	B	A	A	A	B	A	$ -	$ -	$ 3,096
	Columns	40	2	2	4	160		40	16	16	B	A	A	A	B	A	$ -	$ -	$ 2,752
	Interior Partitions					654													
	Exterior Wall	1	450	1		450													
	Total					**2459**	**G** sf												
	Total 3rd floor					**19978**													
	TOTAL DEPT OF HEALTH					**75248**													

The State of Utah

Unified State Laboratory

Material Specification

Partitions	Type		Price/sf	Description
	A	$	-	None per space
	B	$	3.98	3-5/8" Metal stud, 1 layer 5/8" drywall each side
	C	$	4.02	3-5/8" Metal stud, 1 layer 5/8" drywall each side; 1 hour fire rated
	D	$	4.80	3-5/8" Metal stud, 1 layer 5/8" drywall each side, 2-1/2" sound insulation
	E	$	5.50	3-5/8" Metal stud, 1 layer 5/8" drywall o.s.,2 layers other, 2-1/2" sound insulation WET WALL
	F	$	6.00	Shaft Wall
	G	$	6.75	8" CMU
	H	$	8.25	10" CMU
	I	$	3.00	Drywall column surrounds
	J	$	6.50	3-5/8" Metal stud, 1 layer 5/8" drywall each side; 1 hour fire rated + Security mesh

Doors	Type		Price/ea	Description
	A	$	-	None per space
	B	$	950.00	3'0" x 7'0" HM Frame; wood door
	C	$	1,100.00	4'0" x 7'0" HM Frame; wood door
	D	$	2,200.00	4'0" x 7'0" HM Frame; wood door x 2 per space
	E	$	4,400.00	4'0" x 7'0" HM Frame; wood door x 4 per space
	F	$	1,600.00	2 / 3'0" x 7'0" HM Frame; pair wood door
	G	$	4,420.00	2 / 4'0" x 7'0" HM Frame; pair wood door x 2 per space
	H	$	2,000.00	3'0" x 7'0" HM Frame & sidelight; wood door
	I	$	1,200.00	3'0" x 7'0" HM Frame; hollow metal door - Fire Escape, panic hardware
	J	$	1,750.00	2 / 3'0" x 7'0" HM Frame; hollow metal door

Floor Finish	Type		Price/sf	Description
	A	$	-	None per space
	B	$	1.35	VCT
	C	$	6.00	Seamless vinyl
	D	$	2.85	Carpet - 1
	E	$	7.50	Ceramic or Quarry Tile
	F	$	15.00	Terrazzo
	G	$	8.00	Epoxy Resinous Flooring
	H	$	0.50	Sealed concrete

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Material Specification

Base Finish	Type		Price/lf	Description
	A	$	-	None per space
	B	$	1.30	4" Rubber
	C	$	3.00	Seamless cove vinyl
	D	$	0.65	6" Vinyl to half space of vertical shafts/elevators etc.
	E	$	5.00	6" Wood base, stained and varnished
	F	$	6.50	Ceramic or Quarry Tile
	G	$	10.00	Terrazzo thin set

Wall Finish	Type		Price/sf	Description
	A	$	-	None per space
	B	$	0.16	Latex Paint to walls for half the space of vertical shafts/elevators etc.
	C	$	0.32	Latex Paint to walls
	D	$	0.60	Epoxy Paint to walls for half the space of vertical shafts/elevators etc.
	E	$	1.20	Epoxy Paint to walls
	F	$	6.50	Ceramic Tile 100%
	G	$	3.40	Ceramic Tile 50%; Paint 50%
	H	$	2.60	Vinyl Wallcovering
	I	$	2.70	Vinyl Wallcovering Wainscot / Chair Rail / Paint
	J	$	22.00	Wood Panels/Acoustic panels

Ceiling Finishes	Type		Price/sf	Description
	A	$	-	None per space
	B	$	0.72	Paint to underside of structure
	C	$	3.12	2'0" x 2'0" ACT
	D	$	8.50	Metal pan ceiling
	E	$	7.50	Latex Painted suspended drywall
	F	$	8.50	Epoxy painted suspended drywall
	G	$	15.00	Coffered lobby ceiling
	H	$	18.00	Clean room ceiling

Estimated Chemical Usage and Storage

Chemical Name	Estimated usage (g or mL per year)	Amount Stored (g or mL)
(-)-tetramisole Hydrochloride	0.4	5
1-Chlorobutane	750	500
3 % Hydrogen Peroxide	41.7	500
Acetaldehyde	62.5	250
Acetic Acid, glacial	291.7	500
Acetone	2000	4000
Acetonitrile	41.7	500
Alpha-Naphthol	0.8	10
Aluminum	8.3	
Ammonium Iodide	8.3	100
Ammonium Molybdate	9.4	113
Ammonium Nitrate	41.7	500
Ammonium Persulfate	62.5	250
Ammonium Thiocyanate	125.0	500
Ammonium Vanadate	41.7	500
Barium Chloride	125.0	500
Benzyltributylammonium iodide	0.4	5
Beta-Naphthol	4.2	50
Bismuth Subnitrate	37.8	453
Borax	37.8	453
Boric Acid	189.2	2270
Calcium Carbonate	125.0	500
Calcium Chloride	37.8	453
Calcium Silicate	4.2	50
Carbon Disulfide	500	2000
Cellulose	41.7	500
Charcoal, activated	41.7	500
Chloramine T	20.8	250
Chloroform	750	1000
Cobalt II Thiocyanate	2.1	25
Cobalt Nitrate	9.5	113.4
Cobalt(II) Thioscyanate	4.2	50
Cobaltous Acetate	20.8	250
Cupric Nitrate	8.3	100
Cupric Sulfate	41.7	500
Diphenylamine	1.3	5
Diphenylhydramine HCl	8.3	100
d-lactose monohydrate	41.7	500
Ethyl Acetate	416.7	1000
Ethyl Alcohol, 200 proof	39.4	473

Ethyl Ether	83.3	1000
Ethylene Glycol monobutyl Ether		500
Ferrous Sulfate	20.8	250
Florisil	41.7	500
Formaldehyde	500	1000
Glycerin/Glygerol	500	1000
Gold Chloride	0.3	3.69
Helium Gas (ultra high purity)	1,533 cu ft (7 tanks)	438 cu ft (2 tanks)
Heptane	41.7	0
Hexamethlydisiloxane	0.4	0
Hexane	660	1000
Hydrochloric Acid	1330	1000
Hydrophosphorous Acid	41.7	500
Indigo Carmine	2.1	0
Iodine	8.3	100
Iodine Tincture, 7%	125.0	500
Lye, Red Devil	42.5	510
Magnesium Chloride	41.7	500
Magnesium Sulfate	37.8	453
Maleic Acid	41.7	500
Mannitol	41.7	500
Mercuric Chloride	28.3	113
Mercuric Iodide	25.0	100
Mercuric Nitrate	9.4	113
Methanol	6660	4000
Methyl Benzoate	41.7	500
Methyl Orange	8.3	100
Methylamine HCl	41.7	500
Methylene Blue	2.1	0
Molecular Sieves	20.8	250
Molybdic Acid	41.7	500
Myoinositol	20.8	250
N-(1-naphthyl)ethylenediamine dihydrochloride	0.4	5
N,N-dimethylformamide	208.3	500
n-Dodecane	2.1	25
Niacinamide	16.7	200
Nin-RX	8.3	100
Nitric Acid	250	1000
Nitrogen, gas	920 cu ft (4 tanks)	230 cu ft (1 tank)
Nitrogen, liquid	2,400 liters (12 tanks)	200 liters (1 tank)
n-Octosane	32.8	394
Norephedrine HCl	41.7	500
n-Pentadecane	8.3	100
n-Tridecane	0.8	10

