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C2.1 SERVICE DESCRIPTION

C2.1.1 Scope of Clinical Services

This section C2 sets out the requirements for the centralized facilities for the provision of the Facility's Laboratory Medicine services to be achieved or accommodated by Project Co in providing the Works and the Services. Laboratory Medicine services include diagnostic evaluations and analyses of body fluids and surgical pathology specimens, excluding very specialized tests typically dealt with by complex referral laboratories (e.g., advanced marker studies).

The project site will provide laboratory services for physicians and their patients which will consist of Level 1 and some Level 2 testing (see Appendix A). Tests not provided at Abbotsford Hospital & Cancer Centre will be referred to the appropriate facility.

New technology, robotics, point of care testing will be a consideration if cost effective and quality driven. The Facility will use the most efficient and cost effective way of providing laboratory testing, centralized laboratory testing in most cases but which could include alternatives if more efficient and cost effective.

The services provided at the Abbotsford Hospital and Cancer Centre site are based on the assumption that most laboratory services in the FHA will be consolidated and centralized, using automation wherever possible, in keeping with the concept of a single Laboratory Medicine service on multiple sites.

Tests to be performed within this component on this site in the future include:

- Clinical Chemistry, including Level 1 routine tests and some special chemistry tests and procedures from the Level 2 test menu.

- Blood Bank, including antibody screening, autologous transfusion and routine immunology.

- Haematology, including Level 1 routine tests and some special haematology tests and procedures from the Level 2 test menu. Immunology may be added in the future.

- Anatomical Pathology, including cytology, routine histopathology, and immunohistochemistry.

- Microbiology, including routine microbiology, virology (proposed), serology, anerobic bacteriology, and parasitology.

  Microbiology services for the Fraser Valley area will be centralized at Abbotsford Hospital (relocated from Chilliwack General Hospital) and will be responsible for Abbotsford Hospital & Cancer Centre infection control. On-site expertise and resources will provide the quality of service required for this specialized facility.

- Outreach Program is under consideration pending resourcing. The outreach program provides community laboratory service to care homes, penitentiaries, and some personal residences.

Specific services to be provided to Cancer Centre patients includes:

- provision of reports for routine testing within the same working day

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- provision of results of "stat" tests (Level 1 tests) to the Cancer Centre within a maximum one hour from the time of arrival at the laboratory

C2.1.1.1 *Current Trends*
In providing the Works and Services, Project Co shall take into account the following trends:

- *Significant move to expanded modular automation and use of robotics.*
- *Increased automation in areas such as microbiology and anatomic pathology.*
- *Increase in point-of-care-testing (POCT) as costs come down.*
- *Increased new technologies in genetic testing.*
- *Increase in home testing as a result of the production of miniature equipment.*
- *Continued pursuit of test consolidation supported by more sophisticated computer connectivities.*
- *Continued shortage of skilled technologists, coupled with increased employment of lab assistants.*
- *New opportunities for lab technologists in laboratory information system (LIS).*
- *Increased esoteric testing.*

C2.1.2 Scope of Education Services
Laboratory Medicine will provide resources for the following types and numbers of students:

- 1 pathology resident
- 3 medical technologists at a time per year
- 6 lab assistants per year
- 1 pathology attendant

C2.1.3 Scope of Research Services
Research activities will include the development of new tests and therapies.

C2.1.4 Specific Exclusions
This specification excludes laboratory medicine services/ requirements provided elsewhere, including:

- A frozen section lab provided in the Surgical Suite within Surgical Services (see section C7 Surgical Services)
- The Morgue and Autopsy (see section C4 Morgue & Autopsy)
- Glassware washing will occur in CPS (see section C8 Sterile Processing Services)

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- Outpatient specimen collection, including outpatient registration will be provided in Diagnostic Services (see section C1 Diagnostic Services)
- Cataloguing information on all hazardous materials used by or stored within laboratory facilities (WHMIS) will be in Materiel Services (see section E7 Materiel Services)

C2.2 OPERATIONAL DESCRIPTION

C2.2.1 Minimum Hours of Operation

Hours of operation for the component will vary with each service as follows:

- Core lab (including accessioning, chemistry, hematology and BTS) ..... 24 hours/day, 7 days/week
- Microbiology ..... 0700h to 2100h, 7 days/week
- Anatomic pathology ..... 0630h to 1700h, 5 days/week

C2.2.2 Patient Management Processes

Not applicable.

C2.2.3 Patient Information Management

Currently the LIS is almost fully implemented with Meditech Client/Server with the exception of the blood transfusion services (BTS) module, which is due for implementation in the Fall of 2003.

For future planning purposes it is assumed that a nursing order entry system will be fully implemented. This module will cut down on the laborious task of entering requisitions for test orders manually into the lab database. It would also assist in preventing duplicate test orders being requested. It is also assumed the FHA LIS Meditech system will be fully integrated with the PHSA CAIS system to allow for a seamless flow of information.

