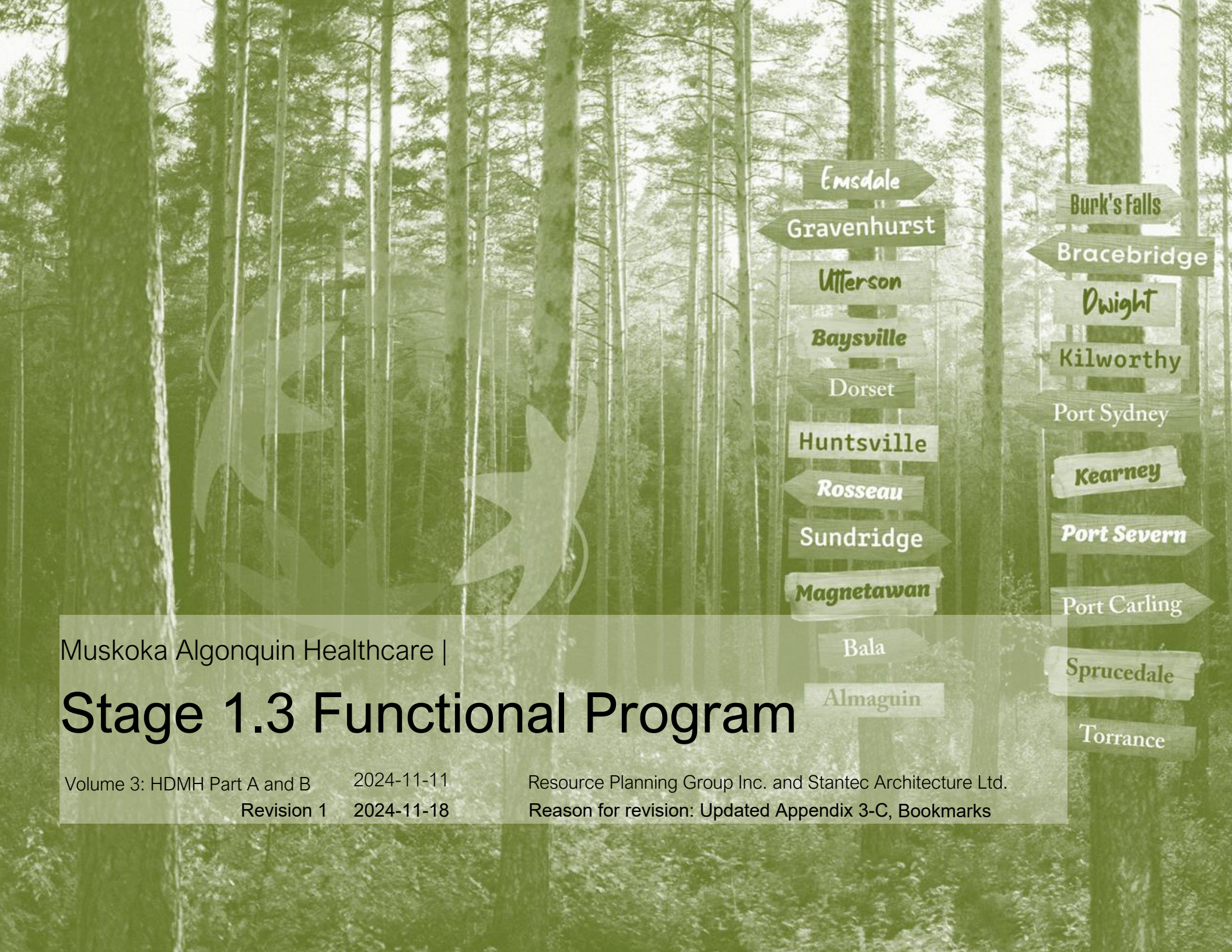

Muskoka Algonquin Healthcare |

Stage 1.3 Functional Program

Volume 3: HDMH Part A and B 2024-11-11

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Part A Elements

1.3.2 FUNCTIONAL PROGRAM

1.3.2.1 SUMMARY

Overview

This document contains the Part A and Part B for the HDMH site of the MAHC redevelopment. Further details on the overall project can be found in Volume 1: Corporate Overview.

Summary Tables (Workload & Space)

The following summary tables include projections for the year 2031/32 at HDMH. The year 2019/20 was used as a basis for workload projections, whereas staffing projections utilize 2022/32 as the current state.

The range of services at HDMH is outlined in the following inpatient bed table as well as a workload table of key clinical support services.

Table 1. Workload Summary (Base and Projected)

Program/Service	Base Year 2019/20	Projected 2031/32
Inpatient Beds	**49**	**121**
Medical/Surgical	44	58
Critical Care	4	10
Maternal/Newborn	1	2
Reactivation & Complex Medical Management	-	37
Integrated Stroke Unit	-	14
Emergency Department	**22,005**	**24,462**
Surgical Services	**4,049**	**1,364**
Inpatient	217	535
Day Surgery	772	712
Cataracts	759	-
Endoscopies	2,301	117
Ambulatory Care	**4,261**	**7,616**
Renal Dialysis	3,861	5,616
Specialist Visits	400	700
Stroke Prevention Clinic	-	900
Vascular	-	400
Laboratory Services	**827,228**	**1,079,329**
Core Lab: Clinical Chemistry	239,696	313,308
Core Lab: Clinical Hematology	93,617	122,097
Core Lab: Clinical Microbiology	120,921	155,142
Core Lab: Clinical Cytopathology	17,680	23,987
Core Lab: Pre & Post Analysis	338,462	441,497
Core Lab: Transfusion Medicine	16,852	23,298
Diagnostics	**44,166**	**29,799**
Radiography	20,260	13,970
Mammography	3,319	-
Ultrasound	7,934	2,349
Nuclear Medicine	1,820	-
CT scan	6,942	8,590
BMD	1,726	-
MRI	-	4,550
Cardiac & Respiratory Diagnostics	2,165	340

Early calculations of the staffing complement at HDMH result in the following change in the fulltime equivalents.

Table 2. MAHC Staffing Projections

	2022/23 FTE	2031/32 FTE
HDMH	381.52	601.61

Space projections have been developed using a combination of guidelines and standards including RPG space standards, CSA Z8000-11/18, and Ministry of Health Capital Bulletin Space Benchmarks (2011-2018).

The following table summarizes the component gross square feet for the HDMH site.

Table 3. Planned Space Summary

	HDMH 2024 Functional Program (cgsf)
Total	**172,359**
Administrative Services	11,310
Critical Care Unit	11,340
Diagnostics (incl. cardiorespiratory)	7,550
Emergency Department	13,220
Facilities Support Services	7,660
Food & Nutrition Services	7,500
Integrated Stroke Unit	10,895
Laboratory Services	4,180
Main Lobby	5,410
Maternal/Newborn, Med/Surg & Telemetry	13,530
Medical/Surgical Inpatient Unit	27,055
Pharmacy	2,765
Physician & Staff Amenities	5,454
Reactivation & Complex Medical Management Unit	29,230
Renal Dialysis	4,230
Surgical Services & MDRD	11,030

1.3.2.1.1 DEFINITION OF SPECIAL TERMS

A number of terms are used throughout the document that is specific to functional programming. They are defined here, and their acronyms identified to facilitate reading of the document. A full list of all the abbreviations used within this document is located in ***Appendix A***.

Component or Functional Component – A cohesive grouping of activities or spaces related by service or physical arrangement. In the context of a Functional Program, a component may or may not be a department since the term "department" refers to an administrative organization rather than a functional organization of spaces and activities.

Component Gross Square Feet (CGSF) – That portion of a building assigned to a specific component, including net areas, internal circulation, partitions, building structure, and small mechanical shafts. Component gross area is measured to the inside face of exterior walls and to the centre line of partitions adjoining other components or general circulation space.

Component Gross Square Metre (CGSM) – That portion of a building assigned to a specific component/department but including only the net assignable areas. The internal circulation, partitions, building structure and small plumbing shafts are not included in this measurement.

Full-Time Equivalent (FTE) – A term used to express the conversion of a number of annual paid hours into the number of individuals who, if they were working a complete shift on a regularly scheduled basis, would be required to accommodate that number of hours.

Headcount – The translation of FTEs into the actual daily capacity (as noted), and/or translation of FTEs into the headcount.

Internal Circulation – The system of connecting links (corridors, elevators, stairs, etc.) within components, connecting rooms of a component or directly connecting contiguous components.

Net Area or Net Square Feet (NSF)/Net Square Metres (NSM) – The horizontal area of space assigned to a specific function. Net areas are measured to the inside face of wall surfaces. Spaces such as corridors, unprogrammed or unassigned storage, mechanical and electrical service closets, and other areas that are determined as a result of design are not considered assignable net areas.

Net to Gross Ratio – A factor that is applied to the nsf to yield the CGSF. These factors vary depending on the service area and function.

1.3.2.1.2 METHODS USED TO DEFINE THE PROJECTED WORKLOAD

This section describes how the projections of MAHC's future health services were developed. The forecasting exercise linked population health-based and operational efficiency analysis with the consultative process and MAHC's strategic directions. The resulting projections aim to match the amount and mix of MAHC's services to the needs of its populations, incorporating expected care model improvements across the system of care.

The methods were designed to incorporate the following factors:

- Growth and aging of the MAHC catchment populations
- Expectations for further reductions in acute and ALC lengths of stay
- Opportunities for admission avoidance in new care models that emphasize care coordination, ambulatory and community-based care, and population health management
- MAHC's optimal role in the future regional system of care.

1.3.2.2 PROGRAM

See individual components for 1.3.2.2.1-1.3.2.2.5

1.3.2.2.1 DESCRIPTION OF CURRENT AND PROJECTED PROGRAMMING BY TYPE

1.3.2.2.2 FUNCTIONS (CURRENT AND PROJECTED BY TYPE)

1.3.2.2.3 PROCEDURES (CURRENT AND PROJECTED BY TYPE)

1.3.2.2.4 PROJECTED WORKLOAD (CURRENT AND PROJECTED BY TYPE)

1.3.2.2.5 PROJECTED STAFFING (CURRENT AND PROJECTED BY TYPE)

Program Components

01. Administrative Services

Functional Description (Current and Projected)

Service Overview

Administrative Services is/will be comprised of a range of services that will continue to provide the overall leadership and direction for Muskoka Algonquin Healthcare (MAHC). The following subcomponents which encompass the MAHC Leadership Team and related administrative support, will be described under this component within the Functional Program:

- General Administration (i.e., senior management and related administrative supports)
- Finance
- Health Records
- Human Resources
- Occupational Health & Safety (OH&S)
- Infection Prevention & Control (IPAC)
- Information Services
- Meeting/Education Spaces
- Northern Ontario School of Medicine (NOSM)
- Public Relations & Communications
- Quality & Risk (QR).

Note that other aspects of senior leadership and overall MAHC operations have been included in other components. Please see the *Main Lobby* components for detail related to the Auxiliary, Foundation, Patient Advocate, and Patient Registration, Scheduling & Switchboard.

Planning Principles and Assumptions

Planning principles will include:

- In-person/remote workplace solutions are still evolving at MAHC, for the purposes of planning it is anticipated that a hybrid work model will be in place for some non-patient facing roles; but adaptability and flexibility of the Administrative Services area will be paramount to accommodate change in the way staff work over time.

- Senior management staff with dual-site responsibilities will require access to workspace at both sites; this will include a range of flexible, unassigned/hoteling workspaces for staff while they are on the site. This will ensure related supports (e.g., Meeting Rooms) are available to maintain effective workflow and collaboration across the two sites.
- The Administrative Services area must be welcoming and support the culture of open, transparent, and visible leadership; it must include a high degree of privacy as it must support difficult conversations with patients, families and staff.
- The amount of overhead paging will be reduced significantly in the future, with the use of portable paging technology. This will make a significant improvement in the auditory environment (and consequent patient/family experience) in the hospital. Note: for staff that support both sites, technology will need to be provided/integrated to ensure they receive codes/paging while they at the respective site. It is also assumed that cellular reception and Wi-Fi will be improved in future to allow for use wireless devices for staff-to-staff communications.

Patient Profile

Not applicable to this component.

Scope of Services (Current and Projected)

General Administration

General Administration will continue to be responsible for strategic planning, resource allocation, professional staff credentialing and recruitment, Medical Advisory Committee, Board of Directors support, public relations and communications, contract negotiations, legal and external relations.

Executive Offices will include:

- President and Chief Executive Officer
- Chief of Staff
- Vice President (VP) Integrated Care, Patient Services & Quality, CNE
- VP Corporate Services and Chief Financial Officer (CFO)
- Executive Assistants.

Finance

The Finance Department will continue to maintain the accounting records of the organization in accordance with Canadian generally accepted accounting principles (GAAP). The department will collect financial and statistical data according to the Management Information System (MIS) Guidelines set by the Ministry of Health (MoH) and Long-Term Care).

Principle functions will include:

- Establishment of internal controls for the safeguarding of Finance assets
- External reporting to MoH and other funding agencies
- Internal reporting to Managers and Board members
- Payroll services to approx. 750 employees and related government reporting
- Payment of invoices to vendors and suppliers
- Billing and collection of invoices to insurance companies, patients, and Ontario Health Insurance Plan (OHIP)
- Preparation and management of budgets.

Health Records

The Health Records Department will process, collect, and secure health information documented for every episode of care, including day treatment and overnight stays. Patient care will continue to be meticulously charted in the individual health record as legislated by the Public Hospitals Act and in keeping with the Personal Health Information Protection Act (PHIPA).

Principal functions will include:

- Maintenance of a complete and accessible electronic record for each episode of care
- Provision/coordination of a medical transcription service (facilitated remotely)
- Collection and submission of data required by the Ontario MoH and the Canadian Institute of Health Information (CIHI), a national database
- Release of information after care in compliance with legislation
- Resource in development of documentation best practices and forms design
- Medical Staff Committees' resource and support
- Monitoring compliance with MAHC privacy practices
- Collection and distribution of monthly, quarterly, annual and ad-hoc statistics.

Note that at present coding is completed both on-site and off-site. Coding will be fully off-site in future, with the ability for coding staff to come on-site for training and meeting purposes, as required.

Human Resources

Human Resources (HR) is responsible for the management of the organization's human resources, including the following services:

- Screening and recruitment of new employees and physicians
- HR planning
- Management and staff counselling
- Labour relations
- Contract and union negotiations
- Policy/procedure development and implementation
- Salary and benefits administration
- Statistics reporting
- Employee files management
- Corporate education/staff learning
- Employee orientation and onboarding
- Staff scheduling
- Employee retention, recognition, and appreciation
- Diversity, equity, and inclusion initives and implementation
- Attendance management.

Meeting Rooms and touchdown space will be booked on-site as required to perform the above noted tasks, as well as for organizational development and onboarding of new staff.

It is assumed that technology will be utilized as much as possible, to aid in recruiting, screening, staff credentials/ access, and other HR activities.

Occupational Health & Safety

OH&S will continue to promote a safe and health working environment for MAHC staff. This will include:

- Counselling services
- Employee wellness
- Disability management

- Workplace safety and violence prevention
- Medical examinations
- Work injury assessments.

OH&S at MAHC will be a collaborative, proactive approach to staff health and safety, in keeping with the organizations' mission, vision, and values. This will include a prioroity and focus on staff wellness, through initiative such as:

- Physical wellness(e.g., fitness programming)
- Psychological wellness (e.g., mindfulness, meditation, psychological factors for health and safety, peer support employee and family assistance program etc.)
- Financial wellness (e.g., financial literacy coaching, budgeting, retirement planning etc.).

Infection Prevention & Control

IPAC will include the following:

- Focused surveillance
- Creation of MAHC-wide policies and procedures
- Education/training
- Outbreak management
- Antibiotic stewardship
- Research.

IPAC will continue to serve as a primary resource for staff, Supervisors, Managers, and volunteers on IPAC issues, providing expert information and recommendations/guidance as an integral team member across all health care settings.

Information Services

IT will provide technology resources for health care and business services to support the hospital's physicians, staff, and volunteers. These services will include computer and network support, audio/visual, telephone, administrative systems, and portal access.

IT services will include the following:

- Implementation, maintenance, and support of all MAHC information, booking and scheduling systems

- Coordinating and supporting the electronic patient record
- Supporting point of care documentation, telecommunications, and wireless technology used at MAHC
- Maintenance and linkages to external databases and providers, including other health care providers, regional and provincial databases etc.
- Implementation of intranet, including hospital-wide access to internet, email, and office systems
- User training
- Technical support, as required.

Undoubtedly, IT needs will continue to grow into the future. Current and future workflows are becoming very dependant on IT hardware and software and the demand for support will continue to evolve with the changing technology. This will include the use of artificial intelligence (AI), advanced analytics, and predictive technology. A move to mobile technology will continue and the number of end users and devices that will require support will increase over time.

Note: the main IT department will be located at HDMH, with touchdown space for staff available when they are on-site at SMMH. A data centre will be located at both sites.

Meeting/Education Spaces

Education spaces will be required for a variety of educational opportunities and requirements to facilitate and support ongoing competence, current knowledge of evidence-based practices, and continuous learning by staff – all of which are directly related to the quality of patient care provided by MAHC. Similarly, the need to connect with team members will continue to be a requirement of daily operations, to enable collaboration and cohesion, communication and knowledge dissemination, facilitate ongoing improvements, and generally ensure excellence in care and operations.

It is anticipated that meetings and education sessions will continue to be a hybrid of in-person and remote participation. As such, meeting and education spaces will require advanced technology to enable seamless communication and engagement regardless of location.

Meeting Rooms for smaller groups will be embedded throughout the site as a shared, bookable resource. A large Multipurpose Room will serve several functions at each site, including (but not limited to):

- Board functions
- Grand rounds
- Team and committee meetings
- Employee orientation

- Staff and Auxiliary appreciation events
- Education and skills training sessions (e.g., mock codes)
- Inpatient family care conferences
- Others.

A Simulation Lab (shared with NOSM) will be included for experiential and interactive clinician and learner education and training.

The Simulation Lab will permit learners and clinicians to work with patient simulators (mannequins and/or actors) and simulated spaces (e.g., patient bedroom, clinic room, operating room, and related support areas) to hone their skills in different treatment scenarios. A range of technologies will be available for clinical providers to diagnose and treat patients in the simulated environment. Clinical Simulation education and training may be conducted on a variety of simulated experiences including patient simulators, actor or volunteer patient, procedural trainer, or virtual patient device.

Technology will be used to support the delivery of clinical skills education by enhancing access to materials that learners can use to prepare, review, and debrief.

Northern Ontario School of Medicine

It is anticipated that in the future, MAHC and NOSM will share education and support spaces as required and availability permits. However, it should be noted that a separate lounge space for Medical students is required.

Public Relations & Communications

The Public Relations & Communications Team will continue to be responsible for media relations on behalf of MAHC and the management of all internal and external communications. This may include:

- Media and external communications
- All internal communications for staff, patients, and visitors
- Maintenance of the MAHC website
- Monitoring and responding to social media on MAHC accounts
- Production of the annual report, community reports, and other corporate publications
- Support for opening ceremonies and official visits
- Video Production
- Social Media.

Quality & Risk

QR services will continue to coordinate the identification, assessment, correction, and evaluation of all potential and actual risks to person and property within the organization. As such, QR will remain an integral part of MAHC operations, to ensure efficient and safe delivery of quality patient care. QR will maintain a proactive management approach, utilizing technology to synchronize risk mitigation efforts across the organization and sites, and remove risk associated with siloed departments and/or business units.

Additionally, data analytics will continue to be embedded to support decision making, organizational cohesiveness, risk prioritization, and resource management and allocation.

Table 1. Meeting/Education Space Summary (site-wide, bookable)

Room	Number of Places	Component
Meeting Room, Small	6	Administrative Services
Meeting Room, Medium	8	Administrative Services
Multipurpose Meeting Room	40	Administrative Services
NOSM Classroom, Large	12	Administrative Services
Simulation Room, Multipurpose	n/a	Administrative Services
Multipurpose Meeting Room	15	Critical Care
Meeting Room, Medium	8	Emergency Services
Multipurpose Meeting Room	15	Medical/Surgical Inpatient
Multipurpose Meeting Room	15	Reactivation & Complex Care

Education

Growth of the NOSM Program will equate to more learners on-site at MAHC in future. As a consequence, workspace and meeting space will be required for learners.

Research

Not applicable to this component.

Linkages/ Partnerships

Due to the nature and role of Administrative Services, they will be inextricably linked to all MAHC programs and services. Staff, management, physicians and occasionally patients and families will access the area(s) for various reasons on a consistent basis.

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Current	Projected
Department	**2019/20**	**2031/32**
Total Staff (approx. headcount)	750	1,250
Number of FTEs	650.73	1,087.22
Number of Physicians	225	+250 (TBD)

Operational Description

Organization and Management

Day-to-day operations will be under the leadership of the Chief Executive Officer (CEO) and VPs. Members of the Executive Team will be present at both sites (weekdays) to provide leadership and support.

Corporate programs will provide managerial leadership and oversight, some of which will include on-site dedicated staff, while others will be a MAHC-wide shared resource. The site will have a dedicated VP with overall responsibilities for the site, as well as VPs with responsibilities for individual programs/services.

Physicians will have direct reporting relationships to the Chief of Staff.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 3. Hours of Operation

	Current			Projected		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Administrative Services	8:00am-5:00pm	-	-	8:00am-5:00pm	-	-

Notes:

1. The general hours of operation will be weekdays from 8:00am to 5:00pm. Staff may be present in the area outside of the hours of operation, for meetings or individual work.
2. IPAC staff will be on-call outside of working hours.

Duration of Visit

Not applicable to this component.

Referrals & Scheduling Appointments

Not applicable to this component.

Workflow

Administrative Suite

Administrative Services for the most part will exhibit workflow similar to other administrative spaces. Typical activities will be both scheduled and unscheduled with a combination of private and collaborative work.

As a multi-site organization, senior leadership will have an on-site presence at both sites over the course of the week. Leadership staff will spend part of each week at either site, maintaining a relatively balanced amount of leadership at each location.

For MAHC-wide staff (i.e., those that move between both sites), touchdown workspace will be booked in advance through an online system (i.e., as part of the online meeting booking system). A screen or board will be located in the Administrative Services area to indicate open spaces for those on-site on an unscheduled basis. Touchdown spaces will include private offices, workstations, phone rooms, and meeting spaces. A provision of half lockers will also be provided for staff to store personal belongings while on-site.

Reception (Administrative staff) will serve as a control point for the suite of spaces. Administrative support will be shared across senior leadership roles.

Administrative support to the CEO will be responsible for the management of hoteling space, facilitated via on online booking system.

Health Records

Clinical documentation, including orders for medications, labs and diagnostic tests will occur in MAHC's Health Information System (HIS). This system will be fully integrated to optimize patient safety, facilitate easier patient access to their health information, standardize assessment and workflows for clinicians and remove any technological barriers that prevent timely care.

Key components of the system include:

- Standardized electronic documentation to facilitate interprofessional collaboration and connections with community resources
- Computerized Provider Order Entry (CPOE) with clinical decision support
- Patient portal with access to their health information, questionnaires and e-scheduling
- Voice dictation at source

- Mobile computing
- Real-time tracking
- Electronic referrals platform
- Virtual care
- Data privacy and security.

A small scanning area will be located in the Switchboard/Scheduling area for downtime and/or infrequent (minimal) scanning requirements.

Human Resources

Recruitment functions will commence via HR, in collaboration with the respective program/service area. Interviews will be conducted within the Administrative meeting space, or in bookable space outside of the clinical areas, as applicable. Interviews may or may not be attended by HR staff.

Education & Meeting Spaces

Assessments, training, and exams will be booked in advance and carried out in various spaces throughout MAHC. Some training will require specialized equipment (e.g., ceiling lifts) and therefore will only take place in certain rooms. Other training may be accommodated off-site, as may be required.

Occupational Health & Safety

Employee immunizations and testing will take place within OH&S. Work injury assessments will occur at the point of injury or within OH&S (based on the nature and severity of the injury), to support staff and provide first aid treatment for both occupational and non-occupational injuries and illnesses.

Fit testing will occur in a conference/Meeting Room or team room, depending on the volume of staff participating.

There may be programs dealing with sensitive information, requiring on-site meetings in a private space with a closed door to maintain participant confidentiality.

Counselling sessions will similarly require a private space to maintain confidentiality.

Infection Prevention and Control

Referrals/requests for IPAC consults will come via the electronic health record. IPAC staff will provide consultations and support to all areas of the hospital in-person and/or remotely (virtually or phone), as required. Consultations may include patients and their families.

General Support Activities	Facility and general supports will be provided within the overall corporate strategy.
Staff Resources	Staff will have access to nearby lunch/lounge spaces, likely shared with an adjacent area.
Security Services	Panic buttons will be located in key areas of the Administrative Suite, for emergency response. Two manners of egress should be provided in this area for security purposes.
Enabling Technologies	Information Technology will be provided within the overall corporate strategy. It is assumed that those using touchdown workspace and meeting space will be bringing their own devices. A small provision of computers may be available in certain spaces for those requiring access. It is assumed that Meeting Rooms will include (as standard equipment) screens for projecting presentations/material and the ability to teleconference and videoconference. Depending on the size and dimensions of larger meeting/conference rooms, multiple screens may be required. A performance dashboard will be utilized within the Administrative Suite to show real-time tracking for performance targets and outcomes. It is feasible in the future that wearable technology will be utilized for monitoring of hand hygiene and/or other IPAC measures.
Information Systems	See above.
Communication Systems	Overhead pages (codes and emergency use) must be audible from within the Administrative Suite.

Staffing (Current and Projected)

The table below includes staffing for the entire organization. FTEs are included at the SMMH site (see Volume 2).

Table 4. Current and Projected Staffing (for both sites of MAHC)

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	(73.45)	(97.92)	75	3	3
Subtotal, General Administration	*(7.00)*	*(7.00)*	*8*	*0*	*0*
President & CEO	(1.00)	(1.00)	1	0	0
Director, Nursing CNE (Clinical Nurse Educator)	(1.00)	(1.00)	1	0	0
Chief Executive Diag. & Planning	(0.00)	(1.00)	1	0	0
VP, Patient Quality & Risk (QR)	(1.00)	(1.00)	1	0	0
Chief of Staff	(1.00)	(1.00)	1	0	0
Executive Assistant (to CEO and Board)	(1.00)	(1.00)	1	0	0
Executive Assistant (to CNE)	(1.00)	(1.00)	1	0	0
Executive Assistant (to Chief of Staff)	(1.00)	(1.00)	1	0	0
Burks' Falls and District Health Centre (BFDHC) Nurse Practitioner (NP)	(1.00)	(1.00)	1	0	0
Subtotal, Finance	*(16.00)*	*(16.00)*	*14*	*0*	*0*
VP Corporate Services & Chief Financial Officer (CFO)	(1.00)	(1.00)	1	0	0
Payroll Administrator	(2.00)	(2.00)	2	0	0
Executive Assistant (to CFO)	(1.00)	(1.00)	1	0	0
Accounting Clerk	(5.00)	(5.00)	5	0	0
Manager, Finance	(1.00)	(1.00)	1	0	0
Director, Finance & Data Analytics	(1.00)	(1.00)	1	0	0
Financial Analyst	(3.00)	(3.00)	1	0	0
Data Analyst	(1.00)	(1.00)	1	0	0
Accounting & Statistics Technician/Junior Analyst	(1.00)	(1.00)	1	0	0

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Subtotal, Health Records	*(6.00)*	*(6.00)*	*6*	*0*	*0*
Health Records Clerk	(2.00)	(2.00)	2	0	0
Transcriptionist	(2.00)	(1.00)	1	0	0
Health Records Tech	(2.00)	(3.00)	3	0	0
Subtotal, Human Resources	*(9.50)*	*(10.00)*			
VP, Operations and Chief, HR	(1.00)	(1.00)	1	0	0
Manager, HR	(1.00)	(1.00)	1	0	0
Business Partner	(3.00)	(3.00)	1	0	0
Recruitment Specialist	(1.00)	(1.00)	1	0	0
Labour Relations	(1.00)	(1.00)	1	0	0
HR Coordinator	(1.00)	(1.00)	1	0	0
Education Coordinator	(1.00)	(1.00)	1	0	0
Executive Assistant (VP HR)	(0.50)	(1.00)	1	0	0
Subtotal, Occupational Health & Safety & Infection Prevention & Control	*(7.40)*	*(7.40)*	*8*	*0*	*0*
Manager, OH&S and Wellness	(1.00)	(1.00)	1	0	0
Manager, IPAC	(1.00)	(1.00)	1	0	0
Occupational Health Coordinator	(2.00)	(2.00)	2	0	0
Program Assistant	(1.00)	(1.00)	1	0	0
IPAC Practitioner	(2.40)	(2.40)	3	0	0
Subtotal, Project Management Office	*(2.00)*	*(4.00)*	*4*	*0*	*0*
Project Manager	(1.00)	(2.00)	2	0	0
Project Coordinator	(2.00)	(2.00)	2	0	0
Subtotal, Information Services	*(15.30)*	*(22.00)*	*14*	*0*	*0*
Business Analyst/Project Manager	(1.00)	(5.00)	3	0	0
Information Systems Analyst	(5.00)	(5.00)	3	0	0
Technical Coordinator	(1.30)	(1.00)	1	0	0
Technical Support	(5.00)	(5.00)	4	0	0

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Manager, IT	(1.00)	(1.00)	1	0	0
Director, IT & Emergency Preparedness	(1.00)	(1.00)	1	0	0
Clinical Informatics Coordinator	(1.00)	(1.00)	1	0	0
Subtotal, Public Relations & Communications	*(2.00)*	*(2.00)*	*2*	*0*	*0*
Communications Officer	(1.00)	(1.00)	1	0	0
Manager, Communications & Public Relations	(1.00)	(1.00)	1	0	0
Subtotal, Quality & Risk	*(4.00)*	*(4.00)*	*4*	*0*	*0*
Director, QR	(1.00)	(1.00)	1	0	0
Skin & Wound Care Specialist	(1.00)	(1.00)	1	0	0
CNE	(2.00)	(2.00)	2	0	0
Subtotal, Utilization Management	*(8.25)*	*(18.52)*	*4*	*3*	*3*
Hospital Supervisor	(3.72)	(10.08)	0	2	2
Bed Allocation	(1.15)	(5.04)	1	1	1
Patient Experience Flow Navigator	(2.38)	(2.40)	2	0	0
Manager, Utilization and MAOHT Clincs	(1.00)	(1.00)	1	0	0

Note:

1. Staffing represents organization-wide administrative staffing, as these roles serve both sites. They have been included in this component and reflected in the SMMH Administrative Services component.

Design Objectives

Locations and Adjacencies

Due to the number of sub-areas within Administrative Services, adjacencies have been subdivided and shown in priority order within their respective sub-area.

Administrative Suite

- Since it services patients and families, as well as staff and physicians, the Administrative Services area should be easily located by the public, with clear wayfinding from main areas of the hospital.
- Administrative Services will require reasonable proximity to the Foundation.

- If possible, the Multipurpose Meeting Room should have access to outdoor, enclosed space (e.g. a courtyard).
- The Multipurpose Room needs to be in an area that can be accessed after hours.

Occupational Health & Safety

- Easily located by staff, but not on a main thoroughfare, to maintain privacy.

Information Technology

- Could be centralized with rest of Administration or decentralized but accessible to the clinical areas for support.
- Would benefit from proximity to multipurpose meeting space for IT support and onboarding.

Internal Organization

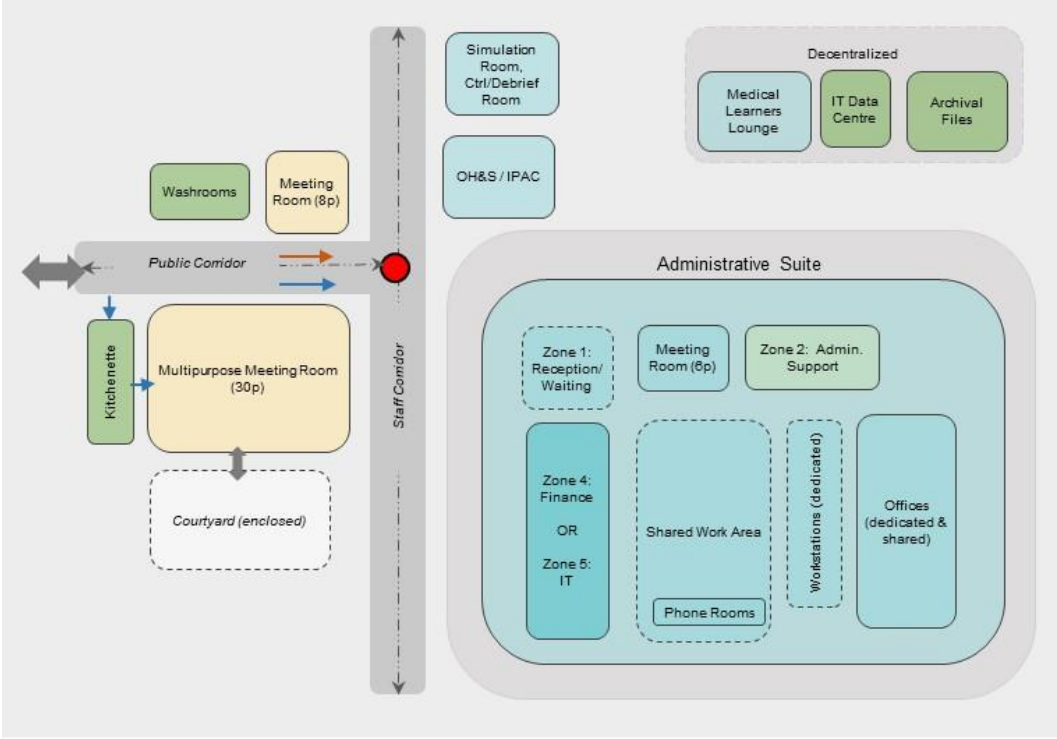
Depending on design, Meeting Rooms within Administrative Services may require an entrance from an outside corridor, rather than from within the Administrative Suite, to maintain privacy/confidentiality (e.g., if they are in use by HR).

Generally speaking, offices should be clustered in the same general area (to the greatest extent possible/practical) to allow for long-term adaptability and flexibility as staffing positions fluctuate by department over time.

HR should be located in a private end of the Administrative Suite, allowing for greater privacy and a secondary exit route.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

MAHC policies and procedures related to IPAC in workspaces will be maintained in Administrative Services spaces.

Clarity of Spatial Organization

Shared (touchdown) workspaces located within the Administrative Services space will require a computer workstation (laptop docking or fixed devices), and a phone; secured storage for belongings (e.g., lockers) will be provided close to the work area for staff storage; a display within the area will indicate which spaces are booked/available.

Offices and workspaces (dedicated and touchdown alike) will be designed to accommodate changing needs over time. Therefore, spaces must also be clustered to permit multiple functions, avoiding as much as possible the creation of defined suites within the area. In addition, modular furniture should be used where possible to allow or room layout changes over time.

The workspace for dedicated staff and workspace for touchdown staff shall be proximate but allow for some separation for concentration and workflow. This could be accomplished by co-locating the areas with separate entrances or through locating the shared support area between the dedicated and touchdown work areas to serve as a buffer.

Wayfinding

Clear wayfinding to the Multipurpose Room should be provided since it may be utilized by patients/family and the community, as well as staff.

Disabled Access & Corridor Design

Administrative Services will comply with all standards as required to ensure the space is accessible.

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for clients, staff, and visitors.

Acoustic

Administrative areas will provide a professional environment that is welcoming to visitors and ensures confidentiality and privacy of activities occurring within the area.

Within the Administrative Services area, particular attention to staff privacy (for personal and professional reasons) and related acoustics will be required. This may require additional sound masking, sound dampening materials (e.g. carpet vs hard flooring) and groupings of spaces to allow for a productive, private workspace for all staff.

This could also be accomplished by interspersing the dedicated staff spaces with more casually/less intensely used spaces, such as touchdown workspace or wellness spaces.

Additionally, bookable private workspaces (private offices and phone rooms) will be provided for high concentration tasks, or those which would distract others such as tele/videoconferences.

In addition to design and space planning efforts to manage privacy and sound, operational policies may be required to further ensure that all staff are respecting the need for privacy and confidentiality within a shared area.

Lighting

Natural light is desirable for all Offices, Workstations, and Meeting Rooms. Workstations should be prioritized for natural light over enclosed spaces. Consideration for occupancy sensors that automatically turn off when the room is empty should be given for all staff workspaces and Meeting Rooms.

Ergonomic Considerations

Staff workspace will include consideration for sit/stand desks.

Security

The entrance to the Administration suite should have controlled electronic access. As previously mentioned, this area should have at minimum, two means of egress for staff safety purposes.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 5. *Space Table*

Component Gross Area (CGSF / CGSM) : TOTAL						**11,310**				**1050.7**		
Component Gross Area (CGSF / CGSM) : Admin Suite						**3,860**				**358.6**		**(Zones 1, 2, 3, 4)**
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						3,089				287.0		
Component Gross Area (CGSF / CGSM) : Information Technology						**2,725**				**253.2**		
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						2,180				193.2		
Component Gross Area (CGSF / CGSM) : Switchboard/Scheduling						**330**				**30.7**		
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						265				24.6		
Component Gross Area (CGSF / CGSM) : Occupational Health & Safety & IPAC						**440**				**40.9**		
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						350				32.5		
Component Gross Area (CGSF / CGSM) : Meeting Spaces						**1,775**				**164.9**		
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						1,420				131.9		
Component Gross Area (CGSF / CGSM) : Simulation Suite (NOSM)						**2,180**				**202.5**		
Net to Gross Ratio						1.25				1.25		
Total Net Area (NSF / NSM)						1,743				161.9		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Reception/Waiting			**subtotal net area**		**140**		**subtotal net area**		**13.0**		
01	.001		Reception			50	1	50		4.6	1	4.6		Include panic button
01	.002		Waiting			90	1	90		8.4	1	8.4		
		.01	*- seat, standard*	*2*	*20*				*1.9*					
		.02	*- seat, bariatric/barrier-free*	*1*	*30*				*2.8*					
		.03	*- coat closet*	*1*	*20*				*1.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 2: Administrative Support			**subtotal net area**		**390**		**subtotal net area**		**36.2**		**shared by all**
01	.003		Resource/Mail Room			110	1	110		10.2	1	10.2	For holding of office equipment and supplies	Provide multi-function copier, layout counter with above/below storage for paper supplies etc.
01	.004		Storage, General			80	1	80		7.4	1	7.4	For storage of podium, microphone, and step and repeat banner for announcements	Could be decentralized
01	.005		Storage, Files			100	1	100		9.3	1	9.3		
01	.006		Storage, Files (archival)			---	1	---		---	1	---	Caged storage in a lower level	
01	.007		Washroom, Staff			50	2	100		4.6	2	9.3		Non-gendered, individual; barrier-free
			Zone 3: Staff Work Area			**subtotal net area**		**2,009**		**subtotal net area**		**186.6**		
01	.008		Office, President & CEO			120	1	120		11.1	1	11.1		Incl. panic button
01	.009		Workstation, Executive Administration			50	2	100		4.6	2	9.3	For executive assistants (4 total, assume 2 at each)	
01	.010		Office, Shared (VP, CoS)			120	2	240		11.1	2	22.3	Shared among VPs (3) and Chief of Staff (1)	
01	.011		Office, Shared (Directors, Managers)			100	6	600		9.3	6	55.7	Bookable, unassigned workspace for multi-site staff. shared among 5 Directors (Nursing, Finance, Quality/Risk, and Interprofessional Practice/Ambulatory/Support Services, Diagnostics) and 5 Managers (HR, Health Records, OH&S, IPAC, PR), Labour Relations (1), Privacy Officer (1) - 11 total	
01	.012		Office, Business Partner			100	1	100		9.3	1	9.3	Two offices total; assume 1 at each site	
01	.013		Workstation, Clinical Nurse Educator			50	1	50		4.6	1	4.6	Two offices total; assume 1 at each site; can be located with unassigned workstations	
01	.014		Workstation, Project Management Staff			50	3	150		4.6	3	13.9	Dedicated to site	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
01	.015		Work Area, Shared			399	1	399		37.1	1	37.1		
		.01	*- workstation, touchdown*	*3*	*50*				*4.6*				Bookable, unassigned workspace for multi-site staff. shared among: HR Coordinator (1), Education Coordinator (1), Communications Officer (1), Skin & Wound Care Specialist (1), PR & Quality Coordinator (1) - 6 total	
		.02	*- workbench*	*1*	*180*				*16.7*				Additional flexibility for multi-site work	Provide 4-6 seats @ 30sf each; harvest table, touchdown collaborative seating
		.03	*- circulation @ 30%*	*1*	*69*				*6.4*					
01	.016		Phone Room			40	2	80		3.7	2	7.4	Bookable; for privacy in shared work area; enclosed room to support quiet work and phone calls	Provide desk, telephone, computer workstation with access to power; virtual health capable
01	.017		Meeting Room, Small			170	1	170		15.8	1	15.8	Bookable	
		.01	*- seat, standard*	*6*	*25*				*2.3*					
		.02	*- AV equipment*	*1*	*20*				*1.9*					Provide desk, telephone, computer workstation with access to power, communications
01	.018		left intentionally blank											
			Zone 4: Finance					**550**	**subtotal net area**			**51.1**		
01	.019		Office, Manager Finance	100			1	100		9.3	1	9.3		
01	.020		Workstation, Staff	50			9	450		4.6	9	41.8	For Payroll Admin (2), Exec Admin (1), Accounting Clerk (5), Financial Analyst (1)	
			Zone 5: Information Technology	**subtotal net area**				**2,180**	**subtotal net area**			**193.2**		
01	.021		Office, Director IT and Emergency Preparedness	100			1	100		9.3	1	9.3		
01	.022		Office, Manager IT	100			1	100		9.3	1	9.3		
01	.023		Onboarding Office, Shared	100			1	100		9.3	1	9.3	For onboarding of staff	Include computer and small meeting table

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
01	.024		Workstation, Staff			50	14	700		4.6	12	55.7	Business Analyst/Project Manager (2), Info Systems Analyst (2), Technical Coordinator (1), Technical Support (3), Clinical Informatics Coordinator (1), Clinical Informatics (5)	
01	.025		Work Counter			80	1	80		7.4	1	7.4	For repair and testing of devices	Include workspace and supplies
01	.026		Storage, IT			200	1	200		18.6	1	18.6		
01	.027		Data Centre			900	1	900		83.6	1	83.6		
		.01	*- server equipment*	*1*	*750*				*69.7*					
		.02	*- staging area*	*1*	*150*				*13.9*					
01	.028		left intentionally blank											
			Zone 6: Switchboard/Scheduling			**subtotal net area**		**265**		**subtotal net area**		**24.6**		
01	.029		Switchboard and Scheduling			215	1	215		20.0	1	20.0		
		.01	*- workstation*	*4*	*50*				*4.6*					Provide acoustic privacy from one another
		.02	*- monitors and associated technology*	*1*	*15*				*1.4*					Include overhead paging equipment, code management equipment, annunciator panels etc.
01	.030		Washroom, Staff			50	1	50		4.6	1	4.6	Shared between Patient Registration and Switchboard staff	
			Zone 7: Occupational Health & Safety & IPAC			**subtotal net area**		**350**		**subtotal net area**		**32.5**		
01	.031		Workstation, Occupational Health Coordinator			50	1	50		4.6	1	4.6	Two offices total; assume 1 at each site	
01	.032		Workstation, Shared			50	2	100		4.6	2	9.3	Program Assistant (1), IPAC Practitioner (3);	Does not need to be collocated with OH&S; could be decentralized to inpatient area
01	.033		Exam Room, OH&S			100	1	100		9.3	1	9.3	For first aid, immunizations etc.	
01	.034		Storage, OH&S			100	1	100		9.3	1	9.3		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 8: Meeting Spaces			**subtotal net area**		**1,420**		**subtotal net area**		**131.9**		
01	.035		Meeting Room, Medium			220	1	220		20.4	1	20.4		Locate adjacent to Multipurpose Meeting Room
		.01	*- seat, standard*	*8*	*25*				*2.3*				Bookable; Small Meeting Room and/or breakout room for Multipurpose Meeting Room	
		.02	*- AV equipment*	*1*	*20*				*1.9*					
01	.036		Multipurpose Meeting Room			1,080	1	1,080		100.3	1	100.3	Bookable; multipurpose large meeting space for a variety of purposes	Consideration to subdivide space
		.01	*- seat, standard*	*40*	*25*				*2.3*					
		.02	*- AV equipment*	*1*	*20*				*1.9*					
		.03	*- kitchenette*	*1*	*60*				*5.6*					Include door into Meeting Room and door into corridor for discrete access during meeting
01	.037		Washroom, Public, Accessible			60	2	120		5.6	2	11.1		Non-gendered, individual; barrier-free with infant change table; locate proximate to Multipurpose Meeting Room
			Zone 9: Northern Ontario School of Medicine			**subtotal net area**		**1,743**		**subtotal net area**		**161.9**		
01	.038		Office, Coordinator			100	1	100		9.3	1	9.3		
01	.039		Medical Learners Lounge			238	1	238		22.1	1	22.1		
		.01	*- kitchenette*	*1*	*60*				*5.6*					
		.02	*- tables and chairs*	*2*	*25*				*2.3*					
		.03	*- soft seating*	*3*	*20*				*1.9*					
		.04	*- workstation*	*2*	*30*				*2.8*					
		.05	*- charging station*	*2*	*4*				*0.4*					
01	.040		Locker Room			105	1	105		9.8	1	9.8		
		.01	*- lockers*	*15*	*7*				*0.7*					
01	.041		Classroom, Large			320	1	320		29.7	1	29.7		
		.01	*- seat, standard*	*12*	*25*				*2.3*				Bookable; Small Meeting Room and/or breakout room for Multipurpose Meeting Room	
		.02	*- AV equipment*	*1*	*20*				*1.9*					
01	.042		NOSM Sleep Room			80	1	80		7.4	1	7.4		To be centralized with other on-call spaces; shared washroom in on-call 'pod'

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
01	.043		Simulation Room, Multipurpose			670	1	670		62.2	1	62.2		
		.01	*- clinical area*	*1*	*600*				*55.7*					Size in keeping with clinical areas such as an OR; Provide functioning gases, suction, and ceiling lift
		.02	*- washroom*	*1*	*70*				*6.5*					Provide non-operational 3-piece washroom
01	.044		Control/Debrief Room			230	1	230		21.4	1	21.4	To facilitate viewing, recording, operation of mannequin (if used), and provide instruction and guidance	
		.01	*- control room monitoring, bench seating*	*2*	*20*				*1.9*					Counter height millwork with stools for execution of sim
		.02	*- storage*	*1*	*30*				*2.8*				For storage for tablets and charging of devices	
		.03	*- debrief/meeting area, seats*	*4*	*25*				*2.3*					Include wall-mounted screen for viewing of recording
		.04	*- circulation @ 35%*	*1*	*60*				*5.6*					
01	.045		left intentionally blank											

02. Critical Care

Functional Description (Current and Projected)

Summary

The Critical Care Unit (ICU) at HDMH is a 10-bed mixed Medical/Surgical Level 2 ICU dedicated to providing a multidisciplinary approach to care. MAHC will be working towards achieving a Level 3 designation for the Huntsville District Memorial Hospital (HDMH) ICU in future.