o-Dianisidine, tetrazotized	0.8	10
Palladium Chloride	14.8	177.3
p-dimethylaminobenzaldehyde	2.1	25
Pentane	83.3	1000
Permount		500
Petroleum Ether	208.3	500
Phosphomolybdic acid	0.4	5
Phosphorous Acid	41.7	500
Potassium Bromide	62.5	0
Potassium Carbonate	8.3	0
Potassium Chlorate	8.3	0
Potassium Chloride	41.7	0
Potassium Cyanide	25.0	100
Potassium Dichromate	9.4	113
Potassium Ferrocyanide	9.4	113
Potassium Hydroxide	250.0	3000
Potassium Iodide	8.3	100
Potassium Nitrate	41.7	0
Potassium Nitrite	8.3	0
Potassium Perchlorate		
Potassium Permanganate	37.8	453
Regenerize		
Rhodizonic Acid		
Selenous Acid	10.4	125
Silver Chloride	8.3	100
Silver Nitrate	72.9	125
Sodium Bicarbonate	41.7	500
Sodium Bromide	41.7	500
Sodium Carbonate	250.0	1000
Sodium Chloride, table salt	62.5	750
Sodium Dichromate	25.0	100
Sodium Hydroxide	41.7	500
Sodium Iodate	8.3	100
Sodium Iodide	8.3	100
Sodium Nitrate	8.3	0
Sodium Nitrite	62.5	250
Sodium Nitroprusside	4.2	50
Sodium Phosphate	0.8	10
Sodium Sulfate	41.7	500
Sodium Sulfide Nonahydrate	20.8	0
Sodium Sulfite	125.0	500
Sodium thiosulfate	37.8	453
Starch	25	100
Strychnine	0.4	5
Succinylcholine Chloride	0.4	5

Sulfanilic Acid	8.3	0
Tertacosane	2.1	25
Tetracane	0.8	10
Tetrachloroethylene	83.3	1000
Tham	8.3	100
Tin(II) Chloride Dihydrate	8.3	0
Toluene	250	1000
Trifluoroacetic Anhydride	8.3	100
Trimethylchlorosilane		
Triphenyl Selenium Chloride		
Vanillin	125.0	500
Xylenes	8.3	0
Zinc Chloride	9.5	113.4
Zinc Sulfate	9.5	113.4

CONTROLLED SUBSTANCE STAND

Alphabetical Listing

Compound	Standard#
Acetaminophen	400
Alprazolam	335
Aminorex	261
Ammonium nitrate	364
d-Amphetamine HCl	13
d-Amphetamine Sulfate	110
d-Amphetamine HCl	299
L-Amphetamine HCl	25
S(+)-Amphetamine	302
d-Amphetamine Sulfate	305
Apomorphine HCl	19
Aspirin (acetylsalicylic acid)	379
Barbital	154
Barbituric Acid	155
Benzphetamine HCl	3
Benzphetamine HCl	44
Benzoylecgonine	399
1-Benzylpiperzine	384
Boldenone Undecylenate	360
Bromazepam	328
4-Bromo-2,5-dimethoxyphenethylamine(2-CB)	395
Bufotenine Monooxalate	28
Buprenorphine	392
Butabarbital	204A
Butalbital	800
1,4-Butanediol	351
Butorphanol	390
Carisoprodol	393
D,L-p-chloroamphetamine	291
Chloral Hydrate	137
Chlorazepate	38
Chlorodizepoxide	39
4-chlorotestosterone-17-acetate	1000
Clonazepam	352
Cocaine	307A
Cocaine Free Base	106
Cocaine HCl	298
Codeine	260
Codeine	260A

Dehydroepiandrosterone	333
Dextropropoxyphene	32
Dextromethorphan HBr	146A
Dezocine	312
Diazepam	193A
Diethyltryptamine Fumarate	6
Diethyltryptamine Fumarate	8
D,L-2,5-Dimethoxyamphetamine HCl	317
2,5-Dimethoxy-4-bromoamphetamine(DOB)	396
D,L-2,5-Dimethoxy-4-methylamphetamine HCl	10
N,N-Dimethyl-5-methoxytryptamine	332
Dimethyl Sulfone	372
Diphenoxylate HCl	197A
Ephedrine HCl	334
Etontazene	900
Ethinamate	46
Ethyl Phenylacetate	129
Fenfluramine	284
Fenfluramine	308D
Fenfluramine HCl	36
Fenfluramine HCl	308C
Fenfluramine HCl	308E
Fentanyl Citrate	362A
Fentanyl Citrate	362B
Flunitrazepam	311
p-Fluorophenethylamine	290
gamma-Butyrolacetone (GBL)	329
gamma-Butyrolacetone (GBL)	329A
gamma-Hydroxybutyrate (GHB)	327
gamma-Hydroxybutyrate (GHB)	314
D,L-Glutethimide	29
Heroin	324B
Hydrocodone Bitartrate	18
Hydrocodone Bitartrate	42
Hydromorphone HCl	15
Hydroxyzine	296
Ibogaine HCl	40
Indole	330
Iodine	313B
Isobutyl Nitrite	338
Kentamine HCl	336
Lidocaine	385
Lorazepam	48A
Lysergic Acid Diethylamide	320

Lysergic Acid Diethylamide	320A
Lysergic acid (methylpropyl)amide	389
Medazepam	26
Meprobamate	24
Meprobamate	24A
Mescaline	263
(+)-Methadone	316
S(+)-Methamphetamine HCl	303
S(+)-Methamphetamine HCl	304
(+)-Methamphetamine HCl	306A
(+)-Methamphetamine HCl	306B
Methylandrostenolone "Dianabol"	326
Methaqualone HCl	34
5-Methoxy-alpha-methyltryptamine	377
D,L-4 Methoxyamphetamine HCl	22
P-Methoxyamphetamine	341
P-Methoxyamphetamine	341A
Methylamine	139
Methylamine	270
1-Methylaminoanthraquinone (red dye pack)	369
4-Methylaminophenol hemisulfate	309
2-(Methylamino)propiophenone	258
Methylandrostenolone	326A
Methylandrostanolone	371
3,4-Methylenedioxyamphetamine	21A
3,4-Methylenedioxyethylamphetamine (MDEA)	397
3,4-Methylenedioxymethamphetamine	262A
3,4-Methylenedioxymethamphetamine	262B
N-Methylephedrine	380
Methylphenidate	52
Methylphenidate HCl	365
Methyl Sulfone	375
Methyl Sulfone	372A
Midazolam Maleate	370
Morphine 6-acetate	285
Morphine Sulfate	78
Morphine Sulfate	78A
Morphine Sulfate	78B
Nandrolone Decanoate	286
Nandrolone Laurate	361
Norephedrine HCl	251
Norpsuedoephedrine	294
Opium Powder	35
Oxandrolone	398