Lab results are currently available to physicians via access to the Meditech client/server system from within the Abbotsford Hospital. A computer network will be established linking physicians' offices with the LIS. Some hard copy reports will also be printed and sent to physicians' offices from the component. All results are currently printed and sent to the Health Records department. Upon implementation of the electronic health records, this step will become redundant.

Also refer to Output Specifications, Section 3: Non-Clinical Services, subsection D1 Information Management; Section 5: Design and Technical, subsection 5.3.17 Technology and Communication Systems; and Section 6: IT/Tel Services.

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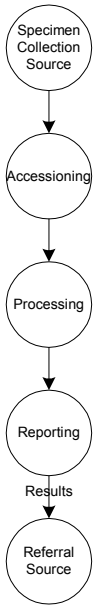
C2.2.4 Staff Work Processes

C2.2.4.1 Accessioning

- Specimen receiving and logging, including in-house (inpatients and outpatients), referred-in and referred-out tests (anatomical pathology specimen will go directly to the lab and will bypass central accessioning)
- Checking requisitions and specimens, matching requisitions with specimens
- Sorting and assignment of specimens to appropriate lab
- Test preparation, centrifugation/aliquoting, etc.
- A base for the specimen collection team, including a dispatch area for laboratory assistants, trays storage, supplies and writing area, including point-of-care testing
- Sorting and disseminating all test information to appropriate locations
- Maintaining in-house files and samples (slides/blocks) to ensure ease of accessibility
- Handling all enquiries that cannot be dealt with through the computer network
- Customer service



Process Flow Diagram

Specimens will be delivered by pneumatic tube system, Laboratory staff, other staff involved in the collection of specimens, porter service, if available courier/taxi and inter-hospital transport according to strict guidelines established by the Laboratory.

Specimens will be received from the Inpatient Units, the outpatient specimen collection area (located in Diagnostic Services), Surgical Suite and Emergency.

C2.2.4.2 Processing Area

- All routine, high volume, “stat” tests, utilizing automated equipment, centralized in a central 24-hour/day area directly related to the accessioning area
- Specialized and low volume tests will be conveniently related to but peripheral to this area

C2.2.4.3 Administration

- Lab manager will provide all operational support required to maintain costs, efficiencies and staffing. This includes the planning and implementation of approved programs, services and systems in support of client needs
- Medical director of laboratory services for the Fraser Valley area will provide all clinical support required to facilitate quality service to physicians and their patients

C2.2.4.4 Staff Services

Conference, break room and locker facilities for all staff will be provided in the component.

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C2.2.5 Materiel Services

Some lab supplies (chemical and other) will be stored in the Materiel Services off-site warehouse with a 10-day minimum supply only held in this component. A daily service from the warehouse is assumed.

Other supplies will be delivered directly from the supplier and stored in the Laboratory (e.g., reagents)

Short-term storage of selected reports, slides and blocks will be held within the lab. The definition of "short-term" will vary according to lab or type of material, but will not exceed 3 years. Wet specimens will be held for 3 months.

Long-term storage for slides, blocks for adults (20 years) and for pediatrics (50 years), will be provided on-site.

Also refer to Output Specifications, Section 4: Facility Management Services, subsection E7 Materiel Services, and Section 2: Clinical Services, subsection C8 Sterile Processing Services.

C2.2.6 Linen/Housekeeping Services

Following investigative procedures, contaminated/infectious material (liquids, tissues, clothing) will be placed in appropriate biohazard containers before removal to the waste holding area in Materiel Services for daily removal and disposal off-site by a contracted disposal firm.

Also refer to Output Specifications, Section 4: Facility Management Services, subsections E5 Housekeeping Services and E6 Laundry/Linen Services.

C2.2.7 Equipment Asset Management

Small volumes of distilled water and/or special purity water with constant recirculation will be required for clinical chemistry and anatomical pathology. This will not require the use of a centralized treated water supply.

Also refer to Output Specifications, Section 4: Facility Management Services, subsection E2 Biomedical Engineering; and Section 7: Equipment.

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C2.3 ACTIVITY INDICATORS

The table below summarized the projected activity for laboratory medicine services which must be addressed by Project Co in performing the Works and the Services.

C2.3.1 Hospital Activity

Unit	Minimum Projected Yearly Activity
Accessioning	
Units	
Inpatient	998,899
Emergency	232,520
Outpatient	330,456
Quality Control	31,557
Subtotal	1,593,432
Tests	
Inpatient	85,435
Emergency	28,894
Outpatient	50,137
Quality Control	8,832
Subtotal	173,298
Chemistry	
Units	
Inpatient	188,331
Emergency	179,746
Outpatient	170,424
Quality Control	198,063
Subtotal	736,564
Tests	
Inpatient	184,367
Emergency	176,153
Outpatient	115,442
Quality Control	158,131
Subtotal	634,093
Blood Bank	
Units	
Inpatient	100,581
Emergency	28,055
Outpatient	34,654
Quality Control	38,844
Subtotal	202,134
Tests	
Inpatient	37,144
Emergency	6,612
Outpatient	9,869
Quality Control	22,159
Subtotal	75,784
Hematology	
Units	
Inpatient	157,890
Emergency	129,461
Outpatient	108,496
Quality Control	109,933
Subtotal	505,780