The redevelopment will allow for the creation of a ICU in purpose built space that will better support the patient and family in their acute admission, as well as allow for regional surge capacity when necessary.

Most importantly, COVID-19 has underlined the need to ensure effective surge capacity within the Unit for ready access to Critical Care Services. As a requirement of Critical Care Services Ontario (CCSO) system capacity, two surge beds (1 at each site) are planned within the Critical Care beds. The Stage 1 submission included a total of 12 Critical Care beds (6 at each site), however recent funding from CCSO has added an additional two beds to the MAHC complement. Therefore the Stage 1.3 Functional Program includes a total of 14 beds, with four Level 2 beds at South Muskoka Memorial Hospital (SMMH) and 10 Level 3 (future) beds at HDMH.

Service Overview

In the new build, the ICU will continue to operate as a Level 2 ICU (10 beds) with the goal of achieving Level 3 acuity in future. The Unit supports critically ill patients requiring a ventilator, Continuous Positive Airway Pressure (CPAP)/Bilevel Positive Airway Pressure (BiPAP) respiratory support, sepsis, post-surgical patients who have complications. Cardiac patients are a large part of the ICU patient demographic at MAHC, and patients requiring frequent transfer to regional partner and tertiary centres.

Operationally, the ICU will ideally be closed, but physically adjacent to a Medical/Surgical Unit. These adjacent inpatient beds will allow for additional surge capacity if required, as well as future growth for Critical Care as needed.

Planning Principles and Assumptions

Critical Care Services will continue to support the highest standard of service delivery, service quality and patient safety. The following assumptions reflect the model of care:

- Two ICU beds will be negative pressure (AIIR – Airborne Isolation Room) to accommodate the need for infection control of airborne infections
- The ICU will be adjacent to some Medical Surgical inpatient beds to allow for surge capacity and future flexibility, while maintaining easy access to the Emergency Department (ED)
- All nursing care will be provided by nurses with Critical Care nursing skills

- Use of virtual care technologies will be integrated throughout the Unit
- Respiratory Therapy (RT) Workroom will continue to be adjacent to the ICU. RTs are responsible for the care of patients in different departments throughout the hospital, as well as replenishing emergency airway supplies throughout the building. RTs will continue to provide maintenance to all ventilator equipment throughout the hospital, and equipment used in the ICU and ED. A storage closet in the ED will be considered to and minimize movement of RT equipment. The RT Workroom will allow for the storage, maintenance, and testing of equipment, and will therefore require medical gas hookups. A counter space will allow for arterial blood gas testing in future. The RT Workroom will contain workstations for documentation and transfer of care, as well as storage to ensure any required supplies are readily accessible
- Ten beds at HDMH will allow access to CCSO funding for a Critical Care Resource Team.

Patient Profile

The vast majority of patients admitted to the ICU will be adults though some patients may be as young as adolescents. The admitting diagnosis will be primarily medical in nature. The Emergency, Surgery and Medical/Surgical Inpatient Units will be the primary source of admissions to the Critical Care beds.

Patients deemed appropriate for admission to the ICU cannot be clearly identified by any single criterion. Patients most likely to benefit from care in the ICU are those with reversible or potentially reversible life-threatening disorders. Patients cared for in the ICU have a variety of diagnoses and meet MAHC ICU admission criteria. Most commonly, the population in the ICU will include:

- Acute Medical or Surgical inpatients with multi-organ failure whose medical condition is uncertain and where continuous monitoring or physiologic support is required
- Acute medical emergency patients who present with myocardial infarction
- Post cardiac/respiratory arrest patients from the ED or the inpatient units
- Patients suffering from limited trauma who require continuous monitoring.

Scope of Services (Current and Projected)

Services of the ICU will reflect the following principles:

- High-quality care in an environment that supports patient comfort, safety/security, and confidentiality
- Family-centred care directed at the comfort and care needs of all patients especially aging adults
- Incorporation of best practice in patient care and service delivery

- Integrating technology to support and enhance patient safety, information collection and retrieval, patient monitoring, and to streamline service support
- Alignment with lean workflows to minimize unnecessary travel for patients and staff
- Enable delivery of clinical training across all health-related disciplines
- Respond to changes in demographics and growth in the Region.

Care is delivered by a multidisciplinary team of providers that include physicians (Intensivists, Internists and General Surgeons, in collaboration with General Practice, Hospitalists and Subspecialists), nurses, Clinical Nurse Educators, pharmacists, dietitians, Physiotherapists (PT), Occupational Therapists (OT), Flow Navigator, Social Workers (SW), Speech Language Pathologists (SLP), Respiratory Therapists (RT), Palliative Care support, Tissue and Organ donation personnel, administrative support, spiritual care, volunteers, and learners.

They will be responsible for delivering and monitoring inpatient care, evaluating, and addressing changes in medical disposition of admitted patients. Admission assessments, initiation of treatment orders, monitoring and ongoing consultation with the Care Team and the patient's family fall within the rubric of care. Specific functions include but are not limited to:

- Regular monitoring/recording of vital signs
- Monitoring and initiating interventions to alleviate discomfort
- Administering medication
- Assisting with personal care
- Ongoing patient assessment in consultation with specialists, admitting physicians and other members of the Clinical Team
- Diagnostic testing
- Implementing treatment plan
- Engaging appropriate clinical support including members of the Allied Health Team to assess, educate and counsel patients and families on the treatment plan and follow-up care
- Teaching patients and families self-management techniques and empowering them to achieve improved well-being.

The following functions will occur in the ICU:

- Intubation and airway protection
- Respiratory support including invasive and non-invasive mechanical ventilation and high flow oxygen therapy

- Invasive and non-invasive haemodynamic monitoring and vasopressor/inotrope administration
- Close and constant observation in a high nurse-to-patient ratio environment
- Post-operative care for patients requiring specialized post-operative management
- Post stroke intensive care as required after administration of reprofusion therapy in ED or Diagnostic Imaging (DI) until appropriate for care in the Integrated Stroke Unit.

The Critical Care Resource Team will provide support to patients within HDMH and SMMH if required.

Education

The Unit will accommodate up to three nursing students, one to two medical students/residents and one to two Allied Health students at any one time. It is anticipated that the ICU will continue to actively participate in telemedicine/ teleconferencing events.

Research

In future, the Unit may participate in clinical research. No additional space would be required beyond shared workstations currently planned.

Linkages/ Partnerships

The most significant program linkage of the ICU will continue to be with ED and Surgical Services for patient care flow and personnel skill sharing.

DI is a key linkage for patients requiring imaging to support their care. As direct a route as possible between the ICU and the Computed Tomography (CT) scanner is important.

RT is integrated into the ICU and provides support to Surgical Services as needed. RT move related equipment from their workspace to ICU inpatient rooms and to the ED.

Given the amount and complexity of medications administered in the ICU as well as lab-work required, there will continue to be a very close program linkage with the Pharmacy and Laboratory Services.

Externally the prime linkages will be the tertiary hospitals accepting transfers.

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Critical Care Services Ontario (CCSO)	Regional planning, coordination and funding
Orillia Soldiers Memorial Hospital	Closest Level 3 ICU
Royal Victoria Hospital	Regional Intensive Care Unit (ICU) Lead organization

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Current				Projected
Department - HDMH	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2031/32**
Beds	5	5	5	5	10
Inpatient Days	1,377	1,230	1,386	n/a	0
Bed Occupancy	68.20%	68.14%	77.07%	82.12%	0
Ventilator Occupancy Rate	10.79%	13.56%	11.23%	15.89%	0
Admissions	456	463	471	432	0
Total MAHC Admissions	797	824	845	783	0

Notes:

1. Source: Preyra Solutions Group (PSG) and CCIS (Critical Care Information Service).
2. Number of inpatient days unavailable to Q4, but straight-line average of Q1-3 total ICU patient days for both sites is ~2,800.

Operational Description

Organization and Management

There will be one Manager of the MAHC Critical Care Program, overseeing both sites.

A Medical Director will be designated to implement admission and discharge criteria and to provide medical expertise and develop and apply clinical pathways for the most common patient types to the Unit (e.g., Acute Respiratory Distress Syndrome [ARDS], Myocardial Infarctions (MI), etc.).

Education will continue to be supported through a Central Educator in collaboration with a regional Critical Care Educator.

Hours of Operation

The ICU will operate continuously 24/7. Medical coverage will be on-call at all times. RT will be on-site 24/7.

Length of Stay

Length of stay (LOS) in the ICU varies according to the type of patient. For example:

- Mechanically ventilated patients will stay in the ICU between two to seven days. When Level 3 status is achieved, LOS for these patients will increase to 21 days.

- MI patients stay from 48 to 72 hours. However, 85% of MI patients are scheduled for angiography which must take place in a regional centre and may require a wait before transfer (usually within 48 hrs).
- Medically complex patients could stay from two to five days.
- It is expected in the future that most stroke patients will have a minimal stay in the Unit before transfer to the Integrated Stroke Unit (24 hours).
- Surgical patients usually stabilize between 24 and 48 hours and are transferred to the Medicine/Surgery Inpatient Unit.
- Over the last two fiscal years (2021/22, 2022/23), the average LOS has been approximately 3.5 days.

Workflow

Admission

In future, patients will be admitted because of an unstable medical crisis at the sole discretion of the Medical Director (or designate) against a set of formalized criteria. The MRP (Most Responsible Physician) will confer as needed with other facilities in determining whether a patient is to be admitted to the ICU. Once in the ICU, the MRP may request any number of referral consultations to diagnose and treat the presenting medical condition.

Patients will usually come into the Unit by stretcher or bed from the primary sources of the ED, the inpatient units, or the Surgical Suite. Frequently, a patient may come to the Unit as a transfer (repatriation from a tertiary centre or a transfer from another less acute hospital).

With the support of accompanying staff/family, the assigned staff nurse completes the admission assessment and documentation, and orients patient/family on patient unit facilities and protocols.

A patient record is opened, and orders initiated as part of the initial consultation with the admitting physician or by application of a clinical pathway as available.

Patient assessment will include recording of vital signs, medication reconciliation, skin and fall assessments, and an evaluation of potential communicable infections.

Patient Care

A clinical care plan is developed with the entire Clinical Team as quickly as possible following admission. This plan is reviewed daily to monitor patient progress and plan discharge.

Given the nature of the unstable condition of patients, all nursing care will be provided by nurse with Critical Care nursing skills.

Changes in state of health are monitored with the admitting physician and Clinical Team. Specialty consultants may be asked to assess specific issues, either remotely or on-site.

Preparation for Discharge

Strict discharge/transfer criteria will be utilized to maximize use of the clinical resources of the ICU. ICU patients are infrequently discharged home from the Unit because the ICU provides care to unstable patients and once stable, patients are transferred to an inpatient unit for the remainder of their hospital stay. From time to time, the ICU will directly repatriate to another hospital once the patient is stabilized. Patients requiring a higher level of care or unavailable services may also be transferred to the appropriate tertiary centre.

General Support Activities

Allied Health Team

The ICU requires support from a variety of central Allied Health resources, including pharmacists, dietitians, PTs, OTs, Flow Navigator, SWs, SLPs, RTs, Palliative Care support, Tissue and Organ donation personnel, administrative support, spiritual care, volunteers, and learners.

Diagnostic & Therapeutic Services

In addition to the patient monitors, portable x-rays, Echocardiograms (Echo), Electrocardiograms (ECG) and Ultrasound (U/S) will be the main DI activities in the ICU. It is anticipated that some may also be performed in DI, including CT and Magnetic Resonance Imaging (MRI) (in future).

Although all computers can access Picture Archiving and Communication Systems (PACS) images, a dedicated PACS viewing terminal, will be required on the Unit to view radiological images in more detail when required.

Laboratory services will be used on a frequent basis by the ICU. Nursing or Laboratory staff will draw blood specimens and collect other specimens. Patient specimens will be transported from Clinical Units to the on-site Laboratory using pneumatic tubes. Lab staff will pack samples that must go off-site for analysis, in preparation for daily pick-up. Test results will be available electronically.

Pharmaceutical Services

All medication and central intravenous (IV) accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in automated dispensing units (ADU). Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. To support patient safety, the work area will accommodate up to two clinical staff members at one time.

The Medication Room will also contain locked cupboard for storage of patient-own medications (including narcotics).

Pharmacy Technicians are incorporated into the Clinical Team and conduct medication reconciliations on all new patient admissions.

Clinical Pharmacists participate in inpatient rounds when possible and consult with patients and families as required.

Respiratory Therapy

RT is a key partner to the ICU, and the RT Workroom will continue to be located within the ICU. The RTs provide service to the entire hospital. RT services will include:

- Respiratory Assessment
- Airway management
- Maintenance of the ventilator machines
- Assisting with bronchoscopy exams
- Arterial lines insertion
- Tracheostomy care
- Providing invasive and non-invasive ventilation, as well as high flow oxygen therapy
- Collecting arterial blood gas specimens and in future may process them in the RT area contiguous with the ICU
- Participation in the Code Blue/Pink Team and Rapid Response Team.

Physiotherapy

PT contribute to the patient's care plan. They assist with promoting lung function, reducing risks of ventilator-induced pneumonia, facilitating weaning off ventilation, providing active and passive therapy promoting movement, and minimizing functional decline.

Clean Supply

The Clean Supply Room will include storage systems standardized to MAHC requirements. To carefully minimize waste, there will be limited supplies stored in the patient rooms. However, personal protective equipment (PPE) supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high-density shelving. Staff will scan barcode labels in the Clean Supply Room and information will be accessed by Receiving staff. All stock requirements will be system generated based on point-of-use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen carts will be delivered on a regular basis to the Unit. The carts will be stored in the Clean Supply Room on the Unit. An alcove will be planned to store a smaller Linen Cart and blanket warmer closer to the patient rooms.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to 'point of care' as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

The Soiled Utility Room will accommodate:

- A designated area for used instruments for collection and return to Medical Device Reprocessing (MDR) (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)
- Bins/transfer carts for linen, recyclables, medical waste, and general waste will be available to collect and transfer to the loading dock for exchange by an external laundry service
- A disposal unit for liquid waste.

An alcove outside the Soiled Utility Room will be provided for a closed cart designed to collect patient meal trays.

Internal staff will continue to collect waste, recycling and dirty linen from the Unit.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, will be covered for transport.

Equipment Storage

Emergency carts for resuscitation and difficult airways will be available on the Unit. Carts will be monitored by nursing staff in consultation with RT.

Patient care equipment must be available, operational, and quickly retrievable when it is required. An asset management system will be in place, with equipment tagged and trackable.

Portable equipment (e.g., IV pumps/poles, wheelchairs, commodes, shower chairs/trollies) will be stored in an enclosed room for convenient access from corridor serving contiguous sub-units. Power bars at waist height will be required. Ideally the configuration of this room will accommodate a cross-circulation path between two entries to facilitate access and retrieval of equipment.

A charging countertop will be accommodated within the Care Team Station and team workrooms for hand-held devices. Additional alcoves may be identified for equipment that require power support within each zone.

Corridor alcoves are helpful for storing select equipment to facilitate frequency/emergent access or maneuverability related to size.

Protocols for cleaning and storage of patient support equipment will be established with the Clinical Team in the Care Unit and coordinated with Environmental Aides. This will occur off the Unit in a centralized cleaning space.

Maintenance and repairs will be performed by the regional Biomed Team. Requisitions for Biomedical service will be entered electronically and triaged by the Biomed Team. Items for repair will be cleaned and moved by clinical staff or Environmental Aides to a secure staging area. Units will be notified electronically when a repair is completed, and the item can be retrieved for return to the Unit.

Environmental Services

Environmental Aides will support the department continuously in the turnover of patient rooms, management and changing of damaged or inoperable furnishing/equipment and removal of soiled material. Daily maintenance protocols will be instituted in addition to response for emergency needs. RT staff will be responsible for cleaning and maintaining ventilator machines.

Environmental requirements including new policies and procedures may evolve to incorporate new protocols for movement of clean and soiled material, equipment cleaning in response to the recent pandemic.

Nourishment & Meals

Given the serious condition of the patients admitted to the ICU, some patients will not require served meals, but it is anticipated that most will. Staff will communicate with Food Services by computer to request a meal and it will be delivered to the Unit by Food Services staff. Therapeutic nourishments will be patient-specific and provided without requisition. Nourishments will be made available following Ward Stock Policy and contained in a Nourishment Centre. It is anticipated that in future, some on Unit meal preparation will be required, and the Nourishment Centre will accommodate this activity. There will be a Nourishment Alcove available for items such as ice and water and accessible to both staff and visitors.

Patient Transport

MAHC has porters for transportation to and from DI. Otherwise, nursing staff and attendants are responsible for patient transfer elsewhere within the hospital. Critically ill patients require nursing escort and monitoring on transfer and be accompanied by RT at times.

Administration & Staff Spaces

The Ward Clerk and Clinical Lead will maintain responsibility for daily activity on the Unit from a centralized Care Team Station located near the Unit entrance. Adjacent to the Care Team Station will be a Care Planning Room with table seating and shared workstations. These shared workstations will be available for external partners, Allied Health professionals, nursing and medical staff, and students.

The Unit will have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

A shared larger Multipurpose Meeting Room will be available for family team meeting and larger Interprofessional Team rounds. This will accommodate up to 15 people.

Many roles involved in the support of Clinical Service provision require quiet/private office space at times (e.g., Managers, Clinical Leads, Clinical Educators, Nurse Practitioners (NP), Patient Flow Navigators, Medical Chiefs). Recognizing that several of these roles support the care of patients across both sites, it is anticipated that many staff will require space at both HDMH and SMMH. A combination of Single Office space and Shared Office space (2 of each) has been planned within each clinical area. The intention is that these offices would be flexible use and bookable and could be assigned in future should a staff member become dedicated to a specific program and site.

All staff and learners will have access to staff facilities, locker rooms, changing rooms and washrooms with showers in a centralized location. All staff will have access to a shared Lounge with comfortable seating and table seating, a kitchenette, and cube lockers closer to the Unit.

On-call rooms will be centralized (see Physician and Staff Amenities component).

Security Services

Security services will be provided at MAHC on-site.

Access Control Systems will be utilized to ensure a safe and secure environment for patients, staff and visitors.

Internet protocol (IP)-based video surveillance camera is required in the Medication Room.

An active Real-Time Locating System (RTLS) may be provided throughout the facility to support patient wandering and staff duress. Mobile duress buttons will be provided to staff. Fixed duress buttons will be available in select locations.

The space should be designed to help ensure the safety and security of all patients/family, staff, and visitors to be enhanced through:

- The configuration of the Unit to ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized
- Optimizing the visualization of the corridors and patient rooms, while also maintaining line of sight for the main entrance from the Care Team Station is required
- A second secure entrance/exit that will allow staff an alternate route out of the Unit
- Each patient space being equipped with a Code Blue call button.

Enabling Technologies

Information Systems

A centralized Care Team Station will be located on the ICU, near the public entrances. A Ward Clerk and Clinical Lead will have assigned workstations. The Care Team Station will also hold a bank of patient monitors so that cardiorespiratory monitoring of all ICU rooms can be viewed both at the station and in the patient room (Telemetry monitoring). The monitor bank should be in a discrete location for confidentiality. A PACS viewing monitor will also be located at this Care Team Station.

Documentation stations or workstations will otherwise be touchdown and available to any member of the Clinical Team and learners. Stations/data entry keyboards will be available within the ICU rooms, in the anterooms of the AIR ICU Patient Room, in the Care Team Station, in the Team Room and with each medication cart. A workspace will also be provided in the staff Lounge. Patient physiological monitors will also be configured to download monitoring information directly into the electronic health record.

Some documentation stations may be planned for standing use and to accommodate easier viewing between team members and for demonstration/teaching.

The Consult Room can be used for private telephone conversations, consultations, dictation or virtual care sessions.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the ICU. In each patient room, there will be Wi-Fi for patient use in accessing the internet. Patient rooms will be equipped with Integrated Bedside Terminals (IBTs) and electronic dashboards which can display clinical information from Cerner Health Information System (HIS). Bedside terminals will provide the following capabilities and services:

- TV/entertainment
- Educational content
- Electronic medical record (EMR)
- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

Virtual Care

ICU Patient Rooms will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting Rooms will be equipped with digital displays, video- and teleconferencing capabilities and presentation inputs to provide flexible and adaptable collaboration spaces.

Communication Systems

The ICU will be equipped with a state-of-the-art communications system in order to facilitate its activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff-to-staff wearable communication technology (e.g., Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 3. Current and Projected Staffing - HDMH

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	23.27	63.74	20	12	12
Subtotal – Clinical Care	*18.70*	*47.12*	*11*	*9*	*9*
Manager	0.50	0.50	1	0	0
Clinical Lead	0.50	1.26	1	0	0
Ward Clerk	1.57	5.04	1	1	1
Registered Nurse (RN)	10.90	40.32	8	8	8
Registered Practical Nurse (RPN)	4.70	0.00	0	0	0
Subtotal – Critical Care Resource Team	*0.00*	*1.00*	*1*	*1*	*1*
RN	*0.00*	1.00	1	1	1
Subtotal – Allied Health	*0.00*	*1.00*	*5*	*0*	*0*
Physiotherapist (PT)	0.00	0.20	1	0	0
Occupational Therapist (OT)	0.00	0.20	1	0	0
Speech Language Therapist (SLP)	0.00	0.20	1	0	0
Social Work (SW)	0.00	0.20	1	0	0
Dietitian	0.00	0.20	1	0	0
Subtotal – Respiratory Therapy	*5.10*	*10.58*	*3*	*2*	*2*
Charge Registered Respiratory Therapist (RRT)	0.50	0.50	1	0	0
Bedside RRT	4.60	10.08	2	2	2

Notes:

1. Manager shared between both sites for Critical Care Program.
2. Clinical Lead currently shared between sites. In future, each site will have own Clinical Lead working 5 days/week and 8 hrs/day.
3. Assumes a RN:pt ratio of 1:1-2 patients depending upon acuity. With Level 3 ICU, some patients will require 1:1 nursing.
4. ICU will have 0.2 full-time equivalent (FTE) PT support in future for the provision of chest physiotherapy to vented patients.
5. All RT FTEs for HDMH included in this component, but services provided across the hospital. Charge RT provides coverage to both sites.

Design Objectives

Locations and Adjacencies

Ideally, the ICU will be self-contained with no public traffic flowing through it to reach another area of the hospital. Visitor access will be via the public corridor system, not via another department. The ICU needs to be in close proximity to both Surgical Services and the ED to enable transitions and/or management of immediate post-surgical needs. There shall be a direct and private route from the ICU to DI. As well, there shall be a private route to the Morgue.

The ICU needs to be adjacent to some Medical/Surgical beds to ensure surge capacity and future growth if required.

As the Maternal Newborn Unit also requires to be in proximity to Surgical Services, there is potential for the ICU, Maternal/Newborn and Medical/Surgical beds to be planned as a large grouping with some shared support spaces. Suggested adjacencies are outlined in the following figure (Functional Relationship diagram).

Internal Organization

Critical Care Services will be zoned into the following areas:

- Zone 1: Family Support – ICU will have own waiting room planned
- Zone 2: Critical Care Unit
- Zone 3: Respiratory Therapy
- Zone 4: Patient Care Support
- Zone 5: Staff and Administrative Support

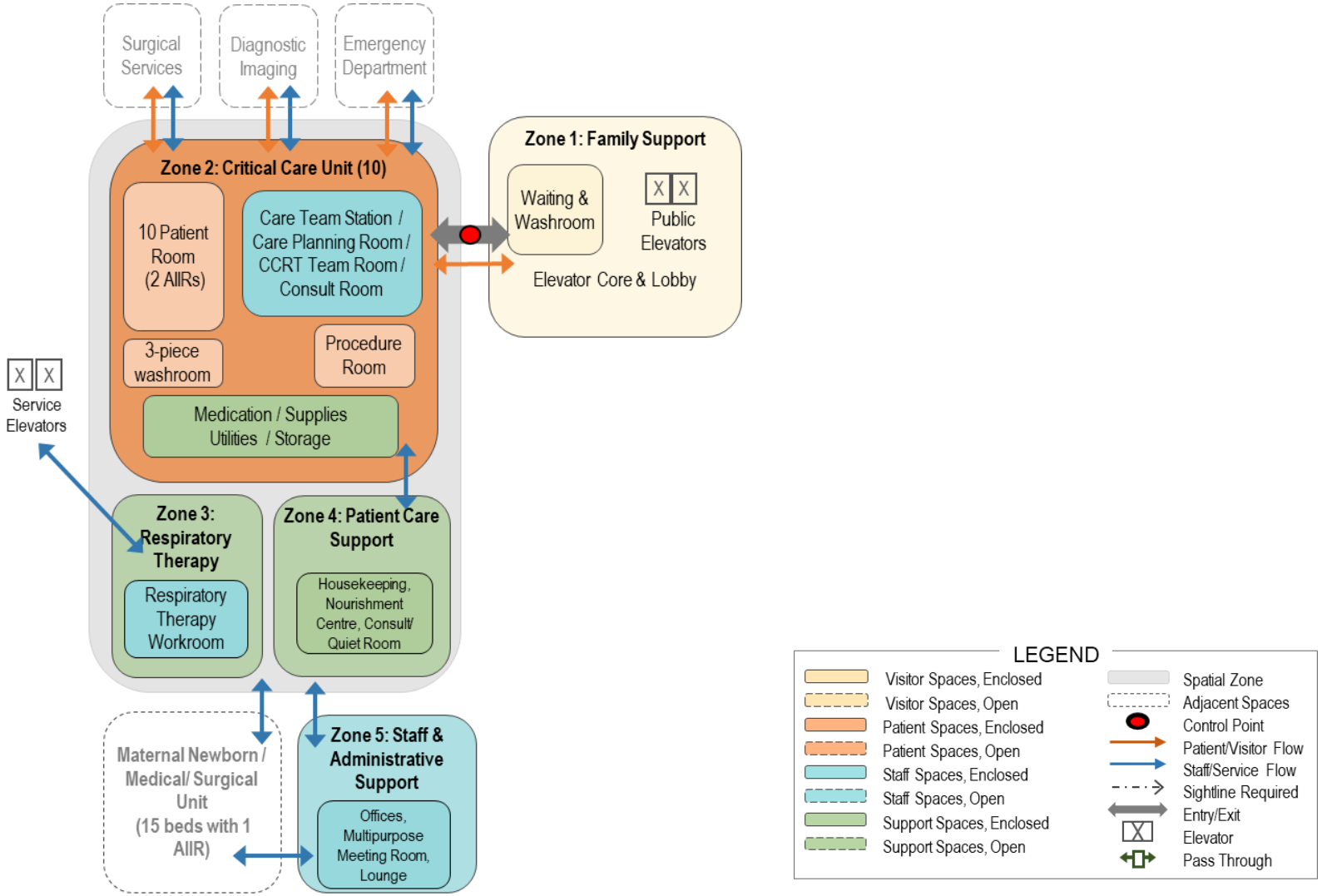
Note the following specifics regarding configuration of the spaces comprising the ICU:

- Care Team Station will be located to ensure visualization of the entrances to all patient rooms as well as the visitor entrance to the Unit
- The Airborne Infectious/Isolation Rooms (AIIR) will be located in close proximity to the Care Team Station
- The Code cart will be located in a readily accessible area to all patient rooms
- The ICU will require the appropriate support spaces to support the activities of the Unit, for example, Clean Supplies and Dirty Utility Rooms, Storage for large equipment, etc. None of these will interfere with visualization of the patient rooms from the Care Team Station
- A ICU-specific Storage room will be located centrally to store equipment that is in constant use (including IV pumps and a recharging station) as well as equipment that is needed immediately (i.e., weigh scale, lifting slings, etc.). Some equipment is large (i.e., Bair Hugger), therefore the Storage room will need to be sized appropriately

- The RT Workroom/Storage will be located at the edge of the ICU, with an expedious direct route to the ED, with secure access from the public corridor system as well as from the ICU itself. The Workroom will store approximately 20 respiratory support devices, and supplies (4 carts). RT regularly moves equipment from their Workroom to patients in the ICU and the ED. Cleaning of equipment happens at the patient bedside. Routine maintenance and calibration occur in the Workroom.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram – Critical Care Unit



Special Considerations

Infection Prevention and Control

Two AIIRs will be planned within the ICU, having negative air pressure, with an anteroom and adjoining washroom. The anteroom will be utilized for staff to don and doff PPE according to organization's practices. There will be hand hygiene sinks in the anteroom, patient room and washroom.

The other patient rooms will be single rooms and will offer contact and droplet protection as a result.

Alcoves will be planned for PPE and a select list of frequently used disposable supplies at the entrance to each patient room. Cabinetry would be preferred to prevent possible contamination of these items. Any storage solution must not interfere with circulation to the patient room or Unit corridor.

Staff hand hygiene sinks/alcohol dispensers will also be provided in the:

- Care Team Station
- Medication Room
- Clean Supply Room and Soiled Utility Room
- Housekeeping Room
- Staff Lounge.

Additional considerations for soiled material include:

- Separation of clean and soiled materials
- Provisions for managing and handling hazardous or contaminated items
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment of pateint infections.

Patient/Family

The introduction of Single Patient Rooms has many advantages:

- Superior privacy and confidentiality for patients
- Designated area within the room for family for overnight visits and comfortable furniture
- Additional infection control.

With these advantages, the patient room will also offer additional area for storage of supplies, mobility aides and furniture suitable for overnight accommodation.

The Unit will support needs of family who can play an important role in health restoration.

Wayfinding

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit.

Though the ICU will be a restricted-access Unit, it still must be readily found by visitors. Consequently, wayfinding will be an important aspect of the design.

Accessibility & Corridor Design

Access to all public spaces, including washrooms and treatment spaces, must be accessible. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Provision will be made for bariatric patients in one of the patient rooms.

Acoustic

Every effort must be made to maintain a quiet environment in spite of the sounds of equipment and staff working in the ICU. Acoustic privacy between patient rooms is mandatory.

Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors.

Medical Gases

The following medical gases will likely be provided at each patient bed:

- Six oxygen outlets
- Two air outlets
- Six suction outlets.

The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

The RT Workroom/Storage will be provided with piped in oxygen and medical air.

Patient Privacy	Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.
Lighting	Lighting shall be designed to meet the clinical activities performed in an ICU. Patient comfort must also be addressed, including patient-controlled lighting. Nighttime lighting must accommodate patient sleeping yet ensure maintenance of nurse-patient observation. Given the abundance of literature supporting the curative value of natural light and open views to the outside for recovery of the patient, the ICU will be designed such that each patient room has a window. Provision of natural daylight in each patient room is non-negotiable. Skylights will not be acceptable as the sole source of daylight.
Ergonomic Considerations	Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.
Security	The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design. The configuration of the ICU will ensure that Care Team time with the patient is maximized and that travel time to support spaces is minimized. Visualization of the patient rooms from the Care Team Station is required. The visitor entrance to the ICU will be accessed through a telephone or door-bell request. Staff in the Unit will have control over release of the door from the Care Team Station or from opening the door from the inside. A second secure entrance/exit will be required for delivery/removal of material and allow staff an alternate route out of the Unit. Each patient space will be equipped with a Code Blue call button.
Codes & Standards	In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 4. *Space Table*

			Component Gross Area (CGSF / CGSM)				**11,340**				**1053.5**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				7,560				702.3		
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Zone 1: Family Support			**subtotal net area**		**230**		**subtotal net area**		**21.4**		
02	.001		Waiting Room, Family/Visitor (ICU)			170	1	170		15.8	1	15.8		
		.01	*- seat, standard*	*7*	*20*				*1.9*					
		.02	*- wheelchair/scooter/bariatric*	*1*	*30*				*2.8*					
02	.002	*.01*	Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
			Zone 2: Critical Care Unit (10 beds)			**subtotal net area**		**5,287**		**subtotal net area**		**491.2**		
02	.003		ICU Patient Room, AIIR (Bariatric)			475	1	475		44.1	1	44.1		Provide clear zones for patient, staff and family use within the room
		.01	*- anteroom*	*1*	*80*				*7.4*				Supply storage/data entry station, hand hygiene sink	
		.02	*- bed area*	*1*	*300*				*27.9*					Patient lift and IV ceiling track above the bed
		.03	*- washroom, 3-piece*	*1*	*80*				*7.4*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					Locate cupboards outside of room
02	.004		ICU Patient Room, AIIR			400	1	400		37.2	1	37.2		Provide clear zones for patient, staff and family use within the room
		.01	*- anteroom*	*1*	*80*				*7.4*				Supply storage/data entry station, hand hygiene sink	
		.02	*- bed area*	*1*	*245*				*22.8*					Patient lift and IV ceiling track above the bed
		.03	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					Locate cupboards outside of room
02	.005		ICU Patient Room			325	8	2,600		30.2	8	241.5		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*245*				*22.8*					Patient lift and IV ceiling track above the bed
		.02	*- charting area*	*1*	*15*				*1.4*					Could be planned outside of room with window into room
		.03	*- washroom, 2-piece*	*1*	*50*				*4.6*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
02	.006		Patient Washroom, 3-piece			60	1	60		5.6	1	5.6	For patient shower	
02	.007		Care Team Station			260	1	260		24.2	1	24.2		Visibility to all ICU beds
		.01	*- workstation, clerk*	*1*	*50*				*4.6*					
		.02	*- printer/work area*	*1*	*20*				*1.9*					
		.03	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.04	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.05	*- alcove, physiological monitors*	*1*	*30*				*2.8*				For Telemetry monitoring	
		.06	*- pneumatic tube*	*1*	*20*				*1.9*					
		.07	*- alcove, medical equipment/devices*	*1*	*30*				*2.8*					Alcove/countertop for recharging medical equipment/devices
		.08	*- hand hygiene sink*	*1*	*10*				*0.9*					
02	.008		Care Planning Room			220	1	220		20.4	1	20.4		Provide glass wall to allow visibility into adjacent Care Team Station
		.01	*- table with chairs*	*4*	*30*				*2.8*					
		.02	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*				Enclosed for dictation	
02	.009		Team Room			180	1	180		16.7	1	16.7	For Critical Care Resource Team	Provide glass wall to allow visibility into adjacent Care Team Station
		.01	*- table with chairs*	*4*	*30*				*2.8*					
		.02	*- workstation*	*2*	*30*				*2.8*					
02	.010		Procedure Room			250	1	250		23.2	1	23.2		
02	.011		Alcove for Emergency Equipment			20	1	20		1.9	1	1.9		
		.01	*- crash cart/difficult airways cart*	*1*	*10*				*0.9*					
		.02	*- ECG machine*	*1*	*10*				*0.9*					
02	.012		Alcove, Equipment			15	1	15		1.4	1	1.4	For Portable U/S	
02	.013		Medication Room			140	1	140		13.0	1	13.0		
		.01	*- automated dispensing unit (ADU)*	*1*	*70*				*6.5*					Double-cell ADU
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- countertop workspace*	*1*	*50*				*4.6*					
02	.014		Clean Supply Room			120	1	120		11.1	1	11.1		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
02	.015		Soiled Utility Room			130	1	130		12.1	1	12.1		
02	.016		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Locate adjacent to Soiled Utility Room
02	.017		Alcove, Linen Cart			15	1	15		1.4	1	1.4	For Linen Cart and blanket warmer	Provide power for blanket warmer
02	.018		Alcove, Procedure Cart			20	1	20		1.9	1	1.9		
02	.019		Nourishment Alcove			35	1	35		3.3	1	3.3		
02	.020		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
02	.021		Equipment Storage			175	1	175		16.3	1	16.3	For IV poles, extra monitors, Bair Hugger	Provide power bars at 42" AFF (above finished floor), cross circulation path between two entries
02	.022		Washroom, Staff			50	2	100		4.6	2	9.3		
02	.023		left intentionally blank											
			Zone 3: Respiratory Therapy			**subtotal net area**		**370**		**subtotal net area**		**34.4**		ADJACENT TO ICU
02	.024		Respiratory Therapy Workroom			370	1	370		34.4	1	34.4	Work and Storage	
		.01	*- workstation, staff*	*3*	*30*				*2.8*					
		.02	*- equipment storage, with workbench (with medical gases)*	*1*	*220*				*20.4*					
		.03	*- 1 arterial blood gas (ABG) analyzer and counter space*	*1*	*40*				*3.7*					
		.04	*- internal circulation*	*1*	*20*				*1.9*					
02	.025		left intentionally blank											
			Zone 4: Patient Care Support			**subtotal net area**		**360**		**subtotal net area**		**33.4**		
02	.026		Housekeeping Room			120	1	120		11.1	1	11.1		
02	.027		Nourishment Centre			120	1	120		11.1	1	11.1	For staff and food services use	
02	.028		Consult Room/Quiet Room			120	1	120		11.1	1	11.1	Multipurpose – medical doctor (MD) calls, consult, virtual and also for family consult, family quiet	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
02	.029		left intentionally blank											
			Zone 5: Staff & Administrative Support			**subtotal net area**		**1,313**		**subtotal net area**		**122.0**		**Shared with Maternal/Newborn & Medical/Surgical Unit**
02	.030		Office, Single			100	2	200		9.3	2	18.6	Flexible use	
02	.031		Office, Shared			140	2	280		13.0	2	26.0	Flexible use	Two workstations
02	.032		Multipurpose Meeting Room			325	1	325		30.2	1	30.2	Used for Patient rounds, family meetings, staff meetings (See Medical/Surgical component)	Table and chair seating for 15 people
02	.033		Lounge			508	1	508		47.2	1	47.2		
		.01	*- hand hygiene sink*	1	10				*0.9*					
		.02	*- kitchenette*	1	60				*5.6*					
		.03	*- tables and chairs*	6	25				*2.3*					
		.04	*- soft seating*	6	20				*1.9*					
		.05	*- workstation*	2	30				*2.8*					
		.06	*- lockers, staff*	50	2				*0.2*				Day-use cube lockers	
		.07	*- charging station*	2	4				*0.4*					
02	.034		left intentionally blank											

03. Diagnostics

Functional Description (Current and Projected)

Service Overview

Diagnostic Imaging (DI) provides a full range of imaging and therapeutic services to MAHC hospital patients.