Oxazepam	174A
Oxycodone HCl	41
Oxycodone HCl	41A
Paraldehyde	31
Phencyclidine HCl	108
Phendimetrazine Tartrate	376
Phenobarbital	140
Phentermine	123
Phosphorus, red	319A
Phenylacetic Acid	138
Phenylephrine HCl	387
Pemoline	30
Pentazocine	37
1-Phenyl-2-Nitropropene	269
Prazepam	373
Procaine	386
Pseudoephedrine	318B
Psilocybin Mushrooms	340
Psilocyn	321B
Quetiapine Fumarate	381A
Quetiapine Fumarate (Seroquel)	381B
Quinine Sulfate	5000
Scopalamine	292
Secobarbital	55A
Stanozolol	388
Sucrose	264
Sufentanil	382
Testosterone	280
Testosterone Acetate	275
Testosterone Benzoate	279
Testosterone 17-B-Cypionate	61
Testosterone Cypionate	276
Testosterone Enanthate	257
Testosterone Enanthate	257A
Testosterone Hemisuccinate	278
Testosterone Isobutyrate	277
17-alpha-methyl-testosterone	374
Testosterone Phenylpropionate	366
Testosterone Propionate	60
Testosterone Propionate	274
Testosterone Sodium Sulfate	281
Testosterone Undecanoate	273
Testosterone Valerate	282
Tetracaine	266

Delta-9-Tetrahydrocannabinol	313H
Delta-9-Tetrahydrocannabinol	313I
Thebaine	122
Trenbolone Acetate	368
Triazolam	267
Triazolam	394
Trifluoromethylphenylpiperazine	383
Valerolactone	331
Valerolactone	331B
Warfarin	378
Zaleplon	391
Zolpidem	315

DARD INVENTORY

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CONTROLLED SUBSTANCE STAND

Numerical Order By Standard#

Compound	Standard#
Benzphetamine HCl	3
Diethyltryptamine Fumarate	6
Diethyltryptamine Fumarate	8
D,L-2,5-Dimethoxy-4-methylamphetamine HCl	10
d-Amphetamine HCl	13
Hydromorphone HCl	15
Hydrocodone Bitartrate	18
Apomorphine	19
3,4-Methylenedioxyamphetamine	21A
D,L-4 Methoxyamphetamine HCl	22
Meprobamate	24
Meprobamate	24A
L-Amphetamine HCl	25
Medazepam	26
Bufotenine Monooxalate	28
D,L-Glutethimide	29
Pemoline	30
Paraldehyde	31
Dextropropoxyphene	32
Methaqualone HCl	34
Opium Powder	35
Fenfluramine HCl	36
Pentazocine	37
Chlorazepate	38
Chlorodizepoxide	39
Ibogaine HCl	40
Oxycodone HCl	41
Oxycodone HCl	41A
Hydrocodone Bitartrate	42
Benzphetamine HCl	44
Ethinamate	46
Lorazepam	48A
Methylphenidate	52
Secobarbital	55A
Testosterone Propionate	60
Testosterone 17-B-Cypionate	61
Morphine Sulfate	78
Morphine Sulfate	78A
Morphine Sulfate	78B

Cocaine Free Base	106
Phencyclidine HCl	108
d-Amphetamine Sulfate	110
Thebaine	122
Phentermine	123
Ethyl Phenylacetate	129
Chloral Hydrate	137
Phenylacetic Acid	138
Methylamine	139
Phenobarbital	140
Dextromethorphan HBr	146A
Barbital	154
Barbituric Acid	155
Oxazepam	174A
Diazepam	193A
Diphenoxylate HCl	197A
Butabarbital	204A
Norephedrine HCl	251
Testosterone Enanthate	257
Testosterone Enanthate	257A
2-(Methylamino)propiophenone	258
Codeine	260
Codeine	260A
Aminorex	261
3,4-Methylenedioxymethamphetamine	262A
3,4-Methylenedioxymethamphetamine	262B
Mescaline	263
Sucrose	264
Tetracaine	266
Triazolam	267
1-Phenyl-2-Nitropropene	269
Methylamine	270
Testosterone Undecanoate	273
Testosterone Propionate	274
Testosterone Acetate	275
Testosterone Cypionate	276
Testosterone Isobutyrate	277
Testosterone Hemisuccinate	278
Testosterone Benzoate	279
Testosterone	280
Testosterone Sodium Sulfate	281
Testosterone Valerate	282
Fenfluramine	284
Morphine 6-acetate	285

Nandrolone Decanoate	286
p-Fluorophenethylamine	290
D,L-p-chloroamphetamine	291
Scopalamine	292
Norpsuedoephedrine	294
Hydroxyzine	296
Cocaine HCl	298
d-Amphetamine HCl	299
S(+)-Amphetamine	302
S(+)-Methamphetamine HCl	303
S(+)-Methamphetamine HCl	304
d-Amphetamine Sulfate	305
(+)-Methamphetamine HCl	306A
(+)-Methamphetamine HCl	306B
Cocaine	307A
Fenfluramine HCl	308C
Fenfluramine HCl	308D
Fenfluramine HCl	308E
4-Methylaminophenol hemisulfate	309
Flunitrazepam	311
Dezocine	312
Iodine	313B
Delta-9-Tetrahydrocannabinol	313H
Delta-9-Tetrahydrocannabinol	313I
gamma-Hydroxybutyrate (GHB)	314
Zolpidem	315
(+)-Methadone	316
D,L-2,5-Dimethoxyamphetamine HCl	317
Pseudoephedrine	318B
Phosphorus, red	319A
Lysergic Acid Diethylamide	320
Lysergic Acid Diethylamide	320A
Psilocyn	321B
Heroin	324B
Methylandrostenolone "Dianabol"	326
Methylandrostenolone	326A
gamma-Butyrolacetone (GBL)	327
Bromazepam	328
gamma-Butyrolacetone (GBL)	329
gamma-Butyrolacetone (GBL)	329A
Indole	330
Valerolactone	331
Valerolactone	331B
N,N-Dimethyl-5-methoxytryptamine	332

Dehydroepiandrosterone	333
Ephedrine HCl	334
Alprazolam	335
Ketamine HCl	336
Isobutyl Nitrite	338
Psilocybin Mushrooms	340
P-Methoxyamphetamine	341
P-Methoxyamphetamine	341A
1,4-Butanediol	351
Clonazepam	352
Boldenone Undecylenate	360
Nandrolone Laurate	361
Fentanyl Citrate	362A
Fentanyl Citrate	362B
Ammonium Nitrate	364
Methylphenidate HCl	365
Testosterone Phenylpropionate	366
Trenbolone Acetate	368
1-Methylaminoanthraquinone (red dye pack)	369
Midazolam Maleate	370
Methylandrostenolone	371
Dimethyl Sulfone	372
Methyl Sulfone	372A
Prazepam	373
17-alpha-methyl-testosterone	374
Methyl Sulfone	375
Phendimetrazine Tartrate	376

5-Methoxy-alpha-methyltryptamine	377
Warfarin	378
Aspirin (acetylsalicylic acid)	379
N-Methylephedrine	380
Quetiapine Fumarate	381A
Quetiapine Fumarate (Seroquel)	381B
Sufentanil	382
Trifluoromethylphenylpiperazine	383
1-Benzylpiperzine	384
Lidocaine	385
Procaine	386
Phenylephrine HCl	387
Stanozolol	388
Lysergic acid (methylpropyl)amide	389
Butorphanol	390
Zaleplon	391

Buprenorphine	392
Carisoprodol	393
Triazolam	394
4-Bromo-2,5-dimethoxyphenethylamine(2-CB)	395
2,5-Dimethoxy-4-bromoamphetamine(DOB)	396
3,4-Methylenedioxyethylamphetamine	397
Oxandrolone	398
Benzoylecgonine	399
Acetaminophen	400
Butalbital	800
Etontazene	900
4-chlorotestosterone-17-acetate	1000
Quinine Sulfate	5000

DARD INVENTORY

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Room: BOD - DOH - Environmental Chemistry

26-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : Breathable Air
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Stirer			1	8	9	9	120	1.0																								
	Stirer			1	4	6	6	120	0.5																								
	Incubator			2	24	26	38	120	15.0																			X					
	DO meter	Orion research		1	4	12	16	120	1.0																								