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Unit	Minimum Projected Yearly Activity
Tests	
Inpatient	33,356
Emergency	27,465
Outpatient	20,678
Quality Control	25,438
Subtotal	106,937
Anatomical Pathology	
Units	
Inpatient	433,440
Ref In	174,890
Outpatient	904,474
Quality Control	40,063
Subtotal	1,552,867
Tests	
Inpatient	51,932
Ref In	18,469
Outpatient	134,624
Quality Control	5,268
Subtotal	210,293
Microbiology	
Units	
Inpatient	422,195
Emergency	191,940
Outpatient	355,102
Quality Control	32,780
Subtotal	1,002,017
Tests	
Inpatient	26,394
Emergency	13,376
Outpatient	22,704
Quality Control	11,063
Subtotal	73,537
TOTAL UNITS	
Inpatient	2,301,336
Emergency	936,612
Outpatient	1,903,605
Quality Control	451,240
Total Health Centre Lab Units	5,592,793
TOTAL TESTS	
Inpatient	418,628
Emergency	270,968
Outpatient	353,453
Quality Control	230,891
Total Health Centre Lab Tests	1,273,940

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C2.3.2 Cancer Centre Activity

Unit	Minimum Projected Activity
Units	
Accessioning	109,440
Clinical Chemistry	254,452
Histopathology	2,880
Hematology	54,464
Blood Bank	935
Microbiology	30,779
Total Cancer Centre Lab Units	452,950
Tests	
Accessioning	12,160
Clinical Chemistry	48,933
Blood Bank	267
Hematology	11,840
Histopathology	320
Microbiology	1,973
Total Cancer Centre Lab Tests	75,493
TOTAL LABORATORY UNITS	
AH	5,592,793
ACC	452,950
TOTAL	**6,045,743**
TOTAL LABORATORY TESTS	
AH	1,273,940
ACC	75,493
TOTAL	**1,349,433**

C2.4 PEOPLE REQUIREMENTS

This component will have a total staff complement in the range of 80 FTE, consisting of lab assistants, technologists, nurses and clerical/administrative personnel.

It is anticipated that the key functional areas in the component will need to accommodate the following maximum number of people.

Functional Areas	Patients	Staff	Visitors	Others	Total
Accessioning/Data Processing Area	0	4-5	0	1-2	5-7
Routine/High Volume Area	0	12-15	0	2-3	14-18
Blood Bank	0	4-5	0	2-3	6-8
Hematology	0	5-6	0	2-3	7-9
Anatomical Pathology	0	8	0	2-3	10-11
Microbiology	0	8	0	2-3	10-11
Administration Area	0	10-15	2-3	2-3	14-21
Staff Facilities	0	15-20	0	6-8	21-28

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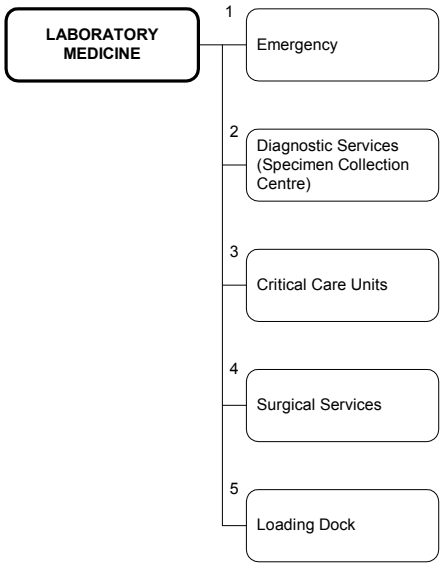
C2.5 DESIGN CRITERIA

C2.5.1 Key External Relationships

The following key relationships will be achieved in the priority order as numbered for the purposes stated:



1 Provide <u>direct</u> access by <u>general</u> circulation from the Emergency for the movement of staff and specimens.

2 Provide <u>direct</u> access by <u>general</u> circulation to the Diagnostic Services (outpatient specimen collection centre) for the movement of specimens and staff.

3 Provide <u>direct</u> access by <u>general</u> circulation to the critical care units (Comprehensive Cardiology Care Unit and Intensive/Stepdown Care Units) for movement of staff and specimens.

4 Provide <u>convenient</u> access by <u>general</u> circulation to Surgical Services for the movement of staff and specimens.

5 Provide <u>convenient</u> access by <u>general</u> circulation to the loading dock for delivery of supplies and courier access.

<u>Note:</u> Dedicated pneumatic tube access to be provided to the outpatient specimen collection centre in Diagnostic Services and non-dedicated pneumatic tube station to other clinical areas.

C2.5.2 Key Internal Relationships/ Environmental Considerations

The following will be achieved:

C2.5.2.1 <u>Functional Zoning</u>

The Laboratory will be organized into 5 principle zones as follows:

- Accessioning area
- Routine/high volume area (chemistry/hematology/BTS)
- Special laboratory areas (microbiology/anatomic pathology)
- Support areas (pathologists and stenos)
- Administration (lab manager, director of laboratory medicine)

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The facilities will be organized to satisfy several principles of functional zoning as follows:

- Separate hazardous procedures/activities (requiring closed lab space) from non-hazardous procedures/activities, (requiring open lab space), and provide a dedicated environment for each zone. Fume hoods must be strategically placed to affect good workflow.