The DI department at HDMH will meet forecasted volumes with space designed and scaled to achieve maximum clinical and operational efficiency.

The table below articulates the current and future services to support core programs at HDMH.

Table 1. Current and Future Modalities

	Huntsville (HDMH)	
Service	**Current**	**Future**
General Radiology (including Fluoroscopy)	✓	✓
Mammography - Diagnostic	✓	-
Mammography - Screening and Routine	✓	-
Computed Tomography (CT)	✓	✓
Ultrasound (U/S)	✓	✓
Nuclear Medicine	✓	-
Bone Mineral Densitometry (BMD)	✓	-
Magnetic Resonance Imaging (MRI)	-	✓ (2025)
Cardiorespiratory Services (CRS)[1,2]	✓	(limited)

Notes:

1. While scheduled outpatient CRS Services will not be available at HDMH, ECG and Echo services as well as RT will be available on-site to support inpatients and Emergency Department (ED) patients.
2. Holter monitor hook-up will be provided for ED patients only, within the DI department.

In addition to the services noted above, Diagnostics staff will continue to support imaging functions outside of the department including portable x-ray in key inpatient areas and the ED. Point of Care (POC) U/S in ED, as well as U/S and a C-arm within the Surgical Suite, will continue to be performed by Clinical Teams in the future.

Planning Principles and Assumptions

The following planning assumptions are to be noted for Diagnostics:

- All imaging equipment will be digital
- Patient registration will be completed online by a significant number of DI patients, with availability for on-site registration via a kiosk and/or in-person at the DI Reception desk
- The adjacencies between Diagnostics, the ED, Surgical Suite, Inpatient Units and Critical Care are core considerations in realigning and/or expanding existing program spaces
- Approximately 50% of General Radiography workload is generated by the ED, therefore this modality in particular should have direct adjacency and easy access from the ED
- MAHC will not provide sleep studies
- DI should be located on an outside wall for future expansion, and supporting services strategically located around key departments ensures the ability for future expansion with minimal disruption to the delivery of clinical care.

Patient Profile

Inpatients and ED patients of all ages will be served through DI at HDMH.

Scope of Services (Current and Projected)

The table that follows describes the current units and the planned number of each modality for the 2031/2032 planning horizon.

Table 2. Current and Projected Modalities

	Current		***2031/32***
DI Modality	**Current Qty**	**Comments**	**Projected Qty**
Radiography (General X-Ray)	2	Plus portable	1
Fluoroscopy	1	Fixed	1
Ultrasound (U/S)	3	Plus portable	2
CT Scan	1		1
MRI	Planned	Operational in 2025	1
Mammography	1		0
Nuclear Medicine	1		0
Bone Density	1		0

	Current		*2031/32*
DI Modality	**Current Qty**	**Comments**	**Projected Qty**
CRS	Current Qty		Projected Qty
Echocardiography (Echo)	1	Shared	1
Holter Monitoring, Stress Testing	1	Shared	Shared with U/S
Ambulatory Blood Pressure Clinic	1	Shared	0
Pulmonary Function Testing (PFT)/Home Oxygen Monitoring			

Education

MAHC is affiliated with the Northern Ontario School of Medicine (NOSM), providing placements for medical students within DI. Other learners include student technologists from Cambrian, St. Clair and Mohawk Colleges as well as secondary school co-op students.

Research

While there is potential for DI to support research initiatives in the future, there is no anticipated impact to the space requirements as outlined in this document.

Linkages/ Partnerships

Table 3. Linkages and Partnerships

Linkages/Partnerships	**Description**
Cambrian College	Learners (General Radiography)
St. Clair College	Learners (U/S)
NOSM	Medical Students (DI/CRS)
Mohawk College	Learners (U/S)
Orillia Picture Archiving and Communication Systems (PACS) Servers	PACS System Server location
Royal Victoria Regional Health Centre (RVRHC)	Cardiology support for Echo Program
Local secondary schools	Co-op student placements

Workload (Current and Projected)

Table 4. Historical and Projected Workload

		Historical			Projected
Modality	**Measure**	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Total		44,327	43,965	44,166	29,799
Subtotal, Radiography		20,361	20,170	20,260	13,970
	Inpatient	1,498	1,483	1,278	2,936
	Outpatient	8,522	8,687	8,996	0
	Day Surgery	118	86	60	0
	Emergency	10,223	9,914	9,926	11,034
Subtotal, Mammography		3,340	3,339	3,319	0
	Routine and Diagnostic	1,312	1,343	1,363	0
	OBSP (Ontario Breast Screening Program)	2,028	1,996	1,956	0
Subtotal, Ultrasound (U/S)		8,509	8,142	7,934	2,349
	Inpatient	396	475	377	859
	Outpatient	6,713	6,308	6,205	0
	Day Surgery	16	18	12	0
	Emergency	1,384	1,341	1,340	1,490
Subtotal, Nuclear Medicine		1,862	1,908	1,820	0
	Inpatient	59	55	40	0
	Outpatient	1,803	1,853	1,778	0
	Emergency	0	0	2	0
Subtotal, Computed Tomography (CT)		6,160	6,751	6,942	8,590
	Inpatient	0	0	0	1,396
	Outpatient	0	0	0	0
	Emergency	0	0	0	7,194
Subtotal, Bone Mineral Density (BMD)		1,648	1,418	1,726	0
	Inpatient	1	2	3	0
	Outpatient	1,647	1,416	1,723	0

		Historical			Projected
Modality	**Measure**	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Subtotal, Magnetic Resonance Imaging (MRI)		0	0	0	4,550
	Inpatient	0	0	0	394
	Outpatient	0	0	0	4,101
	Emergency	0	0	0	55
Subtotal, Cardiac Diagnostics: Echocardiogram (Echo)	Exams	584	305	248	340
Subtotal, Cardiac Diagnostics: Stress Tests	Exams	568	440	492	0
Subtotal, Cardiac Diagnostics: Holter Monitoring2	Exams	518	627	582	0
Subtotal, Cardiac Diagnostics: Home Oxygen/ Ambulatory Blood Pressure (ABP)/ Arterial Blood Gas (ABG) Clinic	Exams	38	49	32	0
Subtotal, Respiratory Diagnostics: Pulmonary Function Test (PFT)/Spirometry	Exams	739	816	811	0

Notes:

1. MRI anticipated to be operational in 2025.
2. ED Holter Monitoring volumes not shown, but modality will be available for ED patients (as noted in Table 1).

Operational Description

Organization and Management

DI will operate under a dyad leadership model consisting of a Manager of DI and CRS, a Director of Community Collaboration and Diagnostics, and a Medical Chief and Director of DI.

Within DI, Senior Technologists (one per modality) will report to a site Charge Imaging Technologist, who will report to the Manager of DI and CRS.

Radiologist coverage is provided on-site by one radiologist four days/week, with potential to increase to five days/week in the future. Outside of regular business hours, coverage is provided by remote service.

Echocardiographs (Echos) are read by an internist, with coverage from staff at RVRHC when the internist is absent.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 5. Hours of Operation

	Current			Projected		
Modality	**Weekday**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Radiography (General X-Ray)	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	24/7	24/7	24/7
Fluoroscopy	8:30am -3:00pm 3 days/week	-	-	8:30am -3:00pm. Up to 5 days/week split between 2 sites – alternating 3-day/2-day weeks based on coverage	-	-
Ultrasound (U/S)	7:30am - 11:30pm	8:00am - 4:00pm	8:00am - 4:00pm	7:30am - 11:30pm	8:00am - 4:00pm	8:00am - 4:00pm
Computed Tomography (CT) Scan	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am	7:30am - 11:30pm On-call 11:30pm - 7:30am
MRI (Operational 2025)	-	-	-	10 hours/day	-	-
Cardiorespiratory Diagnostics (Echo/Holter)	7:30am - 3:30pm	-	-	On demand	On demand	On demand

Duration of Visit

The duration of the visit for patients undergoing diagnostic testing will vary from 15 to 90 minutes. Assumed exam times by modality are listed below.

Table 6. Duration of Visit

Modality	**Average Length of Appointment including room turnover (mins)**
Radiography (General X-Ray)	15
Fluoroscopy	45
Ultrasound (U/S)	30
U/S Biopsy	60
Computed Tomography (CT) Scan	20
Magnetic Resonance Imaging (MRI)	30

Modality	Average Length of Appointment including room turnover (mins)
Cardiac Diagnostics: Echocardiogram (Echo)	60
Cardiac Diagnostics: Holter Application	30

Referrals & Scheduling Appointments

Inpatient/ED Patients: Requests are submitted electronically via EMR.

Scheduling for interventional procedures is completed by the technicians within each modality, and the physician contacts the patient to advise of appoint date/time.

Workflow

Arrival

All ED patients (ambulatory and on stretcher), and inpatients will be escorted to DI by appropriate staff. Direct adjacency to ED is required to facilitate timely access.

Registration and Consent

The Reception for DI will facilitate patient check-in, if necessary; inpatients and ED patients will already be registered in the system via CPOE and will be ordinarily transported directly to the appropriate modality for testing.

Functions performed at the DI Reception will include:

- Checking patient identification
- Screening patients with known or suspected communicable illnesses
- Determine if proper testing preparations have been performed. If not, follow defined protocols for rescheduling with proper instructions
- Notifying staff in the appropriate modality that the patient is in the department and direct the patient to the sub-Waiting area. Intra-departmental staff will escort patients to the proper locations. Note**:** a tracker system may also be implemented to assist with advanced patient notification and to avoid congregate waiting, where possible.

A central Waiting room will support patients upon arrival as well as supporting family/visitors. Patients will make their way to the change facilities and sub-waiting area for their modality. Supporting family/visitors will be expected to remain the main DI Waiting area, unless required to accompany the patient.

Patient Changing & Preparation	Modalities will be clustered in order to share sub-waiting/change areas. Most patients will change into a gown either in the Diagnostic room or in a change cubicle. Sufficient chairs/wheelchair areas will be provided for gowned waiting, close to the modality. Patients will keep valuables with them, except where lockers are provided for certain modalities. When the Diagnostic room is ready, the technologist will escort the patient into the room. Inpatients will complete some preparation in advance on the inpatient unit, such as IV access lines and preparations administered orally, while IV contrast injections will be completed within DI prior to testing.
Recovery	Some interventional radiology procedures require sedation to ensure the comfort of the patient. These cases require post-procedure monitoring. Preparation bays within DI will also serve as recovery spaces, maintaining patient flow and care within the DI footprint and under the management of the DI Team.
Procedure Completion and Quality Assurance	All modalities will be fully digital, and images will be captured electronically. Technologists will be able to quickly review images for adequacy at a monitor that is integral to the imaging equipment or a nearby review terminal. As necessary, radiologists will review images before the patient is released. In most cases this will be done from the radiologist's PACS reading workstation. Once released, the patient will change into street clothes and exit the department.
Reporting	All images will be captured digitally and will be available on PACS reading stations. A centralized reading room will support efficient access to reading stations. Echos are reported and read on a separate system than the remainder of DI and require a separate reading set-up. A workstation within the Echo room will be provided to support this.
Transcription/Voice Recognition	Reports will be dictated using a voice recognition system, which allows the radiologist to make immediate corrections and release the report.
Image and Records Management	The PACS system will serve as the central repository for DI exams. In the future, the CardioPACS system will upload cardiac diagnostic results, reported from the internists, into the patient EMR.

General Support Activities

Supplies, Cleaning & Disposal

Clean Supply Rooms will include storage systems standardized to MAHC requirements. Materials Management staff will monitor and replenish supplies, using a top-up system with high density shelving. Staff will scan barcode labels in the Clean Supply Rooms and information will be accessed by receiving staff. All stock requirements will be system generated based on point-of-use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen Carts will be delivered on a regular basis to DI and decentralized to Linen Alcoves throughout. The Clean Supply Rooms will also accommodate a blanket warmer.

Soiled Utility Rooms will be distributed throughout the zones. The Soiled Utility Rooms will accommodate:

- A designated area/cart for U/S and Echo transducers for collection and return to MDRD for processing
- Bins/transfer carts for linen, recyclables, medical waste, and general waste.

Housekeeping staff will continue to provide general cleaning services on a regular basis. This includes cleaning stretchers on a scheduled basis. DI staff will continue to be responsible for incidental cleaning and for putting clean linen on the stretchers.

Pharmaceutical Services

A stock of basic medications will be accommodated in an ADU located in the Medication Room . Medication stock will be replenished by Pharmacy staff on a regular basis.

Staff Resources

A Staff Lounge with kitchenette will be included within the space planned for DI.

Access to staff facilities such as locker rooms, change rooms and washrooms with showers will be available in a centralized location. If adjacencies permit, consideration should be given to sharing staff facilities with the ED.

Volunteer Services

Volunteers support DI with patient wayfinding, escorting and miscellaneous tasks which are outside the scope of staff. Volunteers should be provided space to touchdown within the main Reception area.

Enabling Technologies

Information and Communication Systems

DI requires reliable and effective IT/Communications Services for efficient operation. The IT design should address:

- Booking, appointment and queueing systems, potential patient reminder systems
- Patient clinical information systems and electronic records
- Wireless and hospital network requirements, high capacity and speed for digital equipment
- Voice recognition transcription technology for radiologists, internists
- PACRS technology and appropriate high-resolution monitors.

As enabling technology expands to support the clinical enterprise, accommodation will be required to ensure safeguards for continuous power supply and business continuity are established and maintained.

Staffing (Current and Projected)

Table 7. Current and Projected Staffing

	Current	***Projected 2031/32***			
Category	**2022/23 FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	33.25	46.00	26	9	3
Echo Sonographer	1.00	2.00	2	0	0
Ultrasound (U/S) Technologist (Tech)	5.14	8.76	4	2	0
Charge Tech	1.00	1.00	1	0	0
Sr Computed Tomography (CT) Tech	0.50	0.50	1	0	0
Sr Mammography Tech	1.00	0.00	0	0	0
Sr Nuclear Medicine Tech	1.00	1.00	1	0	0
Sr X-Ray Tech	0.50	0.50	1	0	0
Sr U/S Tech	0.50	0.50	1	0	0
Clinical Instructor	0.50	1.00	1	0	0
Sr Interventional Tech	0.00	0.50	1	0	0

	Current	*Projected 2031/32*			
Category	**2022/23 FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Sr Magnetic Resonance Imaging (MRI) Tech	0.00	1.00	1	0	0
CT Tech	2.54	6.60	2	1	1
Imaging Aide	1.60	4.60	2	1	1
Imaging Tech	13.58	5.44	2	1	0
MRI Tech	0.00	5.60	2	2	1
Imaging Reception	2.49	5.00	2	2	0
Director, Diagnostics and Community Collaboration	1.00	1.00	1	0	0
Manager, DI & Cardiorespiratory	0.90	1.00	1	0	0

Design Objectives

Locations and Adjacencies

The following adjacencies are to be prioritized for DI:

- DI must be located adjacent to the ED to facilitate quick transfer for urgent patients requiring Diagnostics
- A central location with easy navigation from the main entrance/patient parking is important for the large number of outpatients
- Locate DI in proximity to CCU, the Surgical Suites, and inpatient units to minimize transfer distance and avoid public corridors/elevators.

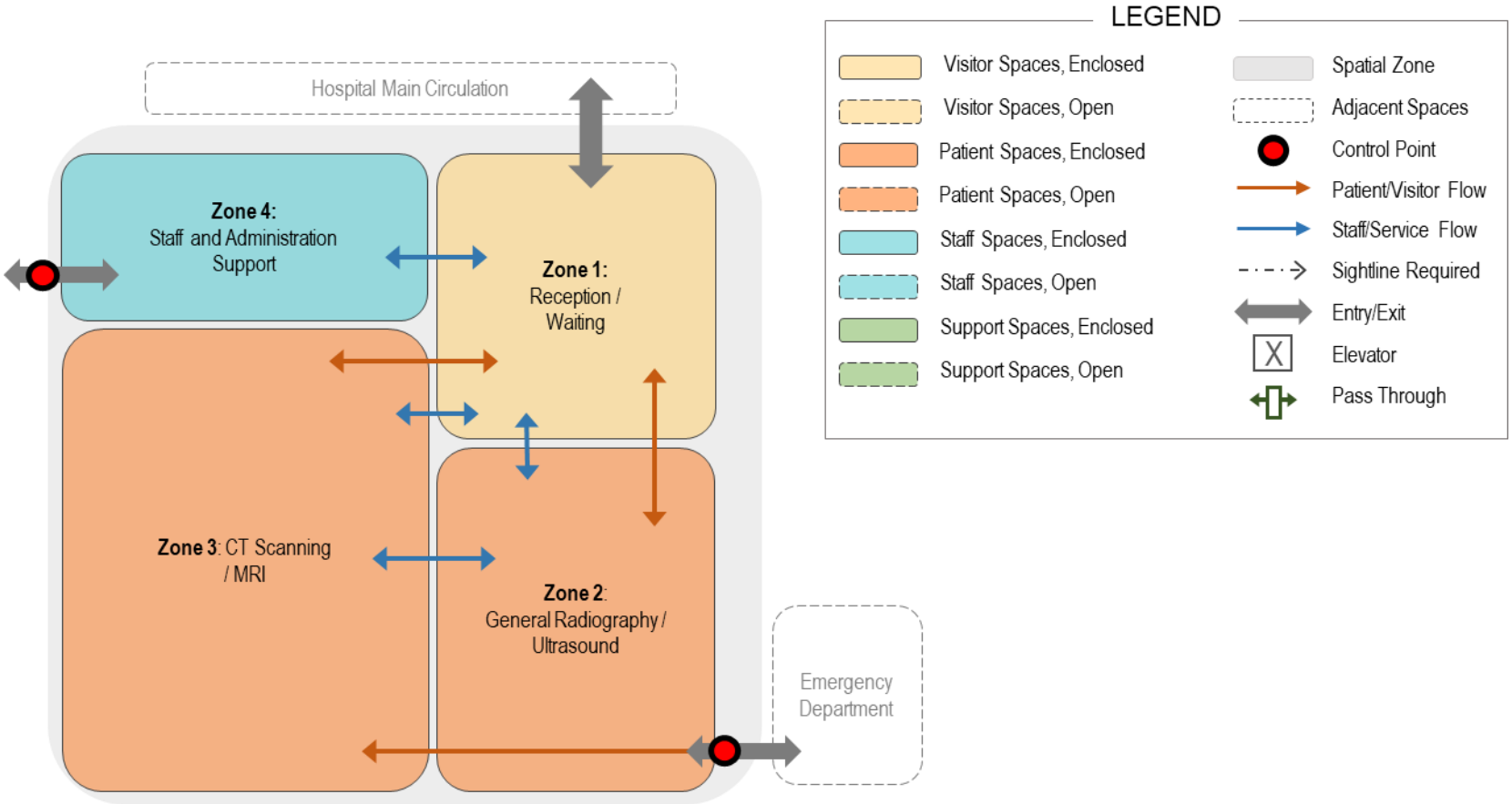
Internal Organization

The following concepts are important for planning the internal elements within DI:

- Sightlines for staff observation of patients who are awaiting tests as well as those recovering from procedures
- Separation of access and flows for ED patients, inpatients, and outpatients
- Efficiency in patient and staff flows for:
  - Adjacencies of MRI, CT, and patient prep and recovery spaces
  - Adjacencies of CT and Radiography to the ED

The spatial organization should be generally as shown in the diagram below. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Adjacency Diagram



Special Considerations

Infection Prevention and Control

Infection control procedures will be applied in all patient care/handling areas. Protocols such as separation of clean and dirty flows will be followed, and hand hygiene sinks will be provided according to codes and standards.

Infection Prevention and Control (IPAC) will be considered in design, including:

- Patient Preparation and Recovery bays will be enclosed on three sides
- Distribution of PPE in appropriate carts or purpose-built cabinets within each zone
- All equipment, furnishings and finishes must be easily cleanable with approved hospital grade disinfectants.

Clarity of Spatial Organization

The layout of the department must be such that travel distances for staff and patients are kept to minimum and circulation routes are simple.

Wayfinding

Access from the ED to DI should be easily navigated and supplemented by effectively placed signage. Wayfinding should be intuitive between the main Waiting room and sub-waiting areas.

Accessibility & Corridor Design

Access to all patient spaces, including washrooms and imaging rooms, must be accessible. Sufficent access to assessible change facilities and Waiting spaces must be provided as well. Power door operators are required at the entrance/exit to the department to facilitate stretcher access. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other and wide enough to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Acoustic

Acoustic shielding/noise abatement will be required for the MRI room. Computer rooms for CT and MRI will include high volume fans and UPS systems that will require noise abatement.

Air/Environmental

Imaging equipment generates significant heat and requires control of temperature and humidity. Special exhaust will be required in case of an MRI magnet shutdown, i.e., quench vent. Computer rooms in MRI, and CT will require dedicated air conditioning systems. Heating, Ventilation and Air Conditioning (HVAC) systems are to be sized appropriately to meet the needs of diagnostic equipment.

Architectural/Structural/ Electrical/Mechanical

Imaging room design requirements include:

- Minimum floor to ceiling heights, floor to deck clearance, and structural systems for mounting equipment per vendor specifications
- Proper shielding for radiation protection and to minimize scattered radiation
- Adequate shelving for positioning devices, storage area for accessories and linen
- Isolation protocol storage for PPE
- Flooring must be monolithic with cove base
- Lead apron racks
- Countertop work area
- Ceiling-mounted patient lifts to be considered
- Ceiling-mounted IV tracks.

The MRI will require special shielding to prevent magnetic interference. MRI will have an explosive hatch and swing out as a second line of protection in the event of a quench; this escape valve will vent directly outside to non-traffic areas.

Design room access (door swings, hallways) with a minimum of turns to allow easy stretcher and bed access. Rooms may have leaded doors split into 1/3 and 2/3 hinged parts. A hospital bed shall be able to fit through door opening. In all instances, a 1.2m wide door is required in all DI exam rooms.

A dedicated power line and UPS will be required for each imaging room. Special consideration will be given to the weight bearing capacity in all areas.

Medical Gases

Medical air, oxygen, and vacuum should be included in all therapeutic and diagnostic areas (two outlets each). These outlets should be in close proximity to the testing equipment.

Patient Privacy

Patient privacy to be considered thoughtfully through the placement of doors and orientation of door swings as well as sightlines from change rooms, gowned sub-waiting areas and imaging rooms.

Lighting

Provide glare-free full-spectrum, dimmable, artificial lighting and special task lighting for technical work areas and imaging rooms. Natural light should be provided where possible based on the modality type.

Ergonomic Considerations	Provide appropriate heights for control room equipment, shelving, computer terminals and keyboards to minimize physical stress or accidents and to maximize the comfort of Diagnostics staff. Adjustability of all workstation heights should be considered.
Security	Access to DI (with the exception of via the main Reception) will be controlled by employee radio-frequency identifcation (RFID) badge (swipe access), or other similar technology.
Codes & Standards	In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 8. *Space Table*

			Component Gross Area (CGSF)				**7,550**				**701.4**		
			Net to Gross Ratio				1.45				1.45		
			Total Net Area (NSF)				5,208				483.8		
CO	**RN**	**SN**	**Element**	**QTY**	**NSF**	**Unit Area (sf)**	**Units**	**Total Net Area (sf)**	**NSM**	**Unit Area (sm)**	**Units**	**Total Net Area (sm)**	**Room Intent**	**Specific Design Criteria / Comments**
			Zone 1: Central Reception/Waiting			**subtotal net area**		**180**		**subtotal net area**		**16.7**		
03	.001		Reception/Registration, Diagnostic Services			90	1	90		8.4	1	8.4		
		.01	*- workstations, registration*	*1*	*50*				4.6					
		.02	*- printer/work area*	*1*	*40*				3.7					
03	.002		Waiting, Diagnostic Services, Outpatients			90	1	90		8.4	1	8.4		
		.01	*- seats, standard*	*3*	*20*				1.9					
		.02	*- seats, accessible/bariatric*	*1*	*30*				2.8					
			Zone 2: General Radiography and U/S			**subtotal net area**		**2,035**		**subtotal net area**		**189.1**		
03	.003		Digital Radiography (General X-ray)			430	1	430		39.9	1	39.9		
		.01	*- scanning rooms*	*1*	*310*				28.8					
		.02	*- control room, shared*	*1*	*100*				9.3					Two workstations, plus 1 student space
		.03	*- quality dashboard w/ circulation*	*1*	*20*				1.9					Provide wall-mounted screen
03	.004		Digital Radiography (Fluoroscopy)			430	1	430		39.9	1	39.9		
		.01	*- scanning room*	*1*	*310*				28.8					
		.02	*- control room*	*1*	*60*				5.6					One workstation
		.03	*- washroom, patient, accessible*	*1*	*60*				5.6					
03	.005		Ultrasound, Procedures			180	1	180		16.7	1	16.7		Stretcher accessible
03	.006		Ultrasound			140	1	140		13.0	1	13.0		
03	.007		Washroom, Patient, Accessible			60	1	60		5.6	1	5.6		Locate adjacent to Ultrasound Rooms
03	.008		Ultrasound Tech Review Area			70	1	70		6.5	1	6.5		Open area
		.01	*- workstation*	*1*	*50*				4.6					
		.02	*- quality dashboard w/ circulation*	*1*	*20*				1.9					Provide wall-mounted screen

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
03	.009		Stretcher Waiting			55	1	55		5.1	1	5.1	For Inpatients, ED patients	
03	.010		Clean Supply Room			120	1	120		11.1	1	11.1	Shared between modalities, provide space for U/S transducer storage cabinets, as well as Echo transducers, and interventional carts	
03	.011		Soiled Utility Room			130	1	130		12.1	1	12.1	Shared between modalities	
03	.012		Medication Room			120	1	120		11.1	1	11.1	Shared with all modalities, centralized for ease of access by all modalities. For contrast preparation etc.	
03	.013		Alcove, Linen Cart			15	1	15		1.4	1	1.4		
03	.014		Housekeeping Closet			75	1	75		7.0	1	7.0		
03	.015		Washroom, Staff			50	1	50		4.6	1	4.6		
03	.016		Echo / Holter hook-up			160	1	160		14.9	1	14.9		Include tech workspace
03	.017		left intentionally blank											
			Zone 3: CT Scanning and MRI			**subtotal net area**		**2,163**		**subtotal net area**		**200.9**		
03	.018		MRI Suite			1,428	1	1,428		132.7	1	132.7		Design in compliance with ACR WHITE PAPER ON MAGNETIC RESONANCE (MR) SAFETY Combined Papers of 2002 and 2004
		.01	*- consult room (Zone 2)*	*1*	*100*					9.3			For Consent and consultation	Provide recliner
		.02	*- cubicle, change, accessible/bariatric (Zone 2)*	*1*	*50*					4.6				
		.03	*- sub-waiting, accessible/bariatric (Zone 2)*	*1*	*30*					2.8				
		.04	*- washroom, patient, accessible (Zone 2)*	*1*	*60*					5.6				
		.05	*- patient lockers (Zone 2)*	*4*	*7*					0.7				Provide Z lockers
		.06	*- stretcher bay (Zone 2)*	*2*	*120*					11.1				Three-wall enclosed
		.07	*- supplies (Zone 2)*	*1*	*20*					1.9				
		.08	*- hand hygiene sink (Zone 2)*	*1*	*10*					0.9				
		.09	*- control room with workstation and supplies (Zone 3)*	*1*	*160*					14.9				Injector control; 2 workstations, radiologist workstation
		.10	*- equipment room (Zone 3)*	*1*	*190*					17.7				
		.11	*- magnet room (Zone 4)*	*1*	*540*					50.2				Ceiling-mounted injector

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
03	.019		CT Scanning			585	1	585		54.3	1	54.3		
		.01	*- scanning room*	*1*	*430*				39.9					Ceiling-mounted injector
		.02	*- control room*	*1*	*120*				11.1					Injector control; 2 workstations including post-processing
		.03	*- equipment cabinets*	*1*	*35*				3.3					
03	.020		Patient Preparation/Recovery			150	1	150		13.9	1	13.9	Used for both pre-/post-procedure for DI/Interventional Procedures	
		.01	*- stretcher bay*	*1*	*120*				11.1					Three-wall enclosed with medical gases
		.02	*- counter and supplies*	*1*	*20*				1.9					
		.03	*- hand hygiene sink*	*1*	*10*				0.9					
03	.021		left intentionally blank											
			Zone 4: Staff & Administrative Support			**subtotal net area**		**830**		**subtotal net area**		**77.1**		
03	.022		Office, Booking			210	1	210		19.5	1	19.5		
		.01	*- workstations*	*3*	*50*				4.6					One regular, plus 2 MRI
		.02	*- storage, printer/files*	*1*	*60*				5.6					
03	.023		Office, Radiologist			140	1	140		13.0	1	13.0		Include reading station
03	.024		Office, Private			100	1	100		9.3	1	9.3	For site specific Charge Technologist, and Manager	
03	.025		Office, Shared (swing space)			125	1	125		11.6	1	11.6		
		.01	*- workstations*	*3*	*35*				3.3				For senior technologists (7 shared across both sites), learners	
		.02	*- files*	*1*	*20*				1.9					
03	.026		Washroom, Staff			50	1	50		4.6	1	4.6		
03	.027		Staff Lounge			205	1	205		19.0	1	19.0		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- kitchenette*	*1*	*55*				5.1					
		.03	*- table and chairs*	*4*	*25*				2.3					
		.04	*- lockers, staff*	*20*	*2*				0.2					
03	.028		left intentionally blank											

04. Emergency Department

Functional Description (Current and Projected)

Service Overview

The Huntsville District Memorial Hospital (HDMH) Emergency Department (ED) accommodates a full range of unscheduled emergency services to meet the needs of adults and children presenting to the hospital. Each patient presenting to the ED is triaged according to the five Electronic-Canadian Triage and Acuity Scale Support (eCTAS) classifications and, is treated in response to his or her specific clinical needs. Care is provided by nurses, physicians, consulting physicians, and Allied Health professionals working as an integrated team supported by patient registration staff along with clinical and non-clinical support services. The scope of services provided within the ED will remain unchanged.

The HDMH ED must, notably, provide support to patients of the following specialty services located at this site:

- Obstetrics
- Dialysis
- Complex Medical Management (formerly Complex Continuing Care)
- Stroke.

The current ED has poor visibility from the nurse's station, particularly to the Emergency Medicine Services (EMS) area. Lack of space prevents offloading of EMS patients, delaying that service from returning to the community and addressing other calls. There are long waits for transfer of patients to other facilities for specialized services due to their limited capacity, negatively affecting the ED's operations. Poor layout and adjacencies result in poor visual management and wasted time transporting patients within the department and to Diagnostic Imaging (DI). There is no space for family members and/or escorts to sit at the bedside and support the patient. Overall, the department is undersized, and this is exacerbated when dealing with both walk-in and ambulance arrivals.

Planning Principles and Assumptions

The following considerations are critical to the planning and development of the ED:

- The department will be planned to address the significant seasonal increases in ED volumes arising from visitors/tourists to the area.
- Scheduled visits to ED will shift to the Ambulatory Care Clinic at South Muskoka Memorial Hospital (SMMH).
- Fracture Clinic will be based out of Ambulatory Care at SMMH.
- Obstetrics patients under 20 weeks will be cared for in ED; patients over 20 weeks with obstetrical issues will be assessed and managed on the Maternal Newborn Unit.

- An emphasis on up front assessment and care, including ECG's directly adjacent to Triage to expedite decision-making.
- Continued use of medical directives to facilitate team-based care.
- Lean approach to patient care, with a focus on value-add steps only and streamlined interactions.
- Waiting patients will be reassessed on a regular basis to determine if any change in status has occurred and re-evaluate the level of risk.
- Fast Track/Rapid Assessment Zone (RAZ) appropriately sized to assist with peaks in volume, as well as education and teaching. Medical care in this zone would potentially be led by a NP.
- Spaces and equipment will be standardized to as great an extent as possible.
- Sufficient spaces will be available to hold patients awaiting transfer and continue to provide care in a safe and supportive environment, particularly for mental health patients.
- A Geriatric Emergency Medicine (GEM) Nurse will be in place at HDMH to assist with system navigation and discharge planning for geriatric ED patients.
- Occupational Therapy (OT), Physiotherapy (PT), and Social Work (SW) resources will be available to support assessment and discharge planning.
- It is anticipated that expanded electronic medical record (EMR) capabilities and further supports will decrease the non-clinical responsibilities of staff and physicians.
- Security Department's presence will increase in the ED and associated workspace will be provided.
- Community mental health will be expanded to provide crisis support beyond the current daytime hours and offer options for mental health care beyond the current limitations, alleviating the number of ED visits by this patient population.
- Primary care will be available within the community beyond the current service of 3 days per week.

Patient Profile

Based on 2019/20 base year data, the following inferences can be made to describe the HDMH ED patients:

- 3,736 ED visits (17%) were by patients under the age of 18.
- 10,780 ED visits (51%) were by patients between the ages of 18-59.
- 7,489 or 34% of the total ED visits were 60 years of age and older; and of these 2,079 or 28% are 80 years of age and older.

- Mental Health visits continue to increase, year over year. The 2019/20 data showed 591 visits to the ED for patients with a Most Responsible Diagnosis of Mental Health. In 2021/22 there were 881 visits.
- 591 visits or 3% of total ED visits have a Most Responsive Diagnosis of Mental Health; 21% of these patients present with substance misuse issues.

Table 1. Presenting Diagnosis

		2017/18	2018/19	2019/20
Total		**7,174**	**7,482**	**7,687**
1	Contusion/Abrasion	1,031	988	1,109
2	Pain: Abdominal	1,045	1,027	935
3	Fracture Sprain Strain & Dislocation	785	714	761
4	Chest Pain	870	838	759
5	Open Wounds: Extremities	860	759	799
6	Urinary Tract Infections	713	786	686
7	Skin Disorders: Minor	471	575	560
8	Upper Respiratory Infection	661	547	601
9	Screening & Observation for Suspected Conditions	155	608	969
10	Back Problems	583	640	508

Scope of Services (Current and Projected)

The ED triages, assesses, and treats unscheduled emergency patients 24/7 with complete physician coverage. Services will continue to include, but are not limited to, the following:

- Trauma management and resuscitation
- Stabilization and transfer of critically ill patients requiring resources not available at HDMH
- Assessment and initial treatment of life threatening and/or major injuries or acute illnesses
- Assessment and treatment of non-critical emergency conditions (minor injuries, lacerations, fevers, etc.)
- Examinations, diagnostic testing, treatments, and referrals
- Collaborating with clinical support services needed to assist in diagnosis to ensure timely testing and results required to support clinical decision-making
- Assessment and stabilization of mental health patients, and appropriate disposition

- Observation of patients for up to 18-24 hours as required for clinical decision-making, followed by transfer to the appropriate hospital, admission, or, in some cases, discharge
- Patient education and counselling for self-care management and follow-up
- Discharge planning including linkages to available community resources such as Home and Community Care and Community Mental Health Services
- Participation in medication reconciliation
- Providing rapid access services to non-urgent patients
- Setting, splinting, and casting of fractured bones and dislocation of joints.

The table that follows describes the current and planned number of patient treatment spaces for the 2029/2030 planning horizon.

Table 2. Treatment Spaces

Category	*Current* 2019/20	*Projected* 2031/32
Total Patient Spaces	**17**	**22**
Acute Care Zone	3	2
General Care & Observation Zone[1]	11	13
Rapid Access Zone	3	7

Note:

1. General Care & Observation Zone includes 2 Mental Health rooms. Overflow can be accommodated in other rooms in this zone.

Education

The ED will continue to provide opportunities for the education of numerous individuals, including, but not limited to:

- Medical students and residents with the Northern Ontario School of Medicine (NOSM)
- Physician assistants
- Nursing and nursing students
- Allied Health professionals (including OT, PT, Respiratory Therapy [RT], and SW)
- Pharmacy residents/students
- Co-op students
- Paramedics.

Research

Not applicable to this component.

Linkages/ Partnerships

Key internal linkages include:

- DI
- Acute Inpatient Units
- Obstetrics
- Stroke Unit
- Intensive Care Unit (ICU)
- Allied Health Services including OT, PT and SW
- Laboratory Services
- Pharmacy Services.

Key external linkages to local health service partners are included in the following table.

Table 3. Linkages and Partnerships

Linkages/Partnerships	Description
Ontario Provincial Police (OPP)	Support with safety threats
Muskoka Paramedic Services	Arrival with patients; transfers to other providers
Home & Community Care	Assessments for patients requiring home care services, facilitating discharge
CCSO/Ornge Transfers	Guidelines/standards/resources/ambulance service and medical transfers
Victims' Services	Support for patients
Children's Aid Services (CAS)	Assistance with suspected abuse cases
Canadian Mental Health Association (CMHA) Crisis Workers	Assistance with mental health patients
Federal Nursing Station	Referrals for indigenous patients
Corrections Canada	Prisoners' escorts

Workload (Current and Projected)

Table 4. Historical and Projected Workload

		Historical			Projected
Emergency Department	**Acuity (eCTAS)**	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Total Annual Visits		23,668	22,758	22,005	24,462
	Level 1	66	80	113	136
	Level 2	3,325	3,658	3,637	4,272
	Level 3	10,050	9,897	10,096	11,891
	Level 4	9,734	8,728	6,459	6,459
	Level 5	484	389	1,672	1,672
	Other	9	6	28	32

Note: mental health volumes have increased by 40% since 2019/20 and volume of CTAS 2 patients has increased by almost 200 visits per year (2022/23).

Operational Description

Organization and Management

The Emergency Department is managed by a Clinical Lead who reports to the Corporate Manager of ED. The Chief of Emergency Department oversees the physicians who provide ED coverage.

Hours of Operation

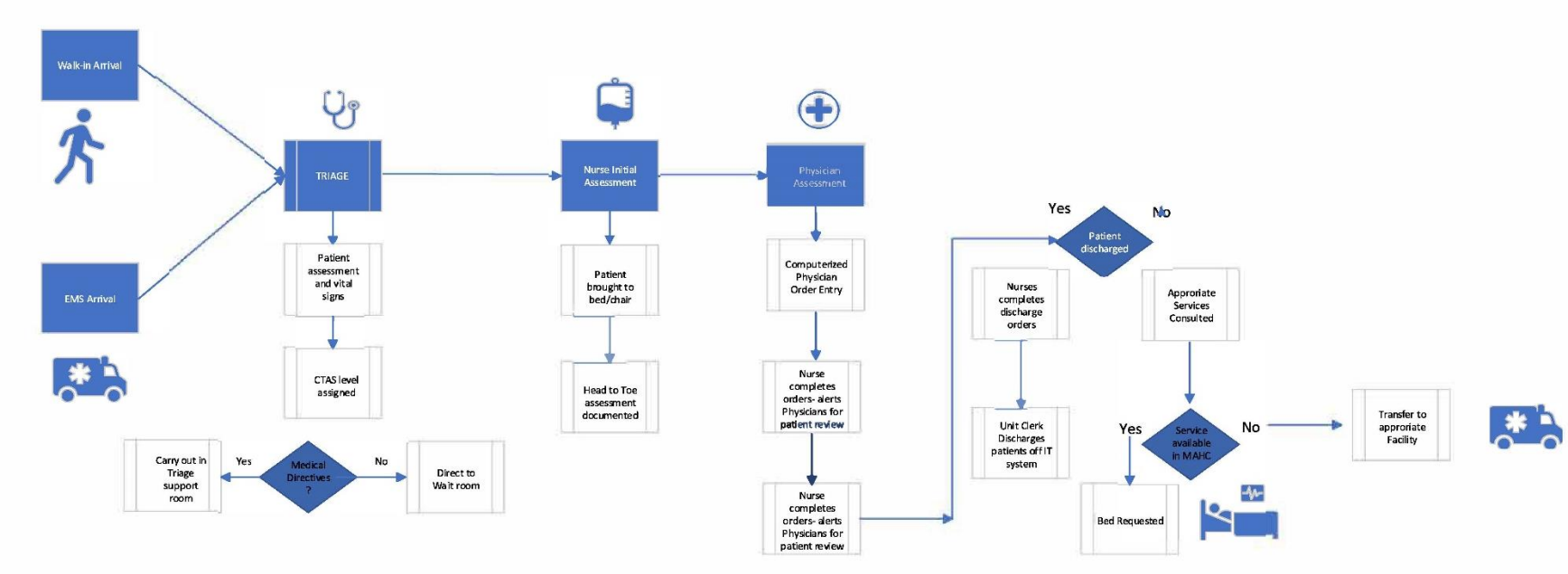
Current and future hours of operation are noted in the table below.

Table 5. Hours of Operation

	Current			Projected		
	Weekdays	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
ED	24 hours	24 hours	24 hours	24 hours	24 hours	24 hours

Workflow

The following workflow diagram summarizes the desired future workflow for both walk-in patient arrival and patients arriving by ambulance.



Patient Registration

In the future, registration will occur in one of four locations: online/mobile app, at the self-registration kiosk, or at the chair/bedside. All other registration activities such as payment transactions, funeral release, etc. will be carried out at the main registration desk.