Room: 133 - DOH - Media Prep Room

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Stirrer	VWR	Dylastir	1	6	8	4	120	1.0																								
	pH/Conductivity Meter	Accument Research	AR20	1	7	9	4	120	1.0																								
	Balance	Ohaus	E400D	1	8	13	3	115	1.0																								
	Hotplate	Corning	PC-320	1	8	8	4	115	1.0																								
21637	Waterbath	Precision	66606	1	15	12	17	115	8.6																								
33836	Reagent Grade Water System	Continental	WBMPU 10 1002	1	11	14	18	115	0.4									X															
	Programmable Pump	New Brunswick Scientific	DP200	1	8	14	10	115	4.0																								

Room: 137 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : P-10 10% Methane 90 % A
G2 : Liquid Nitrogen
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Electrical Amps	Electrical Watts	Electrical Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Analytical Balance	Mettler	H152	1				110	1.0																								
	Analytical Balance	Mettler	AT261	1				110	1.0																								
	Analytical Balance	Sartorious	1419	1				110	1.0																								
	Centrifuge	Sorvall	RC3C Plus	1	30"	33"	46"	220	24.0																								
	Conductivity Meter	Leeds & Northrup	177607	1				110	7.0																								
	Gas Flow Proportional Coun	Canberra	2404F	1	33"	27"	29"	110	1.5																			X					
	Gas Flow Proportional Coun	Canberra	LB4110	1	26	28	61	110	2.0																			X					
	Gas Flow Proportional Coun	Tennelec/Nucleus	LB4110	1	26	28	61	110	2.0																			X					
	Alpha Station 255	Canberra	PB47H-AA	1				110																									
	Alpha Scintilation Counter	Ludlum	43-10	8																													
	Radon Flask Counter	Ludlum	182	4																													
	Liquid Scintilation Counter	Beckman	LS6500	1	51"	32"	28"	110	3.0																								
	Counting Rack/ Hardware	Tennecomp/system	TASC-2	1	43"	33"	72"	120	2.0																								
	Radon Gas Manafold	Rocky MT Science	RA-100	2				110																									
	Muffle Furnace	Thermolyne	1500	1				110		2240																							
	Hot Plate Single Mag. Stirrer	Lab-Line	1266	8				110		500																							
	Hot Plate Multi- Mg. Stirrer	Lab-Line	1268	1				110	15.0																								
	Hot Plate	Thermolyne	2200	1				220	13.3																								
	Oven	Precision Scientifie	1402	1				110		1200																							
	Auto Stirer	Thermolyne	7200	2				110																									
	High Purity Germanium	EG&G Ortec	Gem 18180	1																									X				
	Caves Development Prod.	Gamma Products		2	36	38	50																										
	Heating Rack Lamps 3	Home Made		12				120		125ea																							
	P-10 Manifold	Airgas	Y11CP602B350	2																													
	Pumps	Gast	0523 U4F	3				110	5.5																								
	Vacuum Pump	Edwards	E2M2	1	6	16	12	120	7.0																								
	Computer			4	18	18	28	120	5.0																								
	Monitor			4				120	2.0																								
	Printer			3	18	20	10	120	8.0																								
	Distllation 6 place	Lab-Line	5000-2	1				115		1800																							
	Dry Oven	Precision Scientific	151	1				115		750																							

Room: 235 - DOH - Environmental Microbiology

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	D	H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	CO2 Incubator	Steri-Cult	3303	1	40	28	39	120	7.0																								
	Freezer	Marvel	15AF0001	1	15	18	24	115	2.0																								
	Quanti-tray Sealer	IDEXX	89-10-894-02	1	16	10	11	115	6.0																								
	Gel-Doc	BIO RAD	Gel-Doc 1000 darkr	1	14	9	19	120	1.0																								
	Stirrer/Hotplate	Corning	PC-320	1	8	7	4	120		575																							
	Circulating Water Bath	Precision		1	25	16	9	120		1170																							
	Ultrasonic Cleaner	Branson	1510R-DTH	1	9	11	11	117	1.4																								
	Wristshaker	Pall Gellman	4821	1	11	10	9	115	0.7																								
	Vortex-Genie Mixer	Scientific Products	K-550-G	2	5	6	6	120	0.5																								
	Stirrer/Hotplate	VWR	SP35825	1	7	10	4	120	7.3																								
	Vacuum pump	Leeson	A45170Z2A	2	6	11	9	115	6.2		1																						
	Floor centrifuge	Sorvall	RC3C Plus	1	30	40	46	208	24.0																								
	Rotamix	Dynal	RKDynal	1	17	5	7	115	1.0																								
	Water Bath	Precision	186	1	32	21	13	120	10.0																								
	Water Bath Shaker	New Brunswick Scientific	Classic C76	1	21	25	26	120		1250																							
	Date & Time Stamper	Time Equipment	TCX-21	1	7	7	9	120	1.0	23																							
	Vortex	Barnstead/Thermolyne	M63215	1	5	6	7	120	1.0		1																						
	Stomacher		3500	1	18	19	14	110	2.0																								
	Electrophoresis System	Fisher Scientific	FB300	1	6	11	6	120		100																							
	Centrifuge	Eppendorf	5415D	1	9	12	9	120	1.0	80																							
	Slide Warmer	Lab-line instruments	26020	1	25	8	4	120	1.3																								
	Mastercycler gradient	Eppendorf	5331 10165	1	10	16	12	115	5.0																								
	Quebec Darkfield Counter	Leica	3327	1	11	10	10	120	1.0	40																							

Room: 306 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : H_2 Hydrogen
G2 : UHP Helium
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	Remarks
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	
37769	SEPRATION MODULE 2690	WATERS	WAT270886	1	24	86	22	120	9.5									X					X										
	POST COLUMN REATION MODULE	WATERS	30805	1	7	60	4	120	2.5A																								
36986	SCANNING FL DETECTOR	WATERS	47401	1	12	64	8	120	3.5A																								
	REAGENT MANAGER	WATERS	RMA	2	9	49	6	120	10.5A																								
37769	PHOTODIODE DETECTOR	WATERS	TCM	1	5	49	9																										
	MONNITOR	GATWAY		1	17	63	17	120	2																								
	PC	GATWAY	E5200	1	8	56	19	120	5																								
	PRNTER	HP	LASER JET PRINTER		17.5	63	9	120	2																								
	auto sampler	Tekmar	aqua tek	1	25	18	22	120	12.0																								#12-18 one system set together
	concentrator	tekmar	3000	1	10	18	20	120	5.0																								
	GC/ fid; pid	HP	5890series II	1	27	21	19	120		2200va									X									X	X				
	computer	HP	kayak xa	2	18	19	8	120	5.0																								
	monitor	HP		2	17	19	17	120	2.0																								
	printer	HP	laserjet 4	2	17	19	13	120	8.0																								
	backup device	backpack		1	4	8	3	120	1.0																								
	auto sampler	HP	gc system injector	1	12	12	17	120																									# 20- 29 one system set together
	controll box	HP	autosampler control	1	14	16	5	120		370va																							
	ion gauge	HP		1	4	8	3	120	0.5																								
	mass detector	HP	5972	1	14	14	18	120		1100va																							
	vacuum pump	Edwards	E2M2	2	6	16	12	120		990va																							
	GC	HP	5890 series ii plus	1	27	21	19	120		2200va																			X				
	computer	HP	kayak xa	1	18	19	8	120	5.0																								
	monitor	HP		1	17	19	17	120	2.0																								
	printer	HP	laserjet 4050	1	17	19	13	120	8.0																								
	backup device	backpack		1	4	8	3	120	1.0																								
38000A	GC	Agilent	6890	1	36	28	22	120		2200																			X				
	mass detector	Agilent	5973N	1				120		900																							Dimensions included above
	ion gauge	Agilent	59864B	1				120		25																							Dimensions included above
38454	P&T Concentrator	O I Analytical	Eclipse 4660	1	16	18	30	120	6.3																				X				
	auto sampler	O I Analytical	4551A	1				120	2																				X				Dimensions included above
	Standard Addition Module	O I Analytical	SAM	1																									X				Dimensions included above
	pH meter	O I Analytical	pH Express	1	6	14	12																										