- Separate labour intensive areas (special test areas) from equipment intensive areas (core lab) and provide a dedicated environment for each zone.

- Separate high volume/fast turnover procedures from low volume/slow turnover procedures and provide a dedicated environment for each zone.

- Separate highly flexible 'soft' lab. space (provided to allow for shifting boundaries between lab. divisions) from less flexible 'hard' lab. space provided for specific, dedicated functions.

- Centralize shared facilities to facilitate high accessibility by all laboratory users.

- Cluster those areas which will form a 24-hour activity area, which will include the following:
  – Specimen accessioning
  – Routine/high volume area
  – Staff facilities

C2.5.2.2 Workflow

The various processing areas and lab divisions will be located in order to reflect the degree of accessibility between them. A descending order of priority for access is as follows:

- Accessioning area (most accessible)
- Core lab
- Blood bank
- Hematology special areas
- Clinical chemistry special areas
- Microbiology area
- Anatomical pathology (specimens delivered directly, therefore, least accessible)

C2.5.2.3 Flexibility/Adaptability/Expansion

Provide for flexibility/adaptability in laboratory areas to allow for unforeseen change and development of laboratory procedures, equipment and instrumentation. This can be facilitated by ensuring the availability of electrical, mechanical, plumbing and fume exhaust services throughout the Laboratory space by means of a convenient grid of service connection points, as well as a laboratory bench and storage system which will allow ease of re-arrangement.

Provision for future expansion must be ensured by locating the laboratory adjacent either (or both) to an external wall with a dedicated expansion zone, and to 'soft' space within the Abbotsford Hospital.

This requirement is necessary especially in the context of uncertainty concerning the future of scheduled outpatient work.

Also refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.3.3 Flexibility and Expandability.

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C2.5.2.4 Laboratory Module

Laboratory space has been generally described in the space requirements of this program in terms of standard "laboratory modules".

These can be defined as laboratory work areas (open or closed) providing 1 to 3 workstations, but generally 2 workstations, and for the purposes of this facility program with a constant area of 20.5 net m^2.

Physical planning of the laboratory will need to address the issue of whether or not these modules will be provided at a fixed "modular" area of 20.5m^2 throughout the Laboratory, or whether they will be fine-tuned to suit varying needs.

In any case, the width of a module should not be less than 3.3m^2 (11'0") (centre to centre) to allow for a choice of bench depths ranging from 600mm to 750mm, a range of equipment sizes, both bench and floor mounted, and the convenient and safe movement of people and small items of mobile equipment along the aisle between occupied workbenches.

C2.5.2.5 Specimen Accessioning Area

The accessioning area will be clearly subdivided into a clean (clerical) work area and a dirty (specimen handling) work area. Note that all centrifuges will be equipped with biohazard containment.

C2.5.2.6 Safety

Safety devices must be provided for protection from fire, chemical or electrical accidents. Fire extinguishers, emergency showers, special electrical outlets and eye wash fountains will be included. Electrostatic-free flooring material will be provided throughout.

C2.5.2.7 Universal Precautions

New demands of universal precautions will tend to prohibit any reduction in the numbers of biohazard hoods required.

Also refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.4.5 Infection Control; and Section 5: Design and Technical, Division 15 Mechanical.

C2.5.2.8 Electrical Services

Refer to Output Specifications, Section 5: Design and Technical, Division 16 Electrical.

C2.5.2.9 Ventilation Controls

General ventilation in laboratory areas must be greater than that provided throughout the rest of the building due to the presence of noxious odours, fumes and heat from equipment and lighting fixtures (12-16 air changes per hour). Special ventilation must be provided to ensure control of biohazardous organisms.

Containment and extraction of heat generated by automated equipment.

The selection of ventilation system (bench level, hepa filters, laminar flow, biohazard hood, fume hood, safety cabinet) will be carefully selected to suit the intended function. Even, draft-free temperatures will be required in all laboratory work areas.

Thermostats for air handling and temperature control will be provided in the appropriate quantities and locations.

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Steam services will be available for local humidity control.

Also refer to Output Specifications, Section 5: Design and Technical, subsection 5.3.15.14 Heating, Ventilation and Air Conditioning Systems.

C2.5.2.10 Noise Control
Good acoustical controls will be required and the laboratory environment generally must be constant and vibration-free. In particular, if a core lab is created, which will centralize noisy automated equipment, special sound attenuation measures will be required to contain the noise generated and this may include a solid enclosure (which could be glazed) as well as sound absorbent floor, wall and ceiling finishes to avoid noise pollution in all other areas of the lab.

Also refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.5.4 Acoustics.

C2.5.2.11 Remote Compressors
Refrigeration compressors for cold rooms and freezers (in particular the blood bank) will be remotely located (if feasible) in order to eliminate noise and heat from staff work areas.