Paediatric Patients

Generally, paediatric patients will follow the same workflows as adult patients: however, certain Exam/Treatment Rooms will be designed to be paediatric friendly.

Patients Arriving with Known or Suspected Infectious Disease

Self-screening of infectious diseases will occur when patients arrive at the Walk-in Entrance. The Walk-in Entrance will have an Infection Control Kiosk with hand sanitizer and masks for those patients presenting with a cough or other defined symptoms. The Triage RN will also perform screening at the patient's initial assessment.

If a patient requires isolation, the patient will be escorted directly to an appropriate treatment space, depending on their CTAS Level and urgency.

Patients can be separated within the Waiting Room if designed appropriately.

Patients Arriving Requiring Decontamination

Patients requiring decontamination will be assisted by ambulance personnel and/or nurses as required. Patients may be required to use decontamination showers in the Ambulance Bay. Patients will then enter the Decontamination Room from the bay and be washed down before being brought to an appropriate treatment space. If a patient is off gassing, they must stay in the Decontamination Room or be moved into an airborne isolation room (AIR).

If walk-in patients requiring decontamination present themselves at the Walk-in Entrance, they will be directed back outside to the decontamination entrance in the Ambulance Bay.

Patients Arriving - Victims of Sexual Assault

Patients who are victims of sexual assault will follow the same workflows as other patients. After initial assessment and once medically cleared, the patient will be referred to Orillia, MAHC's regional partner.

Patients Arriving with a Primary Mental Health or Substance Use Diagnosis

Generally, adult patients with a primary mental health diagnosis, will follow the same workflows as other patients. They will be triaged by an RN to determine their status. They will be directed to the most appropriate safe space.

Following the initial physician assessment and initial diagnostics, patients who can be medically cleared after initial physician assessment, but who still require additional mental health resources, will be referred to a community resource or held for transfer to an inpatient psychiatry service. Patients who cannot be medically cleared after initial assessment, will remain in the most appropriate Treatment Room e.g., Mental Health room, ICU.

Paediatric patients (16 years and under) with a primary mental health diagnosis, will follow the same workflows as the adult patients.

Aggressive Patients and/or Patients Arriving with Police

If a patient arrives with OPP (with or without restraints) they will quickly be assessed by an RN in the mental health safe room, near the Ambulance Entrance, and then would be expedited to the most appropriate Treatment Room where Triage and registration will take place. Additionally, if a patient arrives on their own and is aggressive or becomes aggressive, they will also be expedited to a mental health safe room, prior to Triage and diagnostics. MAHC Security will be called to assist with the movement of aggressive/restrained patients within the ED.

Patient Care & Discharge

Patient care will be coordinated primarily through the nurse and and/or Emergency Physician.

Telehealth and virtual health technologies will be available in all patient treatment zones to enable all care provider consults as required, including RAZ.

Cardiac/Central monitoring will be available for the General Care & Observation Zone and the Acute Treatment Zone.

Medical directives are initiated upon patient arrival and followed until patient discharge for some patient populations presenting to the ED.

CTAS Levels 4 and 5 will be cared for in the RAZ following Triage.

CTAS Level 3 will be cared for in the General Care and Observation Zone, and a small proportion in RAZ.

CTAS Levels 1 and 2 will be cared for in the Acute Treatment Zone and potentially in the Trauma/Resuscitation Room.

The decision to discharge is at the discretion of the ED Physician. Discharge from the ED may be to the following destinations:

- Discharged to leave the ED with discharge instructions emailed to the patient and the discharge report sent to the patient's family physician, from the EMR
- Transfer to another facility
- Admission to an inpatient bed
- Emergency surgery
- Morgue.

Deceased patients (with the exception of Coroner's cases and for specific religious practices) will be prepared for transport to the Morgue by clinical staff. The patient's personal effects will be given to the patient's family (or the patient's family is called to claim items) or will be transported with the patient to the Morgue. In instances where a Coroner is required, a deceased patient will remain in their treatment space until the Coroner comes to transport the patient. For religious reasons, some patients will be transported directly from the ED by vehicle to another location (such as a mosque).

General Support Activities

Diagnostic & Therapeutic Services

Most patients requiring DI testing will be ambulatory and will walk to and from the DI department unaided. If the patient is not ambulatory, DI Porter Aides will transport patients to and from DI or they will be escorted by clinical staff if unstable.

Blood will be drawn by nursing and Laboratory staff and transported to the Laboratory via a pneumatic tube system. POCT will be carried out in the ED, potentially by Lab staff.

Pharmaceutical Services

All medication and central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in automated dispensing units (ADU). Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. To support patient safety, the work area will accommodate up to two clinical staff members with carts at one time. Medication carts must be locked in a secure space when not in use.

The clinical pharmacy staff will support the Care Team, completing medication reconciliation immediately following Triage, either in person or electronically. Throughout the ED, the clinical pharmacist will be available to assist with care planning, changes/substitutions and support student and patient education.

Supplies & Linen

Clean Supply Rooms will include storage systems standardized to MAHC requirements. The Clean Supply Room will be located within the ED to equalize travel time to each treatment space, to as great an extent as possible. PPE supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high density shelving. The delivery cycle will be determined by minimum and par-level stock of all products. For planning purposes, the number of monitored carts will be established with the Materials Management Team. From time to time, the Unit will exceed the daily quota of certain supplies and they will call for the delivery of extra supplies as needed.

Linen carts will be delivered on a regular basis to ED. The carts will be stored in the Clean Supply Room on the Unit. The Clean Supply Room will also accommodate a blanket warmer.

Sterile instrument packs for procedures will be delivered by MDRD and stored in the Clean Supply Room.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to 'point of care' as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

Soiled Utility Rooms will be distributed throughout the zones. The Soiled Utility Rooms will accommodate:

- A designated area for used instruments for collection and return to MDR (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)
- Bins/transfer carts for linen, recyclables, medical waste, and general waste
- A disposal unit for liquid waste.

EVS Transport Staff will continue to collect waste, recycling and dirty linen from the Unit.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, will be covered for transport.

Equipment

Stored in the patient care areas:

- Emergency/crash carts for resuscitation, difficult airways (3 adult and 1 paediatric). These are monitored by the nursing staff with support from RT and Pharmacy to ensure supplies/medications are replenished and updated.
- A designated number of pumps, monitors, respirators and other powered equipment will be stored in a central location within the treatment area.
- Large devices on wheels e.g., ambulatory support devices, patient lifts, blanket warmer, treatment carts (casting, ENT, others) will be stored in designated alcoves.
- Ice machine for treatment, potentially within the Nourishment Station.
- Point of Care Ultrasound (2).
- ECG machines (4+).

Medical equipment, IV poles, commodes will be stored in an enclosed room. Carts, mobile shelves, peg boards and open floorspace will be allocated to maximize the efficiency of the area.

The configuration of the Equipment Room will accommodate cross circulation from opposing entries to facilitate access and retrieval of equipment. Access to a power bar or multiple outlets at waist height will be used to maintain or recharge any electronic equipment.

Environmental Services

Cleaning will be carried out by EVS. They will utilize the Housekeeping Closet provided within ED. EVS will assist with the turnover of patient spaces and cleaning of equipment.

Nourishment and Meals

A Nourishment Station will be available in ED for staff to access ice, water and snacks to assist with patient well-being. Stocking and upkeep will be managed by Food Services.

Patient Transport

Nursing staff and attendants are responsible for patient transfer within the hospital. MAHC will consider the addition of porters for the future.

Administration & Staff Spaces

The Unit Clerk and Unit Coordinator (Charge Nurse) will maintain responsibility for daily activity in ED from a centralized Care Team Station. Adjacent to the Care Team Station will be a Care Planning Room with a table and seating and shared workstations. These shared workstations will be available for Allied Health professionals, nursing and medical staff, students and other external partners.

The Unit will have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

Offices will be provided for the Chief of Emergency Medicine, Clinical Lead, Clinical Nurse Educator and the ED Manager. **Allocation of staff spaces will follow the corporate model.**

Staff will share a common, gender-neutral locker room within the building. The external linen provider provides scrubs for the ED. These will be stored in a scrub dispenser machine within the locker room. A shared staff Lounge will be available.

Security Services

Security will have a workstation in the ED. Closed-circuit television (CCTV) cameras will be located at the entrances, Waiting Room, Medication Rooms and Mental Health rooms. Mobile duress buttons will be provided for staff, physicians and volunteers. Fixed Code White buttons/pull stations will be located in high-risk areas.

Enabling Technologies

Information Systems

Clinical documentation, including orders for medications, labs and diagnostic tests will occur in MAHC's Health Information System (HIS). This system will be fully integrated to optimize patient safety, facilitate easier patient access to their health information, standardize assessment and workflows for clinicians and remove any technological barriers that prevent timely care.

Key components of the system include:

- Standardized electronic documentation to facilitate inter-professional collaboration and connections with community resources
- Computerized Provider Order Entry (CPOE) with clinical decision support
- Patient portal with access to their health information, questionnaires and e-scheduling
- Voice dictation at source
- Mobile computing
- Real-time tracking
- Electronic referrals platform
- Virtual care
- Data privacy and security.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the ED. In each treatment station there will be Wi-Fi for patient use in accessing the internet. Electronic dashboards will be utilized which can display clinical information from Cerner HIS. Bedside terminals will provide the following capabilities and services:

- Educational content
- Electronic health record
- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

Virtual Care

ED treatment stations will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting Rooms will be equipped with digital displays, video- and teleconferencing capabilities and presentation inputs to provide flexible and adaptable collaboration spaces. Ontario Telemedicine Network (OTN) facilitates assessments and consultations.

Communication Systems

The ED will be equipped with a state-of-the-art communications system in order to facilitate activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff to staff wearable communication technology (e.g., Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 6. Current and Projected Staffing

	Current	Projected			
Category	**2022/23 FTE**	**2031/32 FTE**	**2031/32 Headcount/Day**	**2031/32 Headcount/ Evening**	**2031/32 Headcount/Night**
Total	30.38	62.34	18	11	11
Ward Clerk	2.25	5.04	1	1	1
Clinical Lead	0.50	1.40	1	0	0
Manager	0.50	0.50	1	0	0
RN	22.19	30.24	6	6	6
NP	1.00	1.40	1	0	0
RPN	2.44	15.12	3	3	3
PSW	0.00	5.04	1	1	1
Clinical Educator/Clinical Scholar	0.50	1.00	1	0	0
Mental Health Navigator	0.50	1.00	1	0	0
Indigenous Patient Navigator	0.50	1.00	1	0	0
GEM Nurse	0.00	1.00	1	0	0

Notes:

1. Manager shared between sites.
2. HCC and Seniors Assessment and Support Outreach Team (SASOT) staff will often work in the ED.
3. OT and PT staff will consult within the ED. See Inpatient components for staffing.
4. Spiritual Care staff will provide support within the ED. See Main Lobby component for staffing.
5. RT staff will support the ED. See Critical Care component for staffing.

Design Objectives

Locations and Adjacencies

This component should have the following adjacencies in priority order:

1. The component should be located adjacent to DI and should have access via service circulation for the quick and safe movement of patients (who may be gowned) and for collaboration of staff.
2. The component should have proximate access to and from the inpatient units (Medical/Surgical, Critical Care) via vertical patient circulation for the movement of patients and collaboration of staff.
3. The component should have proximate access to the Morgue via service circulation.

Internal Organization

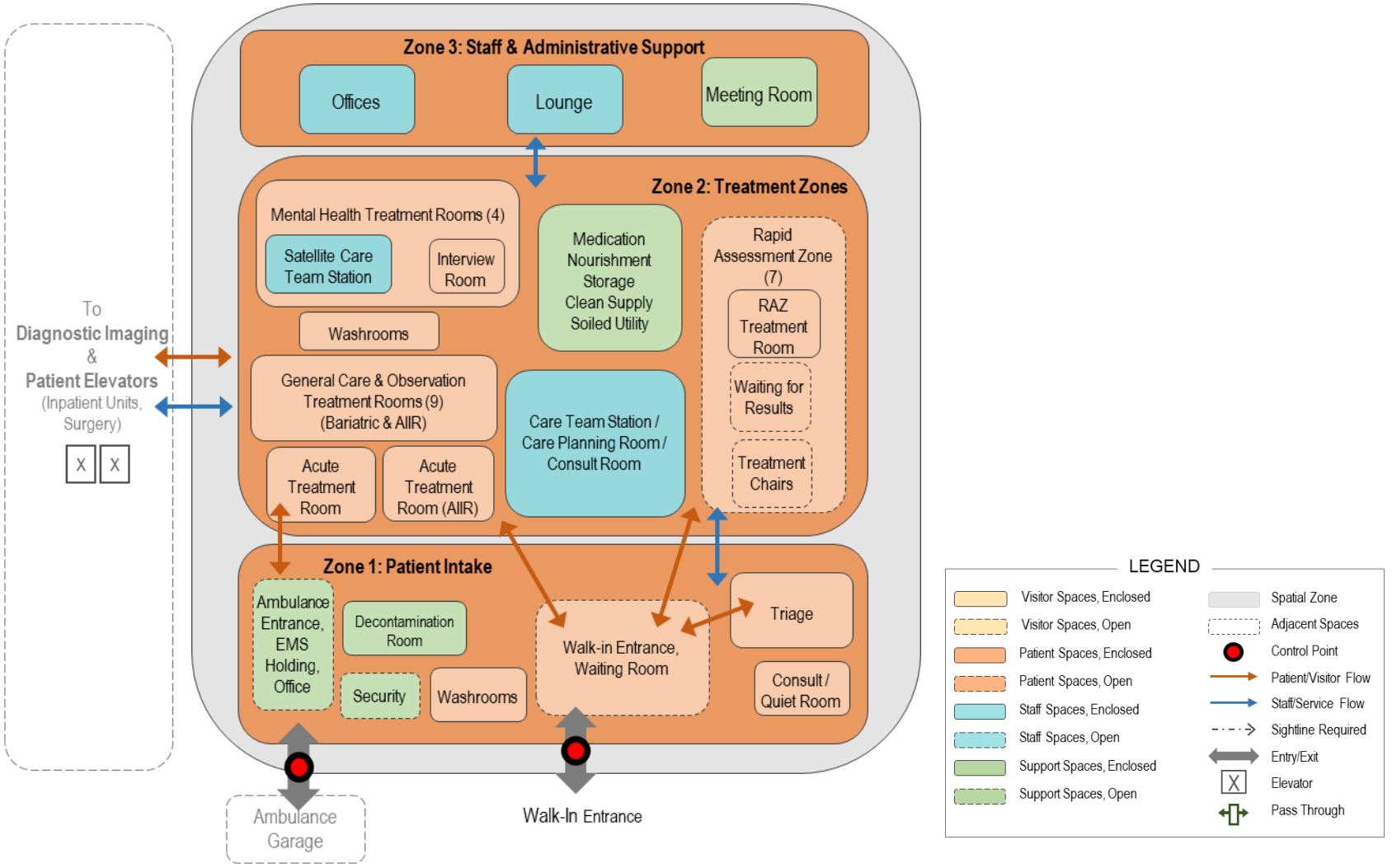
The ED shall be organized into three zones: Patient Intake Zone, Treatment Zone and Staff/Administrative Zone which will share a central Care Team Station and Support Spaces.

The Treatment Zone will be further divided into:

1. RAZ
2. General Care & Observation, including Mental Health. There should be the ability to close off the corridor to the Mental Health rooms for safety and acoustics, but also the ability to open up the corridor to allow for use of these rooms for other types of patients, as required. A direct and expeditious route to the Mental Health rooms from the Ambulance Entrance is important.
3. Acute Care which should be directly adjacent to the Ambulance Entrance.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

Infection Control in the ED will be supported with:

- Zoning of the space to minimize cross circulation of patients
- Private enclosed treatment spaces for all acute patients
- Availability and effective location of AIIRs as follows: one in the Acute Treatment Zone and one in the General Care & Observation Zone
- Separating locations of acute care patient care areas from non-acute patient care areas
- Distribution of PPE in appropriate sizes on carts or purpose-built cabinets at all public entries and throughout the Treatment Rooms.
- All patient treatment spaces will have hand hygiene sinks immediately available to entering clinicians, within view of the patient. For open treatment areas a minimum of one hand hygiene sink per three patients will be provided.

Staff hand hygiene sinks will also be provided at:

- Care Team Station
- Medication Room
- Soiled Utility Room
- Clean Supply Room
- Housekeeping Room.

Important considerations include:

- Separation of clean and soiled materials
- Transportation routes for soiled materials separate from public corridors, when possible
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment within rooms.

Wayfinding

The ED's Walk-in Entrance is frequently designated as the facility's 24-hour entrance. Access from this point to the public elevators for patients, particularly expecting mothers or family responding to emergent developments should be direct, easy and supplemented by effectively placed signage.

Wayfinding should be intuitive between Triage, the patient care zones and DI.

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit. Wayfinding should be designed to address the visual challenges some patients may be experiencing.

Accessibility & Corridor Design

Access to all public spaces, including washrooms and treatment spaces, must be accessible. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

A ceiling-mounted patient lift will be provided in each patient room.

Acoustic

Every effort must be made to maintain a quiet environment in spite of the sounds of equipment and staff working in the ED. Acoustic privacy between patient treatment spaces is mandatory. Appropriate sound dampening techniques including insulation, and, in some situations, mechanical support may be considered, i.e., white noise.

Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors. Opportunities to bring natural light and views to circulation within the ED will be important to staff working in this component.

Medical Gases

Medical gases (oxygen, air, and suction) will be provided at each patient treatment station. The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

Patient Privacy

Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.

Lighting

Lighting shall be designed to meet the clinical activities performed in an ED. Patient comfort must also be addressed, including patient-controlled lighting.

Lighting at staff work areas must be carefully considered to limit eye strain.

Ergonomic Considerations	Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.
Security	The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design. The configuration of the ED will ensure that Care Team time with the patient is maximized and that travel time to support spaces is minimized. Visualization of the patient treatment stations from the Care Team Station(s) should be achieved to as great an extent as possible. A second secure entrance/exit will be required for delivery/removal of material and also allow staff an alternate route out of the ED. Each patient space will be equipped with a Code Blue call button.
Codes & Standards	In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 7. *Space Table*

			Component Gross Area (CGSF / CGSM) - Ambulance Garage				**(2,520)**				**(234.1)**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				1,680				156.1		
			Component Gross Area (CGSF / CGSM) - Emergency Department				**13,220**				**1228.2**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				8,812				793.1		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Ambulance Garage (Exterior)			**subtotal net area**				**subtotal net area**				
04	.001		Ambulance Garage			1,680		-		156.1		0.0		External. Plus parking for 2 other vehicles
		.01	*- bay, ambulance, law enforcement*	*4*	*420*				*39.0*					Four - 12' X 35' bays; enclosed low-level heating in winter
			Zone 1: Patient Intake Zone			**subtotal net area**		**2,105**		**subtotal net area**		**195.6**		
04	.002		Ambulance Entrance			210	1	210		19.5	1	19.5		
		.01	*- vestibule*	*1*	*120*				*11.1*					
		.02	*- wheelchair/stretcher alcove*	*1*	*90*				*8.4*				Assumes space for 2 stretchers, 4 stackable wheelchairs	
04	.003		Decontamination Room			135	1	135		12.5	1	12.5		
		.01	*- decontamination room*	*1*	*80*				*7.4*					Directly accessible from Ambulance Bay
		.02	*- anteroom*	*1*	*55*				*5.1*					Includes hand hygiene sink
04	.004		EMS Holding			190	1	190		17.7	1	17.7		
		.01	*- stretcher, patient holding*	*2*	*80*				*7.4*					Includes drop down work surface
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.03	*- alcove, linen/supplies*	*1*	*20*				*1.9*					
04	.005		Office, EMS/Police/Staff			100	1	100		9.3	1	9.3		
04	.006		Washroom, EMS/Police/Staff			50	1	50		4.6	1	4.6		
04	.007		Washroom, Patient, Accessible			60	1	60		5.6	1	5.6		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
04	.008		Walk-in Entrance			180	1	180		16.7	1	16.7		
		.01	*- vestibule*	*1*	*100*				*9.3*					
		.02	*- self registration kiosk*	*1*	*10*				*0.9*					
		.03	*- wheelchair/stretcher alcove*	*1*	*70*				*6.5*					Accessible for Triage Nurse
04	.009		Workstation, Security			50	1	50		4.6	1	4.6		Work surface with computer terminal & viewing screens (2)
04	.010		Waiting Room			475	1	475		44.1	1	44.1	Based on 41 patients during peak hours (8)	
		.01	*- information display*	*1*	*5*				*0.5*					Wall-mounted
		.02	*- seat, standard*	*12*	*20*				*1.9*					Integrate outlets for charging devices
		.03	*- wheelchair/scooter/bariatric*	*6*	*30*				*2.8*					
		.04	*- vending machine*	*2*	*20*				*1.9*					
		.05	*- telephone(s)*	*1*	*10*				*0.9*					
04	.011		Washroom, Public, Accessible			60	2	120		5.6	2	11.1		
04	.012		Triage			395	1	395		36.7	1	36.7		
		.01	*- interview, assessment area*	*2*	*140*				*13.0*					
		.02	*- secure alcove, equipment storage*	*1*	*30*				*2.8*				For portable oxygen tank(s), stretcher, wheelchairs, ECG	
		.03	*- alcove, linen/supplies*	*1*	*20*				*1.9*					
		.04	*- ECG*	*1*	*65*				*6.0*					
04	.013		Consult Room/Quiet Room			140	1	140		13.0	1	13.0		Access from public and treatment areas
04	.014		left intentionally blank											
04	.015		left intentionally blank											
			Zone 2: Treatment Zones			**subtotal net area**		**5,685**		**subtotal net area**		**517.5**		
04	.016		Care Team Station			340	1	340		31.6	1	31.6		
		.01	*- workstation, charge nurse*	*1*	*50*				*4.6*					
		.02	*- workstation, unit clerk*	*1*	*50*				*4.6*					
		.03	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.04	*- workstation, stand-up - teaching space*	*2*	*30*				*2.8*					
		.05	*- central monitors and office equipment*	*1*	*30*				*2.8*					
		.06	*- pneumatic tube*	*1*	*20*				*1.9*					
		.07	*- hand hygiene sink*	*1*	*10*				*0.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.08	*- congregation*	*1*	*60*				*5.6*					
04	.017		Care Planning Room			355	1	355		22.3	1	22.3	For use by Allied Health, community partners, clinical staff	
		.01	*- workstations*	*8*	*30*				*2.8*					
		.02	*- table and chairs*	*1*	*75*									
		.03	*- workstation, telephone privacy*	*1*	*40*									Enclosed
04	.018		Rapid Assessment Zone (RAZ)			810	1	810		75.3	1	75.3		
		.01	*- seat, standard chairs*	*7*	*20*				*1.9*					
		.02	*- seat, bariatric*	*1*	*30*				*2.8*					
		.03	*- treatment chair bays*	*5*	*90*				*8.4*					
		.04	*- treatment stretcher bay*	*1*	*110*				*10.2*					
		.05	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.06	*- hand hygiene sink*	*2*	*10*				*0.9*					
04	.019		RAZ Treatment Room			140	1	140		13.0	1	13.0	For Rapid Assessment. e.g., gyne patients	Fully enclosed
04	.020		Acute Treatment Room			250	1	250		23.2	1	23.2		Directly adjacent to Ambulance Entrance
		.01	*- patient stretcher area*	*1*	*200*				*18.6*					Provide clear floor area
		.02	*- alcove, workstation*	*1*	*30*				*2.8*					
		.03	*- alcove, hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- storage, supply cart*	*1*	*10*				*0.9*					
04	.021		Acute Treatment Room, AIIR			280	1	280		26.0	1	26.0		Directly adjacent to Ambulance Entrance
		.01	*- patient stretcher area*	*1*	*140*				*13.0*					
		.02	*- washroom, 2 piece*	*1*	*60*				*5.6*					Door opens into the room
		.03	*- anteroom*	*1*	*80*				*7.4*					
04	.022		Treatment Room, General Care & Observation			130	9	1,170		12.1	9	108.7		Enclosed with breakaway doors, documentation at bedside
		.01	*- patient stretcher area*	*1*	*120*				*11.1*					
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					
04	.023		Treatment Room, General Care & Observation, Bariatric			150	1	150		13.9	1	13.9		Enclosed with breakaway doors, documentation at bedside
		.01	*- patient stretcher area*	*1*	*140*				*13.0*					
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
04	.024		Treatment Room, General Care & Observation AIIR			280	1	280		26.0	1	26.0		Locate directly adjacent to Acute
		.01	*- patient stretcher area*	*1*	*140*				*13.0*					
		.02	*- washroom, 2 piece*	*1*	*60*				*5.6*					Door opens into the room
		.03	*- anteroom*	*1*	*80*				*7.4*					
04	.025		Washroom, Patient, Accessible			60	2	120		5.6	2	11.1		
04	.026		Treatment Room, Mental Health			140	2	280		13.0	2	26.0		Secure design. Provide medical gases within securable, tamper resistant cabinet. Two means of egress. In-room toilet and sink with adjustable plumbing connections. Doors to potentially separate this area from other General Care & Observation Rooms
04	.027		Satellite Care Team Station			70	1	70		6.5	1	6.5		
		.01	*- workstation*	*1*	*50*				*4.6*					
		.02	*- cabinets, above and below counter*	*1*	*10*				*0.9*				For blankets, restraints etc.	
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
04	.028		Interview Room, Crisis Support, Navigation			120	1	120		11.1	1	11.1		
04	.029		Washroom, Patient, with Shower			65	1	65		6.0	1	6.0		Locate adjacent to Mental Health rooms
04	.030		Medication Room			130	1	130		12.1	1	12.1		Locate with direct access to the Care Team Station
		.01	*- automated dispensing unit (ADU)*	*1*	*50*				*4.6*					
		.02	*- refrigerator(s)*	*2*	*10*				*0.9*					
		.03	*- medication carts*	*2*	*10*				*0.9*					
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.05	*- countertop workspace*	*1*	*30*				*2.8*					
04	.031		Nourishment Centre			105	1	105		9.8	1	9.8		
04	.032		Point of Care Testing			30	1	30		2.8	1	2.8		
04	.033		Carts, Emergency			20	4	80		1.9	4	7.4		Three adult, one paediatric
04	.034		Alcove, Carts			15	2	30		1.4	2	2.8	For Ultrasound, ECG	
04	.035		Equipment Storage			30	3	90		2.8	3	8.4	For treatment carts, mobile X-Ray, stretchers	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
04	.036		Equipment Room			120	1	120		11.1	1	11.1	For pumps, IV poles, commodes	
04	.037		Clean Supply Room			120	2	240		11.1	2	22.3		
04	.038		Soiled Utility Room			130	2	260		12.1	2	24.2		
04	.039		Washroom, Staff			50	1	50		4.6	1	4.6		
04	.040		Housekeeping Room			120	1	120		11.1	1	11.1		
04	.041		left intentionally blank											
			Zone 3: Staff & Administrative Support			**subtotal net area**		**1,022**		**subtotal net area**		**80.1**		**Sleep Room included in another component.**
04	.042		Office, Shared			100	1	100		9.3	1	9.3	Consultants Office/Multipurpose/Learners, shared	
04	.043		Office, ED Chief			100	1	100		9.3	1	9.3		
04	.044		Offices, Clinical Leadership, shared			140	2	280		13.0	2	26.0		
04	.045		Lounge			332	1	332		30.8	1	30.8		
		.01	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.02	*- kitchenette*	*1*	*60*				*5.6*					
		.03	*- tables and chairs*	*4*	*25*				*2.3*					
		.04	*- soft seating*	*4*	*20*				*1.9*					
		.05	*- workstation*	*1*	*30*				*2.8*					
		.06	*- charging station*	*3*	*4*				*0.4*					
		.07	*- cube lockers, staff*	*20*	*2*				*0.2*					
04	.046		Meeting Room			160	1	160						
04	.047		Washroom, Staff			50	1	50		4.6	1	4.6		
04	.048		left intentionally blank											

05. Facilities Support Services

Functional Description (Current and Projected)

Service Overview

Together, Facilities Support Services are responsible for the upkeep, cleanliness and safety of the new hospital and its grounds. It is important that operations are supported by physical facilities with capacity to accommodate projected workloads and provide safe, accessible and clinically effective environments.

Facilities Support Services includes the departments of Plant Operations and Maintenance, Environmental Services (EVS), and Materials Management. Detailed areas of responsibility include building systems, preventive maintenance, groundskeeping, security, parking, housekeeping, waste management, linen/laundry, purchasing, and shipping and receiving.

There are numerous shortcomings with the existing Facilities Support Services' space which limit the effectiveness and safety of staff. Examples include:

- Lack of redundancy of important building equipment e.g., generators
- Repairs and maintenance must be completed in the physical plant rather than a separate shop area
- Equipment awaiting repair sits in the hallways, blocking traffic and posing a fire hazard
- Clean supply and soiled utility rooms are under-sized
- No separate biomedical waste storage room
- No proper equipment cleaning space
- Insufficient space at the Loading Docks to accommodate skids, breakdown deliveries and set-up equipment
- No separation of clean and soiled Loading Docks
- Lack of a compactor (Huntsville)
- Lack of space for Security personnel in the ED and inappropriate spaces for the safety of staff and mental health patients in ED.

Note: Morgue can be found in the Laboratory Services component. It is currently in a poor location within Receiving, blocking the flow of traffic.

MAHC recognizes the opportunity to achieve efficiencies with Materials Management by establishing one site as the primary receiving site and operating an intercampus transport service to the secondary site. Given its closer proximity to the Greater Toronto Area, the primary site will be SMMH.

Planning Principles and Assumptions

In the future, Facilities Support Services will operate under the following assumptions and operating parameters:

- Proper in-house shops will be provided in order for hospital staff to complete work, due factors such as lack of local tradespeople.
- Fixtures and equipment will be standardized across the two sites to streamline parts and for consistency for Maintenance staff. Building lock systems will be consistent and reflect the latest in security technology.
- The goal will be to design a facility and supportive security infrastructure that creates a feeling of safety for patients, visitors, and staff while remaining a welcoming and inclusive environment. Security strategies will aim to protect personal safety. Systems such as controlled access, cameras and durress buttons will be thoroughly planned to support the corporate approach to prevention and risk mitigation.
- Security will assume responsibility for Lost and Found; Finance will retain responisibility for identifcation (ID) badges.
- Streamlining of responsibilities for parking given it is currently shared with Finance and IT.
- Biomedical Engineering will continue to be outsourced, however, sufficient space will be available in-house for the work of this company as well as other equipment vendors.
- Linen/laundry will continue to be provided by an outside contractor but EVS staff will continue to deliver and collect laundry. Linen deliveries will increase from five days per week to six or seven days.
- In-house laundry will be available for individual items such as slings, kitchen rags, and some patient clothing.
- MAHC's two sites will continue to function with common/mutual contracts, but suppliers will deliver to SMMH. Stores at SMMH will be sized to accommodate volumes for both sites as well as a Supply Cart Holding area for supplies awaiting transport to Huntsville. HDMH will have a small Stores, sized to accommodate back-up/emergency supplies.
- The top-up system will be continued by Materials Management. Clean supply rooms will be stocked with high-density shelving.
- A pneumatic tube system will be utilized for small deliveries as well as Pharmacy and Laboratory items.
- Portering will be explored as a formal role within the organization.
- A real-time locating system (RTLS) will be used to track equipment.
- Clean rooms, soiled rooms, Storage spaces will be adequately sized and located within easy walking distance for staff.
- Meals on Wheels will have access to the kitchen for picking up meals, separate from the Loading Docks.
- The deceased will be picked up from the Morgue, separate from the Loading Docks.

Patient Profile

Not applicable to this component.

Scope of Services (Current and Projected)

Plant Operations and Maintenance encompasses:

- Operation and maintenance of building systems
- Infrastructure projects, capital projects/renovations
- Preventive maintenance
- Painting, plumbing, electrical, carpentry. Some welding and low pressure steam-fitting
- Workplace Hazardous Materials Information System (WHMIS) and Fire Safety
- Groundskeeping and snow removal
- Move management
- Equipment repairs
- Security including, but not limited to parking enforcement, Code responses, facility monitoring, building and door access, computer access, swipe card technology, and security cameras. Assistance with Morgue and access by funeral homes
- Parking lot maintenance.

EVS encompasses:

- Housekeeping
- Room turnover and set-up
- Equipment cleaning
- Waste Management
- Project work e.g., floor care, window care
- Terminal cleans
- Delivery and pick-up of linen/laundry.

Materials Management involves:

- Purchasing of supplies and materials, and capital equipment. Contract management. The following departments are responsible for their own purchasing: Pharmacy, Food Services, Plant Operations and Maintenance
- Shipping and receiving
- Stores
- Inventory and distribution
- Receipt of mail from Canada Post and couriers. Distributed by Finance
- Furniture & Equipment Storage.

Security Services will provide monitoring, response, and access for site-related safety activities. The main location for security monitoring will be located as part of the Lobby space, with a satellite location in the Emergency Department. Specific services will include:

- Facility monitoring (via security camera and in person patrols)
- Code responses
- Building and door access
- Parking enforcement/support
- Staff ID card provision
- Lost and found services.

Education

Potential opportunities within Plant Operations and Maintenance.

Research

Not applicable to this component.

Linkages/ Partnerships

By their inherent nature, Facilities Support Services will work closely with every program/service on the hospital site.

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Vendors	Maintenance, projects, upgrades, Waste Management, shredding
Vendor	Laundry supplier
Equipment Suppliers, Service Contracts	Maintenance and repairs, EVS mats
Regional Police	Security
Fire and Emergency Services	Alarm response
Local Prison(s)	Coordination of prisoner escorts, security
Biomedical Engineering	Services
Shared Services Organizations	Joint purchasing

Workload (Current and Projected)

Table 2. Historical and Projected Workload

		Historical				Projected
Component	**Measure**	**2019/20**	**2020**	**2021**	**2022**	**2031/32**
Plant Operations & Maintenance						
Preventive Maintenance Work Orders	Number Annually		343	312	320	672
Corrective Maintenance Work Orders	Number Annually		410	525	553	804
Maintenance Requests	Number Annually		161	160	220	315
Total Square Footage	Building Gross Square Feet (BGSF) (10%)	98,022	98,022	98,022	98,022	191,905
Security						
Security Assistance1	Number of Mental Health Patients, Annually	0	1,646	1,924	0	2,309
Staff Hours1	Daily Total Staff Hours	16-24	36	36	36	60
Code White1	Annual Incidents	0	99	148	141	178
Violence, Incivility, Verbal Abuse1	Annual Incidents	0	106	39	46	127

		Historical				Projected
Component	**Measure**	**2019/20**	**2020**	**2021**	**2022**	**2031/32**
Environmental Services						
Area Cleaned		98,022	98,022	98,022	98,022	191,905
Waste Management (kg)		0	0	0	0	0
Materials Management						
Purchase Orders	Number Annually	3,494	0	3,090	0	4,368
On-Hand Inventory	Dollar Value or SKU's (Stock Keeping Unit)	$ 85,554	$ 0	$ 182,825	$ 0	$ 219,390
Inventory Turnover	Days	10.82	0	7.76	0	12
Stock Items Issued to Departments	Number Weekly	898	0	975	0	1,219
Deliveries - Laundry & Linen	Number Weekly	14	0	14	0	14
Deliveries - Food	Number Weekly	9	0	9	0	9
Deliveries - Supplies	Number Weekly	12	0	12	0	15
Deliveries - Courier	Number Weekly	42	0	42	0	53
Deliveries - Other	Number Weekly	11	0	11	0	14

Note:

1. Calendar years.

Operational Description

Organization and Management

Plant Operations and Maintenance is overseen by a Director of Facilities with the assistance of a Manager of Plant, Facilities and Security. There is a Maintenance Team Lead at each site and a Security Team Lead that oversees both sites.

EVS is overseen by a Director who is assisted by a Manager at each site and a Team Lead at each site.

A Director of Materials Management oversees both sites with a Buyer and Clerks reporting directly to this position.

Security will continue to be under the responsibility of the Manager of Plant, Facilities, and Security.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 3. Hours of Operation

	Current			Projected		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Plant Operations and Maintenance	7:30am-3:30pm On-Call after-hours	On-Call	On-Call	7:30am-3:30pm On-Call after-hours	On-Call	On-Call
Security	24 hours	24 hours	24 hours	24 hours	24 hours	24 hours
EVS	24 hours	24 hours	24 hours	24 hours	24 hours	24 hours
Linen Deliveries	8:00am-4:00pm	-	-	8:00am-4:00pm	8:00am-4:00pm	
Materials Management	8:00am-4:00pm	-	-	8:00am-4:00pm		

Workflow

Plant Operations and Maintenance

Facilities management staff will monitor the building systems and environmental controls electronically, viewing the status from anywhere in the building and remotely. Large display screens within the central plant operations area will be available with Building Automation System (BAS) functionality distinct from other software and communications.

Ongoing preventive and minor building maintenance will be provided using in-house shops. The digital requisition system will ensure maintenance requests are sent, assigned, tracked, and resolved using an integrated electronic approach. The current system is shared with Orillia Soldier's Memorial Hospital and requires improvements as a project management tool with streamlined navigation. An independent system is anticipated for the future.

Maintenance would welcome tablets or other technology, connected to the EMR which would allow staff real-time information regarding admissions and discharges, and streamlined communications.

Specialized maintenance and repairs will be coordinated in-house but provided in partnership with external contractors. Facilities Management will secure quotes, execute contracts and monitor completion of work.

Fire Safety will be handled through a centralized monitoring system. Computer workstations will allow for mapping and reporting of issues. It will be integrated with the digital building controls. Fire safety status will be monitored by MAHC Patient Registration/Switchboard and Security will be the first responders to alarms in the hospital.

Equipment requiring repair is red-tagged by hospital staff and then cleaned by EVS prior to movement to Maintenance's pre-repair holding area. Following repair, it is held adjacent to Maintenance, where EVS staff pick it up for cleaning before returning it to the Clinical area.

Security

Safety is a priority at MAHC: for staff, patients and visitors. The hospital's responsibility extends beyond physical and emotional safety to encompass the need for privacy and confidentiality as well. The goal will be to design a facility and supportive security infrastructure that creates a feeling of safety for patients, visitors, and staff while remaining a welcoming and inclusive environment. Security strategies will aim to protect personal safety (both physical and with regards to privacy and confidentiality) as well as equipment and building safety (e.g., theft and damage of hospital materials and equipment).

It is anticipated that a combination of CCTV monitoring, panic buttons (fixed and/or wearable), staff and patient locating, asset tracking systems, swipe card, and other techniques and technology will be utilized. A comprehensive plan for security technology and infrastructure will be developed at a later stage in the process once site and facility layout are confirmed.

Security coverage is important for the whole building but will be of particular importance for the ED. Protocols will be established within all areas for management of security concerns and/or crisis situations.

On-site Security staff will be located within the main lobby, with satellite space in the ED but will perform routine walk arounds and door checks throughout the building during the day. CCTV monitors will be viewable from the Security Office. Automatic door locking and area lockdowns will be facilitated centrally.

Security requests will go to Security staff via Switchboard and/or their radios. The Security staff member will then travel to the area requesting support and assist in the resolution of the issue. Security personnel will complete any required documentation on computers located in the Security workspace.

Codes will be called centrally from Switchboard. On-site Security will be notified automatically of all codes and will lock down any areas of the facility, as may be required.

Lost and found items will be held by Security, awaiting public pick-up. Note: no soft goods will be kept, solely patient/visitor valuables (e.g., phones, wallets, glasses).

Storage of narcotics which patients and members of the public bring on-site is a responsibility of Security, prior to transferring it to the OPP. Proper locked storage and to maintain evidence control capability is required.

Security staff are part of the team which provides pre and post ORNGE helipad inspections. The lighting control for the helipad will be provided centrally.

Parking

Parking will be enforced by Security staff on a 24/7 basis. Security staff will perform routine patrols of the parking areas after-hours and ticket vehicles as required. Maintenance of parking equipment will be managed by the vendor. Note that the HDMH site currently includes external and adjacent partners with some shared site access and parking infrastructure. These parking systems (and ideally access points) will need to be separated during site planning to allow for a separate parking system and traffic flow.

Security Services will provide parking assistance and issuing of parking passes (staff and long-term visitor passes). Passes can also be obtained electronically.

Parking machines (or QR code posting to link to a payment app) will be located within or adjacent to the Main Entry. Quick tap on exit gates will be accommodated as an alternative payment method. Security staff will provide assistance with parking issues – either in person from their station within the ED, or remotely via an intercom system associated with payment kiosks.

Materials Management

Purchasing

Purchasing will provide centralized ordering and purchase order processing and be based at SMMH. They will maintain a roster of suppliers for standard and specialty items. End users will create purchase requisitions using an online requisition process as part of the hospital Management Information System (MIS). Materials Management will then process and manage all purchasing requests. Food Services, Pharmacy and Facilities Management will purchase directly from suppliers. Surgical Services will requisition through Purchasing.

Materials Management staff will scan barcodes on the high-density shelving units in the Clinical areas' clean supply rooms and information will be immediately downloaded, for access by Purchasing and Receiving staff. This will be carried out early in the day at HDMH to enable picking at the SMMH site and loading onto carts for delivery to Huntsville.

Purchasing and Finance will have integrated software, providing Managers with access to electronic requisitioning as well as financial, statistical and budgeting information pertaining to acquisitions and contracts. Stores-issued items will be posted directly to budgets as issued. All stock requirements will be system generated based on point of use consumption.

Supply orders will be automatically generated with established on-hand safety stock levels. These levels are higher than average for other health facilities given the hospital's geographic location.

Receiving and Stores

Receiving is centralized at SMMH. Materials Management staff will enter deliveries in the Materials Management software upon receipt and inspection, at a workstation located in this area.

Items will be de-cased and placed on shelving within the SMMH Stores area.

Some direct or drop shipments will be received at HDMH and will be entered into the system from a workstation close to the Loading Docks. Food Services' supplies and Pharmaceutical products will be delivered directly to the departments at HDMH, and distributed to SMMH by the departments as required.