Room: 328 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : H_2 = Hydrogen
G2 : UHP Helium
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Auto sampler	Tekmar	14-1170-100		24	83	14	120		250								X										X				
	sampler concentrator	Tekmar	14-8900OET	1	9	48	17	120		920																		X				
	GC6890/ MS5975	Agilent	GC6890 {G1530N}	1	35	22	16	120		2250																		X				
			MS5975(G1530A)	1				120		900																						
			#(US53931196)																													
	VACUM PUMP	AGILENT		1	6	41	8	120	7																							
	PRINTER	HP	2420 LASER JET	1				120	8																							
	PC	DELL		1	15	56	4	120		990																						
	auto sampler	Tekmar	precept	1	22	26	31	120	7.0																							#12-21 one system set together
	concentrator	HP	3000	1	10	18	20	120	5.0																							
	GC	HP	5890series II plus	1	27	21	19	120		2200va																						
	mass detector	HP	5972	1	14	14	18	120																								
	vacuum pump	Edwards	E2M2	1	6	16	12	120	7.0																							
	vacuum pump	Edwards	E2M2	1	6	16	12	120	7.0																							
	computer	HP	kayak xa	1	18	19	8	120	5.0																							
	monitor	HP		1	17	19	17	120	2.0	1100va																						
	printer	HP	laserjet 4	1	17	19	13	120	8.0	990va																						
	backup device	backpack		1	4	8	3	120	1.0	2200va																						
	autosampler	CTC	A200S	1	25	10	17	120	1.0																							#23- 28 one system set together
	Ion Trap GC/MS	Finnigan	Magnum	2	48	27	21	120		1440va																						
	monitor	Gateway	vx920	1	17	19	17	120	2.0																							
	printer	HP	4100	1	17	19	13	120	8.0																							
	vacuum pump	Alcatel	2004A	3	6	16	12	120	7.0																							
	computer	Gateway	2000	1	8	19	26	120	5.0																							
	autosampler	agilent	7683B	1	19	15	19	120																								
	GC	agilent	6890N	1	23	22	18	120		2250va																						
	mass detector	agilent	5975	1	12	22	18	120		900va																						
	monitor	hp	hp 1702	1	16	9	17	120																								
	computer	hp	hp compaq	1	14	16	5	120																								
	printer	HP	laserjet 2420d	1	17	16	11	120																								
	vacuum pump	Pfeiffer		1	6	16	8	120	7.0																							
	GC	Varian	3900	1	25	27	34	120		1500																		X				
	MS	Varian	Saturn 2000	1				120		1440																						
	Autosampler	Varian	CP-8400	1				120																								
	Computer	Dell	Optiplex	1	18	25	20	120	2																							
	Monitor	Dell	M782	1				120	2																							
	Printer	HP		1	17	21	22	120	8																							
	vacuum pump	Varian	SO 395	1	6	18	11	120	7																							

Room: 343A - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : High Purity Argon
G2 : Changeable Lecture Size
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	- 20 C Freezer	VWR	U2004GA15	1	22	29	34	115	12.0		1		x																				
	Instrument Computer	Dell	N/A	1	39	29	46	120	7.0				x	x																			
	Printer	HP	4200	1	17	42	22	120	7.0																								
	Centrifuge	Eppendorf	5804	1	24	24	14	120		950																							
	Diluter	Hamilton	Microlab 500	1	12	12	12	120	1.2																								
	Vortex Genie 2T	Scientific Industries	SI-T236	1	5	7	7	120	0.7																								
	Vortexer	VWR	VX-2500	1	16	10	16	110		350																							
38449	Metal Free Hood	Labconco	3750000	1	37	36	37	120	2.5		1										x												
	ICP-MS	Perkin Elmer	DRC-II	1	39	29	46	220	20			x	x	x							x	x			x			x	x				
	Autosampler	Perkin Elmer	AS-93	1	17	14	15	120	1.0																								
	Recirculator	Polyscience	3370	1	26	34	32	120	5.5				x	x							x												
	LC Column Over	Perkin Elmer	Series 200	1	20	45	50	120	1.6																								
	LC Pump	Perkin Elmer	Series 200	1				120	1.6																								see above for total dimensions
	LC Autosampler	Perkin Elmer	Series 200	1				120	1.6																								see above for total dimensions
	Vacuum Degasser	Perkin Elmer	Series 200	1	7	7	7	120	0.9											x													
	Switching Valve	Perkin Elmer	81389181	2	7	7	7	120	1.0																								

Room: 327 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : UHP Helium
G2 : Liquid Nitroen
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	GC	Agilent	6890N	1	35	27	42	120		2250											X							X	X				Liquid Nitrogen= N2
	MS	Agilent	5973	1				120		900																							
	Multipurpose Sampler	Gerstal	MPS2	1				120	8.0																			X					
	GC	Agilent	6890N	1	35	27	35	120		2250											X							X					
	MS	Agilent	5973	1				120		900																		X					
	Autosampler	Agilent	7683	1				120																				X					
	Pump	Edwards	1.5	2	5	14	8	120	7.0												X												
	Computer	HP	DN747S	2	18	24	20	120	5.0																								
	Monitor	HP	1702	2				120	2.0																								
	Printer	HP	2300d	2	16	17	11	120	8.0																								
	Freezer	VWR			22	29	34	120	14.0																								
	Hood	Labconco	36208/36209 A2	1	54	32	60	120	12.0																								
	Ultrasonic Cleaner	Branson	1510R-MTH	1	10	12	12	120	1.3																								
	Hotplate	Corning	PC-620	1	11	15	5	120		1113																							

Room: 329

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : Oxygen
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Hot Plate Digester	CPI International	ModBlock	2	30	20	10	120													x												
	Stir Plate	Thermolyne		1	10	10	10	120													x												
	Autosampler	Perkin Elmer	AS-90	2	15	20	20	120																									
	Flow Injection System	Perkin Elmer	FIAS 100	1	42	18	41	a																									a = 115 V 50/60 Hz or 230 V 50/60 Hz, single pl
	Atomic Adsorption Spectrom	Perkin Elmer	Aanalyst 400	1	70	65	65	a				x									x			x									
	Mercury Flow Injection	Perkin Elmer	FIMS 100	1	42	26	41	a													x			x									
	Mercury Direct Adsorption	Milestone	DMA80	1	32	20	15	120													x							x					
	Microwave Digester	CEM	Mars 230/60	1	24	30	24	220	15.0	3100		x									x												1600 Watts continous
	Instrument Computers	Various	n/a	3	46	41	42	120																									
	Network Computer	Various	n/a	1	46	41	42	120																									
	Instrument Printers	Various	n/a	4	24	20	15	120																									
	Instrument Balance	Precisa	B220A	1	12	15	20	120																									
	Balance	Mettler	PB602-S	1	12	15	20	120																									
	Oven	Quincy Labs Inc	10	1	30	30	30	120													x												
	Water Bath	Precision	280	1	30	30	30	120													x												
	TCLP Extraction	Associated Design and Mfg	3740-12-BRE	1	72	30	50	120																									rotating equipment, extra clearance needed
	Turbidity Meter	Hach	2100A	1	20	20	20	120																									
	pH Meter	Orion	701	1	20	20	20	120																									
	Perchlorate Hood			1	36	40	108																										special exhaust system requirements
	Vortex Mixer	VWR	Standard Mini	1	7	7	7	120													x												