If located in the lab, compressors must be contained to eliminate noise and heat away from staff work areas.

C2.5.2.12 Laboratory Gases
Piped vacuum and CO_2 will be required in microbiology and the blood bank.

C2.5.2.13 Location of Fume Hood Exhausts
Locate external exhausts from fume and biohazard hoods remote from fresh air intakes.

C2.5.2.14 Lighting Controls
Provide glare-free, artificial or natural, lighting and special task types for technical work areas. The concept of "indirect" lighting will be considered in the design stage. Interior design should ensure simple unobtrusive colour schemes that minimize interference with the concentration of lab staff working on fine detail.

Special attention to lighting requirements around computer workstations to maximize computer screen visibility.

Also refer to Output Specifications, Section 5: Design and Technical, subsection 5.3.16.12 Lighting Control.

C2.5.2.15 Ergonomic Considerations
Provide appropriate heights for laboratory benches, shelving, computer terminals and keyboards to minimize physical stress or accidents and to maximize the comfort of the laboratory users. Adjustability of bench heights will be considered, especially for areas utilizing centrifuges.

Floor construction/finishes should compensate for the long periods of standing, typical in the lab workplace.

Also refer to Output Specifications, Section 1: Key Site and Building Design Criteria, subsection 1.2.4.6 Ergonomics.

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C2.5.2.16 Pneumatic Tube
A dedicated pneumatic tube between the outpatient specimen collection area and the lab (in Diagnostic Services), will be provided. Future staffing estimates are predicated by such a system.

C2.5.2.17 Waste Handling
Waste (plumbing) systems must be designed to properly handle acid, radioactive, infectious waste discharges, and large volumes of solvents. Pipes must be non-corrosive. A neutralizing tank for Formalin is required prior to its discharge into the sewer system or recycling.

Also refer to Output Specifications, Section 5: Design and Technical, subsection 5.3.15.8 Plumbing Systems.

C2.5.2.18 Special Surfaces
In selected areas (e.g., anatomical pathology) provide non-corrosive stain-proof finishes for countertops, cabinets, hardware, walls, and flooring. Non-skid flooring of appropriate thickness is required throughout the lab areas but particularly in wash-up areas to prevent slippage. Provide floor drains, wherever liquid spills are likely.

Also refer to Output Specifications, Section 5: Design and Technical, division 9 Finishes.

C2.5.2.19 Circulation
Separation of work areas from circulation areas is required. Circulation routes must be capable of accommodating the delivery and maintenance of equipment. Provide adequate space around benches to prevent disturbance of equipment and accessibility of equipment for repair.

C2.5.2.20 Shut-off Sprinklers/Equipment Protection
Sprinklers should have shut-off valves and analytical instruments will be protected from sprinkler release.

C2.5.2.21 Sink Sizes
A range of sink sizes and (hand-free) faucets will be provided, with individual installations carefully selected to suit the intended function.

C2.5.2.22 Staff Changing Facilities
In addition to basic staff changing facilities/lockers, dedicated storage will be provided for clean and dirty lab coats.

C2.5.2.23 RO Water
As Renal Services, Laboratory Medicine, and Intensive/Stepdown Care Units will all require a RO water treatment system, consideration should be given to the proximate locations of these functions to facilitate sharing of a single system.

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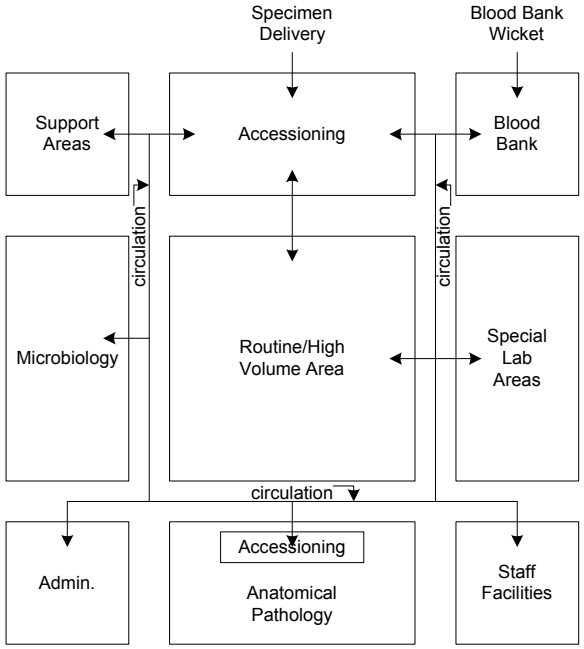
C2.5.2.24 Component Functional Diagrams

The spatial organization of this component will be generally as shown in the diagrams below.