Utilizing online par levels and inventory status, Materials Management staff will load carts to be taken to the Clinical and Support areas at SMMH or to be held awaiting pick-up and transport to HDMH. Upon arrival at HDMH, the supply carts will be kept in a holding area near the Loading Docks until Materials Management staff can proceed to the clean supply rooms throughout the hospital, and top-up supplies in the high-density shelving. Empty carts will be returned to the Loading Dock, awaiting transport back to SMMH.

The following supplies will be kept in Stores:

- Emergency/back-up medical/surgical including PPE
- Housekeeping
- Auxiliary
- Special storage environments will be needed for gas storage and chemical storage. External bulk oxygen storage will be required.

The dispatch/logistics function will be handled by the Shipper/Receiver at the SMMH site in coordination with the HDMH Storekeepers.

EVS

Housekeeping

Staff (EVS Aides) sign in at the department at the start of their shift and obtain their standard/daily assignment sheets and weekly project assignments. They then proceed to the EVS closet in each Clinical/Support area where their cart and supplies are located. EVS Lead Hands stock the closets from central storage in Materials Management.

Discharge cleaning is currently organized by the EVS Aide with each Unit Clerk at the Team Station(s). Other communications take place via cell phone and texting with Bed Allocation Staff. EVS would welcome tablets or other technology, connected to the EMR which would allow EVS Aides real-time information regarding admissions and discharges, and streamlined communications.

For specialized tasks, housekeeping equipment will be found in equipment rooms located centrally on each floor of the building. There will be a drainage and fill station on each floor. Equipment cleaning will ideally take place in a designated room on each floor, close to the source.

Linen

EVS manages linen inventory and vendor relations. Standard orders are in place for each area. EVS staff deliver the clean linen carts to designated alcoves and collect soiled linens from the soiled utility room on designated carts (3' x 6'). Scrubs are provided by the linen company for Surgical Services, MDRD, ED and Pharmacy. Scrub machines will be implemented for better control of distribution and collection. MDRD uses disposables for the instrument packs and Lab coats are laundered in-house. Laundering of small items such as slings, kitchen towels and security restraints will also be completed in-house.

Waste Management

Garbage is collected from each room by the EVS Aides and stored in bags in the soiled utility rooms. From this point the bags of garbage are collected on a cart by the EVS transport shift for disposal at the soiled Loading Dock(s).

Recycling is collected from the source by EVS Aides and stored in the soiled utility rooms. The EVS transport shift collects the recycling and sorts it into the correct collection bins at the soiled Loading Dock(s).

Hazardous waste is collected by the EVS transport shift and stored in a secured, flammable storage room equipped with sprinklers and a blow-out door, as dictated by the fire code. An external vendor picks up hazardous waste on a regular basis. Chemical pick-up and other expired products (e.g., KCL) is once every six months.

Confidential waste is collected by the EVS transport shift at point of use confidential waste cabinets and stored in larger bins at the soiled Loading Dock(s) for pick-up by the vendor once per month.

Green bin service is available in the community. The hospital currently recycles cooking grease but further participation in the green bin program may take place.

IT waste will be provided near the soiled Loading Dock(s).

Biomedical waste and sharps are placed in designated containers near the point of generation. They are collected by the EVS transport shift. Biomedical waste is stored in a walk-in freezer near the soiled Loading Dock(s) for pick-up by the external vendor. Sharps are stored in a locked cabinet for pick-up by the external vendor.

General Support Activities

Cleaning & Disposal

Plant Operations and Maintenance are responsible for cleaning their own shop and plant areas for safety reasons. EVS will clean all other areas.

Waste removal is completed by EVS. Storage at the Loading Dock is segregated into regular waste, recycling, biomedical, hazardous, and chemical wastes.

Staff Resources

Staff of Facilities Support Services will share a central locker room and central staff lounge/eating area within the building.

Computer station(s) will be provided in the Facilities Support Services' work areas for staff to access communications and training materials.

Enabling Technologies

Information Systems

Software and hardware to facilitate the work of Facilities Support Services is:

- BAS
- Maintenance and EVS online requisition process(es)
- Support for Security infrastructure (e.g. Real-Time Locating Services, parking platform, building monitoring and access systems) will be required
- Cell phones and other mobile devices
- CCTV
- Duress System
- Materials Management/Inventory Management System; integrated with Finance and Purchasing. Including online purchase requisitioning. Bar code scanning capabilities.

Equipment

Key equipment for Facilities Support Services is:

- Linen carts
- Transport carts, including flatbeds
- Industrial washer and dryer
- Patient equipment washer e.g., commodes (see Inpatient Units)
- Cart washer.

Staffing (Current and Projected)

Table 4. Current and Projected Staffing

	Current	Projected			
Category	**2022/23 Total FTE**	**2031/32 Total FTE**	**2031/32 Headcount/ Day**	**2031/32 Headcount/ Evening**	**2031/32 Headcount/ Night**
Total	48.76	73.42	37	13	6
Subtotal, Environmental Services (EVS)	*22.89*	*41.76*	*21*	*8*	*2*
Manager, Support Services (EVS & Food Services)	1.00	1.00	1	0	0
EVS Lead Hand	1.58	1.30	1	0	0
EVS Aide	19.08	38.16	18	8	2
Laundry Aide	1.23	1.60	1	0	0
Subtotal, Plant Operations & Maintenance	*8.00*	*9.00*	*9*	*0*	*0*
Manager, Plant, Facilities and Security	1.00	1.00	1	0	0
Director, Facilities, Operations and Project Management	1.00	1.00	1	0	0
Lead Hand	1.00	1.00	1	0	0
Trade	4.00	5.00	5	0	0
Maintenance Clerk	1.00	1.00	1	0	0
Subtotal, Security	*9.50*	*21.16*	*6*	*4*	*4*
Security Officer	8.50	20.16	4	4	4
Security Lead Hand	0.50	0.50	1	0	0
Security Manager	0.50	0.50	1	0	0

	Current	Projected			
Category	**2022/23 Total FTE**	**2031/32 Total FTE**	**2031/32 Headcount/ Day**	**2031/32 Headcount/ Evening**	**2031/32 Headcount/ Night**
Subtotal, Materials Management	*2.80*	*1.50*	*1*	*1*	*0*
Warehouse Staff	2.80	1.50	1	1	0

Notes:

1. Plant Operations Manager and Director provide service to both sites.
2. Security Lead Hand and Manager provide service to both sites

Design Objectives

Locations and Adjacencies

Facilities Support Services should be adjacent to the service elevators.

Plant and Facilities Operations requires adjacency of General Maintenance Shop and service corridors/elevator, proximity to Receiving docks, and proximity for administration and workshops to outside access by vendors and contractors.

Security requires a workspace in the front lobby area (See Lobby component) and a workspace in the ED (See ED component).

As much as possible, the site layout should support segregation of materials traffic (e.g., delivery and receiving) from public vehicular and pedestrian traffic.

There should be a simple and direct route from the Receiving area to key users (e.g., Nutrition Services, Pharmacy). This route should have as few turns as possible for efficient delivery.

A clear delineation between clean and soiled areas of the Receiving area and related support spaces must be maintained; this includes both locations of spaces and paths of travel.

Internal Adjacencies

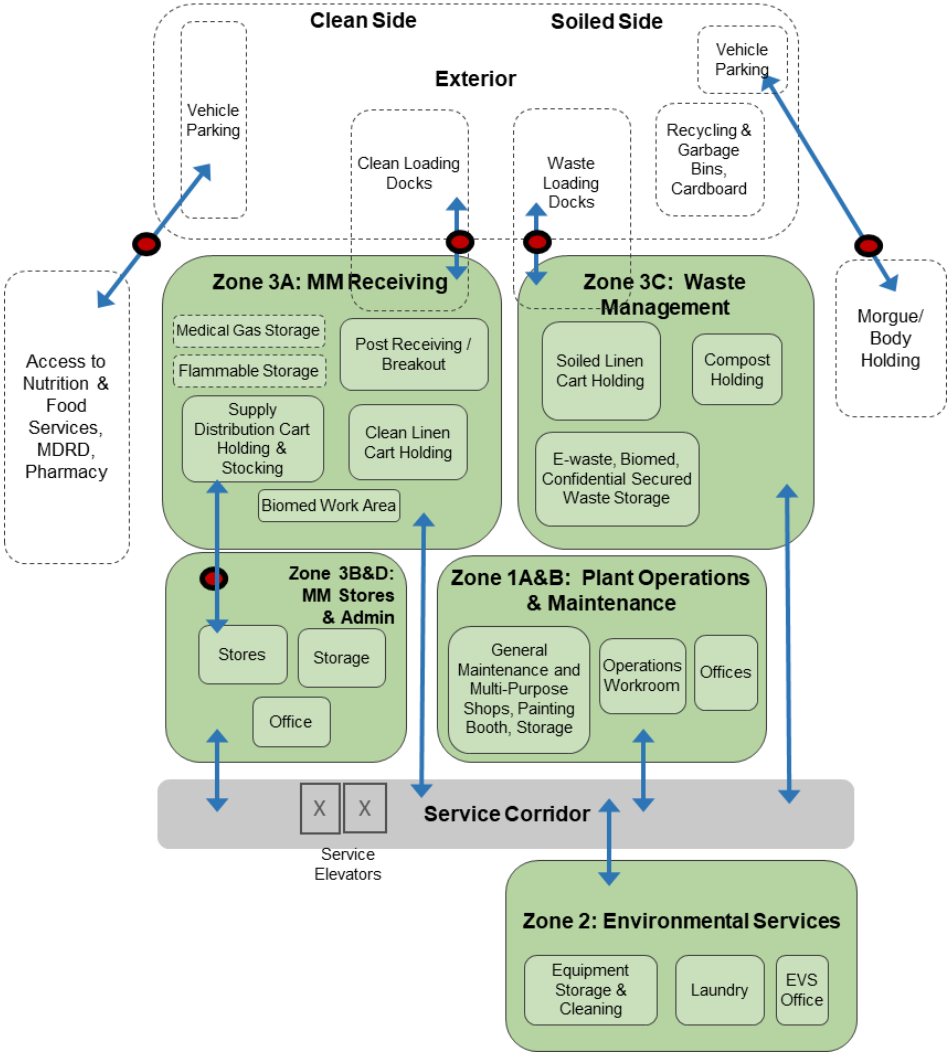
Facilities Support Services has the following subzones:

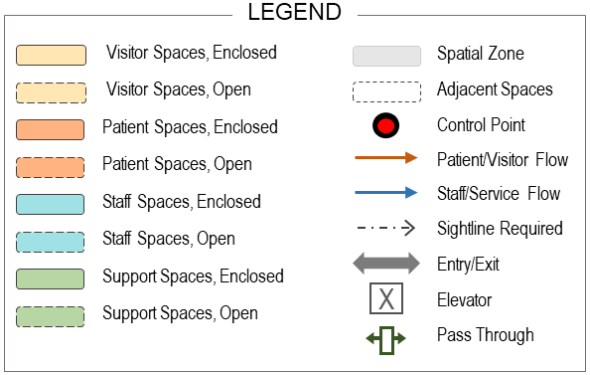
- Zone 1A: Plant Operations and Maintenance Workshops
- Zone 1B: Plant Operations and Maintenance Administration
- Zone 2: Environmental Services

- Zone 3A: Materials Management Receiving
- Zone 3B: Materials Management Stores
- Zone 3C: Waste Management
- Zone 3D: Materials Management Administration.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram





Special Considerations

Service elevators (materials handling, staff) must be a minimum 5,000 lbs (2,268 Kg) capacity with dimensions of 5'-11"W x 8'-4"D, and 4'-6"W x 7'-0"H doors.

Patient transport elevators (patients, staff) must also be minimum 5,000 lbs (2,268 Kg) capacity with slightly different dimensions of 5'-8"W x 9'-0"D, and 4'-0" W x 7'-0"H doors. Consideration should also be given to large platform Patient Transport elevators (6,500 lbs to 8,000 lbs capacity) which can offer wider doors up to 5'-0".

Receiving should accommodate a workstation and have clear sightlines to all truck bays. Additional security measure including video monitoring/cameras must be provided for the Loading Docks, doors and corridors leading to/from the Loading Docks to improve controls during working hours.

Walls, corners and door jambs in and adjacent to the clean Loading Dock, and soiled Loading Dock must have robust protection, such as steel diamond plate, to minimize damage from carts/trolleys, skids, and material handling equipment.

Interior Receiving area should include a secure space for manual and electric material handling equipment.

The service yard leading to the Loading Docks should accommodate 52-ft trailers (63-ft nose-to-tail), with a slope not exceeding 5-degrees.

Features that will contribute to environmental comfort are:

- Noise attenuation strategies, ventilation and safety considerations within the Plant Operations and Maintenance Workshops.
- Ventilation and temperature controls at the Loading Docks and where the Receiving area intersects with the other Materials Management workspaces.
- Covered area for smaller vehicles in addition to Loading Docks.
- Design Plant Operations and Maintenance as open concept, allowing ease of movement for equipment and personnel.
- All Plant Operations and Maintenance shops will be equipped with air compressors, uninterruptable power supply (UPS) systems and on back-up power as required.
- One workbench should have compressed medical air, gases and a fume hood to accommodate Biomedical Engineering work by outside vendors.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 5. *Space Table*

			Component Gross Area (CGSF): TOTAL				**7,660**				**711.6**		
			Component Gross Area (CGSF / CGSM): Facilities Management				**2,100**				**195.1**		
			Net to Gross Ratio				1.15				1.15		
			Total Net Area (NSF / NSM): Facilities Management				1,825				169.5		
			Component Gross Area (CGSF / CGSM): Environmental Services				**1,355**				**125.9**		
			Net to Gross Ratio				1.15				1.15		
			Total Net Area (NSF /. NSM: Environmental Services				1,180				109.6		
			Component Gross Area (CGSF / CGSM): Materials Management				**4,205**				**390.7**		
			Net to Gross Ratio				1.15				1.15		
			Total Net Area (NSF / NSM): Materials Management				3,655				339.6		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Exterior Spaces			**subtotal net area**		**0**		**subtotal net area**		**0.0**		
05			Parking - MAHC Vehicles (1), Contractor Vehicles (5), Meals on Wheels vehicles (15 to 20)			7	-		-	7	-			To be provided on-site. Charging capability for electric vehicles
05			Parking - Landscaping and Snow Removal Vehicles			3	-		-	3	-			To be provided on-site. Charging capability for electric vehicles
05			Snow Storage			1	-		-	1	-		Capacity within the property	
05			Morgue Door & Ramp			1	-		-	1	-			
05			External Recycling & Garbage Bins			5	-		-	5	-			
			Zone 1A: Plant Operations & Maintenance			**subtotal net area**		**1,260**		**subtotal net area**		**117.1**		
05	.001		General Maintenance Shop			640	1	640		59.5	1	59.5		Overhead doors to move full size pallets in and out of shop. Open concept plan
		.01	*- equipment receiving/holding - pre and post repair*	*1*	*220*				*20.4*					Structure for a lift point
		.02	*- workbenches*	*3*	*50*				*4.6*					
		.03	*- general storage*	*1*	*150*				*13.9*				Small parts, lubricants, tapes	
		.04	*- utility sink*	*1*	*20*				*1.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.05	*- tool storage*	*1*	*100*				*9.3*					
05	.002		Multipurpose Shop			400	1	400		37.2	1	37.2	Multipurpose Shop, including Carpentry, Plumbing, Steam-fitting, Electrical	Table saw. Two workbenches along the sides as well as cabinetry and tools
05	.003		Painting Booth			80	1	80		7.4	1	7.4		Locate off of the Multipurpose Shop
05	.004		Inventory Storage			140	1	140		13.0	1	13.0		
		.01	*- air filters/chemical treatment supplies*	*1*	-				*0.0*				Store in mechanical room (20 sf per air handler)	Store in mechanical room (20 sf per air handler)
		.02	*- pumps, fans*	*1*	140				*13.0*				Shelving	Shelving
05	.005		Power Plant Storage			-	1	0			1			Within power plant area
05	.006		left intentionally blank											
			Zone 1B: Plant Operations and Maintenance Administration			**subtotal net area**		**565**		**subtotal net area**		**52.5**		
05	.007		Office, Director			100	1	100		9.3	1	9.3		
05	.008		Office, Manager			100	1	100		9.3	1	9.3		
05	.009		Operations Workroom			365	1	365		33.9	1	33.9		
		.01	*- digital building controls computer station*	*1*	*50*				*4.6*					
		.02	*- fire alarm system*	*1*	*40*				*3.7*					
		.03	*- workstation*	*3*	*50*				*4.6*					Incl. Lead Hand, Clerk, Staff
		.04	*- storage*	*1*	*125*				*11.6*				For files, manuals, drawings	Incl. drafting table and drawings storage
			Zone 2: Environmental Services			**subtotal net area**		**1,180**		**subtotal net area**		**109.6**		
05	.010		EVS Main Office			80	1	80		7.4	1	7.4		
		.01	*- sign-in and workstation*	*2*	*30*				*2.8*					
		.02	*- printer/work area*	*1*	*20*				*1.9*					
05	.011		Office, Supervisor			100	1	100		9.3	1	9.3		Manager's Office is in Nutrition & Food Services component

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
05	.012		Equipment Storage			600	1	600		55.7	1	55.7		Design chemical storage area separately
		.01	*- autoscrubber*	*2*	*30*				*2.8*					
		.02	*- floor polisher*	*2*	*20*				*1.9*					
		.03	*- wet vac*	*1*	*20*				*1.9*					
		.04	*- vacuum/Sodexo*	*2*	*30*				*2.8*					
		.05	*- floor mats*	*1*	*60*				*5.6*					
		.06	*- other mobile equipment*	*1*	*40*				*3.7*					
		.07	*- table, chair*	*1*	*100*				*9.3*					
		.08	*- garbage cans, pads, attachments*	*1*	*60*				*5.6*					
		.09	*- janitors sink incl. Hand hygiene station*	*1*	*20*				*1.9*					
		.10	*- chemical storage*	*1*	*30*				*2.8*					
		.11	*- spill kit storage*	*1*	*10*				*0.9*					
		.12	*- circulation*	*1*	*100*				*9.3*					
05	.013		Equipment Cleaning			220	1	220		20.4	1	20.4		
		.01	*- soiled holding*	*4*	*15*				*1.4*					
		.02	*- spray washer and drainage*	*1*	*100*				*9.3*					Separate room
		.04	*- equipment drying*	*4*	*15*				*1.4*					
05	.014		Laundry			180	1	180		16.7	1	16.7		Plan for a dirty side and a clean side
		.01	*- soiled laundry cart*	*1*	*15*				*1.4*					
		.02	*- industrial washer*	*2*	*15*				*1.4*					E.g., Unimac Model UCT060QN0F
		.03	*- counter*	*1*	*15*				*1.4*					
		.04	*- industrial dryer*	*1*	*20*				*1.9*					E.g., Unimac Model UT075NNN0NX
		.05	*- hanging/drying area*	*1*	*35*				*3.3*					
		.06	*- clean cart*	*1*	*15*				*1.4*					
		.07	*- counter*	*1*	*15*				*1.4*					
		.08	*- circulation*	*1*	*35*				*3.3*					
05	.015		left intentionally blank											
05	.016		left intentionally blank											
			Zone 3A: Materials Management Receiving			**subtotal net area**		**1,780**		**subtotal net area**		**165.4**		
05	.017		Loading Dock (Interior Portion)			570	1	570		53.0	1	53.0		
		.01	*- clean loading dock*	*1*	*130*				*12.1*					With scissor lift
		.02	*- clean loading dock - food services*	*1*	*130*				*12.1*					
		.03	*- waste loading dock - compactor with tipper*	*1*	*130*				*12.1*					
		.04	*- waste loading dock*	*1*	*130*				*12.1*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.05	*- workstation*	*1*	*50*				*4.6*					
		.06	*- exit stair (exterior)*	*0*	*35*				*3.3*					
05	.025		Post Receiving/Breakout			300	1	300		27.9	1	27.9		
05	.018		Clean Linen Carts, Holding			200	1	200		18.6	1	18.6		Enclosed
		.01	*- carts*	*10*	*20*				*1.9*					
05	.019		Supply Distribution Cart Holding & Stocking			360	1	360		33.4	1	33.4	Adjacent to Stores	Enclosed
		.01	*- carts*	*18*	*20*				*1.9*					
05	.020		Flammable Storage			100	1	100		9.3	1	9.3		
05	.021		Medical Gas Storage			100	1	100		9.3	1	9.3	Cylinders for patients, full and empty. Manifolds separate	
05	.022		Biomedical Engineering Work Area			100	1	100		9.3	1	9.3	For vendors	Medical gases and built in bench
05	.023		Washroom, Staff			50	1	50		4.6	1	4.6		
05	.024		left intentionally blank											
			Zone 3B: Materials Management Stores			**subtotal net area**		**1,300**		**subtotal net area**		**120.8**		
05	.026		Stores			700	1	700		65.0	1	65.0		Includes 200 nsf for Housekeeping supplies
05	.027		Storage, Auxiliary			200	1	200		18.6	1	18.6		
05	.028		Storage, Equipment, Shared			400	1	400		37.2	1	37.2		
05	.030		left intentionally blank											
			Zone 3C: Waste Management			**subtotal net area**		**475**		**subtotal net area**		**44.1**		
05	.031		Waste Management			215	1	215		20.0	1	20.0		
		.01	*- recycling bins - outside*	*0*	*40*				*3.7*					Outdoor space. '8' x 8' each
		.02	*- cardboard baler, pallets and storage - outside*	*0*	*180*				*16.7*					Outdoor space. Baler size of 60" x 30", pallets 48" x 48". Twice per week pick-up
		.03	*- waste & cardboard bins - outside*	*0*	*40*				*3.7*					Two-day storage capacity
		.04	*- e-waste*	*1*	*75*				*7.0*					
		.05	*- biohazard walk-in freezer*	*1*	*80*				*7.4*				Biweekly pick-up	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.06	*- confidential secured waste storage*	*1*	*50*				*4.6*					Lockable cage
		.07	*- hand hygiene sink*	*1*	*10*				*0.9*					
05	.032		Compost Holding			60	1	60		5.6	1	5.6		Refrigerated
05	.033		Cart Holding, Soiled Linen			200	1	200		18.6	1	18.6		Enclosed
		.01	*- carts*	*10*	*20*				*1.9*					
05	.034		left intentionally blank											
			Zone 3D: Materials Management Administration			**subtotal net area**		**100**		**subtotal net area**		**9.3**		
05	.035		Office, Shared			100	1	100		9.3	1	9.3		
05	.036		left intentionally blank											

06. Food and Nutrition Services

Functional Description (Current and Projected)

Summary

This Functional Program component provides a description of Food and Nutrition Services within the Huntsville District Memorial Hospital (HDMH). Food and Nutrition Services centrally prepares and assembles meals and nourishments for patients within the Main Kitchen. Once delivered, meal trays are centrally cleaned and sanitized within the Main Kitchen. The Main Kitchen will have capability to support community programming such as Meals on Wheels (MOW). Additionally, the HDMH will prepare, produce and chill bulk meals for South Muskoka inpatient and community meals.

Additionally, the department will re-introduce a staff and visitor cafeteria, in collaboration with Hospital Auxiliary.

Service Overview

This Functional Program component provides a description of Food and Nutrition Services within the Huntsville District Memorial Hospital (HDMH).

Food and Nutrition Services scope will include the following:

- Provision of inpatient meals, nourishments and supplies (including Emergency)
- Snacks and beverages for patients who are not admitted
- Community meals for MOW
- Bulk chilled meals for South Muskoka inpatient and community meals
- Internal catering and vending services
- Prepare meals for the reintroduction of staff and visitor food services (in partnership with Hospital Auxiliary)
- Clinical Nutrition supporting inpatient units, refer to inpatient services functional programs.

Planning Principles and Assumptions

The Food and Nutrition Services Department will be empowered to fully direct its food service needs. Key planning assumptions for this component include the following:

- Full on-site kitchen facilities to support inpatient meals and internal catering (inclusive of storage, preparation, production, assembly, dishwashing and department administration)
- Meal selection facilitated via bedside ordering device or app, supplemented with order facilitation by Nutrition and Food Services Staff
- After-hours soiled trays will reside within on-unit soiled tray alcoves for collection

- On-unit nourishment centres will be staff restricted to support Food Services function for nourishments and stock
- Nourishment alcoves within inpatient units to support patients and visitors with hydration
- Staff and visitor cafeteria, inclusive of seating.

Patient Profile

Nutrition & Food Services will support multiple patient populations including but not limited to Medicine, Surgery, Integrated Stroke, Critical Care, Obstetrics and Reactivation & Complex Medical Management.

Scope of Services (Current and Projected)

The current Food and Nutrition Services model is predicated on producing menu items on-site, supplemented with procurement of selected chilled and frozen pre-prepared items from private and commercial purveyors. Patients are offered a selective menu in compliance with their diet and Food and Nutrition Services staff facilitate meal orders a day in advance of service. Meals are cooked and assembled centrally in advance of service and delivered to inpatient units in carts. Patients received meal trays at bedside. Soiled trays and carts are returned to the Main Kitchen for warewashing.

Going forward, the food service model will be maintained, and patients will continue to be able to make meal selections a day in advance. The department will continue MOW program. The department will prepare, produce and chill bulk meals for South Muskoka inpatient and community meals. Additionally, the department will re-introduce a staff and visitor cafeteria in the future.

Education

Food and Nutrition Services will provide the following education and training opportunities:

- Consult with patients who are at high nutrition risk and support therapeutic interventions for optimal disease management and recovery
- Information through media display, menus, nutritional information, etc.
- Supporting dietetic internship program and dietetic interns.

Standards and care protocols established by the College of Dietitians of Ontario will guide development of programs and services and practice of professional dietetic staff.

Research

Not applicable to this component.

Linkages/ Partnerships

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Meals on Wheels (MOW)	Monday through Friday

Workload (Current and Projected)

Table 2. Historical and Projected Workload

		Current	Projected
Department	**Position**	**2019/20**	**2031/32**
Beds Total		49	121
	Medicine/Surgery	44	58
	Critical Care	4	10
	Obstetrics	0.9	2
	Integrated Stoke Unit	0	14
	Reactivation & Complex Medical Management	0.1	37
Daily Meals Total		242	563
	Inpatient meals	147	363
	MOW	95	200

Notes:

1. Inpatient daily meals are determined based on bed number multiplied by a factor of 3 per patient per day.
2. HDMH current MOW Monday through Friday to clients in Huntsville and Burks Falls. Current daily volumes range from 85 to 100 with larger volumes on Monday, Wednesday and Friday. MOW demand is anticipated to grow double. Current volumes are limited by hospital kitchen capacity.

Operational Description

Organization and Management

Food and Nutrition Services (including Clinical Dietitians) is directed by a Manager, Patient Support Services reporting to a Director, Interprofessional Practice, Ambulatory Care and Patient Support Services.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 3. Hours of Operation

	Current			Projected		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Kitchen	6:00am-7:00pm	6:00am-7:00pm	6:00am-7:00pm	6:00am-8:00pm	6:00am-8:00pm	6:00am-8:00pm
Clinical Nutrition	8:00am-4:00pm	Note 2	Note 2	8:00am-4:00pm	Note 2	Note 2
Cafeteria	7:00am-7:00pm	As demand warrants	As demand warrants	7:00am-7:00pm	As demand warrants	As demand warrants

Notes:

1. Kitchen inclusive of internal catering operation.
2. Clinical Nutrition on-call and after-hours.

Workflow

Perishable and non-perishable food products will be received at the loading dock, verified and portered to the department's internal receiving area by prime vendor. Incoming product will then be de-cased and placed in refrigerated, frozen and dry storage rooms within the Main Kitchen.

Patients will be offered a 14-day restaurant style menu in compliance with their diet. Meal orders will be placed through digital ordering devices or apps. Additionally, dietary aides will visit patients a day in advance and facilitate orders for the following day. Patients who do not order, will be provided a system select meal (batch tray) in accordance with their diet.

Meals will be produced in-house, supplemented with the procurement of selected menu items. Meals will be assembled and plated centrally in the Main Kitchen in advance of service. Once assembled, meal trays will be delivered to patient bedside at set mealtimes. Select units such as Reactivation & Complex Medical Management will have option to dine within congregate dining area and/or bedside.

Following every meal service, Food and Nutrition Services staff will collect all soiled trays. All soiled carts, trays and service wares will be returned to the Main Kitchen for warewashing and sanitation. After-hours soiled trays will reside within on-unit soiled tray alcoves for collection, one cart per unit (noting cart capacity can typically accommodate up to 20 trays).

Additionally, Food and Nutrition Services personnel will be responsible for the delivery of daily nourishments, snacks and supplements. Nourishments will be prepared and delivered by department personnel daily. Food and Nutrition Services will be responsible for stocking and replenishment of on-unit nourishment centre.

MOW meals are pre-assembled one day in advance by department staff. Menu items are the same as inpatient meals, therefore MOW entrees are assembled before inpatient meals by department staff. Once prepared, MOW organization volunteers pick up meals for delivery to community.

Additionally, the Food and Nutrition Services personnel will prepare, produce and chill bulk meals for South Muskoka inpatient and community meals.

Going forward as the hospital grows, a cafeteria will be re-introduced to support staff and visitors in partnership with Hospital Auxiliary. The staff visitor food services will include a small café bistro (pre-packaged sandwiches, salads, etc.) and vending accessible 24/7. Food product will be received, stored and prepared in the Main Kitchen.

Clinical Dietitians

Dietary education and nutritional assessments will be facilitated through clinical nutrition. Registered Dietitians will be responsible for nutritional assessment and care plan development, patient monitoring and outcome measurements for patients who are identified by the physician/team members as requiring nutritional intervention. The dietitians will be the liaison between the patient's family, healthcare personnel and food service staff to ensure appropriate implementation of the care plan. Dietitians set the diet definition and standards which are then used to develop patient menus, regular and modified, oral and tube feeding formularies, nourishments and specialized nutrition products. To learn more, refer to inpatient services functional programs.

General Support Activities

Environmental Services

EVS and Food and Nutrition Services staff share cleaning and waste removal responsibilities within the Main Kitchen and on-unit nourishment centres. EVS will be responsible for cleaning congregate dining rooms.

Facilities Management

All food service equipment will be maintained by the Hospital Plant and Facilities Management personnel and/or external contracts. Plant and Facilities Management will maintain and monitor the Building Management System (BMS), tracking refrigerator and freezer temperatures and alarms including after-hour monitoring of walk-in refrigerator and freezer temperature alarms. Refrigeration equipment will be connected to Building Automation System (BAS) monitoring.

Materials Management

Materials Management will continue to provide selected supplies from central stores as requisitioned by Food and Nutrition Services personnel.

Support Services	Centralized lockers and lounges will be provided to Hospital Support Services staff. Nutrition and Food Services department will have staff lunch storage area and staff washroom.

Enabling Technologies

Information Systems	The Dietary Management Information System will be fully integrated with the Hospital's Information System. Food and Nutrition Services needs will be assessed on admission and diet orders will be sent to Food Services via a computerized system. This system will also be linked to all inpatient program areas. The Dietary Management System will include digital ordering devices to accommodate a bed side spoken menu model.
Communication Systems	Food and Nutrition Services operations will be enhanced with smart phones and tablets to allow for communication among department personnel.
Equipment	Food and Nutrition Services will require wireless technologies for hand-held ordering tablets.

Staffing (Current and Projected)

Table 4. Current and Projected Staffing

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	12.80	22.52	12	5	0
Food Services Supervisor	1.28	2.70	1	1	
Cook	2.35	3.80	3		
Dietary Clerk	0.70	1.40	1		
Dietary Aide	7.67	13.50	6	4	
Dietitian	0.80	1.12	1		

Notes:

1. The Manager supports both Food and Nutrition Services and EVS (and is found in the Facilities Support Services component).
2. Dietitians are captured within inpatient services functional programs.

Design Objectives

Locations and Adjacencies

The following principles should be applied when determining the location for this service:

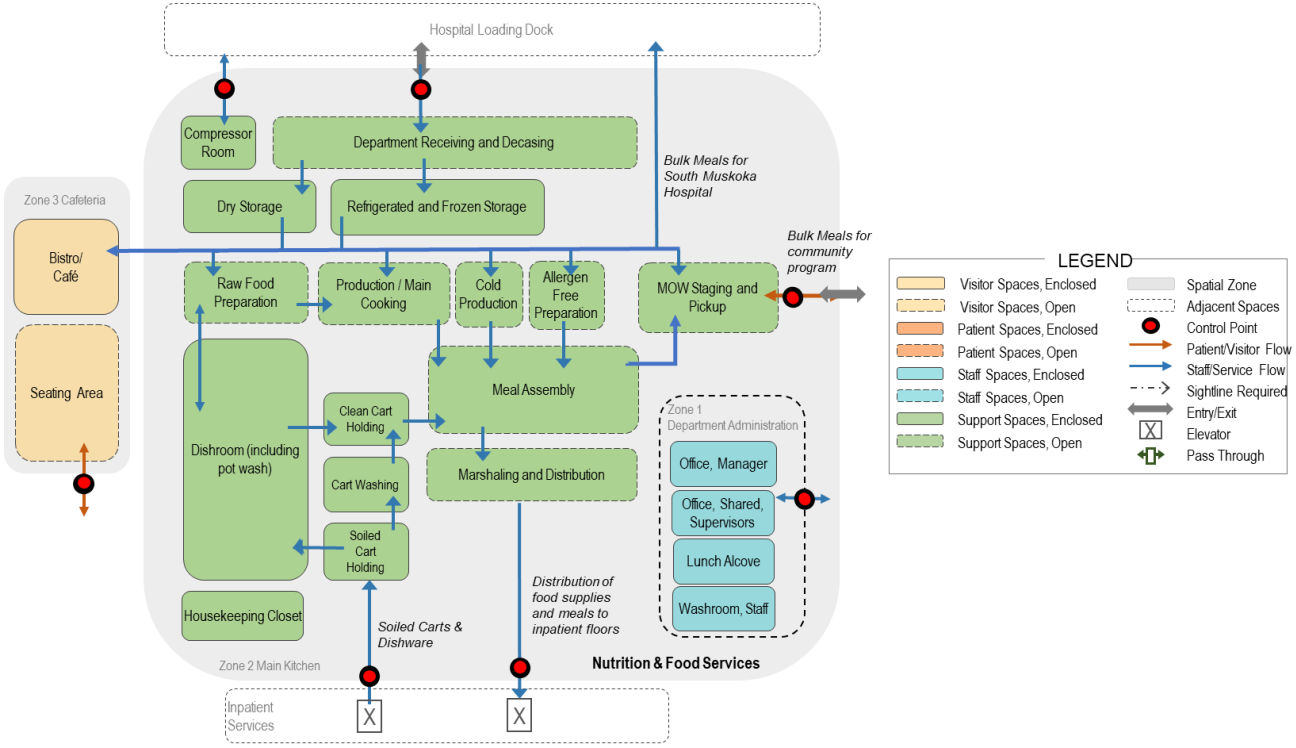
- Food and Nutrition Services Main Kitchen shall have close proximate to service elevators or horizontal traffic routes for timely delivery of meals to inpatient units.
- Food and Nutrition Services Main Kitchen shall have close proximate to non-public circulation to the hospital loading dock for the receipt of food product and removal of waste.
- Food and Nutrition Services Main Kitchen shall have access to or within close proximity to an external entrance for the pickup of MOW.
- Cafeteria shall be public facing on main thoroughfare, main lobby and/or public spaces.
- Cafeteria shall have access to non-public circulation to the Main Kitchen for the receipt of food product and loading dock for removal of waste.
- Cafeteria to have access to outdoor seating/patio (if possible).

Internal Organization

The Main Kitchen will be designed to support a forward workflow of food products and a separate and non-crossing flow of waste and soiled carts and service wares. The two workflows should not cross to avoid contamination.

The spatial organization should be generally as shown in the diagram below. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

All food service areas will support a Hazard Analysis Critical Control Points (HACCP) Program. Hazard analysis is the process of identifying and assessing where hazards may enter the food processing flow and affect food safety.

Critical control points are operational procedures or functions where identified hazards must be controlled and continuously monitored.

Central to the HACCP Program will be the control of time temperature relationships through the food processing flow. To support this effort, equipment such as walk-in refrigerators and freezers within the central kitchen will include temperature recorders and alarms.

Handwash stations will be within every point of access and functional areas within the departmental preparation, production and assembly areas. Emergency eyewash facilities located where staff may be exposed to contact with chemicals harmful to eyes or skin. Eyewash stations will be provided within key areas such as department receiving, dishroom, pot washing and on-unit nourishment centres.

Clarity of Spatial Organization

The Main Kitchen shall be designed to be functional, square or a rectangular shape desired. The kitchen shape shall have a length to width ratio no greater than 1.5 to 1. The Main Kitchen should allow for multiple and separate points of access and egress for a) incoming raw product, b) distribution of prepared meals, c) return of soiled carts, trays and service wares and d) staff and visitor access.

Air/Environmental

Conditioned velocity supply air as well as ventilation will be provided in all kitchen work areas. Slight negative pressure will be provided for odour control.

Work areas will be gradually sloped to central floor drains for general drainage and to enable mechanically assisted spray wash and chemical sanitation.

The food service areas will be air conditioned. The kitchen will require clearance of no less than 10 feet from finished floor to finished ceiling and 14 feet to underside of slab.

Exhaust ventilators will also be required within the kitchen cooking area and for all dishwashing equipment. Additional ventilation with the capability to remove excessive humidity and odour will be required in the warewashing and waste management areas.

Architectural/Structural/ Electrical/Mechanical

To the extent possible, mobile equipment will be used to allow for movement and repositioning in the future, easy replacement and ease of cleaning.

A variety of mechanical and electrical sources will be provided. Desire to have ceiling access for services to mitigate hazards.

At a minimum the lighting, walk-in and reach-in refrigerators and freezers and 50% of the production equipment will be on uninterrupted power supply (UPS). Emergency power shall also be provided to the Dietary Management Information (IT) Systems which maintains patient diet profiles.

Architectural provisions will be required to enable removal and replacement of any large food service equipment following the end of its useful life.

Commercial, heavy duty non-slip flooring which is washable, impervious to food acids and oils and suitable for rolling equipment will be utilized and all corners between walls, floors, and ceilings shall be coved within kitchen facilities.

All walk-in freezers and refrigerators will require depressed floor slabs (a minimum of 8" deep) to allow for smooth access for carts.

Air cooled refrigeration units will be utilized for any new walk-in coolers and freezers. Alternatively, if a continuous/ uninterrupted chilled water loop exists, water cooled units can be used. Dual condenser units required on all units to minimize temperature variation.

All wall finishes within the Main Kitchen will be smooth, washable, durable, and comfortable. Protection from cart damage on walls and columns will be provided.

Lighting

To the extent possible, provide access to natural lighting.

Ergonomic Considerations

To the extent possible selected counters will be designed at height less that 34" in instances where preparation equipment is positioned to ensure equipment is at a suitable height. Alternatively selected equipment such as slicers shall be on a 24" high mobile stand to ensure equipment is at a suitable height. Where possible equipment with adjustable heights shall be provided. Meal Assembly configuration and equipment will be designed to minimize staff rotation and reach.

Security

The Main Kitchen and on-unit nourishment centres will be a restricted area accessible only by Food and Nutrition Services personnel. All points of access and egress will be code or card access only. Use of security camera within the food service areas.

Temperature alarms for all refrigerators and freezers will be networked to a computerized control system.

Codes & Standards

Equipment selected will meet applicable standards and comply with the following:

- National Sanitary Foundation (NSF)

- Underwriters Laboratories of Canada (ULC)
- National Electric Manufacturer's Association (NEMA)
- National Electric Code, US (N.E.C.)
- American Society of Mechanical Engineers (ASME)
- National Fire Protection Agency (NFPA) and UL standard ULC-S646-98 for exhaust ventilators
- Infection Prevention and Control Canada (IPAC).