Room: 332 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : Hydrogen-H_2
G2 : CA, Ultra Zero
G3 : UHP Helium
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
38478	GC	Agilent	6890N	1	23	25.5	20	120	15.0												X									X			
N10149	AutoSampler	Agilent	7683	1	18	13	18																										
	Detector-FID	Agilent		2	4	2	3																					X	X				
USU430	Computer	HP	D530SFF	1	13	15	4	120	2.5																								
	Monitor	HP	1702	1	15	8	13	120																									
	Laserjet Printer	HP	2300d	1	16	18	13	120	6.0																								
257354	Cooler	Koldwave	2K16DB11	1	25	11	32	115	13.0																								
37771	GC	HP	6890	1	23	26	20	120													X									X			
37771B	AutoSampler	Agilent	7683	1	18	13	18																	X									
U1814	Detector-ECD	HP	G2397A	1	3	3	3																					X					
	Detector-FID	HP		1	4	2	3																										
	Computer	HP	Kayak XA	1	23	19	7	120	5.0																								
37771C	Monitor	HP	61875AA	1	17	18	17	120	1.3																								
	Laserjet Printer	HP	C3980A	1	16	23	8	120	3.3																								
	Computer	Compaq		1	9	18	20	120																									
	Monitor	Gateway	EV700AA	1	9	18	20	120	1.5																								
38317	GC	Agilent	6890N	1	23	26	20	120		2250											X									X			
	AutoSampler	Agilent	7683	1	18	13	18																	X									
U3880	Detector-ECD	Agilent	62397A	1	3	3	3																	X									
U3883	Detector-ECD	Agilent	62397A	1	3	3	3																										
38371C	Computer	HP	VectraVL800DT	1	17	17	7	120	5.0																								
	Monitor	HP	HP91	1	18	18	19	120	1.3																								
	Laserjet Printer	HP	4100	1	16	20	12	120	8.0																								
37161	Computer	Bravo	8400	1	8	18	18	120	5.0																								
	Monitor	Gateway	VX700	1	16	16	16	120	2.0																								

Room: 333 - ICP-MS

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : High Purity Argon
G2 : Changeable Lecture Size
G3 : Changeable Lecture Size
G4 : Changeable Lecture Size
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Instrument Computers	Dell	N/A	2	39	29	46	240	7.0				x	x																			included monitor power requirements
	Printers	HP	4200	2	17	42	22	240	7.0																								
32134	Diluter	Wheaton		1	12	12	12	120	1.0																								
38479	ICP-MS	Perkin Elmer	DRC-e	1	39	29	46	220	20.0			x	x	x							x	x			x			x	x				
38510	ICP-MS	Perkin Elmer	DRC-II	1	39	29	46	220	20			x	x	x							x	x			x			X		x	x		
	Autosampler	Perkin Elmer	AS-93	2	17	14	15	120	1.0																								
	Air cooled Recirculator	Polyscience	3370	1	26	34	32	120	6.0				x	x							x												
	Air cooled Recirculator	Polyscience	3370	1	26	34	32	120	6.0				x	x							x												currently stored in ceiling crawl space
	Balance	Mettler	AX205	1	15	15	15	120	1.0																								
	Spectrophotometer	Hach	DR/400V	1	30	30	30	120	1.0																								

Room:335 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	D	H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Analyticval Balance	Mettler	H-51	1	13	8	7	120	0.4																								
	Ion Chromatograph	Dionex	DX-500	1	12	17	36	120	2.0														X										
	Auto sampler	Waters	717	1	22	17	15	120																									
	Computer	Compak	Prosignia 200	1	16	18	6	120	6.0																								
	Monitor	Micron	700VX	1	18	22	18	120	2.0																								
	Printer	HP	1300	1	14	18	12	120	7.0																								
	Autoanalyzer	Lachat/Zellweger	Quik AI	2	13	27	8	120	6.0																								
	Auto Sampler	Lachat/Zellweger	AXS 510	2	21	17	25																										
	Reagent Pump	Lachat/Zellweger	PR-100	2	8	16	6	120	1.0																								
	Computer	Dell	DHM	2	16	18	5	120	5.0					X																			
	Monitor	Dell	E771P	1	17	19	17	120	1.7																								
	Monitor	Dell	L172R6	1	18	6	18	120	0.8																								
	UPS	Belkin	F6C525	1	8	10	9	120	12.0																								
	UPS	Belkin	F6C550	1	8	10	9	120	12.0																								
	Hot Plate Stirrer	Corning	PC-420	1	5	10	5	120		198																							

Room: 337 - corner lab

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : Air
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Electrical Amps	Electrical Watts	Electrical Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
3320	Oven	GCA/Precision	12-AB-12	1	19	19	26	120	6.8	820	1			X																			
38507	Autotitrator	Thermo	7577	1	18	11	17	120	0.5					X																			
38519	Autosampler	Thermo	AT500	1	21	18	23	24	3.3					X																			
	UPS	Belkin		1	5	12	9	120		550																							
	Computer	Acer Power	X11-45371	1	7	18	15	120	5.0					X																			
	Monitor	Dell		1	17	7	18	120	2.0					X																			
	Oven	Sheldon Manufacter	1330GM	2	22	19	32	115	8.0																								
	Vacuum Pump	Emerson	SA55NXGTB	2	8	14	12	115	5.0																								
	pH Meter	Thermo	618	1	8	11	4	120	0.5																								
	Stir Plate	Scientific Products	58290	1	5	5	5	115	1.0																								
	Conductivity Meter	Thermo	15923	1	9	8	3	110	0.5																								
37651	UV-VIS Spectrometer	Shimadzu	UV-1601	1	22	18	8	120		250																							
	Computer	Gateway	18259729	1	8	17	19	120	5.0																								
	Monitor	Compac	S910	1	17	19	19	120	2.0																								
	Oven	Fisher		2	24	23	26	120	20.0																								
	Computer	Gateway	25032794	1	8	17	18	120	5.0																								
	Monitor	Gateway	VX700	1	16	17	18	120	2.0																								
	Computer	Gateway	25032795	1	8	17	18	120	5.0																								
	Monitor	OptiQuest	Q71	1	16	17	16	120	2.0																								
33046	Balance	Mettler	AE200	1	8	19	12	115	1.0																								
	Computer	Micron	SE4408X2-T	1	9	19	21	115	10.0					x																			
	UPS	Belkin		1	5	12	8	120		550																							
	Monitor	Gateway	EV700	1	17	19	18	120	2.0					x																			
	Autosampler	Lachat Instruments	279DLB392	1	21	21	19	120	1.0					x																			
	FIA Analyzer	Lachat Instruments	A83000-1436	1	27	12	8	120	6.0					x																			
38145	NH3 Distiller	Westco Scientific		1	32	20	21	220	12.0																								
	Hot Plate	Blue		1	27	18	7	220	15.0																								
	Hot Plate	Barnstead/Thermoline	2200	1	24	12	7	220	15.0																								
	Autosampler	Shimadzu	ASI-V	1	14	22	20	120	6.0																								
	Toc-V	Shimadzu		1	17	21	19	120	6.0																			x					
	Computer	MPC	XIO-60256	1	7	18	18	120	5.0																								
	Monitor	MPC	FI55013017176	1	14	15	15	120	2.0																								
	Turbidimeter	Hach	2100AN	1	16	12	6	115		35																							