C2.5.2.24.1 *Macro Relationship Diagram*



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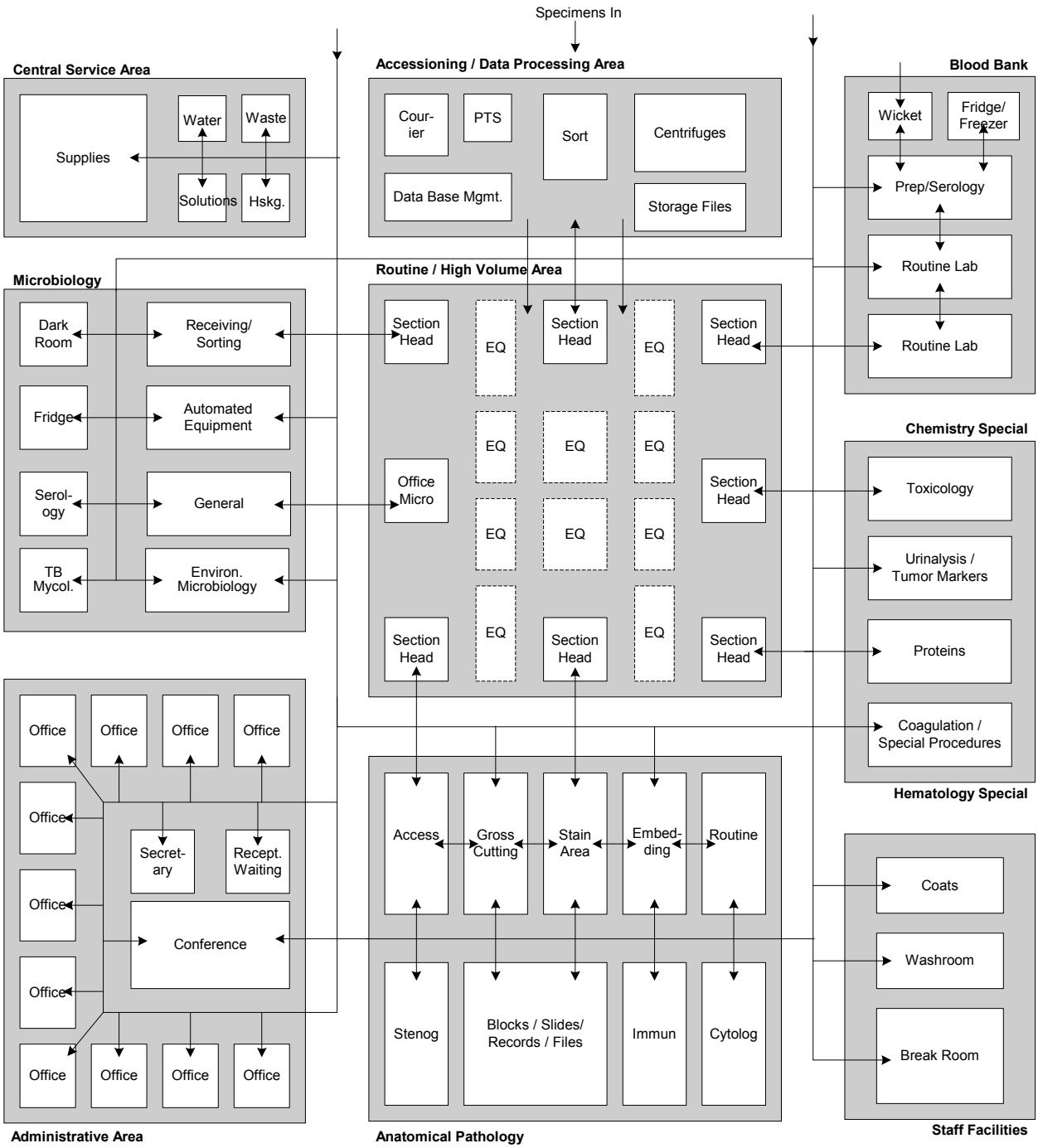
C2.5.2.24.2 *Micro Relationship Diagram*



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C2.5.3 Schedule of Accommodation *(Note: Spaces listed in parentheses ( ) are spaces supporting services provided by Project Co and are included in the total net square metres.)*

Ref	Space	Area Requirements units	nsm/unit	nsm
	Accessioning/Data Processing Area			
01	Specimen Accessioning/Control/Preparation Area	1		112.0
02	Pneumatic Tube Station	1		1.0
	Sorting Area			0 [1]
	Centrifuge Area			0 [1]
	Workstation, Data Base Management			0 [1]
	Courier/Dispatch Area			0 [1]
	Storage, Files, Reports, Records			0 [1]
03	Office, Technologist Section Head	1		9.0
	Subtotal			122.0
	Routine/High Volume Area			
04	Automated Equipment/ Laboratory Bench Area	1		150.0
	Subtotal			150.0
	Blood Bank			
05	Wicket	1		1.0
06	Blood Bank, Routine Lab	1		41.0
07	Dispensing Area/Fridges/ Freezers	1		15.0
08	Component Preparation Area	1		20.5
09	Laboratory, Serology	1		10.5
10	Office, Technologist Section Head	1		9.0