Projected Space Requirements

Table 5. Space Table

			Component Gross Area (CGSF / CGSM) : TOTAL				7,500				696.8			
			Component Gross Area (CGSF / CGSM) : Admin/Kitchen				4,620				429.2			
			Net to Gross Ratio				1.25				1.25			
			Total Net Area (NSF / NSM)				3,695				343.3			
			Component Gross Area (CGSF / CGSM) : Cafeteria				2,880				267.6			
			Net to Gross Ratio				1.25				1.25			
			Total Net Area (NSF / NSM)				2,305				214.1			
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Exterior Spaces			**subtotal net area**		**-**		**subtotal net area**		**0.0**		
			Parking - Meals on Wheels (MOW) Vehicles			7		-		0.7		0.0		Parking stalls (5); adjacent to exterior door of Main Kitchen
			Zone 1: Admin Offices			**subtotal net area**		**345**		**subtotal net area**		**32.1**		
06	.001		Office, Manager			100	1	100		9.3	1	9.3	Shared between EVS and Nutrition and Food Services	Accessible from service corridor
06	.002		Office, Shared, Supervisor			180	1	180		16.7	1	16.7		Provide visibility and access to the kitchen - meal assembly
		.01	*- workstation, dedicated*	*2*	*50*				*4.6*					
		.02	*- printing/filing area*	*1*	*30*				*2.8*					
		.03	*- staff sign-in*	*1*	*50*				*4.6*					
06	.003		Alcove, Lunch Storage			15	1	15		1.4	1	1.4	To store staff lunches	Includes reach-in refrigerator
06	.004		Washroom, Staff			50	1	50		4.6	1	4.6		
			Zone 2: Main Kitchen			**subtotal net area**		**3,350**		**subtotal net area**		**311.2**		
06	.005		Receiving and Decasing Area			80	1	80		7.4	1	7.4		
06	.006		Storage, Dry Goods			240	1	240		22.3	1	22.3		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
06	.007		Storage, Non-Food			60	1	60		5.6	1	5.6		Adjacent to meal assembly
06	.008		Storage, Refrigerated (walk-in)			120	3	360		11.1	3	33.4	For prepared food, and holding for items destined for SMMH	
06	.009		Storage, Frozen (walk-in)			90	2	180		8.4	2	16.7		
06	.010		Raw Food Preparation			80	1	80		7.4	1	7.4		
06	.011		Allergen/Special Diet Food Preparation			80	1	80		7.4	1	7.4		
06	.012		Cold Food Production			100	1	100		9.3	1	9.3		
06	.013		Production/Main Cooking			500	1	500		46.5	1	46.5	Food texture modification within this area	
06	.014		Meal Assembly			500	1	500		46.5	1	46.5		
06	.015		Marshalling and Distribution			140	1	140		13.0	1	13.0		
06	.016		MOW Staging and Pickup			200	1	200		18.6	1	18.6		Locate adjacent to meal assembly and exterior door
06	.017		Dishroom (including pot wash)			300	1	300		27.9	1	27.9		Provide 3-compartment pot sink and rack machine Enclosed room
06	.018		Soiled Cart Holding			140	1	140		13.0	1	13.0		
06	.019		Cart Wash			60	1	60		5.6	1	5.6		
06	.020		Clean Cart Holding			210	1	210		19.5	1	19.5		
06	.021		Refrigerated Waste Holding (walk-in)					-		0.0	0	0.0		Located at loading dock
06	.022		Housekeeping Closet			40	1	40		3.7	1	3.7		
06	.023		Compressor Room			80	1	80		7.4	1	7.4		Access from external corridor
06	.024		left intentionally blank											
06	.025		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 3: Cafeteria			**subtotal net area**		**2,305**		**subtotal net area**		**214.1**		**Must be located in a highly visible and traffic area**
06	.026		Cafeteria			700	1	700		65.0	1	65.0		
		.01	*- bistro/café*	*1*	*500*				*46.5*					
		.02	*- circulation/queuing*	*1*	*200*				*18.6*					
06	.027		Seating Area			1,545	1	1,545		143.5	1	143.5		
		.01	*- condiment station*	*1*	*15*				*1.4*					
		.02	*- microwave station*	*1*	*15*				*1.4*					
		.03	*- vending*	*3*	*20*				*1.9*					
		.04	*- waste collection*	*1*	*15*				*1.4*					
		.05	*- seating*	*80*	*18*				*1.7*					
06	.028		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		Non-gendered, individual; barrier-free with infant change table
06	.028		left intentionally blank											

07. Integrated Stroke Unit

Functional Description (Current and Projected)

Summary

In the new HDMH build, the Integrated Stroke Unit (ISU) will support the delivery of both acute care and rehabilitation for stroke patients from admission to discharge in 14 beds. The ISU will provide assessment, treatment, outpatient follow-up, and education to support patients and families along the continuum of stroke care. Supportive spaces (Rehabilitation Gym, Home Simulation Evaluation Space (ADL assessment areas), Dining/Lounge and Therapeutic Tub) will be shared with an adjacent Reactivation and Complex Medical Management Unit.

The creation of a purpose-built environment with a dedicated interprofessional team for the ISU will allow for the further refinement of a coordinated, organized, best practice model of stroke care and will help improve patient outcomes, reduce overall health care expenditure, and promote an accessible, equitable and efficient stroke system. It is anticipated that the ISU will enable more stroke patients to be cared for closer to home and avoid transfer to other Rehabilitation Centres.

Although most Ambulatory Services will be consolidated at the SMMH site, some will remain at HDMH because of service delivery and practitioner location. As such, there will be a couple of Exam/Consult Rooms planned adjacent to the ISU to support outpatient activity. Largely this accommodates the Stroke Prevention Clinic, which can involve staff from the ISU. Other clinics accommodated are:

- Vascular Clinic – Amputees are having to travel to RVH in the absence of services locally. They require assistance with prosthetics, gait training and acute care issues arising from their condition. Transitioning from inpatient care at MAHC is challenging for this group due to the lack of support locally. Wound care is provided by the Public Health Department and through Primary Care.
- Visiting specialists/locums work at MAHC on a regular basis to provide care closer to home and prevent exacerbation of symptoms requiring admission or transfer to a regional centre. Specialties include Plastic Surgery, ENT, Gynaecology and Orthopaedics. The work of these specialists involves both consultations and procedures that could be performed in an Ambulatory Care setting, freeing up procedure rooms for more complex day surgeries. Examples include removal of lesions and lumps, paracentesis, elective cardioversions, ear cleanings.

Service Overview

The ISU service model includes:

- Initial acute care stabilization (usual several days)
- Rehabilitation to regain function through a gradual increase of activity (usual weeks)

- Outpatient Rehabilitation (Stroke staff would provide specialized rehabilitation care to Stroke patients for care continuity and expertise)
- Stroke Prevention Clinic.

In future, the care will be delivered in:

- Medical/Surgical inpatient rooms
- Rehabilitation Treatment Gym
- Home Simulation Evaluation Area (includes a bedroom, 4-piece washroom [with tub], laundry station [washer/dryer] and kitchenette [including stove])
- Lounge and Dining/Activity Room
- Clinic rooms adjacent to the ISU.

Collocation of all services on the ISU with the same Clinical Team supports a more efficient service delivery model for assessment, testing and evaluation as well as supporting patient and family relationships throughout the care journey. The Canadian Best Practice Recommendations for Stroke Care (2012) supports that services are provided by an interprofessional Stroke Rehabilitation Team and utilizing a case coordination approach including regular team communication to discuss assessment of new clients, review client management, goals, and plans for discharge or transition. Daily therapy should be provided for three hours per/day, based on individual patient needs and goals. Patients and families should be involved in their management, goal setting, and transition planning.

As a Stroke Centre, the District Stroke Coordinator organizes care between district partners within the Stroke system. The Stroke Registered Nurse (RN)/educator provides education and training to staff, patients and families, as well as acts as a key contact and subject matter expert. They also facilitate coordination between district and regional systems, monitors and provides Quality Improvement support within the Program. The Stroke Navigator is a point of contact and performs referrals as appropriate. The Canadian Institute for Health Information (CIHI) Coordinator connects with each patient to ensure that all screens and assessments are completed, documentation is completed and entered into a central database, and, where necessary, appointments are made with other services.

Planning Principles and Assumptions

The ISU will be developed to support the highest standard of service delivery, service quality and patient safety. Planning will take into consideration the following assumptions:

- MAHC will continue to be a District Stroke Centre with the incorporation of best practice in patient care and service delivery as a core principle.
- As mentioned above, supportive spaces will be shared with the adjacent Reactivation and Complex Medical Management Unit.

- Addition of code compliant Airborne Isolation Room (AIR) within the Unit.
- Accommodating the isolation of a group of beds in the event of an infectious outbreak in the community or in the facility is beneficial.
- High-quality care in an environment that supports patient comfort, safety/security, and confidentiality through single patient rooms zoned to accommodate discrete areas for patients, staff, and family.
- Single patient rooms planned according to space standards will allow sufficient space for the use of Rehabilitation equipment and technology to aid therapy.
- Family-centred care directed at the comfort and care needs of all patients especially aging adults.
- Integrating technology to support and enhance patient safety, information collection and retrieval, patient monitoring, and to streamline service support.
- Alignment with lean workflows to minimize unnecessary travel for patients and staff.
- Enable delivery of clinical training across all health-related disciplines.

Patient Profile

The ISU will serve Muskoka region patients who have had a stroke and require an inpatient admission for assessment and treatment. The ISU will likely see referrals from surrounding hospitals that do not have a Stroke Program (e.g. Parry Sound, Haliburton) and also repatriation from tertiary centres once the patient is stabilized (after receiving hyperacute Stroke therapies).

The Emergency at both the HDMH and SMMH sites will be the primary source of admissions to the ISU beds. Some patients may also be transferred from another inpatient unit at MAHC if they have suffered a stroke and the medical team feels it is appropriate. Patients from SMMH will arrive by ambulance/ transfer vehicles and be brought directly to the Unit.

The Stroke Prevention Clinic will be a combination of patients seen in the ED or Medical/Surgical inpatient unit that have been identified as being at risk of having a stroke. Some patients may also be referred to the clinic externally. This activity is planned as part of the Ambulatory component.

Scope of Services (Current and Projected)

The ISU services offers a full range of services to support successful recovery from stroke. The team will oversee the delivery and monitoring of inpatient care, as well as evaluate and address change in the medical disposition of admitted patients. Admission assessments, initiation of treatment orders, monitoring and ongoing consultation with the Care Team and the patient's family fall within the rubric of care. Specific activities of this service include, but are not limited to:

- Assessment and Regular monitoring/recording of vital signs
- Monitoring and initiating interventions to alleviate discomfort
- Administering medication
- Assisting with personal care
- Diagnostic testing
- Consultation/referral to specialists to manage issues
- Implementing treatment plan
- Engaging appropriate clinical support including members of the Allied Health Team to assess, educate and counsel patients on the treatment plan and follow-up care
- Teaching patients self-management techniques and empowering them to achieve improved well-being
- Family support and education during recovery
- Coordinate post-discharge follow-up care plan with family.

Care is delivered by an interprofessional team of providers that include physicians (Family Practice, Internists, Physical Medicine and Rehabilitation Specialist [Physiatrists] and Neurologists), a mixed model Nursing Team (RNs and Registered Practical Nurses [RPN]), Physiotherapists (PT), Occupational Therapists (OT), Rehabilitation Assistants, Flow Navigators, Social Work, Speech Language Pathologists (SLP), Respiratory Therapists (RT), Stroke Nurse, Communication Disorder Assistant, Activation Coordinator, Pharmacists, Dietitians, administrative support, spiritual care, volunteers, and learners. The Stroke Team maintains a key partnership with Diagnostic Imaging (DI) Radiologists.

Education

The Unit will accommodate up to two to four nursing students, two to four medical students/residents and two to four Allied Health students at any one time. It is anticipated that the ISU Unit will actively participate in telemedicine/ teleconferencing events.

Research

In future, the Unit may participate in clinical research. No additional space would be required beyond shared workstations currently planned.

Linkages/ Partnerships

The most significant program linkage of the ISU will continue to be with DI. Other key linkages are the ED and Critical Care Unit, and in future with the Reactivation and Complex Medical Management Unit for the sharing of staff resources and some physical spaces. Given the amount and complexity of medications administered in the ISU, there will continue to be a very close program linkage with the Pharmacy, as well as with the Lab for bloodwork. Externally the prime linkages will be as follows:

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Stroke Units in Region	Patient referrals, best practice sharing
March of Dimes	Provide peer support, post stroke navigation services
Regional Stroke Network	Best practice sharing
Home & Community Care	Discharge planning and provision for home and rehab services
VON	Community exercise support and programs
Community Neurologists	Patient referrals
Heart & Stroke	Best practice guidelines
OH	Monitoring of outcomes/quality/performance
The Friends	Provide stroke navigation and rehab options in community

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Current			Projected
Department	**2019/20 Baseline**	**2020/21**	**2021/22**	**2031/32**
Beds	0	0	0	14
Stroke Admissions	201	159	158	0
Severe Alpha FIM (Functional Independence Measure)	22	10	10	0
Moderate Alpha FIM	26	29	23	0
Mild Alpha FIM	84	60	65	0
Average LOS (Length of Stay)	11.6	12.6	15.2	52
Average Acute LOS	4.8	5.2	5.4	7
Average Rehabilitation LOS (ALC)	6.8	7.4	9.8	45

	Current			Projected
Department	**2019/20 Baseline**	**2020/21**	**2021/22**	**2031/32**
Outpatient Clinic Visits (Stroke Prevention)	0	0	0	~900
Outpatient Rehabilitation Visits (Post Stroke discharge)	0	0	0	4,360
Vascular Clinic (new)	0	0	0	400
Visiting Specialists	0	0	208	700

Notes:

1. Source: MAHC Stroke Team.
2. Average Rehabilitation LOS is ALC at present as MAHC does not have the appropriate team and facilities in place to care for Stroke patients during this phase of their recovery. Patients now are transferred to a Rehabilitation facility elsewhere. In the future, Stroke patients will remain at MAHC for their entire recovery, including outpatient clinic visits as necessary.
3. For Stroke Prevention, the assumption is that some short stay admissions and some patients seen in the ED but not admitted will require follow-up at the clinic (estimated to be ~300 patients/year). Each of these patients will require 3 Stroke Prevention Clinic visits per year. This clinic is planned within the Ambulatory component.
4. For Outpatient Rehabilitation, it is estimated that 109 patients/yearly will require follow-up care, with an average of 4 visits per week for a total of 10 weeks. This would be a combination of OT, PT, OTA/PTA, SLP and CDA visits. On average this will equate to 12 patients daily. Patients will receive services within the Rehabilitation Gym planned as part of the ISU.

Operational Description

Organization and Management

There will be one Manager who will be the District Stroke Coordinator and Program Manager.

Education will continue to be supported through the Stroke Nurse.

Medical oversight will be provided by a Stroke Medical Director.

Hours of Operation

The ISU will operate continuously 24/7. Hospitalist and specialists will be on-call at all times for the hospital. Respiratory Therapist will be available 24/7.

Length of Stay

Patients will have an average length of stay (LOS) of five to seven days through the acute phase of recovery. The Rehabilitation phase will have an average LOS of 45 days (up to 90 days) and have a known discharge location.

Workflow

Admission

Emergency is the primary point of admission for most of the ISU patients. The Ward Clerk in Emergency will admit and complete documentation for all patients admitted from Emergency. In future, technology solutions may allow for the patient or family member to self-register through their phone or a portable tablet.

General waiting for public/extended family will be located outside the Unit entry in a waiting room (one per floor).

Patient Assessment

With the support of accompanying staff/family, the assigned staff nurse completes the admission assessment and documentation, and orients patient/family on patient unit facilities and protocols.

A patient record is opened, and orders initiated as part of the initial consultation with the admitting physician or by application of a clinical pathway as available.

Patient assessment will include recording of vital signs, medication reconciliation, skin and fall assessments, and an evaluation of potential communicable infections, Peripheral Intravenous (PIV)/central lines, drains, wounds, CAM assessment (delirium), BRADEN scores (pressure ulcers), intake and output/ fluid balance. A FIM (Functional Independence Measure) is used to calculate a target LOS. Any other Stroke specific assessments will also be completed.

Patient Care

Single bedrooms with attached washrooms/showers will be provided for all patients. Rooms will be zoned to accommodate patient care, care related activities of the Clinical Team and area for the family.

Six patient rooms in close proximity to the Care Team Station will be designated as 'Step-Down' for patients in the acute phase of their Stroke recovery. During the design phase, consideration to making enhanced visibility into these rooms similar to Critical Care rooms (e.g., sliding glass doors). All rooms will have telemetry monitoring at the Care Team Station.

One compliant Airborne Infectious Isolation Room (AIIR) will be available for patients who require airborne isolation.

One designated bariatric patient room will be planned to support patients with body mass index (BMI) exceeding 45. The room will be larger to accommodate the patient and care activities comfortably and will include equipment to afford the Clinical Team support to move the patient as required.

A clinical care plan is developed with the entire Clinical Team as quickly as possible following admission. This plan is reviewed daily to monitor patient progress and plan discharge.

In addition to identifying and documenting vital signs, changes in physical state and monitoring pain, the Nursing Team provide psychosocial/emotional support, education and assists with dressing, bathing, and other activities of daily living, where appropriate.

Changes in state of health are monitored with the admitting physician and Clinical Team.

The Clinical Team will examine and consult with the patient daily. Ideally patient rounds will include the full Clinical Team including Allied Health professionals. Learners will generally accompany their preceptors on rounds.

Regular rounds will be held to review each patient's goals and plan for discharge. Typically rounds include 12-15 people.

Specialty consultants may be asked to assess specific issues, either remotely or on-site.

The Rehabilitation Team will actively work with patients during their admission to maintain or improve their cognitive and physical function. As such, a shared Rehabilitation Treatment Gym is planned to support this therapy. Equipment such as nesting stairs with a ramp, portable step, parallel bars, recumbent stepper, and an arm bike/foot peddler station are used regularly with patients to help regain strength and mobility. The Rehabilitation Team also has many other types of supportive equipment that are used by patients and with patients in their rooms. A storage room will be planned on the Unit to ensure that equipment is not stored in corridors.

A shared therapy assessment room with storage will be planned for a variety of individual assessment with staff such as Occupational Therapy (OT) or SLP.

In order to both practice ADL skills required for independent home living, as well as be assessed for discharge readiness, patients, families and therapists will have access to a shared Home Simulation Evaluation space. This will include a bedroom, 4-piece washroom (with tub), laundry station (washer/dryer) and kitchenette (including stove). The laundry facilities would be available for family use of patient belongings.

A shared Dining/Activity Room and Patient Lounge will serve for mealtime dining and recreation and socialization activities (e.g., exercise classes, holiday/birthday celebrations, baking classes, board or other organized games, as well as televised sporting events). These rooms being adjacent to each other with the ability to open them up and make one larger room at times would be beneficial. The patient can partake in daily activities or access the common spaces on the Unit and in the building as their abilities allow. It will be important for the Dining Room to be in close proximity to the Stroke Unit to ensure that staff can easily support patients with feeding issues.

Access to an outdoor garden/patio space where any patient can be safely escorted in the company of an appropriate provider/family member is critical. Some patients may be in a bed; therefore, access doors should accommodate this. A ground floor location is preferred but rooftop space can be developed for decks/raised gardens. The area should

provide some protection from direct sunlight and prevailing winds. Staff supervision requires clear visibility of the entire area. Emergency call buttons will be available to summon assistance.

Family members and caregivers are welcome to spend as much time with the patient as they wish, and assistance with therapy and self-sufficiency is encouraged. Group programs are available for family members and caregivers for psychosocial support and education purposes. A shared family lounge with a fridge to store food will be planned. This will facilitate peer support and also provide a quiet space for family members to break/decompress from care demands of their loved one. Should a family want to have a private meal with their loved one, the lounge could be booked for this purpose.

Preparation for Discharge

The Nursing Team and most responsible physician will update the patient treatment plan following clinical rounds. Staff nurse will provide information to the patient/family on the care plan including the planned discharge date. The family will consult with members of the Allied Health Team including the Flow Navigator (discharge planning) to gather information to support care following discharge. Home and Community Care will be contacted early in the patient's stay if there are potential issues identified with patient safety and independence at home.

General Support Activities

Allied Health Team

The ISU requires support from a variety of Allied Health resources, including PTs, OTs, Rehabilitation Assistants, Flow Navigators, Social Work, SLPs, RTs, Stroke Nurse, Communication Disorder Assistant, Activation Coordinator, Pharmacists, and Dietitians.

Diagnostic & Therapeutic Services

In addition to the patient monitors, portable x-rays, ECGs, Echos and ultrasounds will be the main DI activities on the ISU. It is anticipated that some may also be performed in DI, including CT and MRI, as well as angiograms and perfusion scans. Dedicated patient elevators capable of accommodating the patient bed, equipment, and a minimum of four staff are required if not on the same floor.

Although all computers can access PACS images, a dedicated PACS viewing terminal, will be required on the Unit to view radiological images in more detail when required.

Patient specimens will be transported from the Unit to the on-site Laboratory. Pneumatic tubes will be considered during the design stage. Lab staff will pack samples that must go off-site for analysis, in preparation for daily pick-up. Test results will be available electronically.

Pharmaceutical Services

All medication and central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in automated dispensing units (ADU). Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. To support patient safety, the work area will accommodate up to two clinical staff members at one time.

The Medication Room will also contain locked cupboard for storage of patient-own medication storage (including narcotics).

Pharmacy Technicians are incorporated into the Clinical Team and conduct medication reconciliations on all new patient admissions.

Clinical Pharmacists participate in inpatient rounds when possible and consult with patients and families as required.

Clean Supply

The Clean Supply Room will include storage systems standardized to MAHC requirements and will be located on the inpatient floor to equalize travel time to each patient room. In order to carefully minimize waste, there will be limited supplies stored in the patient rooms. However, personal protective equipment (PPE) supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high density shelving. Staff will scan barcode labels in the Clean Supply Room and information will be accessed by Receiving staff. All stock requirements will be system generated based on point-of-use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen carts will be delivered on a regular basis to the units. The carts will be stored in The Clean Supply Room on the Unit. The Clean Supply Room will also accommodate a blanket warmer.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to ‘point of care’ as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

The Soiled Utility Room will accommodate:

- A designated area for used instruments for collection and return to MDR (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)

- Bins/transfer carts for linen, recyclables, medical waste, and general waste will be available to collect and transfer to the loading dock for exchange by an external laundry service
- A disposal unit for liquid waste.

An alcove outside the Soiled Utility Room will be provided for a closed cart designed to collect patient meal trays.

Internal staff will continue to collect waste, recycling and dirty linen from the Unit.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, will be covered for transport.

Equipment Storage

Emergency carts for resuscitation and difficult airways will be available on the Unit. Carts will be monitored by nursing staff in consultation with RT.

Patient care equipment must be available, operational, and quickly retrievable when it is required. An asset management system will be in place, with equipment tagged and trackable.

Portable equipment (e.g., IV pumps/poles, wheelchairs, commodes, shower chairs/trollies) will be stored in an enclosed room for convenient access from corridor serving contiguous sub-units. Power bars at waist height will be required. Ideally the configuration of this room will accommodate a cross-circulation path between two entries to facilitate access and retrieval of equipment.

A charging countertop will be accommodated within the Care Team Station and Care Planning Room for hand-held devices. Additional alcoves may be identified for equipment that require power support within each zone.

Corridor alcoves are helpful for storing select equipment to facilitate frequency/emergent access or maneuverability related to size.

Within patient rooms, an alcove to store mobility devices (i.e., wheelchair, walker) will be considered during the design stage. This would allow for the device to be readily accessible without interfering with patient/staff movement throughout the room.

Protocols for cleaning and storage of patient support equipment will be established with the Clinical Team in the Care Unit and coordinated with Environmental Aides. This will occur off the Unit in a centralized cleaning space.

Maintenance and repairs will be performed by the regional Biomed Team. Requisitions for Biomedical service will be entered electronically and triaged by the Biomed Team. Items for repair will be cleaned and moved by clinical staff or Environmental Aides to a secure staging area. Units will be notified electronically when a repair is completed, and the item can be retrieved for return to the Unit.

Environmental Services

Environmental Aides will support the department continuously in the turnover of patient rooms, management and changing of damaged or inoperable furnishing/equipment and removal of soiled material. Daily maintenance protocols will be instituted in addition to response for emergency needs.

Environmental requirements including new policies and procedures may evolve to incorporate new protocols for movement of clean and soiled material, equipment cleaning in response to the recent pandemic.

Nourishment & Meals

For Stroke patients in the Rehabilitation phase of their recovery, meals will be taken within the Dining/Activity Room to encourage socialization when possible. Patients will use an online meal order system.

For those patients in the Acute phase of their recovery, or unable to leave their room or bed, a meal tray can be brought to their bedside.

Inpatient meal trays will be delivered by Dietary staff and collected following the meal. Delivery carts from the kitchen will hold up to 20 patient trays. These carts should be stored in an alcove outside of the Soiled Utility Room or Dining Room.

Nourishments will be made available outside of meal trays following Ward Stock Policy and contained in a Nourishment Centre to be located within the Dining/Activity Room. This will be stocked by the Food Services Department and accessed by staff only. It is anticipated that in future, some on Unit meal preparation will be required, and the Nourishment Centre will accommodate this activity. There will be a Nourishment Alcove available for items such as ice and water and accessible to both staff and visitors.

Patient Transport

MAHC has porters for transportation to and from DI. Otherwise, nursing staff and attendants are responsible for patient transfer elsewhere within the hospital.

Administration & Staff Spaces

The Ward Clerk and Clinical Lead will maintain responsibility for daily activity on the Unit from a centralized Care Team Station located near the Unit entrance. Adjacent to the Care Team Station will be a Care Planning Room with table seating and shared workstations. These shared workstations will be available for external partners, Allied Health professionals, nursing and medical staff, and students.

The Unit will have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

A shared larger Multipurpose Meeting Room will be available for family team meeting and larger interprofessional team rounds. This will accommodate up to 15 people.

Many roles involved in the support of Clinical Service provision require quiet/private office space at times (e.g., Managers, Clinical Leads, Clinical Educators, Nurse Practitioners (NP), Patient Flow Navigators, Medical Chiefs). Recognizing that several of these roles support the care of patients across both sites, it is anticipated that many staff will require space both at HDMH and SMMH. A combination of single office space and shared office space (2 of each) has been planned within each clinical area. The intention is that these offices would be flexible use and bookable and could be assigned in future should a staff member become dedicated to a specific program and site.

All staff and learners will have access to staff facilities, locker rooms, changing rooms and washrooms with showers in a centralized location. All staff will have access to a shared Lounge with comfortable seating and table seating, a kitchenette, and cube lockers closer to the Unit.

On-call rooms will be centralized. (see Physician and Staff Support Spaces component).

Security Services

Security services will be provided at MAHC on-site.

Access Control Systems will be utilized to ensure a safe and secure environment for patients, staff and visitors.

IP-based video surveillance camera is required in the Medication Room.

An active Real-Time Locating System (RTLS) will be provided throughout the facility to support patient wandering and staff duress. Mobile duress buttons will be provided to staff. Fixed duress buttons will be available in select locations.

The space should be designed to help ensure the safety and security of all patients/family, staff, and visitors to be enhanced through:

- The configuration of the Unit to ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized
- Optimizing the visualization of the corridors and patient rooms, while also maintaining line of sight for the main entrance from the Care Team Station is required
- A second secure entrance/exit that will allow staff an alternate route out of the Unit
- Each patient space being equipped with a Code Blue call button.

Enabling Technologies

Information Systems

A centralized Care Team Station will be located on the ISU, near the public entrance. A Ward Clerk will have an assigned workstation within the care desk.

Documentation stations or workstations will otherwise be touchdown and available to any member of the Clinical Team and learners. Stations/data entry keyboards will be available within the patient room, in the Care Team Station, in the Care Planning Room and with each medication cart. A workspace will also be provided in the Staff Lounge.

Some documentation stations may be planned for standing use and to accommodate easier viewing between team members and for demonstration/teaching.

Each Unit will also have a Consult Room that can be used for private telephone conversations, consultations, dictation or virtual care sessions.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the Unit. In each patient room, there will be Wi-Fi for patient use in accessing the internet. Patient rooms will be equipped with Integrated Bedside Terminals (IBTs) and electronic dashboards which can display clinical information from Cerner HIS. Bedside terminals will provide the following capabilities and services:

- TV/entertainment
- Educational content
- Electronic health record
- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

Telemetry Service

Telemetry monitoring of all beds will be accommodated in the Care Team Station with monitor banks installed in a discrete location within the Care Team Station for confidentiality.

Virtual Care

Inpatient rooms will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting Rooms will be wired to allow for telehealth sessions.

Communication Systems

The ISU will be equipped with a state-of-the-art communications system in order to facilitate its activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff to staff wearable communication technology (e.g. Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 3. Current and Projected Staffing

	Current	Projected 2031/32			
Category	**2019/20 FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	2.00	51.23	27	8	4
Subtotal – Clinical Care	*2.00*	*27.08*	*9*	*5*	*4*
CIHI Coordinator	0.50	1.00	1	0	0
District Stroke Coordinator/Manager	0.50	1.00	1	0	0
Stroke Program Nurse	1.00	1.00	1	0	0
Ward Clerk	0.00	2.52	1	1	0
Clinical Lead	0.00	1.40	1	0	0
Registered Nurse (RN)	0.00	10.08	2	2	2
Registered Practical Nurse (RPN)	0.00	5.04	1	1	1
Personal Support Worker (PSW)	0.00	5.04	1	1	1
Subtotal – Allied Health	*0.00*	*24.15*	*18*	*3*	*0*
Activation Coordinator	0.00	0.85	1	0	0
Dietitian	0.00	0.70	1	0	0
Speech Language Pathologist (SLP)	0.00	2.00	1	0	0
Communications Disorders Assistant (CDA)	0.00	2.00	1	0	0
Social Worker	0.00	1.20	1	0	0
Occupational Therapist (OT)	0.00	5.04	2	1	0
Physiotherapist (PT)	0.00	5.04	2	1	0
Rehabilitation Assistant	0.00	6.72	2	1	0
Stroke Prevention Clinic Staff	0.00	0.60	1	0	0

Notes:

1. Manager will support Stroke Program and be District Stroke Coordinator.
2. Ward Clerk working 12-hour days, 7 days/week and shared with Reactivation & Complex Medical Management Unit.
3. Clinical Lead will work 5 days/week and 8 hrs/day.

4. Care model includes a mix of RNs, RPN and PSW led by Clinical Lead (RN). Nursing ratio 1:5.
5. Rehab ratio 1:6 – should cover 12 hrs – goal 3 hrs/pt/day.
6. SLP 1:12 inpatient rehab beds.
7. Activation Coordinator – shared with Reactivation.

Design Objectives

Locations and Adjacencies

The ISU will be self-contained with no traffic flowing through it to reach another area of the hospital. Visitor access will be via the public corridor system, not via another department. The ISU shall be located physically contiguous with the Reactivation Unit, with direct and immediate access, for the sharing of both staff and physical spaces.

There shall be a direct and private route from the ISU to DI for CT scans.

Access to planned outdoor space for this population would be of benefit. A garden area on the grounds will be considered for patients who can be escorted from the Unit by staff or families. This would also allow for the Rehabilitation Team to assess and develop skills navigating an outside environment.

Internal Organization

The ISU services will be zoned into the following areas:

- Elevator Core & Lobby – waiting area and clinic rooms
- Patient Care Zone – spaces should be configured to be equitably accessible from all patient rooms.
- Shared Therapy and Support – spaces should be configured to be equitably accessible from both the ISU and the Reactivation & Complex Medical Management Unit.
- Staff and Administrative Support – administrative and staff spaces needed to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

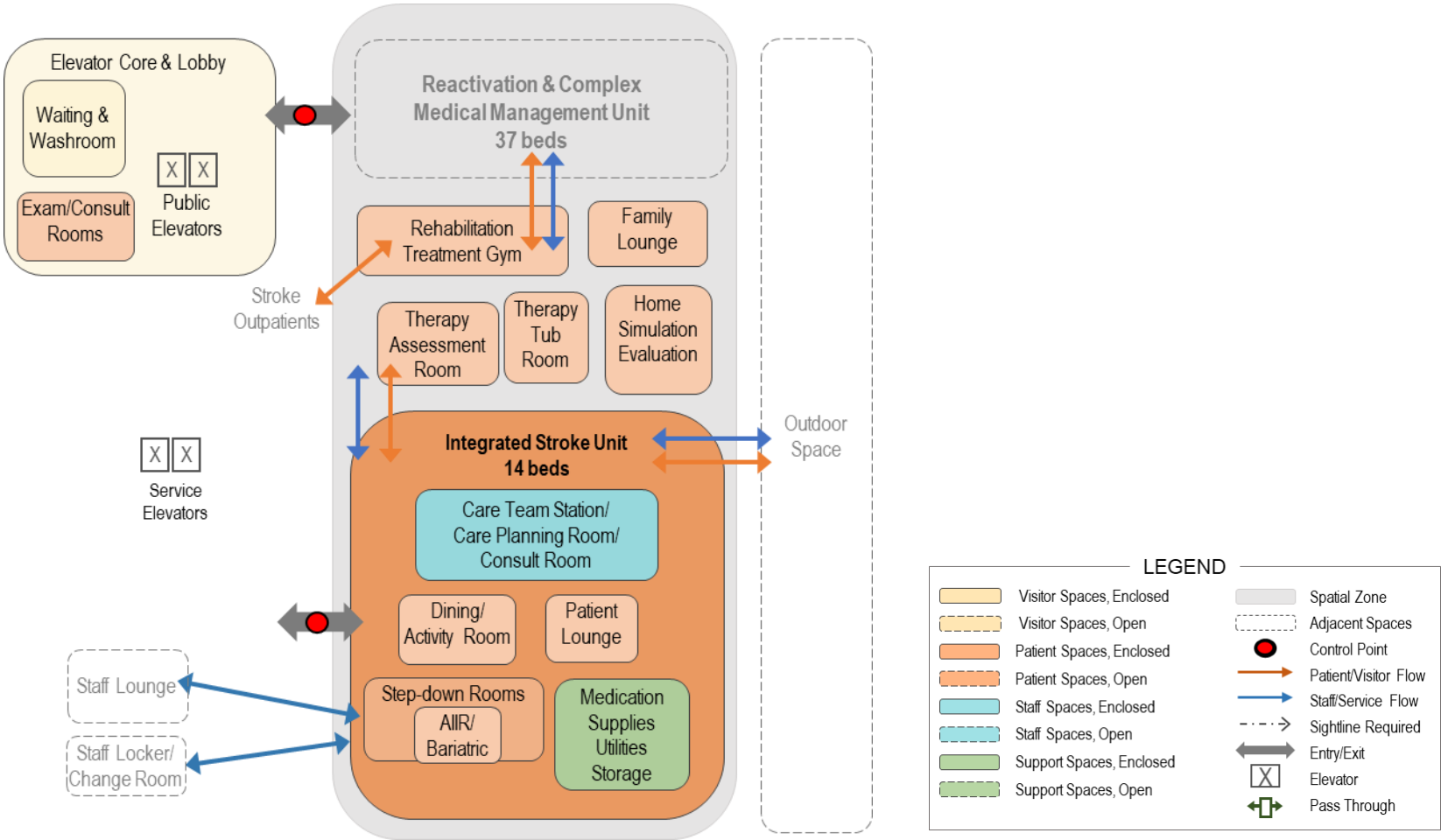
Note the following specifics regarding configuration of the spaces comprising the ISU:

- The Rehabilitation Treatment Gym should be located close to the Unit entrance to facilitate access by both inpatients and outpatients.
- The Care Team Station will be located to ensure visualization of the entrances to all patient rooms as well as the visitor entrance to the Unit.
- The Code cart will be located in a readily accessible area to all patient rooms.
- Access to outdoor space for patients and families would be of benefit.

- Spaces should be configured to be equitably accessible from all patient rooms.
- The Dining/Activity Room and Patient Lounge should be adjacent, if possible, with the ability to connect the rooms at times. Direct access to the outdoor space from the Patient Lounge would be beneficial.
- Configuration of the corridor into a loop, if possible, could serve as a walking track for patients, which would be beneficial in their rehabilitation.
- Administrative and staff spaces need to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship – Integrated Stroke Unit



Special Considerations

Infection Prevention and Control

One patient room will be planned for airborne infectious isolation. The other patient rooms will be single rooms and will offer contact protection as a result.

Alcoves will be planned for PPE and a select list of frequently used disposable supplies at the entrance to each patient room. Cabinetry would be preferred to prevent possible contamination of these items. Any storage solution must not interfere with circulation to the patient room or Unit corridor.

All patient rooms will have hand hygiene sinks/alcohol dispensers immediately available to entering clinicians, within view of the patient.

Staff hand hygiene sinks/alcohol dispensers will also be provided in the:

- Care Team Station
- Medication Preparation Room
- Clean Supply Room and Soiled Utility Room
- Housekeeping Room
- Staff Lounge.

Additional considerations for soiled material include:

- Separation of clean and soiled materials
- Provisions for managing and handling hazardous or contaminated items
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment of patient infections.

Patient/Family

The introduction of single patient rooms has many advantages:

- Superior privacy and confidentiality for patients
- Designated area within the room for family for overnight visits and comfortable furniture
- Additional infection control.

With these advantages, the patient room will also offer additional area for storage of supplies, mobility aides and furniture suitable for overnight accommodation.

The Unit will support needs of family who can play an important role in health restoration. Stroke patients are 75% more likely to be discharged home if they have a caregiver available to assist them. Fixed sleeping accommodation is preferred in patient rooms to reduce the risk of interference with staff movement in a darkened room.

A family lounge/Meeting Room will be available for peer support groups, education for patients and family meetings with the entire Care Team. This space could accommodate private family dining and will provide a quiet space for family members to break/decompress from care demands of their loved one.

Wayfinding

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit. Wayfinding should be designed to address the visual challenges some of the ISU patients may be experiencing.

Accessibility & Corridor Design

Access to all public spaces, including washrooms and treatment spaces, must be accessible. Features such as automatic sliding door entries should be considered. Transfer poles will be utilized in future; therefore, any structural requirements should be considered.

Patients would benefit from a circular corridor to facilitate wandering in a safe, controlled environment. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Provision will be made for bariatric patients in two of the patient rooms. A ceiling-mounted patient lift will be provided in each patient room.

Acoustic

Every effort must be made to maintain a quiet environment in spite of the sounds of equipment and staff working in the ISU. Acoustic privacy between patient rooms is mandatory. Appropriate sound dampening techniques including insulation, and, in some situations, mechanical support may be considered, i.e., white noise.

Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors. Opportunities to bring natural light and views to circulation within the Unit particularly in the Lounge areas will be important to staff working in this component.

Medical Gases

Medical gases (oxygen, air, and suction) will be provided at each patient bed. The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

Patient Privacy

Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.

Lighting

Lighting shall be designed to meet the clinical activities performed in an inpatient unit. Patient comfort must also be addressed, including patient-controlled lighting. Nighttime lighting must accommodate patient sleeping yet ensure maintenance of nurse-patient observation.

Given the abundance of literature supporting the curative value of natural light and open views to the outside for recovery of the patient, the ISU will be designed such that each patient room has a window. Provision of natural daylight in each patient room is non-negotiable. Skylights will not be acceptable as the sole source of daylight.

Ergonomic Considerations

Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.

Security

The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design.

The configuration of the ISU will ensure that Care Team time with the patient is maximized and that travel time to support spaces is minimized.

Visualization of the patient rooms from the Care Team Station is required.

Video monitoring of group spaces would be beneficial with monitors at Care Team Station.

A second secure entrance/exit will be required for delivery/removal of material and allow staff an alternate route out of the Unit.

Each patient space will be equipped with a Code Blue call button.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 4. *Space Table*

Component Gross Area (CGSF / CGSM)	**10,895**	**1012.2**
Net to Gross Ratio	1.50	1.50
Total Net Area (NSF / NSM)	7,264	674.8

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Lobby			**subtotal net area**		**450**		**subtotal net area**		**41.8**		**Open to elevator lobby**
07	.001		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
07	.002		Waiting area for Clinic Rooms			150	1	150		13.9	1	13.9	For Stroke Prevention Clinic, Vascular clinic and any other clinic visits from visiting consultants	
		.01	*- seat, standard*	*6*	*20*				*1.9*					
		.02	*- wheelchair/scooter/bariatric*	*1*	*30*				*2.8*					
07	.003		Exam/Consult Room			120	2	240		11.1	2	22.3		
			Zone 2: Integrated Stroke Unit - Patient Care (14 beds)			**subtotal net area**		**5,707**		**subtotal net area**		**530.2**		
07	.004		Single Bedroom, AIIR (Bariatric)			410	1	410		38.1	1	38.1	Part of 6 beds closest to Care Team Station as 'Step-Down' for acute patients	Provide clear zones for patient, staff and family use within the room Consider glass doors like CCU to facilitate visibility
		.01	*- anteroom*	*1*	*80*				*7.4*				Supply storage/data entry station	
		.02	*- bed area*	*1*	*235*				*21.8*					Provide patient lift and IV ceiling track above the bed
		.03	*- washroom, 3-piece*	*1*	*80*				*7.4*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					Locate cupboards outside of room
07	.005		Single Bedroom, Step-Down			290	5	1,450		26.9	5	134.7	Part of 6 beds closest to Care Team Station as 'Step-Down' for acute patients. Consider glass doors like CCU to facilitate visibility	Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*160*				*14.9*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
07	.006		Single Bedroom			290	8	2,320		26.9	8	215.5		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*160*				*14.9*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
07	.007		Charting Alcove			15	7	105		1.4	7	9.8		Provide 1 alcove for each 2 beds
07	.008		Care Team Station			245	1	245		22.8	1	22.8		
		.01	*- workstation, ward clerk*	*1*	*50*				*4.6*					
		.02	*- printer/work area*	*1*	*15*				*1.4*					
		.03	*- touchdown workstation, staff*	*2*	*30*				*2.8*					
		.04	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.05	*- alcove, physiological monitors*	*1*	*30*				*2.8*				For Telemetry monitoring	
		.06	*- pneumatic tube*	*1*	*20*				*1.9*					
		.07	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/devices	Provide alcove with countertop
		.08	*- hand hygiene sink*	*1*	*10*				*0.9*					
07	.009		Care Planning Room			220	1	220		20.4	1	20.4		Provide glass wall to allow visibility into adjacent Care Team Station
		.01	*- table with chairs*	*4*	*30*				*2.8*					
		.02	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*				Enclosed for dictation	
07	.010		Consult Room/Quiet Room			120	1	120		11.1	1	11.1	Multipurpose - For MD calls, consult, virtual and also for family consult, family quiet	
07	.011		Alcove for Emergency Equipment			10	1	10		0.9	1	0.9		
07	.012		Medication Room			120	1	120		11.1	1	11.1		
		.01	*- automated dispensing unit (ADU)*	*1*	*60*				*5.6*					Double cell ADU
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- countertop workspace*	*1*	*40*				*3.7*					
07	.013		Nourishment Alcove			35	1	35		3.3	1	3.3		
07	.014		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
07	.015		Equipment Storage			180	1	180		16.7	1	16.7	For IV poles, extra monitors, commode chairs, wheelchairs, portable lift	Provide power bars at 42" AFF, cross-circulation path between two entries
07	.016		Clean Supply Room			120	1	120		11.1	1	11.1		
07	.017		Soiled Utility Room			130	1	130		12.1	1	12.1		
07	.018		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Locate Adjacent to Soiled Utility Room
07	.019		Washroom, Staff			50	1	50		4.6	1	4.6		
07	.020		Housekeeping Room			120	1	120		11.1	1	11.1		
07	.021		left intentionally blank											
07	.022		left intentionally blank											
			Zone 3: Therapy and Support			**subtotal net area**		**867**		**subtotal net area**		**80.5**		
07	.023		Patient Lounge			230	1	230		21.4	1	21.4		Locate adjacent to Dining/Activity Room with access to outdoor terrace space if possible. Adjoining wall could be opened to allow for one larger room
		.01	*- lounge seating*	*6*	*25*				*2.3*					Provide comfortable Lounge seating
		.02	*- storage cabinet*	*1*	*40*				*3.7*					
		.03	*- television area*	*1*	*40*				*3.7*					
07	.024		Dining/Activity Room			625	1	625		58.1	1	58.1	Plan for 4 tables of 4 patients, for meals and activities (10 patients, 6 seats for family/staff)	Locate adjacent to Patient Lounge with access to outdoor terrace space if possible. Adjoining wall could be opened to allow for one larger room
		.01	*- seats, dining table and chairs*	*16*	*30*				*2.8*					
		.02	*- storage cabinet*	*1*	*30*				*2.8*					
		.03	*- nourishment centre*	*1*	*105*				*9.8*				For staff and food services use	Enclosed room, ward stock, future meal prep
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
07	.025		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Locate adjacent to Dining/Activity Room

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 3: Therapy and Support (shared with Reactivation and Complex Medical Management Unit)			subtotal net area		-		subtotal net area		0.0		See Reactivation & Complex Medical Management Unit Component
			left intentionally blank											
			Zone 4: Staff & Administrative Support			subtotal net area		240		subtotal net area		22.3		
07	.026		Office, Single			100	1	100		9.3	1	9.3	Flexible use	
07	.027		Office, Shared			140	1	140		13.0	1	13.0	Flexible use	Provide two workstations
07	.028		Multipurpose Meeting Room			325	0	-		30.2	0		Used for Patient rounds, family meetings, staff meetings. 2 multipurpose rooms planned in total (Reactivation & Complex Medical Management and Critical Care components) and available for all clinical programs	See Reactivation & Complex Medical Management Unit Component
07	.029		Lounge			542	0	-		50.4	0		Shared with Reactivation & Complex Medical Management Unit	See Reactivation & Complex Medical Management Unit Component
07	.030		left intentionally blank											

08. Laboratory

Functional Description (Current and Projected)

Service Overview

Laboratory Services are located at each of the MAHC sites to provide 24-hour clinical support with testing used in the diagnosis and evaluation of disease. The MAHC Laboratories support hospital-based testing and do not provide community lab services except on rare circumstances with referal.