Room: 343 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Electrical Amps	Electrical Watts	Electrical Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	furnace	Thermolyne	4800f48025	1	13	19	17.5	120	15.0																								
31192	oven	VWR	1310	1	16	18	20	120	15.0																								
19372	Ultrasonic cleaner	Metler	ME5.5	1	21	13	11	120	3.0																								
32360	Sonifer	Branson	132137	1	7	17	8	120	4.0																								
	Converter-Sonifier	Branson		1	24	6	9																										
	Shaker	Eberbrach		1	12	14	14	115																									
38251	Turbovac	Zymark	Turbovac 2	2	20	12	12	120																									
	Vortexer	VWR	Vortexer G-560	1	5	6	6	115	0.5																								
3053	Vacuum Oven	Narional Appliance Co.	5851	1	16	25	23																										
	Balance	Metler	PB303	1	7	12	8	120	1.0																								
	Balance	Metler	P1200	1	7	13	8	120	1.0																								Uses Oil
	Vacuum Pump	Gast	1192	2	8	14	10	115	6.0																								
	Vacuum Pump Jar			1	21	7																											Uses Oil
21806	Freezer	Fisher		1	23	23	35	120	15.0																								
	Hot Plate Stirrer	Corning	P6351	1	8	7	5	120		615																							
33045	Sep. Funnel Shaker	Glas-Col	V55504	1	24	39	48	120	5.5																								
	Centrifuge	Centricon	67377	1	12	12	8	115	1.2															x									

Room: 344 - DOH - Environmental Chemistry

23-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
38516	Ion Chomatograph	Dionex	ICS 3000 DC	1	48"	24"	60"	115	10.0				X	X									X									
	RFIC	Dionex	ICS 3000 EG	1		^		115	10.0														X									Dimensions included above
	Pump	Dionex	ICS 3000 SP	1		^		115	2.0														X									Dimensions included above
	Auto Sampler	Dionex	AS 40-1	1		^		115	0.6																							Dimensions included above
	Lap Top Computer	Troshiba		1	14	14	14	115	1.5																							
	Desk Top Computer	Dell		1	18	18	28	115	5.0																							
	Monitor	NEC	AccuSynk LCD71v	1				115	0.8																							Dimensions included above
	Printer	HP	LJ1022	1	15	15	10	115	4.0																							
	Printer	HP	LJ 1300	1	18	20	10	115	8.0																							
	Ion Chomatograph	Dionex	GP-40	1	48	24	60	115	3.2														X									
	Detector	Dionex	CD-20	1				115	3.2														X									Dimensions included above
	Auto Sampler	Dionex	AS3500	1				115	5.0														X									Dimensions included above
	Vortex stirrer	Lab Line	S8220-5	1	8"	6"	6"	115	0.6																							

Room: 347 - DOH - Environmental Chemistry

27-Jun-06

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 : INSERT NAME
G2 : INSERT NAME
G3 : INSERT NAME
G4 : INSERT NAME
G5 : INSERT NAME

Remarks Legend

OFOI - Owner Furnished Owner Installed
OFCI - Owner Furnished Contractor Installed
CFCI - Contractor Furnished Contractor Installed
New
Relocating

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
	Balance	Sartorious	CP4238	1	8	11	6	120	0.2																								
	Computer	Gateway	24913110	1	8	17	8	120	6.5																								
	Monitor	Hitachi	CM901U	1	19	18	18	120	3.0																								
	Computer	Dell	DHM	1	7	16	17	120	3.0																								
	Monitor	Dell	M782	2	15	13	17	120	1.5																								
	Monitor	Gateway	VX720	1	16	16	14	120	1.5																								
34233	Computer	HP	D4555A	1	16	15	4	120	3.0																								
	ER Detector	O I Analytical	A001614	2	10	14	6	120	3.0																								
36813	Flow Solution IV	O I Analytical	A002393	2	18	16	7	120	6.3																								
	Midi Distil.	Andrew Glass Co		1	10	24	4	120	3.0																								
	Magnetic Stirer	Barnstead Theromline	S46725	3	7	7	5	120	3.0																								
	pH Meter	Orion	710A/900A	2	9	8	2	120		20																							
	RA Sampler	O I Analytical	AIM 1250	2	15	16	12	120		30																							

Room: Consumer Health - Open Lab (Multiple Rooms)

June 2006

Utility Legend

SP = Special Plug Type
EP = Emergency Power
UPS = Uninterruptible Power
ALR = Alarm
CW = Cold Water
HW = Hot Water
PW = Purified Water
CA = Compressed Air
VAC = Vacuum
EXH = Local Exhaust
HV = High Vacuum
HE = Helium
N2 = Nitrogen
ChW = Chilled Water
CS = Clean Steam
STM = Steam

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
R31259550	Refrigerator	Puffer Hubbard	FC430A	1	34"	37"	78"	115	14				x	x	x																		
	25 C incubator	G.E.	TA12SLB	1	28"	31"	67"	110	3				x																				
2050	35 C incubator	Precision	30M	1	36"	34"	84"	120					x																				
2059	Freezer	Fisher Sci.	13-988-350-2	1	53	40	84	115					x																				
2060	refrigerator /freezer	Whirlpool	ET18JMYM	1	32	32	65	115																									
2069	double refrigerator	Revco	REL5004A-U-A	1	57	39	79	115	8				x																				
3425	thermometer calibrator	ERTCO	TCS200-35	1	16	21	25	120	12																								

Room: Consumer Health - Open Lab (Multiple Rooms)

June 2006

Utility Legend

SP = Special Plug Type
EP = Emergency Power
UPS = Uninterruptible Power
ALR = Alarm
CW = Cold Water
HW = Hot Water
PW = Purified Water
CA = Compressed Air
VAC = Vacuum
EXH = Local Exhaust
HV = High Vacuum
HE = Helium
N2 = Nitrogen
ChW = Chilled Water
CS = Clean Steam
STM = Steam

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	Remarks
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	