[1] *Included in Specimen Accessioning/Control/Prep. Area.*

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Ref	Space	Area Requirements units	nsm/unit	nsm
11	Office, Pathologist	1		9.0
	Storage, Files			0 [2]
	Subtotal			106.0
	Hematology (Special Lab Areas)			
12	Laboratory, Coagulation and special Procedures	1		20.5
13	Office, Technologist Section Head	1		9.0
	Subtotal			29.5
	Clinical Chemistry (Special Lab Areas)			
14	Laboratory, Toxicology	1		20.5
15	Laboratory, Urinalysis	1		10.5
16	Laboratory, Tumor Markers	1		10.5
17	Laboratory, Proteins	1		10.5
18	Refrigerator/Freezer, Walk-In	1		10.0
19	Office, Technologist Section Head	1		9.0
	Subtotal			71.0
	Anatomical Pathology			
20	Accessioning Area	1		10.5
21	Workstation, Stenographers	1		18.0
22	Gross Cutting Room	1		41.0
23	Staining Area	1		20.5
24	Embedding Area	1		20.5
25	Laboratory, Routine Histopathology/Cutting	1		20.5

[2] *Included in Lab areas.*

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Ref	Space	Area Requirements units	nsm/unit	nsm
26	Laboratory, Cytology	1		20.5
27	Laboratory, Special Immunohistochemistry	1		20.5
28	Storage Blocks & Slides, Active, Incl. Wet Tissue	1		60.0
29	Records/Files Storage	1		20.0
30	Office, Technologist Section Head	1		9.0
31	Office, Pathologist	7	9.0	63.0
	Subtotal			324.0
	Microbiology			
32	Accessioning/Set-Up Area	1		26.0
33	Laboratory, Automated Equipment	1		10.5
34	Laboratory, General Microbiology	1		45.5
35	Laboratory, Environment Microbiology	1		10.5
36	Laboratory, Parasitology	1		10.5
37	Laboratory, TB Mycology	1		10.5
38	Laboratory, Anaerobic Microbiology	1		10.5
39	Laboratory, Serology	1		10.5
40	Refrigerator, Walk-in	1		10.0
41	Dark Room, Fluorescent Microscope	1		6.0
42	Office, Technologist, Section Head	1		9.0
43	Office, Pathologist	1		9.0
	Subtotal			168.5

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Ref	Space	Area Requirements units	nsm/unit	nsm
	Central Service/Shared Resource Area			
	Glass Washing/Storage			0 [3]
	Drying/Sterilizing Area			0 [3]
	Central Slides Storage			0 [4]
44	Refrigerator, Walk-In	1		10.0
45	Storage, Lab Supplies	1		30.0
46	Storage, Equipment	1		10.0
47	Storage, Solutions	1		6.0
48	Storage, Flammable	1		10.0
49	Waste Collection/Holding Room	1		(4.5)
50	Housekeeping Closet	1		(5.0)
51	Millipore Water Room	1		5.0
	Subtotal			80.5
	Administrative Area			
52	Reception/Waiting Area	1		7.0
53	Office, Director of Laboratory Medicine	1		9.0
54	Workstation, Secretary	1		6.0
55	Office, LIS Coordinator	1		9.0
56	Office, Lab Manager	1		9.0
57	Conference/Seminar Room/ Library	1		20.0
	Subtotal			60.0

3 *See E7 Materiel Services.*

4 *See records/storage area in anatomical pathology.*

C Support Services
C2 LABORATORY MEDICINE

Ref	Space	Area Requirements units	nsm/unit	nsm
	Staff Facilities			
58	Clean Lab Coats Alcove	1		(3.0)
59	Dirty Lab Coats Alcove	1		(3.0)
60	Break Room, Staff	1		20.0
61	Staff Coat Closet	1		4.0
62	Washroom, Staff, Male	1		5.0
63	Washroom, Staff, Female	1		10.0
	Washroom, Staff, Wheelchair			0 [5]
	Subtotal			45.0
	Total			**1 156.5**

C2.6 DESIGN GUIDANCE

Project Co is referred to:

- Occupational Health & Safety Act
- NCCSL Design Guidelines, latest edition

C2.7 OTHER SPECIFICATIONS

Laboratory services are primarily based in the Laboratory Medicine area, however, other specifications that will be consulted are:

C1 Diagnostic Services
C7 Surgical Services

5 *Use of adjacent facility.*

C Support Services

C2 LABORATORY MEDICINE

Appendix A

FHA Laboratory Services

Test Stratification Menu, October 2002 Edition

	Level 1 On-Site Tests	**Level 2** On-Site Test	**Level 3** Referred Out Tests
Chemistry	A. Blood Gases/Whole Blood Analysis (pH, pCO_2, pO_2, $HCO_{3\,(c)}$, O_2, SAT) • Ionized Calcium • Glucose • Sodium • Potassium B. All Body Fluids (serum, urine, CSF) • Sodium • Potassium • Chloride • Bicarbonate • Glucose • Urea • Creatinine • Calcium • Phosphorus • AST • CK • LD • Amylase • Total protein (serum only) • Albumin • Magnesium • Gamma GT • Alk Phos • ALT • Uric acid • Total bilirubin, including neonatal • Direct bilirubin • Ethanol • Salicylate • Acetaminophen • Microprotein for CSF • CRP (inflammatory) • Troponin I • Collection of Sweat Cl • Ketones (screening) • Osmolality Urine/Serum C. Qualitative Drug Screen • Amphetamines – Urine • Barbiturates – Urine • Benzodiazepines – Urine • Cocaine/Metabolites – Urine • Methadone – Urine • Opiates – Urine • Cannabinoids – Urine • Tricyclics – Serum/Urine	• Quantitative Urine Protein • Sweat Chloride Testing • Ammonia • CRP Heart (high sensitivity) • Carbon Monoxide • Methemoglobin • Lithium • Overdose Iron Studies – Iron – TIBC – Transferrin Saturation • Quantitative HCG-S • Lipase • B-OH Butyrate • Lactate • Digoxin (in review) • Carbamazepine • Phenytoin • Gentamicin • Tobramycin • Vancomycin • Valproic Acid	• Investigative Endocrine/ Metabolic – Luetinizing Hormone (LH) – Follicle Stimulating Hormone (FSH) – Prolactin – Cortisol – Thyroid Stimulating Hormone (TSH) – Thyroxine (T4) – Free Thyroxine (FT4) – Homocysteine – Colesterol – Triglyceride – HDL Cholesterol – LDL Cholesterol – ADH – Intact PTH – Glycolated HbA1c – Stones Calculi • Toxicology – Volatiles – Ethylene Gylcol – Methanol – Isopropanol • Comprehensive Drug Screen – (TLC, GC, LC, GCMS • Urine Studies – Myoglobin Confirmation – Porphobilinogen Random – Porphyrins Screen – 5HIAA Screen • Tumour Markers – Total HCG – CA 125 – CA 15-3 – CA 19-9 – Alpha-Fetoprotein – CEA – PSA Total – PSA Free • Amniotic Fluid Studies – Bilirubin Scan – Gluck L/S – Protein Electrophoresis U/S – Immunofixation (IEP) – Oligoclonal Banding – GSF A/G Ratio • Specific Proteins – Transferrin – Ferritin – Immunoglobins

C Support Services

C2 LABORATORY MEDICINE

Appendix A

	Level 1 On-Site Tests	**Level 2** On-Site Test	**Level 3** Referred Out Tests
Chemistry (cont'd)	D. Urines/Stools/Gastric • R&M Urinalysis • Qualitative Urine HCG • Urine Myoglobin Screen • Urine Ictotest or Bile • Urine Urobilinogen • Urine Specific Gravity • Stool Occult Blood • Stool Fat Random • Stool Reducing Substance/ pH • Gastroccult E. Bedside GBM F. Glucose Tolerance • Pregnant • Non-Pregnant GTT Interpretation Report G. Breath Test Collection (e.g., H. Pylori)		− Rhuematoid Factor Quant − C3, C4 − Prealbumin − Albumin − Microalbumin − Alpha 1 Antitrypsin − Haptoglobin − Cryoglobulin • Pseudocholinesterase − Dibucaine Number − Fluoride Number • Vitamin B12 • Folate • Phenobarb • Theophylline • Quinidine • Zinc • Zinc Protoporphyrins • Breath Test Analysis • HIV Screen for Stat Needlestick Injury • Hepatitis B Surface Antigen
Hematology	• Auto Cell Count • Bld. Film Ex. Inc. Mal. • CSF/Body Fluids • INR/aPTT • Simple Mixing Study • D-Dimer (Quantiative) • ESR • Retic Count – Manual • Monotest • BM Procurement • NA Procurement • General Path Review	• Retic Count – Auto • Fibrinogen (Quantitation) • Bleeding Time • Semen Analysis • Factor VIII & IX • Kleihauer • BM Stain/Exam • NA Stain/Exam • Hematopath Review	• Coag Factor Assays • PH Aggregation • Coag Inhibitors • Hgbopathy Invest. • Hemolytic Anemia Inv. • Enzymopathy Invest. • Auto-Immune Invest. • Marrow Syotchemical Stain

Notes:

1. *Within the Level 1 category, on-site testing will be limited to those tests requiring a rapid turn-around time (e.g., <4 hrs.). Non-urgent tests in this category will be consolidated into a Level 3 laboratory off-site.*

C Support Services

C2 LABORATORY MEDICINE

Appendix A

	Level 1 On-Site, All Acute Care Facilities	**Level 2** (If more than one site), or Level 3 (if one central facility)	**Level 3** One Central Facility
Microbiology	Gram stain Pick-up and incubation of blood culture	Routine cultures Routine identifications Routine susceptibilities TB smear Environmental cultures Screening VRE/MRSA	SBT Mycology Anaerobic ID & susceptibility Parasitology Referral ID & susceptibility Special media making

Notes:

1. *Within the Level 1 category, on-site testing will be limited to those tests requiring a rapid turn-around time (e.g., <4 hrs.). Non-urgent tests in this category will be consolidated into Level 2 or 3 laboratories off-site.*
2. *Level 2 tests could be incorporated into Level 3 testing.*

C Support Services

C2 LABORATORY MEDICINE

Appendix A

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