Laboratory Services include Biochemistry, Haematology, select Microbiology, Transfusion Medicine, Outpatient Specimen Collection and ECG testing. The Laboratory is also responsible for Point of Care (POC) testing as well as the Morgue.

Currently, most Microbiology is referred out, post workup, to the Shared Hospital Laboratory (SHL). Rapid antigen testing, polymerase chian reaction (PCR) analysis, respiratory syncytial virus (RSV) and flu screening will continue to be provided at both MAHC Laboratories on-site. Cytology is currently referred out and will continue to be in the future.

ECG services are provided by Laboratory staff, on demand, and this is anticipated to be unchanged in the future. The ED and CCU will continue to perform their own ECGs.

Future siting of Laboratory Services will be aligned to meet forecasted volumes with space designed and scaled to achieve maximum operational efficiency and optimum clinical support.

Planning Principles and Assumptions

The following planning assumptions are to be noted for Laboratory Services:

- The current test menu will be continued for the 2031/32 planning horizon, within the capacities of the equipment on-site.
- Transfusion Medicine may have additional equipment (auto-analyzer) at both sites.
- Microbiology: A small space will continue to be required for Microbiology workups (gram stain), prior to being referred out for testing (hood, bench, sink, microscope). Rapid antigen testing, PCR analysis, RSV and flu screening will continue to be provided at both MAHC Laboratories.
- The South Muskoka Memorial Hospital (SMMH) will continue to be the central location for Pathology Medicine, however HDMH will have capacity to prepare frozen sections within the Lab, supported by Pathology.
- The relationships between the Laboratory, the ED, Surgical Suite, Inpatients and CCU are core considerations for adjacencies in program spaces.

Patient Profile

MAHC patients of all ages will be supported by the Laboratory at the HDMH. This includes inpatients, ED patients and outpatients.

Scope of Services (Current and Projected)

HDMH Laboratory on-site services will include:

- Pre/Post Analytical: Pre-analytical functions, specimen receiving, specimen send-out, data entry and distribution of specimens across all disciplines
- Biochemistry: Routine chemistry evaluation of electrolytes, enzymes, immunoproteins and hormone levels used in diagnosing the diseases of organs and interactive organ systems; urinalysis as a check on kidney function and disease states; therapeutic drug level testing to evaluate the efficacy of treatment in attaining steady-state therapeutic levels; and drug testing to identify overdose scenarios and affect suitable course of treatment
- Haematology: Cell counts and morphological assessment in peripheral blood and body fluids to aid in identification, diagnosis, treatment and follow-up of haematological disorders, leukemia, and other cancers; coagulation testing to aid in the diagnosis of coagulation deficiencies and thrombotic conditions, as well as to monitor anticoagulated patients
- Microbiology: Workup for referred out testing: identification of pathogenic organisms, antimicrobial susceptibility testing, microscopy, and serology; on-site rapid antigen testing, PCR analysis, RSV and flu screening
- Transfusion Medicine: Pre-transfusion testing to provide serologically compatible blood products to patients and serological testing for diagnosis of immune disorders; blood grouping, antibody screening, cross matching and plasma/blood products storage
- Specimen Collection: Specimen collection will occur within different services and the responsibility for collection will differ by patient location and specimen type (see workflow details below)
- Pathology: Specimens collected at HDMH will be contained, batch packed and referred out to SMMH for histology and pathology. HDMH will prepare frozen sections within the Lab, supported by Pathology
- Morgue: Body holding, identification and family viewing will be supported within the Morgue space
- Point of Care Testing (POCT): Control and monitoring of POCT including glucose testing, urinalysis, amnio, fecal occult and pregnancy testing
- ECGs: Lab technicians provide ECG testing for inpatients and outpatients on an as needed basis, outpatient testing is done within the same footprint as Outpatient Specimen Collection. The ED and CCU will perform their own ECGs.

The table below articulates the current and future services to support core programs across the MAHC system.

Table 1. Current and Future Laboratory Services per Hospital Site

	Huntsville (HDMH)		***South Muskoka (SMMH)***	
Service	**Current**	**Future**	**Current**	**Future**
Accessioning	✓	✓	✓	✓
Biochemistry	✓	✓	✓	✓
Haematology	✓	✓	✓	✓
Microbiology (limited, workup for referring out)	✓	✓	✓	✓
Cytology	-	-	-	-
Pathology/Histology	-	Frozen sections	✓	✓
Transfusion Medicine	✓	✓	✓	✓
Point of Care Testing (POCT)	✓	✓	✓	✓
Specimen Collection/Phlebotomy	✓	✓	✓	✓
Electrocardiogram (ECG)	✓	✓	✓	✓

Education

Laboratory Services will provide educational placements for one to two Medical Lab Technologists (MLT) and one to two Medical Lab Technicians/Assistants (MLA). At any given time, there may be up to two trainees working in the department.

Senior MLTs require workspaces for ongoing professional development and education.

Research

Laboratory Services may participate in research initiatives/studies in the future, and appropriate equipment validation space may be used to support these initiatives.

Linkages/ Partnerships

Laboratory Services will continue to initiate and participate in collaborative, partnerships supporting an integrated system of care. External linkages and partnerships are listed below:

Table 2. Linkages and Partnerships

Linkages/Partnerships	Description
Cambrian College; Georgian College	MLT and MLA learners/placements
Dynacare Huntsville and Bracebridge	Esoteric testing for MAHC
Shared Hospital Lab (SHL)	Microbiology testing
Orillia Soldier's Memorial Hospital, Royal Victoria Regional Health Centre (Barrie)	Reference Lab as needed
SickKids Hospital (Toronto)	Stat testing for speciality test
Hospital Laboratories (Mount Sinai, University Health Network [UHN], St. Michaels, Sudbury)	Histology services
Public Health Laboratory	Referred testing
Canadian Blood Services	Blood product
Other Area Hospitals	Back-up agreement for testing, reciprocated
Burks Falls/Parry Sound Hospitals	Collection centres refer some testing to HDMH

Workload (Current and Projected)

Table 3. Historical and Projected Workload

		Historical[1]			Projected
Service	**Measure**	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Total		827,228	827,228	827,228	1,079,329
Core Lab: Clinical Chemistry	Contracted Out Procedures	3,600	3,600	3,600	5,108
	Procedures	239,696	239,696	239,696	313,308
Core Lab: Clinical Haematology	Procedures	93,617	93,617	93,617	122,097
Core Lab: Clinical Microbiology	Contracted Out Procedures	1,469	1,469	1,469	1,863
	Procedures	120,921	120,921	120,921	155,142
Core Lab: Cytopathology	Procedures	17,680	17,680	17,680	23,987
Core Lab: Pre & Post Analysis	Procedures	338,462	338,462	338,462	441,497
Core Lab: Transfusion Medicine	Procedures	16,852	16,852	16,852	23,298

Note:

1. Historical workload as provided by MAHC; volumes unavailable for unique years.

Operational Description

Organization and Management

MAHC Laboratory Services will operate under a dyad leadership model consisting of a Director of Community Collaboration and Diagnostics, a Manager of Laboratory Services and a Medical Lead, currently a Pathologist. Within each Laboratory service area, Senior MLTs will report to the site-specific Charge Technologists.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 4. Laboratory Services Hours of Operation

	Current			Projected		
HDMH	**Weekday**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Specimen Collection	On demand	On demand	On demand	On demand	On demand	On demand
ECG Testing	On demand	On demand	On demand	On demand	On demand	On demand
Laboratory	24 hours	24 hours	24 hours	24 hours	24 hours	24 hours

Duration of Visit

Outpatient Specimen Collection or EGC: The anticipated length of visit for specimen collection or ECG testing is approximately 10-15 minutes.

Workflow

Requisitioning of Tests

The requisitioning of tests will be initiated by physician order entry electronically. Container labels will be printed at the time of order and affixed to the containers at the time of collection.

ECGs will also be requisitioned via physician order entry. Appointments are walk-in based, and not booked in advance.

Specimen Collection

An automated process such as a hand-held device will be used at the point of collection to scan the patient's bar-coded identification and print the collection label. This assures positive patient identification and will automatically capture the time of collection and identification of the individual performing the collection. The responsibility for specimen collection will differ by patient location and specimen type:

- Outpatient blood collection (for MAHC patients) will continue to be offered five days a week during regular business hours at the Outpatient Specimen Collection area of the Laboratory, and after-hours collection will be accommodated, when required. This includes regular blood work for oncology patients.
- Laboratory staff will be responsible for collecting inpatient blood specimens during routine morning rounds, and stat collections. They will also be responsible for collecting specimens from patients within the Day Surgery department (before and/or after surgery), as well as outpatient baby follow-ups within the Maternal Newborn Unit.
- Lab will also continue to be responsible for collection in the ED and CCU and providing support for difficult draws when nursing staff is collecting.

- Stat specimens collected by nursing staff are delivered by the most appropriate staff.
- Venous blood gases (VBG) will be collected by MLA/Ts; arterial blood gases (ABG) will be collected by physicians and/or RT staff, as needed.

Specimen Transportation

Most specimens will be sent to the Laboratory via pneumatic tube. Tissue specimens, arterial gas, fluid containers and other specimens not appropriate for tubing will be picked up by the most appropriate staff.

Specimen Receiving and Processing

There will be a Central Receiving and Accessioning zone at the entrance to the Laboratory that will receive and sort most specimens for distribution to the appropriate processing areas. This area will be operated by MLAs and will include the following:

- Drop point for the pneumatic tube system
- Drop-off of hand delivered/couriered specimens, and Canadian Blood Services products
- Pick-up for couriers/taxis (referred out testing)
- Pick-up for blood products for outpatients
- Specimen accessioning and centrifuging area.

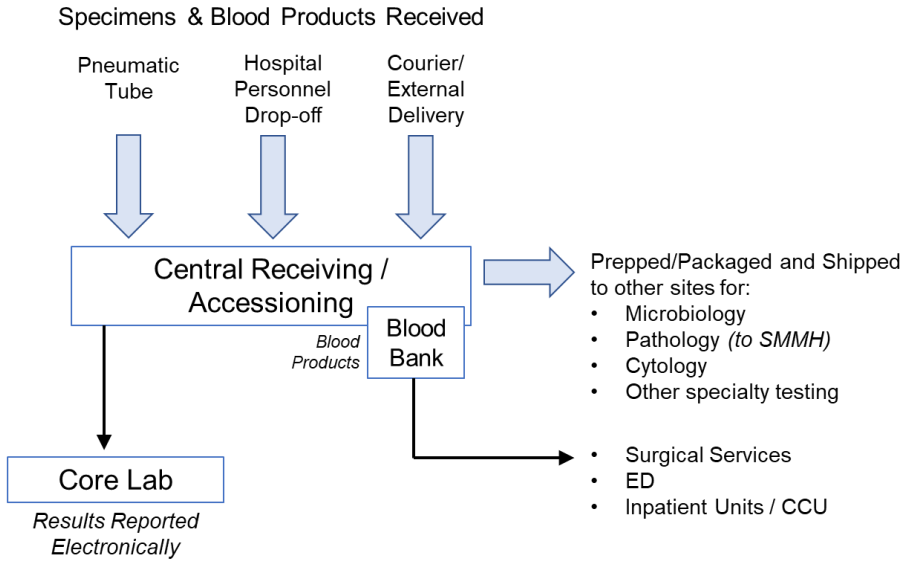
All collected specimens will arrive labelled and bar-coded. The samples will be entered into the Laboratory Information System (LIS) and sorted according to testing site, urgency and the need for pre-processing.

Blood specimens for chemistry, Haematology, and coagulation will be entered by Laboratory staff into the LIS. Specimens will be centrifuged, de-capped, aliquoted, and relabelled as necessary. Whole blood specimens and other samples that do not require preparatory centrifugation will be passed directly to the appropriate testing station, such as routine Haematology.

Specimens for dispatch to other laboratories will be packed by the Laboratory staff and held; refrigerated, frozen or room temperature, for courier pick-up. Space will be needed for phlebotomy tray storage, transfer carts, containers, and storage of packaging materials.

There will be appropriate storage space for Pathology and Microbiology specimens received after-hours.

Figure 1. Laboratory Workflow – Central Receiving/Accessioning



In-Laboratory Specimen Flow

Chemistry: Specimens will be placed in the loader of the chemistry analyzer for automated processing. All samples remaining after processing will be retained in refrigeration for re-testing for up to three to seven days.

Routine Haematology: Specimens will be loaded into the analyzers. Abnormal samples will be flagged for further study by microscope examination. Blood smears will be made on glass slides and stained. Routine smears are retained for seven days. Abnormal slides are retained for 10-28 years except from children less than 18 years, which are stored up to 30 years. Routine Haematology samples will be retained for 48 hours at room temperature.

Consideration for new technology such as CellaVision™ may be used to digitize the peripheral blood smears, perform blood cell differentials, and then make the images available for remote review via tele haematology.

Transfusion Medicine: Samples for blood grouping, antibody screening and crossmatch are forwarded after centrifugation to Transfusion Medicine for processing; red cells (fridge) seven days, plasma (frozen) three weeks. Nursing staff requiring access to unmatched blood product during a trauma will present at the Lab to pick-up the blood products which are issued by the Lab staff.

Microbiology: Blood culture specimens will have short term incubation and be referred out from both sites. All rapid micro specimens will be collected from the specimen fridge in central processing and processed as appropriate. Stat specimens such as body fluids and cerebrospinal fluid (CSF) must be delivered to the Microbiology Laboratory immediately upon collection. C-difficile samples and cultures and slides (gram staining) will be retained for one year. Urine culture collection containers are retained for up to three days in fridge.

Pathology: Surgical specimens are contained in formalin with the surgical component and delivered to the Laboratory for either preparation of a frozen section, or batch packaging for shipping to SMMH. Samples for frozen sections are processed in a cryostat and read on-site by a Pathologist.

Cytology: Specimens are shipped to Dynacare for processing, screening, and interpretation.

Reporting

Most analyzers will have bi-directional communication capability allowing direct download of results into the LIS, Cerner PowerChart™. A few test results may need to be entered into the system manually.

Results are reported and released by the Lab Technologist for electronic reporting. Stats are automatically broadcast to the appropriate location upon release. All results will continue to be reported electronically using appropriate security protocols.

ECGs will be read reported electronically by a third-party provider, and results uploaded into the patient EMR.

Other Laboratory Service Flows

Point of Care Testing

POCT will continue to be performed by clinical staff in key clinical areas such as the ED and Obstetrics. POC glucometers are already deployed to many services. Results will be interfaced where possible with the LIS, auto-received and auto-released in real time through middleware platform. Maintenance and validation is the responsibility of the Laboratory staff within the Laboratory.

Morgue

Bodies will be transported to the Morgue by clinical staff. Lockable storage will be used to keep personal effects safe until pick-up from families. Bodies will be held in a refrigerated storage unit until released to the coroner, family, or funeral home in accordance with authorities and provincial policies. Depending on the known or suspected infectious status of the body, additional precautions may also be required until the body is enclosed in a body bag of approved construction for transport.

General Support Activities

Supplies, Cleaning & Disposal

On a weekly basis, technologists will check inventory and order laboratory supplies for their particular service, and stock order products that are maintained by purchasing will be inventoried and ordered by purchasing. Materials Management will deliver supplies to the Laboratory once received at the dock. A central storage area within the Lab will be provided for holding bulk laboratory supplies, including reagents. This area will include secure dry and cold storage, the latter in commercial/laboratory refrigerators/freezer. Storage will be located at each testing station in under and over counter cupboards and shelving, stocked by Lab staff and replenished as necessary. Acid corrosive safety cabinets and flammable cabinets are required for storage at both sites.

All streams of waste will be stored in bins of various sizes at each work area. Laboratory staff will seal the biomedical waste containers/bags when filled and place the contents in exchange biohazard containers for pick-up by Environmental Services (EVS). EVS staff will remove the filled exchange containers for final, off-site disposal. The central Soiled Utility Room will also house exchange containers for recycling and garbage waste streams.

EVS staff will provide daily service within the Laboratory.

Occupational Health

Staff will wear a laboratory coat when working in the Laboratory. An alcove located adjacent to the entrance/exit will accommodate clean working coats. Similarly, a drop-off area will be provided for soiled coats prior to exiting the Laboratory. Coats will be laundered in-house by EVS, while gowns for Microbiology will be sent off-site for laundering.

Appropriate eyewash stations and emergency deluge showers with drain will be located at accessible points around the Laboratory in accordance will guidelines and standards.

Staff Resources

A small Staff Lounge with kitchenette will be provided, while staff support spaces such as lockers, change facilities and showers will be centralized.

Enabling Technologies

Information and Communication Systems

Laboratory Services require reliable and effective IT/Communications Services for efficient operation. The IT design should address:

- Patient clinical information systems and electronic records
- Wireless and hospital network requirements, high capacity and speed for digital equipment
- Wearable communication technology (e.g., Vocera) for agile staff communications.

Equipment and Biomedical Engineering

ECG machines, centrifuges, and small repairs are undertaken by third-party biomedical engineering services, and other equipment by the vendor. All equipment should be planned with accessibility for servicing.

Staffing (Current and Projected)

Table 5. Current and Projected Staffing

	Current	2031/32			
Laboratory	**2022/23 Total FTE**	**Total Projected FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	17.76	22.43	11	4	3
Charge Lab Technologist	1.00	1.00	1	0	0
Sr. Lab Technologist	0.00	3.45	3	0	0
Microbiology Technician	1.72	0.00	0	0	0
Manager (shared resource)	1.00	0.50	1	0	0
Lab Technician	8.58	9.20	4	2	1
Lab Technologist	5.46	8.28	2	2	2

Design Objectives

Locations and Adjacencies

The following adjacencies are to be prioritized for Laboratory Services:

- Easy access by couriers for receipt and shipping of specimens and blood products
- Adjacency to the ED to facilitate quick transfer of urgent specimens and support of specimen collection
- A central location with easy navigation from the main entrance/patient parking is important for Specimen Collection and ECG testing
- Easy access to CCU, Surgical Suite, Labour & Delivery and ED is important for timely delivery of blood and blood products and to minimize transfer distance and avoid public corridors/elevators with specimens and product
- The Morgue should be sited close to the receiving dock for easy access for pick-up by funeral homes, however, must be in an appropriate setting for family access.

Internal Organization

The Laboratory should be organized into principal zones: Accessioning and Collection, Core Laboratory, Administrative and Staff Support:

Accessioning should be directly adjacent to a main circulation route.

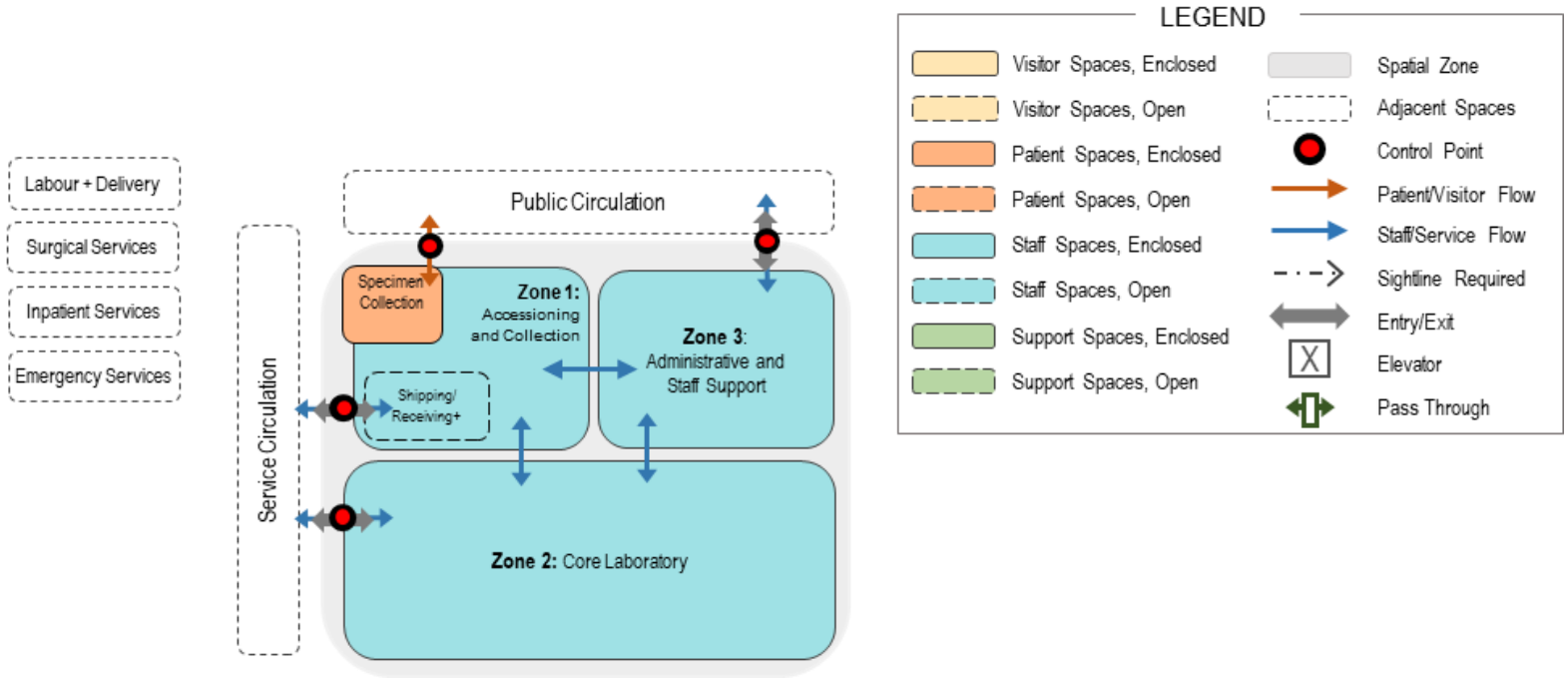
Core Laboratory will accommodate all testing stations in an open, flexible work environment (including maximizing column-free space) that can be adjusted easily to accommodate new instruments and workflows. Technical support spaces should be convenient to all Laboratory areas and accessible to main hospital circulation to permit delivery of goods and removal of waste. Biochemistry, Haematology and Transfusion Medicine will function as a Core Lab with reduced staff covering this area on evenings and nights seven days per week, and as such, should be organized in a manner that supports efficient flow and minimizes walking distances to key equipment.

Administration/Support should be located close to the Laboratory entrance and reached without passing through the testing areas.

Outpatient Specimen Collection and ECG Testing should be conveniently located for outpatients and adjacent to main Laboratory for support from limited Laboratory staff working after regular daytime hours. A method for notifying Lab staff of after-hours patients should be implemented.

The spatial organization of the Laboratory should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 2. Adjacency Diagram



Special Considerations

Infection Prevention and Control

All patient specimens will be considered bio-hazardous, and thus universal safety precautions will be followed to ensure employee and patient safety. All equipment, furnishings and finishes must be easily cleanable with approved hospital grade disinfectants. Sufficient access is required to personal protective equipment, hand hygiene sinks and stations and washrooms throughout.

Wayfinding

Appropriate and intuitive wayfiding should be provided for both couriers, and patients accessing Laboratory Services.

Acoustic	While an open laboratory will promote flexibility and interaction it may be a source of higher noise levels. Consideration should be given to partial enclosures around particularly loud instruments, together with sound absorbing surfaces to minimize reverberant sound. The latter would include sound absorbing ceiling surfaces and vertical baffles between stations.
Air/Environmental	Laboratory ventilation must provide comfortable conditions for staff, support correct, continuous, operation of laboratory equipment; and, remove odours and fumes from working areas. Analyzers generate a substantial quantity of heat, which must be removed to ensure its continuous function. Work involving chemically hazardous material will be conducted in appropriate safety cabinets and local exhaust ventilation should be considered at bench level for localized fumes/smells.
Architectural/Structural/ Electrical/Mechanical	Dispersed, individual purified water outlets will be required for work areas around the Laboratory. An RO system is required for the main automated chemistry analyzers. Utility power outlets (110v & 220v) should be provided at regular intervals (four to five feet on centre) along all laboratory benches. Sufficient power should be allowed for primary instruments and a wide range of LIS terminals and peripherals. Higher power/voltage, special characteristics, emergency power and UPS needs should be determined at the design stage when more detailed equipment information is available. Selected pieces of equipment, such as blood bank refrigerators and freezers, will require an alarm connection that is monitored by switchboard staff. A pneumatic tube between the Laboratory, ED, Inpatient Units and other key areas of the hospital, will be provided. Future staffing estimates are predicated on such a system. There shall be doors into each Laboratory large enough to move equipment in and out of the space.
Lighting	Provide glare-free full-spectrum, artificial or natural, lighting and special task types for technical work areas. Natural light should be provided in areas where staff work all day.
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 should be considered.

Security	The Laboratory will be secured, and access controlled by employee RFID badge (swipe access). A camera system will be used for monitoring entrances from central security. No patient access to the work areas of the Laboratory will be possible.
Codes & Standards	In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 6. *Space Table*

			Component Gross Area (CGSF): TOTAL				**4,180**				**388.3**		
			Component Gross Area (CGSF) : Laboratory Services				**3,325**				**308.9**		
			Net to Gross Ratio				1.30				1.30		
			Total Net Area (NSF)				2,559				237.7		
			Component Gross Area (CGSF) : Morgue				**855**				**79.4**		
			Net to Gross Ratio				1.30				1.30		
			Total Net Area (NSF)				658				61.1		
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Accessioning & Collection			**subtotal net area**		**820**		**subtotal net area**		**76.2**		
08	.001		Entry/Exit			25	1	25		2.3	1	2.3		
		.01	*- lab coat rack/PPE area*	*2*	*5*				0.5					
		.02	*- laundry hamper*	*1*	*5*				0.5					
		.03	*- hand hygiene sink*	*1*	*10*				0.9					
08	.002		Shipping/Receiving			95	1	95		8.8	1	8.8		
		.01	*- receiving counter*	*1*	*25*				2.3				For after-hours drop-off, storage for containers	
		.02	*- hand hygiene sink*	*1*	*10*				0.9					
		.03	*- workstation, log-in /sorting*	*2*	*15*				1.4					Include terminal and printers
		.04	*- packing station*	*1*	*30*				2.8					Include supplies
08	.003		Specimen Processing/Product Issuing			140	1	140		13.0	1	13.0	Accommodates approx. 3 staff	
		.01	*- drop-off window*	*1*	*15*				1.4					
		.02	*- work counter*	*1*	*50*				4.6					Include blood culture incubators (stackable)
		.03	*- terminal/bar code scanner, label printer*	*1*	*20*				1.9					
		.04	*- storage, room temperature products*	*1*	*20*				1.9					
		.05	*- pneumatic tube station*	*1*	*15*				1.4					
		.06	*- centrifuge*	*2*	*10*				0.9					
08	.004		Freezer/Refrigerator			20	2	40		1.9	2	3.7	For sample storage	
08	.005		Storage, Supplies			80	1	80		7.4	1	7.4		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
08	.006		Specimen Collection and ECG			265	1	265		24.6	1	24.6		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- collection cubicle, accessible*	*1*	*80*				7.4					
		.03	*- stretcher, ECG*	*1*	*120*				11.1					
		.04	*- specimen sorting and supplies*	*1*	*30*				2.8					
		.05	*- carts for collection*	*3*	*5*				0.5					
		.06	*- ECG storage*	*1*	*10*				0.9					
08	.007		General Support Areas			175	1	175		16.3	1	16.3		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- eyewash*	*1*	*10*				0.9					
		.03	*- waste and biohazard bins*	*1*	*50*				4.6					
		.04	*- utility sink and counter*	*1*	*30*				2.8					
		.05	*- housekeeping closet*	*1*	*75*				7.0					
08	.008		left intentionally blank											
			Zone 2: Core Laboratory			**subtotal net area**		**1,135**		**subtotal net area**		**105.4**		
08	.009		Chemistry Automated			255	1	255		23.7	1	23.7		
		.01	*- set-up and terminal w/ printer*	*1*	*50*				4.6					
		.02	*- sink station*	*1*	*10*				0.9					
		.03	*- floor analyzer (Vitros®)*	*1*	*110*				10.2					Based on Vitros 7600
		.04	*- refrigerator*	*1*	*20*				1.9					Include 3-door fridge
		.05	*- freezer (-20c)*	*1*	*15*				1.4					
		.06	*- validation space*	*1*	*50*				4.6					
08	.010		Blood Gas			25	1	25		2.3	1	2.3		
		.01	*- set-up and terminal w/ printer*	*1*	*10*				0.9					
		.02	*- analyzer*	*1*	*10*				0.9					Based on GEM 5000
		.03	*- blood mixer*	*1*	*5*				0.5					
08	.011		Urinalysis Station			70	1	70		6.5	1	6.5		Assumes Urine Drug Analyzer in future (bench top)
		.01	*- set-up and terminal*	*1*	*10*				0.9					
		.02	*- analyzer (clinitek)*	*1*	*10*				0.9					Based on Clinitek Advantus
		.03	*- microscope and set-up*	*1*	*20*				1.9					Potential future provision for automation
		.04	*- centrifuge*	*1*	*10*				0.9					
		.05	*- vented pour-off sink*	*1*	*20*				1.9					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
08	.012		Rapid Microbiology Testing			*115*	1	115		10.7	1	10.7		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- BSC (biosafety cabinet)*	*1*	*25*				2.3				For rapid tests/gram stains, etc.	
		.03	*- molecular testing equipment*	*1*	*20*				1.9					Based on Abbot ID Now (x 2) , BD Bactec, GeneXpert Dx
		.04	*- microscope bench*	*1*	*25*				2.3					
		.05	*- workstation*	*1*	*25*				2.3					
		.06	*- PCR equipment*	*1*	*10*				0.9					
08	.013		Haematology			150	1	150		13.9	1	13.9		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- set-up and receiving w/ terminal*	*1*	*10*				0.9					
		.03	*- analyzer*	*2*	*20*				1.9					Based on DxH 600 and 520, confirm
		.04	*- CellaVision®*	*1*	*15*				1.4				For blood and body fluid differentials	
		.05	*- blood mixer*	*1*	*10*				0.9					
		.06	*- automated stainer*	*1*	*10*				0.9					Based on HemaTek 3000 Stainer
		.07	*- centrifuge*	*1*	*10*				0.9					Based on Cytospin
		.08	*- refrigerator*	*1*	*20*				1.9					
		.09	*- freezer (-40c)*	*1*	*15*				1.4					
		.10	*- workstation*	*1*	*10*				0.9					
08	.014		Coagulation Station			35	1	35		3.3	1	3.3		
		.01	*- analyzer*	*1*	*25*				2.3					Based on ACL TOP 350
		.02	*- centrifuge*	*1*	*10*				0.9					Based on Hettich EBA 205
08	.015		Transfusion Medicine			115	1	115		10.7	1	10.7		
		.01	*- cell wash centrifuge*	*2*	*10*				0.9					Based on Serofuge 2002 and Ultrawasher
		.02	*- plasma thawer/water bath*	*1*	*15*				1.4					Based on Helmer Plasma Thawer
		.03	*- counter w/ utility sink*	*1*	*20*				1.9					
		.04	*- microscope (inverted)*	*1*	*10*				0.9					
		.05	*- workstation, Tech including terminal*	*2*	*20*				1.9					
		.06	*- cross-matching equipment*	*1*	*10*				0.9					Potential future provision for automation
08	.016		Storage, Blood Products			50	1	50		4.6	1	4.6		
		.01	*- refrigerator*	*1*	*20*				1.9					
		.02	*- freezer (-30c)*	*1*	*20*				1.9				For plasma storage	
		.03	*- incubator/shaker*	*1*	*10*				0.9					Based on Helmer platelet incubator

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
08	.017		Frozen Section Area, Pathology			50	*1*	50		4.6	1	4.6		
		.01	*- set-up and staining*	*1*	*25*				2.3					
		.02	*- cryostat*	*1*	*15*				1.4					
		.03	*- utility sink*	*1*	*10*				0.9					
08	.018		Support Area			160	1	160		14.9	1	14.9		
		.01	*- storage, reagent storage*	*1*	*100*				9.3					
		.02	*- RO water system*	*1*	*15*				1.4					Based on Millipore Water System
		.03	*- dry ice maker*	*1*	*10*				0.9					
		.04	*- emergency shower*	*1*	*35*				3.3					
08	.019		Glasswashing Area			60	1	60		5.6	1	5.6		
		.01	*- utility sink w/ pipette washer attached*	*1*	*20*				1.9					
		.02	*- counter with under counter dishwasher*	*1*	*25*				2.3					Provide under counter dishwasher
		.03	*- set-up station*	*1*	*15*				1.4					
08	.020		Workstation, Senior MLT			50	1	50		4.6	1	4.6		
08	.021		left intentionally blank											
08	.022		left intentionally blank											
			Zone 3: Administrative and Staff Support			**subtotal net area**		**604**		**subtotal net area**		**56.1**		
08	.023		Office, Manager			100	1	100		9.3	1	9.3		
08	.024		Office, Charge Tech			100	1	100		9.3	1	9.3		
08	.025		Workstation, Touchdown			30	2	60		2.8	2	5.6		Student/Touchdown
08	.026		Office, Lab Director (Medical)			100	1	100		9.3	1	9.3		
08	.027		Washroom, Staff			50	1	50		4.6	1	4.6		
08	.028		Staff Lounge			194	1	194		18.0	1	18.0		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- kitchenette*	*1*	*60*				5.6					
		.03	*- table and chairs*	*4*	*25*				2.3					
		.04	*- cube lockers, staff*	*12*	*2*				0.2					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
08	.029		left intentionally blank											
			Zone 4: Morgue			**subtotal net area**		**658**		**subtotal net area**		**61.1**		
08	.030		Vestibule			86	1	86		8.0	1	8.0		
		.01	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.02	*- storage lockers*	*8*	*2*				*0.2*				For belongings of deceased	
		.03	*- workstation*	*1*	*30*				*2.8*				For preparation of paperwork	
		.04	*- alcove, stretcher*	*1*	*30*				*2.8*					
08	.031		Holding Room			336	1	336		31.2	1	31.2		
		.01	*- refrigerated cabinets*	*1*	*180*				*16.7*					Provide 12 trays in a configuration of 2 racks wide by 4 racks high
		.02	*- lifting equipment*	*1*	*50*				*4.6*					
		.03	*- PPE storage*	*1*	*10*				*0.9*					
		.04	*- linen cart*	*1*	*20*				*1.9*					
		.05	*- cart, body parts*	*1*	*20*				*1.9*					
		.06	*- circulation/maneuvering space*	*1*	*56*				*5.2*					
08	.032		Identification Room			80	1	80		7.4	1	7.4		Provide separate room/distinct area with direct access off body holding, room for stretcher with window from viewing room
		.01	*- circulation for stretcher*	*1*	*80*				*7.4*					
08	.033		Viewing Room			96	1	96		8.9	1	8.9		Provide window with integral blinds controlled from the Identification Room side
		.01	*- seating*	*4*	*20*				*1.9*					
		.02	*- circulation*	*1*	*16*				*1.5*					
08	.034		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		

09. Main Lobby

Functional Description (Current and Projected)

Planning Principles and Assumptions

The HDMH Main Lobby and related spaces are comprised of the following services, that when combined will provide social, retail, and service-related activities that are of particular interest to patients, staff, and visitors coming to the site.

- Main Lobby Spaces (e.g., gathering spaces, Information Desk, Washrooms, vending, Nursing Mother's Room)
- Huntsville Hospital Auxiliary (incl. retail operations)
- Huntsville Hospital Foundation (incl. Foundation Office and Donor Recognition/Wall Display)
- Patient Registration
- Patient Navigator/Indigenous Relations (PN/IR) Office
- Security Office
- Spiritual Care.

In keeping with best practices in patient- and family-centred care, the Main Lobby will provide an excellent patient and family experience, with a friendly, welcoming, accessible, and easily navigable environment.

Other planning principles will include:

- The Main Lobby will be a space that patients (and their visitors) can use as a "destination" when they leave their rooms and move about the site; it will serve as an attraction away from other areas for patients, families, and staff, i.e., to provide a positive diversion for family members who are awaiting a patient receiving treatment or to give respite to visitors who are spending lengthy amounts of time at the bedside, etc.
- The Main Lobby will require flexibility to accommodate additional screening measures for outbreak management. Changes to overall planning and design principles related to pandemic planning are ongoing and will be incorporated as they are available and as planning proceeds.
- The Main Lobby will be designed such that it could be utilized as a gathering place for fundraising events, awards, press conferences, and other group events.
- It is assumed that the Main Lobby will be planned and designed to be culturally sensitive, accessible, and age-friendly across the human lifespan, engaging and supporting patients, staff and visitors of all ages and abilities.

- Informational electronic displays will have content updated and changed regularly. Ownership of content will likely rest with Administration (e.g., Public Relations and Communications), with input from programs/services as applicable.
- As an increasingly technology-dependent population, frequent spaces for device charging will be dispersed throughout the seating areas, for public use.
- Spiritual Care will include a Multi-Faith Healing Room with supports for traditional medicine; decentralized outdoor therapeutic space may be provided on the site for patient, staff, and visitor use. This may include a labyrinth, outdoor seating area, Indigenous healing garden, and/or memorial gardens.
- The Multi-Faith Healing Room is intended to be used for emotional, mental, and/or spiritual wellness on a first come/first serve basis and must be available to patients and families in their moment of need. While periodic standing events may be held (e.g., holiday-related Mass), it is not intended to be used as a bookable space for purposes related to spirituality or otherwise (e.g., for use as meeting, exercise space).
- Donor recognition will be included within the Main Lobby and/or other public spaces on the site and may include (but is not limited to Donor Recognition/Wall[s]), memorial wall/plaques (for long tenure staff, volunteers, medical staff), capital project recognition etc. The scope, design and location of donor recognition will continue to develop over the course of the project, and not as a direct outcome of functional programming.

Patient Profile

The Main Lobby will support all patients, staff, visitors, and volunteers at the site.

Scope of Services (Current and Projected)

Main Lobby

Amenities included within the Main Lobby component will be the focal point of the hospital. As such, it will function as the centre from which all activity will be directed. The Main Lobby will accommodate:

- Arrival/drop-off at the building entry including a covered drop-off shielded from the weather and entry vestibule
- Wheelchair storage
- Hand sanitizing stations
- Informal socializing lounge/waiting space
- Pay parking machine (if machines are not pay and display), change machine, automated teller machine (ATM)
- Public Washrooms

- Nursing Mother's Room
- Public/taxi telephones.

The Main Lobby will also include other elements, some of which will be discussed in more detail in the sub-sections below:

- Information Desk – to provide information and wayfinding and monitor people entering the facility (e.g., for hand hygiene); will include a payment box for cashier services (it is assumed most payment will be online)
- Patient Registration (see below)
- Auxiliary-run Gift Shop (see below)
- PN/IR Office (see below)
- Foundation Office and Donor Recognition/Wall Display (see below)
- Communications space and public information displays – changeable space to communicate MAHC information, wellness resources/learning
- Multi-Faith Healing Room to be used for quiet prayer, memorial services, music and meditation
- Kiosks for access to electronic information (e.g. information/wayfinding, fundraising, e-cashier).

Auxiliary

As a result of the merging of two separate hospitals MAHC has maintained two distinct Auxiliaries. These include the South Muskoka Memorial Hospital Auxiliary and the Huntsville Hospital Auxiliary. It is assumed that the two organizations will remain as separate entities as long as two acute care hospital sites exist.

The Huntsville Hospital Auxiliary facilitates volunteer placement in clinical and non-clinical programs/services throughout the HDMH.

In addition, the Auxiliary will:

- Operate the Gift Shop
- Operate the Information Desk
- Operate the coffee bar
- Provide portering services
- Hold annual fundraising and special events.

The Gift Shop will sell a variety of items to the visitors, patients and staff including, but not limited to:

- Seasonal items
- Giftware (e.g., cards, commemorative items)
- Toiletries and convenience items
- Confectionary items
- Clothing
- MAHC branded merchandise
- Books, magazines
- Toys.

Additionally, the Gift Shop will include an adjacent coffee bar, selling hot beverages and snacks.

Huntsville Hospital Foundation

As a result of the merging of two separate hospitals, MAHC has maintained two distinct Foundations. These include the South Muskoka Hospital Foundation and the Huntsville Hospital Foundation. It is assumed that the two organizations will remain as separate entities as long as two acute care hospital sites exist.