Room: DOPS - Forensic Chemistry

Insert Date of Survey

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Remarks

OFOI - C
OFCI - O
CFCI - C
New
Relocatin

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5
	Avid System	Avid		1	95"	78"	59"	240	1.5																							
	Color Video Monitor	Panasonic	CT-S1390Y	1				120	1.4																							
	Time Base Corrector	Data Video	TBC-1000	1				12	1.2		DC																					
	VCR	Panasonic	AG-1980	1				120		33	AC																					
	LVD Storage Media	LVD	Ultra 32	3																												
	Printer	Epson	Photo R800	1				120	0.5																							
	Printer	Hewlett Packard	LaserJet 4000	1	15"	16.5"	47"																									
	Printer	Hewlett Packard	LaserJet 890C	1	17.2"	6"	9.5"	240	1	50																						
	Copier	Cannon	F140 100	1	27"	22"	43"	127	10																							
	Balance	Mettler Toledo	BD120I	1	7"	8"	37"	12	0.07		DC																					
	Balance	Mettler Toledo	XS1003S	4	8"	14.5"	35.5"	14.5		6																						
	Balance	Ohaus	Explorer	1	8.2"	12.5"	38.9"	12		1	AC																					
	Balance	Ohaus	DS10	1	12"	18"	36.5"																									
	Refrigerator	General Electric	FUMM55NBWW	1	21.7"	23.5"	67.5"	115	1.6		AC																					
	Refrigerator	General Electric		1	18.5"	17"	18.5"																									
	Microscope	Leica	Stereo Zoom 6	3	12"	20"	49"	120	20		AC																					
	Microscope	Bausch and Lomb	Stereo Zoom 5	2	6.5"	8"	45"	120	25		AC																					
	Microscope	Nikon	SMZ 800	1	24"	14"	45"	120	2.5		AC																					
	Microscope	Leica	CFM 2	1	20"	11"	69"	240			AC																					
	Microscope	Olympus	BXBH-2	2	10"	11.4"	43"	115	1.6		AC																					
	FTIR	Thermo Nicollette	Nexus 420C	1	106"	30"	61	12		110				X										X								
	Printer	Hewlett Packard	DeskJet 1220C	1				240	1	90	AC			X																		
	Oven	VWR	1430	1	23"	24.5"	50"	115 V	8		AC																					
	Oven	Scientific Products	N8620-10A	1	22"	17.5"	66.2			120																						
	GC-MSD	Agilent	6890/5973	2	76.5"	57"	50"	120			AC			X							X		X									
	Printer	Hewlett Packard	LaserJet 4000	2										X																		
	MicroSpectrophotometer	SEE Inc	SEE 2000	1	73"	36"	66"	120		100				X																		
	Color Video Monitor	Panasonic	CT-1382Y	1				120	10					X																		
	100 W Mercury Lamp	SEE Inc	M100	1				115	3.1		AC			X																		

Room: DOPS - Forensic Chemistry

Insert Date of Survey

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Remarks

OFOI - C
OFCI - O
CFCI - C
New
Relocatin

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5
	75 W Xenon Lamp	SEE Inc	XBO75	1				400		250	AC			X																		
	Gas Chromatograph	Hewlett Packard	5890 Series 2	1	70"	30"	66"							X							X		X									
	Autosampler Controller	Hewlett Packard	G1512A	1				240			AC			X																		
	Gas Chromatograph	Perkin Elmer	Autosystem	1	26"	24"	48"	120	16		AC										X											
	Refrigerator	Haier		1	19.5"	18.5"	55.5																									
	Flam. Liquid Storage Cab.	JustRite	25040	1	17"	17"	58"	-	-	-	-																					
	Microscope w/ Hot Stage	Leica / Mettler Toledo	DMLB / FP821T	1	57"	30"	56"	120			AC																					
	Video Monitor	Hitachi	VM920k	1				230		28	AC																					
	Refractomter	Foster + Freeman	Grim 2	1				120			AC																					
	UV/Vis Spectrophotometer	Perkin Elmer	Lambda 38	1	46.5"	35"	45"	230	1.5															X								
	Strip Recorder	Perkin Elmer	R 100 A	1				230																								
	SEM w/ EDS Detector	Jeol / Edax	JSM 6420 LV/PV775	1	79.5"	36.5"	60"	100	30		AC	X		X																		
	Printer	Epson	Photo R320	1				120	0.4		AC			X																		
	Liquid Nitrogen Tank	Airgas	UN1977	1	19.5"	19.5"	63.5"	-	-	-	-																					
	Fume Hood	Labconco	Protector	3	69.8"	31"	59"	115			AC								X		X											
	Fume Hood	Labconco	Fiberglass 30	6	30"	30.2"	48"	115			AC								X		X											

Legend
)wner Furnished Owner Installed
)wner Furnished Contractor Installed
ontractor Furnished Contractor Installed
ıg

Remarks

Legend
)wner Furnished Owner Installed
)wner Furnished Contractor Installed
ontractor Furnished Contractor Installed
ıg

Remarks

Room: DOPS - Q.A. & Safety

5/31/2006

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Remarks

OFOI - C
OFCI - O
CFCI - C
New
Relocatin

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5
R31259550	Refrigerator - SAMPLE	Puffer Hubbard	FC430A	1	34"	37"	78"	115	14				X	X	X																	
	flammable storage cabinet	eagle	rm08361	3	43"	18"	65"																									
	acid storage cabinet	justrite	24150	3	43"	18"	65"																									
	corrosives cabinet	eagle	cra-47	3	43"	18"	65"																									
	waste cabinet	eagle	haz1926	3	31 1/4	31 1/4	31 1/4"																									

Legend

)wner Furnished Owner Installed
)wner Furnished Contractor Installed
ontractor Furnished Contractor Installed

ıg

Remarks

Room: DOPS - Evidence Receiving

Insert 15/31/2006

Utility Legend

SP = Special Plug Type	PW = Purified Water	HE = Helium
EP = Emergency Power	CA = Compressed Air	N2 = Nitrogen
UPS = Uninterruptible Power	VAC = Vacuum	ChW = Chilled Water
ALR = Alarm	EXH = Local Exhaust	CS = Clean Steam
CW = Cold Water	HV = High Vacuum	STM = Steam
HW = Hot Water		

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Remarks

OFOI - C
OFCI - O
CFCI - C
New
Relocatin

Laboratory Equipment

ID Tag	Description	Manufacturer	Model No	Qty	Dimensions W	Dimensions D	Dimensions H	Electrical Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	Utilities and Gases CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5
R31259550	Refrigerator - SAMPLE	Puffer Hubbard	FC430A	1	34"	37"	78"	115	14				X	X	X																	
	Refrigerator - Evidence Stora	Magic Chef	rb16a-2a	1	30	27	65	115					x	x	x																	
	flammable storage cabinet	eagle	rm08361	4	43"	18"	65"																									
	safe	mosler		1	41	29	73																									
	incoming storage capacity																															
	outgoing storage capacity																															
	space for gun safes			2	60"	48"	28"																									

Legend

)wner Furnished Owner Installed

)wner Furnished Contractor Installed

:ontractor Furnished Contractor Installed

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Remarks
Current usage space for another refrigerator
exhaust 100 linear feet per minute
672 cubic feet on shelves
768 cubic feet on shelves

Room: Consumer Health - Open Lab (Multiple Rooms)

June 2006

Utility Legend

SP = Special Plug Type
EP = Emergency Power
UPS = Uninterruptible Power
ALR = Alarm
CW = Cold Water
HW = Hot Water
PW = Purified Water
CA = Compressed Air
VAC = Vacuum
EXH = Local Exhaust
HV = High Vacuum
HE = Helium
N2 = Nitrogen
ChW = Chilled Water
CS = Clean Steam
STM = Steam

Specialty Gases Legend

G1 = INSERT NAME
G2 = INSERT NAME
G3 = INSERT NAME
G4 = INSERT NAME
G5 = INSERT NAME

Laboratory Equipment

					Dimensions			Electrical								Utilities and Gases																	
ID Tag	Description	Manufacturer	Model No	Qty	W	D	H	Volts	Amps	Watts	Phase	SP	EP	UPS	ALR	CW	HW	PW	CA	VAC	EXH	HV	HE	N2	ChW	CS	STM	G1	G2	G3	G4	G5	Remarks
R31259550	Refrigerator	Puffer Hubbard	FC430A	1	34"	37"	78"	115	14				x	x	x																		
	25 C incubator	G.E.	TA12SLB	1	28"	31"	67"	110	3				x																				
2050	35 C incubator	Precision	30M	1	36"	34"	84"	120					x																				
2059	Freezer	Fisher Sci.	13-988-350-2	1	53	40	84	115					x																				
2060	refrigerator /freezer	Whirlpool	ET18JMYM	1	32	32	65	115																									
2069	double refrigerator	Revco	REL5004A-U-A	1	57	39	79	115	8				x																				
3425	thermometer calibrator	ERTCO	TCS200-35	1	16	21	25	120	12																								

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