The Huntsville Hospital Foundation is a fundraising organization dedicated to improving health care services for the residents of Muskoka and East Parry Sound. The Foundation's mandate is to provide ongoing capital and education resources for HDMH.

The Huntsville Hospital Foundation was established as a registered charity in 1984 to receive, maintain, and distribute funds raised by personal donations, grants, capital projects, special event fundraising, and special programs not covered by government grants. All funds received by the Huntsville Hospital Foundation are used to enhance patient care either through staff training or capital equipment purchases at HDMH.

The Huntsville Hospital Foundation will continue to be responsible for stewardship, donor relations, annual giving programs, legacy giving, capital campaign, and management of the donor database among others to improve health care services for the residents of MAHC's catchment area.

The primary activities that will occur within the Foundation's Office suite will include, but are not limited to:

- Preparing, coordinating, and managing special events for fundraising purposes, as well as donor relations/stewardship

- Preparing, coordinating, and managing major gift proposals, including grants and capital campaigns, to individuals, corporations, foundations, and service clubs
- Developing and managing planned gifts, including, but not limited to bequests, life insurance, and endowment opportunities
- Targeting annual appeals to community organizations, staff, donors, prospects, and their families through activities such as mailing programs, annual reports, direct mailings, radio/public service announcements, special newspaper publications, etc.
- Selling lottery and event tickets to staff, donors, and community at large for Foundation-specific events
- Donation processing, which involves maintaining a database of donors and contacts and the distribution of receipts and appreciation letters
- Operational support and participation in third party events
- Administration of the Huntsville Hospital Foundation (general operations, including Human Resource, Public Relations, Finance requirements, etc.).

Patient Registration, Scheduling & Switchboard

Patient Registration will continue to be centralized at each site, providing registration (in-person and via Kiosk) for inpatients, outpatients, and patient transfers. Registration is the act of entering one's health card number and confirming demographics and contact information. For out-of-province or out-of-country patients, insurance coverage may be checked, and some form of pre-authorized payment method may be sought. Every visit to the hospital will require registration.

Patient Scheduling and Switchboard will be located adjacent to the Registration desk in the Main Lobby and will be staffed 24/7. It will be responsible for operation of the main communications centre, including:

- Scheduling of patient visits (with some exceptions, e.g., Surgical Program, some diagnostic tests)
- Receiving and directing incoming calls
- Assisting with outgoing calls
- Registration assistance during peak times and/or break coverage
- Paging and emergency codes
- Greeting visitors and wayfinding when the Information Desk is not operational or is especially busy.

Staff for this area will be cross trained for Registration, Scheduling and Switchboard roles and will work across both sites, as required.

It should be noted that advancements in scheduling and predictive technology (including use of OCEAN platform) will allow for more patient empowered pre-registration and scheduling. It is anticipated that over time, the need for in-person registration will lessen, and parallel improvements in scheduling (through predictive technology and real-time notifications) will result in less need for waiting space in outpatient spaces. Additionally, process for Registration may shift over time such that routine visits (e.g., chemotherapy) do not require registration centrally, but instead verification of existing information and confirmation of attendance electronically before proceeding to the relevant Clinical area.

Patient Navigator/Indigenous Relations Office

A shared office for the PN/IR will be located at each site to offer patients, their families, and the public a mechanism by which they may voice compliments and concerns about their experience or the care they received in a confidential manner, as well as provide feedback that can help MAHC track the quality of patient experiences and identify opportunities for quality improvement.

Indigenous Relations will provide support and advocacy for Indigenous patients and families by:

- Providing one-on-one support with clients via telephone or in-person
- Accessing culturally relevant care options
- Connecting patients to community resources
- Coordination of traditional ceremonies and connections with Elders
- Advocacy for patients and families
- Support/liaison between care teams and patients
- Planning for short-term and long-term healthcare needs.

Spiritual Care

The Muskoka Chaplaincy Association (MCA), in partnership with MAHC, provides the services of a Spiritual Care Coordinator with scheduled times at both sites. This is supported by Spiritual Care volunteers at each site. Pastoral care by faith-specific representatives will also be available upon request to patients with a particular religious affiliation.

Spiritual Care services will continue to support excellence in total care of patients, staff, families, and volunteers at HDMH by:

- Offering support, companionship, and counsel for issues including (but not limited to):
  - bereavement

- loneliness, feelings of loss, and grief
- meaning and purpose in life
- coping with lifestyle changes such as loss of independence, isolation or hospitalization, moving to a long-term care home
- end-of-life challenges and issues.

- Developing ongoing programs to meet the spiritual and religious needs of the MAHC
- Serving on various hospital committees, as required
- Building spiritual health care capacity with community clergy
- Work in partnership with the Indigenous Relations to provide providing ongoing training to staff regarding traditional, spiritual, and cultural needs of Indigenous People
- Providing ongoing training and support to staff regarding religious and cultural diversity and sensitivity
- Offering memorial services (including for staff), as appropriate

In future, Spiritual Care will include a Multi-Faith Healing Room for worship, ceremonies, reflection, and respite. *Note:* this space will require the ability to smudge.

Education

Not applicable to this component.

Research

Not applicable to this component.

Linkages/ Partnerships

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Registration	
All MAHC Clinical Departments	Support to staff in Clinical areas by completing registration process
Switchboard	
Security	For support in emergency Codes and other assistance
Patient Registration	For staff cross coverage and other assistance
Huntsville Hospital Foundation	
Administrative Services	For collaboration with Senior Leadership, Finance, Communications, and other departments

Workload (Current and Projected)

Table 2. Historical and Projected Workload

		Historical			Projected
	Measure	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Auxiliary					
HDMH Site	Total Volunteers (approx.)	N/A	N/A	97	97+
Patient Registration					
HDMH Site	Outpatient Registrations	N/A	N/A	19,901	In department
	Inpatient Registrations	2,680	2,579	2,509	In department
	Emergency Registrations	23,668	22,758	22,005	In department

Note:

1. Future model includes bedside and Kiosk registration to leverage technology to the highest degree possible.

Operational Description

Organization and Management

The Auxiliary, Foundation, and Spiritual Care will have responsibility for their respective areas; overall responsibility for the Main Lobby area will rest with Administration and Facility Support Services.

Patient Registration, Scheduling and Switchboard will be under the responsibility of the Manager of HIS, Privacy, and Central Registration and Scheduling.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 3. Hours of Operation

	Current			***Projected***		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Main Lobby	-	-	-	-	-	-
Information Desk	2 shifts per day (6-7 hours total), 5 days per week	As available	As available	7 days per week	-	-
Huntsville Hospital Foundation	08:00am – 4:00pm	-	-	08:00am – 4:00pm	-	-
Gift Shop	2 shifts per day (6-7 hours total), 5 days per week	As available	As available	7 days per week		
Patient Registration	24/7			24/7		
Patient Navigator/ Indigenous Relations (PN/IR) Office	n/a	n/a	n/a	08:00am – 4:00pm	On-call	On-call
Spiritual Care	09:00am – 5:00pm Wednesdays	On-call	On-call	09:00am – 5:00pm Wednesdays	On-call	On-call
Multi-Faith Healing Room	n/a	n/a	n/a	24/7		

Notes:

1. The Huntsville Hospital Foundation will also periodically host evening and weekend special events. Meetings may also take place after-hours, as may be required.
2. At present, outside of the scheduled hours for Spiritual Care, a 24/7 chaplain service is provided upon request from within the community.

Duration of Visit

Not applicable to this component.

Referrals & Scheduling Appointments

Spiritual Care

Requests for Spiritual Care Services may be communicated through Registration activities or through self-identification once registered (e.g., upon admission, nurse will ask if the patient would like to connect with Spiritual Care). Spiritual Care will also assist in contacting community spiritual and religious care providers in the community upon patient request.

Support to families will usually be performed indirectly through interactions with the patient.

Staff referrals for Spiritual Care Services may come through the individual themselves, managers, or as a multidisciplinary team recommendation after a traumatic event.

Indigenous Relations

With respect to referrals, patients who self-identify as Indigenous during Registration activities will be connected with Indigenous Relations to determine if/which supports are desired. With the patient's permission, Indigenous Relations staff will follow the patient through triage, admission, inpatient stays and outpatient visits.

Workflow

Information Desk

The Information Desk will represent the hospital as the first point of contact for many patients and visitors. As such, volunteers must have detailed knowledge of the general operation of the site/MAHC to ensure all inquiries and wayfinding are dealt with appropriately. Patient deliveries (flowers, personal items, gifts) will be to the Information Desk; all hospital deliveries will be through the receiving dock.

Patient deliveries will be brought to the units by staff or volunteer, depending on time and item to be delivered.

Patient Registration

Patients will queue to register with Registration staff or to use a Kiosk. It is anticipated that technology solutions for self-registration will continue to progress and the potential for patients to pre-register, or use personal mobile devices for Registration activities which would alleviate registration volume within the Main Lobby.

Spiritual Care

The Multi-Faith Room will be accessible to patients, staff, and visitors on a 24/7 basis. *Note:* faith leaders will proceed directly to the relevant Clinical area to meet with patients and families. Office space for faith leaders will not be included.

Registration and Consent

As previously mentioned, registration activities will be accomplished through a combination of face-to-face (i.e., staff led) and electronic registration activities (e.g. Kiosk, pre-registration through patient-accessed platforms). The method of registration will be dictated by the needs/abilities of the patient, and the requirements of the registration (e.g., some may require in-person registration due to complexity).

General Support Activities

Facility and general supports will be provided within the overall corporate strategy.

Because the Main Lobby public spaces and related amenities will be a high traffic area, they will require more frequent cleaning (e.g., mopping, vacuuming, garbage collecting, sanitizing, etc.) than other public spaces in the hospital.

Infection Control

Screening measures will be put in place at the entrance, as well as sanitizing stations in key areas. A higher air turnover rate may be required in the Main Lobby due to the higher volume of people. This will be determined as the project proceeds and be in accordance with recommendations from IPAC as well as regional and/or provincial governing authorities, as may be applicable.

Regular screening will be completed through the appropriate clinical area. Should a sustained, larger scale communicable disease outbreak occur, in which screening on a larger scale is required, the incident management system will be initiated and manage the screening process. No permanent screening desk will be planned in the Main Lobby.

Security Services

Security should have a discreet presence in the Main Lobby. Security infrastructure (e.g., cameras) will be in place to monitor activity (e.g., reduce theft in Gift Shop, monitor entrances) but also will pass-through this area on their regular rounds and be in regular communication with Switchboard.

The Information Desk and Patient Registration area will require staff/volunteer panic buttons.

Enabling Technologies

IT will be provided within the overall corporate strategy.

In addition, note that the Main Lobby will include wayfinding technology and device charging stations. Device charging stations will be available within the seating area. Digital screen(s) strategically placed will be utilized for MAHC/HDMH information, event communication, etc.

Support to digital screens (e.g., for hospital information/event communication) will therefore be required.

Communication Systems

A security camera and intercom will be installed at the front entrance for use when it is locked after-hours, buzzing into Switchboard. Scheduling for timed door access (e.g., closing main doors in evening) will be automated.

Staffing (Current and Projected)

Table 4. Current and Projected Staffing

	Current	Projected 2031/32			
Category	**2022/23 FT**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	21.28	7.20	21	0	0
Subtotal, Auxiliary	*0.60*	*0.60*	*5*	*0*	*0*
Volunteer Director	0.60	0.60	1	0	0
Information Desk Staff	(1.00)	(1.00-2.00)	2	0	0
Gift Shop Staff	(1.00)	(1.00-2.00)	2	0	0
Subtotal, Huntsville Hospital Foundation	*(6.00)*	*(6.00)*	*6*	*0*	*0*
Foundation CEO	(1.00)	(1.00)	1	0	0
Operations & Gift Planning Manager	(1.00)	(1.00)	1	0	0
Philanthropy Officer	(1.00)	(1.00)	1	0	0
Development Officer	(1.00)	(1.00)	1	0	0
Development Officer, Events & Community Engagement	(1.00)	(1.00)	1	0	0
Development Assistant	(1.00)	(1.00)	1	0	0
Subtotal, Patient Registration, Scheduling & Switchboard	*20.68*	*6.60*	*5*	*0*	*0*
Manager, Patient Registration	1.00	1.00	1	0	0
Registration/Scheduling Clerk	19.68	5.60	4	0	0
Subtotal, Spiritual Care	*(4.00)*	*(5.00)*	*5*	*0*	*0*
Spiritual Care Coordinator	(1.00)	(1.00)	1	0	0
Spiritual Care Volunteers	(3.00)	(4.00)	4	0	0
Subtotal, Security	*n/a*	*n/a*	*n/a*	*n/a*	*n/a*
Security Officer	Incl. in Facilities	Incl. in Facilities	0	0	0
Security Team Lead	Incl. in Facilities	Incl. in Facilities	0	0	0

Notes:

1. Foundation staff (both sites) are a separate entity from MAHC and not part of the hospital budget. Therefore, they have been shown in brackets.

2. SMMH Patient Registration, Scheduling & Switchboard staff were combined to a central Registration pool and have been counted under staffing for HDMH for 2022/23 onwards.
3. The Spiritual Care Coordinator role is not part of the MAHC budget; a portion of their salary is contributed to Chaplaincy. The role provides services to both sites but has been shown under HDMH.
4. Historic and projected FTEs for Security have been included under the Facilities Support Services component. Security staff are shared between the two sites and have been counted under staffing for HDMH for current. Projected staffing has been shown by site for clarity though it will remain a shared resource. Security staffing has increased over time, originally with one guard overnight 5 years ago moving to 12-16 hour weekday and 24 hour weekend coverage (depending on time of year), in more recent years. At present, 36 hours of coverage are provided at each site, 365 days per year.

Design Objectives

Locations and Adjacencies

Due to the number of sub-areas within the Main Lobby, adjacencies have been subdivided and shown in priority order within their respective sub-area.

Main Lobby Spaces

The Main Lobby should have direct access to the café associated with Food Services.

Auxiliary

The Gift Shop should have clear visibility from the Main Entrance and be prominent within the Main Lobby as a whole.

The Gift Shop should have convenient access to the main elevator bank, for restocking of items from lower level storage.

The Auxiliary Lounge should have convenient access to the main horizontal and vertical circulation of the hospital.

Central Registration

Central Registration should have clear visibility from the Main Entrance.

Foundation

The Huntsville Hospital Foundation should have clear visibility from the Main Entrance and be prominent within the Lobby as a whole.

Patient Navigator/Indigenous Relations Office

The PN/IR Office should be easily found through wayfinding and have convenient access to the main horizontal and vertical circulation of the hospital.

Security

The Security Office shall be located in the Main Lobby, discretely located, but easily found by patients (e.g., will require good wayfinding).

As the Security Office will have a satellite location in the ED, convenient access should be provided for support.

The Security Office should have convenient access to the main horizontal and vertical circulation of the hospital for emergency/crisis response.

Spiritual Care

Multi-Faith Healing Room must be visible and accessible to patients and visitors in time of crisis, but not on busy thoroughfare.

The Multi-Faith Healing Room will require convenient access via a main thoroughfare to the ED and ICU.

It is highly desirable for the Multi-Faith Healing Room should (if possible, based on layout) to have access to an exterior (secured) outdoor space, for wellness, connection to the land and nature in times of reflection, and for use in ceremonial services.

Internal Organization

Foundation

The Foundation will require visibility, accessibility, confidentiality, and sightlines to see donors as they approach the Foundation Office.

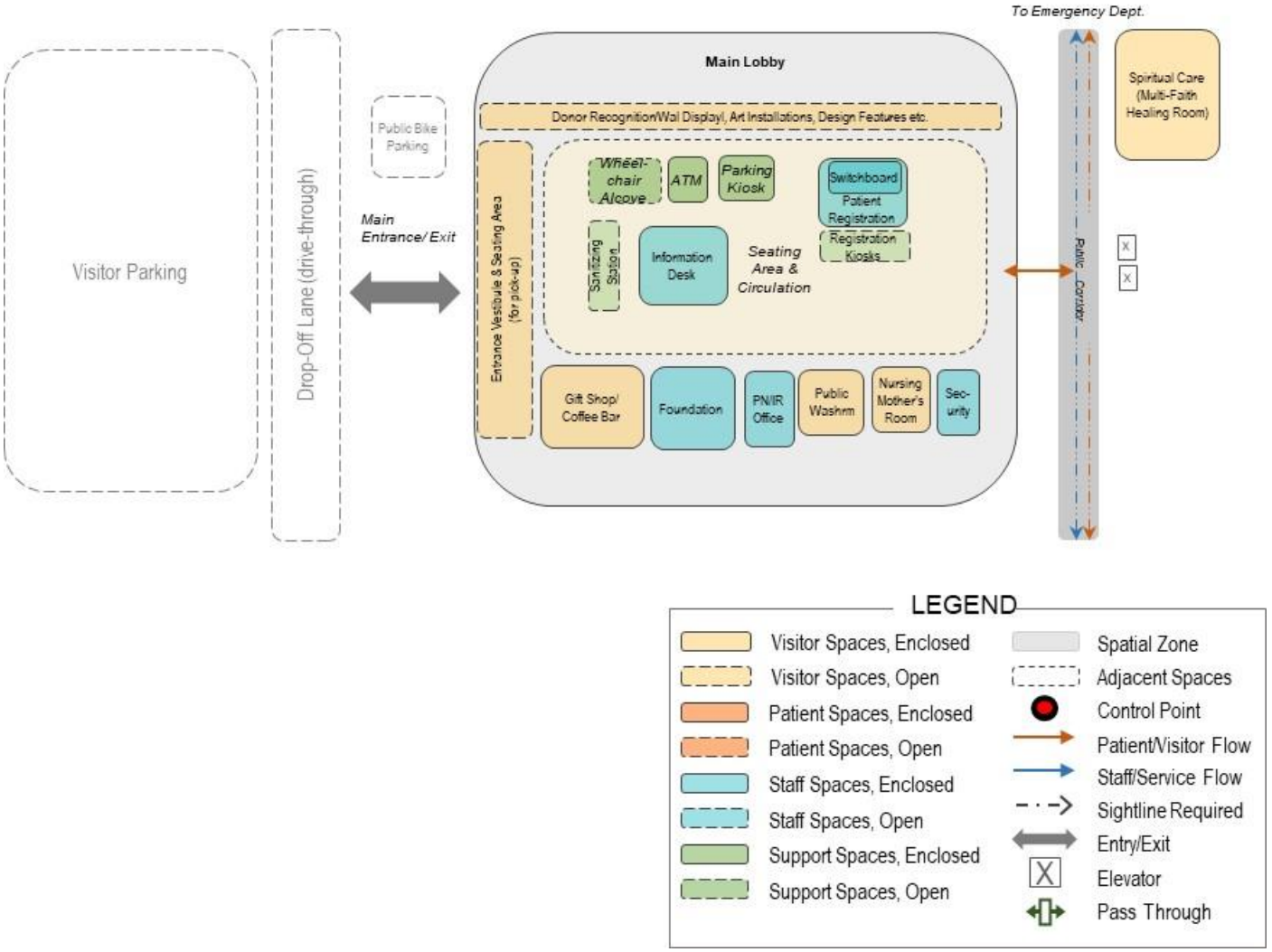
Patient Registration

Patient Registration shall be located in the Main Lobby, directly adjacent to Switchboard/Scheduling.

Registration Kiosks must be in close proximity to the Registration and Information Desks in order for patients to receive assistance if required.

The spatial organization of the Laboratory should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

The following design requirements will be met and enhanced through the design process.

Environment & Atmosphere

MAHC's Main Lobby spaces should uphold and support the principles of patient- and family- centred care. They should also convey the values of the organization and the communities served and will do so aesthetically through the use of Donor Recognition Walls, art, information screens, and other methods of communication.

For many, the Main Lobby will be the first experience with the site, and therefore, great care must be taken with the amenities, design and flow, and overall experience – to best suit the varying needs of patients, staff, and visitors. For some, it will be a place to connect; for others, a place to withdraw and rest. Effectively meeting the varying needs of all users will require a delicate balance of services offered, as well as the aesthetics of the environment itself. It must be stimulating, but relaxing, engaging, but allowing for individual reflection.

The HDMH Main Lobby will serve as a 'destination' for patients, visitors, and staff. Hospital news, events, and displays should be updated and changed on a regular basis to ensure the Main Lobby remains an engaging destination.

The following describes other general environmental features of note:

- Many patients who come for assessments/and or admissions will be sensitive to the proximity of others: provide ample personal space in all areas where incoming patients may be moving.
- Provide non-intimidating settings for individuals and/or families that allow for comfortable refuge and respite.
- Consideration for natural, calming design features that will link the facility back to the community, such as a living wall, or fireplace.
- Provide an environment that is visually muted, with straightforward orientation, clear sightlines to destinations, and careful orchestration of potentially invasive visual and/or auditory activity.
- Visitors, family members and patients will be provided with various choices and opportunities in the area, to allow for self-selection of the level of interaction sought by an individual.

The following describes the desired 'feel' of the Main Lobby as for many it will provide a first impression of the organization and care provided within. Achievement of this environment and feeling through design should be the goal. The following environmental considerations should be included in the planning of the Main Lobby and related spaces:

- Welcoming and inclusive
- Calm, relaxing and comfortable
- Communicates dignity and respect for all

- Open/bright/airy with clarity of organization and wayfinding to reduce anxiousness
- Inspires confidence
- Visibility of volunteers and wayfinding; help when you need it
- Communicates the look and feel of Muskoka as a Region in features and finishes
- Promotes sustainability and green, i.e. experience not at the expense of sustainability.

Indigenous Design & Cultural Sensitivity

The site and facility should be designed to be welcoming and non-institutional in appearance to convey MAHC's desire to provide culturally safe and sensitive care to Indigenous patients and families. Design features which would assist to communicate this philosophy to Indigenous patients, families, staff, and visitors, this may include (but is not limited to):

- Inclusion of the medicine wheel
- Natural materials used in finishings
- Consideration for inclusion of fireplace as a gathering place for seating
- Round architecture, rather than straight lines, to mimic natural environment
- Clear connection to outdoors through views to nature and sky
- Wayfinding in Indigenous languages
- Water feature and use of greenery.

Multi-Faith Healing Room

The Multi-Faith Healing Room shall have ample natural light but have no views in/out of the space at eye level to ensure a private and respectful experience. The Multi-Faith Healing Room must be calming in nature. This may be accomplished through the use of natural materials and soft furnishings, as well as a connection to nature (either in view, location and/or materials and colours used).

Foundation Office

The Huntsville Hospital Foundation Office space will be a welcoming, creative, professional environment. It must communicate the culture and values of MAHC and encourage participation and commitment to a shared vision.

Infection Prevention and Control

The Main Lobby will be designed to encourage and facilitate the practice of hand sanitizing upon entry and exit to the facility. Screening stations (e.g., hand sanitizer dispenser, screening information) will be included at key points within the entry space, before proceeding into the Lobby, proper.

The following considerations for IPAC should be included in the planning of the Main Lobby:

- Circulation at the entry (i.e., as one enters from the entrance into the 'lobby' space, proper) should allow for space to incorporate additional screening measures before entering the facility, should it become necessary
- Furniture solutions in the Lobby should be easily maintained and wipeable for ease of cleaning
- A higher air turnover rate may be required in the Main Lobby, due to the higher number of people. This will be determined as the project proceeds and be in accordance with recommendations from IPAC as well as regional and/or provincial governing authorities, as may be applicable
- Seating should allow for a variety of groupings, to allow privacy, social distancing, and self-determination of level of engagement with others.

Clarity of Spatial Organization

This component supports the movement of visitors, outpatients and inpatients, and staff as they flow in and out of the site to clinics, diagnostics, and treatment areas and to the inpatient units. As such, a critical success factor to the Main Lobby and its relationship with the numerous other services within the site will be clarity of spatial organization (e.g., intuitive layout and orientation) and effective wayfinding.

Wayfinding

The Main Lobby will require easy visibility from the outdoors, for exterior wayfinding from parking and for visual cues for drop-off and pick-up of patients and visitors. Once an individual is in the main public area, clear visual cues to the overall layout of the hospital will be paramount. This includes the ability to see the main thoroughfares to key areas of the building (e.g., ED), as well as transportation routes, including elevators and stairwells. Essentially, the Main Lobby needs to serve as a welcoming space, in addition to providing intuitive wayfinding to the site at large.

For clarity and ease of navigation throughout the site, wayfinding must be standardized for all areas of the building and site and must consider those for whom English is not their first language (including use of traditional languages for Indigenous patients and families).

Moreover than comprehensive signage, the foundational element of wayfinding will be based in the overall design of the hospital, with easy visual cues to the main circulation routes – stairs, elevators, external cues etc.

Accessibility & Corridor Design

To ensure accessibility of the Main Lobby and its related spaces, the following considerations related to accessibility should be included in the planning of these areas:

- Ample circulation in public spaces to ensure accessibility
- Avoid ramps where possible (to access the Main Lobby's public spaces, and within them)
- Scale that is easy to navigate with the ability to rest along long corridors (in entry spaces, but throughout circulation of building as a whole), breaking up of long hallways with recessed rest areas (e.g., seating). Furniture must not be too low as this is challenging for Seniors
- If multi-stall washrooms are included, design with no entrance door access (e.g. access by corridor to provide privacy vs a door) is preferable
- The welcome/Information Desk and Patient Registration counter height (or a portion of the counter) must be designed at an accessible level for those using mobility devices
- As mentioned previously, for wayfinding, include simple, universal graphics and symbols to be easily understood by all. Consider the use of languages in addition to English.

In acknowledgment of the demographics of the catchment area, additional senior friendly guidelines must be in place, including (but not limited to):

- Seating in corridors periodic and not low
- Gradual transitions in lighting and floor finishes
- Minimizing glare by ensuring lighting is even, soft, and well diffused, minimize use of glossy floor finishes
- Use of colours easily seen by older adults (e.g., warm colours vs pastels) and utilize different colours on floors and walls, to distinguish between horizontal and vertical spaces
- Ample circulation in public spaces to ensure accessibility
- As referenced above, the Information Desk and Registration desk counter height (or a portion of the counter) must be designed at an accessible level for those using mobility devices; for staff ergonomic considerations, there should be consideration for sit/stand capability in the workspace, to provide postural variation to info desk staff
- Breaking up of long hallways with recessed rest areas (e.g., seating)
- For wayfinding, include simple, universal graphics and symbols to be easily understood by all.

Key design considerations for the Patient Registration area will include:

- Accessibility at the Registration desk and Switchboard for individuals in wheelchairs and scooters, as well as those with auditory and visual challenges

- Privacy for patients and family members to enable them to confidentially share personal information. Sufficient separation from circulation space as well as adjacent patients
- Ergonomically designed workstations for staff
- Temperature comfort given the exposure to outside air, being located near the Main Entrance.

Acoustic

As a large, open space, the areas included under the Main Lobby will require thoughtful sound planning, to minimize echo and maintain privacy in open spaces, to ensure a welcoming, supportive space for patients, visitors, staff, and volunteers. To maintain a feeling of calm and wellness, the Main Lobby should aim for muted, low noise levels, and minimized sound impacts, reflectivity, and reverberation.

Aspects of sound/noise control that should be considered for this area will include (but are not limited to):

- Minimize echo and noise in large open spaces (as referenced above)
- Privacy and noise control for volunteers working at the Information Desk, staff working at Patient Registration and members of the public seeking assistance
- Seating should be grouped in smaller sub-areas, to allow for personal choice in interaction with others; therefore, those seeking quiet can find it through location of more discrete seating
- Specialized acoustic shielding may be required in high activity areas or those requiring additional acoustic privacy (e.g., Multi-Faith Healing Room).

Air/Environmental

The Multi-Faith Healing Room will require the ability to smudge.

Architectural/ Structural/Electrical/ Mechanical

Design elements cannot preclude routine maintenance (e.g., lights that no one can access to change, water/green features that are hard to maintain).

Lighting

To provide a healing atmosphere and stimulate wellness (for patients, staff, and visitors), the Main Lobby should have as much natural light as possible and views to green space. As much as possible, interior spaces (e.g., Gift Shop, retail operations) should have natural or borrowed light. *Note:* for privacy, if the Multi-Faith Healing Room has views to/of the outdoors, it should be to an area not visible by the public (e.g., enclosed courtyard vs sidewalk or parking area).

Where natural light is not possible, a variety of artificial lighting types and lighting conditions will be provided to support individual needs.

The ability to adjust lighting in the area should be included, to serve as additional cues for wayfinding when the space is closed, and to conserve energy when not in use.

Ergonomic Considerations

For staff ergonomic considerations, there should be consideration for sit/stand capability in the workspace, to provide postural variation to Information Desk and Patient Registration desk staff/volunteers.

Security

The following considerations for safety/security should be included in the planning of the Main Lobby:

- External access to this area may will be restricted overnight; this will be determined based on design, as planning proceeds
- As previously noted, panic alarms will be included at the Information Desk and Patient Registration, for volunteer and staff safety
- The area requires the ability to be easily locked down and add screening measures
- As a high traffic, public space, the Main Lobby (and other public areas) will require camera monitoring, for patient/visitor/staff safety.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 5. *Space Table*

Component Gross Area (CGSF / CGSM) : TOTAL	**5,410**	**530.0**
Component Gross Area (CGSF / CGSM) : Main Lobby	**1,500**	**139.4**
Net to Gross Ratio	1.40	1.40
Total Net Area (NSF / NSM)	1,070	111.5
Component Gross Area (CGSF / CGSM) : Auxiliary (incl. Gift Shop)	**1,205**	**111.9**
Net to Gross Ratio	1.40	1.40
Total Net Area (NSF / NSM)	860	79.9
Component Gross Area (CGSF / CGSM) : Foundation	**1,780**	**165.4**
Net to Gross Ratio	1.40	1.40
Total Net Area (NSF / NSM)	1,270	104.1
Component Gross Area (CGSF / CGSM) : Security	**295**	**27.4**
Net to Gross Ratio	1.40	1.40
Total Net Area (NSF / NSM)	210	19.5
Component Gross Area (CGSF / CGSM) : Spiritual Care	**630**	**58.5**
Net to Gross Ratio	1.40	1.40
Total Net Area (NSF / NSM)	450	41.8

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Exterior Amenities			**subtotal net area**		**-**		**subtotal net area**		**0.0**		
09			Drop-Off Lane	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)	External space	Two lanes assumed (lane width to accommodate fire services)
09			Taxi/Ride-Share Holding	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)	Would use drop-off lane	
09			Bicycle Parking, Public	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)		Covered
			Zone 2: Main Lobby			**subtotal net area**		**1,070**		**subtotal net area**		**111.5**		
09	.001		Entrance Vestibule	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)	Included in BGSF	
09	.002		Telephone, Public/Taxi			10	1	10		0.9	2	1.9		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
09	.003		Alcove, Wheelchair			40	1	40		3.7	4	14.9		Must be clearly visible from the entrance to facilitate quick access to mobility aids upon entry
09	.004		Seating Area - Front Door			80	1	80		7.4	1	7.4	For those waiting for pick-up; must have view to exterior drop-off/pick-up area	
		.01	*- seat, standard*	*1*	*20*				*1.9*					
		.02	*- seat, accessible/bariatric*	*1*	*30*				*2.8*					
		.03	*- mobility device parking*	*1*	*30*				*2.8*					
09	.005		Hand Hygiene Station			10	1	10		0.9	1	0.9		
09	.006		Kiosks, Entry			50	1	50		4.6	1	4.6		Types of Kiosks required will be re-evaluated at a later stage in the process; could be decentralized within Lobby space
		.01	*- automated teller machine (ATM)*	*1*	*10*				*0.9*					
		.02	*- parking payment*	*1*	*10*				*0.9*					
		.03	*- auxiliary/fundraising*	*1*	*20*				*1.9*				For sales of Nevada Tickets, Foundation events etc. Could also be used for other hospital events (e.g., flu shot campaigns, nursing awareness week)	
		.04	*- wayfinding*	*1*	*10*				*0.9*					
09	.007		Information Desk			80	1	80		7.4	1	7.4		Include wheelchair accessible counter section, cashier box for patient payments
		.01	*- workstation, volunteer*	*2*	*30*				*2.8*					
		.02	*- storage*	*1*	*20*				*1.9*				For temporary holding for deliveries	
09	.008		Seating Area			320	1	320		29.7	1	29.7		Seating to be arranged in various groupings of 2-4; fireplace, living wall or other design feature for gathering around; include circulation
		.01	*- décor feature*	*1*	*80*				*7.4*					
		.02	*- seat, standard*	*6*	*20*				*1.9*					
		.03	*- seat, accessible/bariatric*	*4*	*30*				*2.8*					
09	.009		Office, Patient Navigator/Indigenous Relations (PN/IR)			100	1	100		9.3	1	9.3	Shared Office	
09	.010		Donor Recognition/Wall Display	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)		Could be art-based and wall-mounted or electronic; incl. donor recognition and/or art display

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
09	.011		Communications Board	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)	Wall-mounted display for electronic communication of hospital events, fundraising, general information etc.	
09	.012		Washroom, Public			60	1	60		5.6	1	5.6		Non-gendered, individual; barrier-free with infant change table
09	.013		Washroom, Public, Universal/Family			120	1	120		11.1	1	11.1		Non-gendered, individual; barrier-free with adult change table
09	.014		Nursing Mother's Room			80	1	80		7.4	1	7.4		Include 2 seats plus counter and sink with baby changing; microwave, hand hygiene sink and sanitizing station
09	.015		Housekeeping Room			120	1	120		11.1	1	11.1		
09	.016		left intentionally blank											
09	.017		left intentionally blank											
			Zone 3: Gift Shop			**subtotal net area**		**570**		**subtotal net area**		**53.0**		**Must be located in a highly visible. High traffic area of the Main Lobby**
09	.018		Gift Shop			570	1	570		53.0	1	53.0		
		.01	*- storefront*	*1*	*420*				*39.0*					Provide fixed and moveable display racks to ensure flexibility of rearranging store layout; slat wall for display flexibility; spinner display (e.g., for greeting cards, small items), racks for books, newspapers, and magazines, windows to view interior of Gift Shop from Lobby (depending on design)
		.02	*- cash register area*	*1*	*50*				*4.6*					Include counter space for check out and bagging/wrapping of items
		.03	*- storage*	*1*	*100*				*9.3*				For bulk storage of supplies, display racks, seasonal items	Additional storage provided in caged area in lower level; provide proximity to elevators
			Zone 4: Auxiliary Lounge			**subtotal net area**		**290**		**subtotal net area**		**26.9**		
09	.019		Auxiliary/Volunteer Lounge			110	1	110		10.2	1	10.2		
		.01	*- computer, sign-in*	*1*	*30*				*2.8*					
		.02	*- garment rack*	*1*	*10*				*0.9*				For uniform storage	
		.03	*- lockers*	*10*	*7*				*0.7*					
09	.020		Office, Volunteer Director			100	1	100		9.3	1	9.3		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
09	.021		Storage, Volunteers			80	1	80		7.4	1	7.4	For storage of volunteer supplies and incidentals	Could be decentralized
			Zone 5: Foundation			**subtotal net area**		**1,270**		**subtotal net area**		**104.1**		
09	.022		Reception			180	1	180		16.7	1	16.7		
		.01	*- donation drop-off window*	*1*	*20*				*1.9*					
		.02	*- waiting, seat, standard*	*2*	*20*				*1.9*					
		.03	*- coat/boot area*	*1*	*20*				*1.9*					
		.04	*- coffee counter*	*1*	*50*				*4.6*					
		.05	*- workstation, reception*	*1*	*50*				*4.6*				For office administrator	
09	.023		Office, Foundation CEO/Executive Director			120	1	120		11.1	1	11.1		
09	.024		Office, Staff			140	2	280		13.0	2	26.0		Provide 2 workstations in each
09	.025		Workstation, Staff			50	4	200		4.6	1	4.6		
09	.026		Meeting/Project Room			250	1	250		23.2	1	23.2	For 8-10 people	
09	.027		Alcove, Office Equipment			60	1	60		5.6	1	5.6	For printer, paper supplies	
09	.028		Storage			180	1	180		16.7	1	16.7	For donated items, shelving for banners etc.	Include safe
09	.029		left intentionally blank											
			Zone 6: Security Office			**subtotal net area**		**210**		**subtotal net area**		**19.5**		
09	.030		Security Office			210	1	210		19.5	1	19.5		
		.01	*- workstation, security*	*2*	*80*				*7.4*					Provide line of sight to entry/Information Desk area desired; CCTV monitors and workspace; bulletin board for notifications (not viewable by visitors)
		.02	*- storage*	*1*	*50*				*4.6*				For charging for communication devices, vests, lost and found etc.	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 7: Spiritual Care			**subtotal net area**		**450**		**subtotal net area**		**41.8**		
09	.031		Multi-Faith Healing Room			270	1	270		25.1	1	25.1		Circular or rounded room; vented for smudging; ability to completely darken room for certain ceremonies; access to an enclosed courtyard or garden desirable
		.01	*- coat/boot alcove*	*1*	*30*				*2.8*					
		.02	*- seat, standard*	*8*	*20*				*1.9*					Provide chairs with arms; moveable seating
		.03	*- storage cupboard*	*1*	*20*				*1.9*				For religious texts, supplies and symbols used for services	
		.04	*- traditional medicine storage*	*1*	*60*				*5.6*				Storage and preparation of traditional medicine	Incl. storage and small prep counter; must be secured
09	.032		Exterior Courtyard			(---)	1	(---)		(---)	1	(---)		Locate adjacent and accessible from Multi-Faith Healing Room; secured
09	.033		Office, Shared			100	1	100		9.3	1	9.3	Shared with Spiritual Care Coordinator and visiting clergy/elders; could also be utilized by Social Work	
09	.034		Washroom, Public / Family			80	1	80		7.4	1	7.4		Non-gendered, barrier-free; incl. foot washing station; could be located outside of Spiritual Care if nearby in corridor

10. Maternal Newborn and Medical/Surgical Unit

Functional Description (Current and Projected)

Summary

MAHC's Maternal Newborn Unit offers Level 1 (low-risk) Obsetrical Services to residents of the Muskoka and East Parry Sound Regions. The team includes family physicians, midwives, and nursing staff to support patients through pregnancy, delivery, and the postpartum period. The entire program currently supports approximately 300 deliveries per year, and is expected to grow to over 400 with future repatriation.

Currently, services are provided in undersized birthing/delivery rooms with recovery in a single inpatient rooms within a mixed Medical/Surgical Inpatient Unit.

The redevelopment will allow for the creation of a Maternal Newborn Unit in purpose-built space that will better support the mother, baby and family throughout the care continuum. The program will be based within HDMH, however accommodation for deliveries at SMMH will continue. The Unit at HDMH will be collocated with 15 Medical Surgical beds to both provide coverage and support to the Maternal Newborn beds, and also provide surge capacity for the adjacent ICU.

Service Overview

The Maternal Newborn Unit service model includes:

- Prenatal testing
- Antepartum monitoring, testing and interventions
- Scheduled induction
- Labour
- Scheduled or unscheduled/unplanned Caesarean Sections (C-sections)
- Postpartum recovery
- Neonatal observation and treatment
- Newborn assessment and testing as an outpatient as necessary.

In future, the care will be delivered in:

- Private Labour, Birthing, Recovery, Postpartum (LBRP) rooms
- Triage/Assessment/Treatment Areas

- Medical/Surgical Inpatient rooms following C-sections
- Neonatal Observation Area

Collocation of all services on the Inpatient Unit with the same Clinical Team supports a more efficient service delivery model for assessment, testing and evaluation as well as enhancing pre-delivery relationships between the mother/family and the Clinical Team.

Both planned and unplanned C-sections will continue to be in the Surgical Suite. Partners join the mother in the operating room (OR) following completion of pre-surgical preparation. Post-procedural recovery is supervised by the clinical staff of the Post-Anaesthesia Care Unit (PACU) and Maternal Newborn Unit. The remaining recovery until discharge will occur in a single bedroom in the Maternal Newborn Unit.

Important principles of the Maternal Newborn Service:

- Ensure the environment accommodates confidential, effective, and efficient patient care delivery in a safe and secure environment
- Exceptional care, comfort, and well-being within a baby-friendly care model delivering care in the patient room to minimize separation of mother and infant dyad and promote skin-to-skin contact and breastfeeding
- Maintain an Interdisciplinary Care Team to support the mother/family
- Incorporate flexible and adaptable space planning to ensure viability over time
- Align spatial configuration with service delivery/workflow to maximize the value of effort achieved through value-added movement
- Plan for the ongoing development of technology to support patient monitoring, care delivery, information collection/retrieval scheduling and tracking.

Medical/Surgical services are delivered by an Interprofessional Team of providers delivering a broad range of Medical and Surgical inpatient services for patients requiring admission to hospital for diagnosis, observation, and treatment. Care delivery is patient- and family-centred, with the goal of delivering safe and excellent health care to assist in the recovery and smooth transition back home or to the community.

Planning Principles and Assumptions

The Maternal Newborn Unit will optimize the birthing experience for the family. Medical/Surgical services will be developed to support the highest standard of service delivery, service quality and patient safety. The following items reflect the most critical assumptions:

- MAHC offers Level 1 (low-risk) Obstetrical Services

- The Unit delivers a baby-friendly model of care with an emphasis on maintaining the mother-baby dyad from delivery to discharge
- Clinical staff of the Unit are responsible for all aspects of prenatal/postpartum care and move across the entire Maternal Newborn Unit and to Surgical Services
- Circulation to the public elevators will be exceptionally clear for mothers/partners from the main entrance
- The Maternal Newborn Unit will be contiguous with Surgical Services to facilitate an expeditious transfer to the OR for C-sections and ensure safe and quality care. Ideally, a dedicated patient transfer corridor will connect the Maternal Newborn Unit with the Operating Suite and the PACU circumventing public traffic
- After a C-section, the mother, newborn and partner will move to PACU for supervised recovery from anaesthesia and following clearance return to the Maternal Newborn Unit for postpartum care
- Fifteen Medical/Surgical beds will be planned within the Maternal Newborn Unit. These beds can be used for deliveries or antepartum care in the event of an unlikely capacity restriction. The collocation of these beds with the LBRPs will allow for the availability of staff to support Obstetrics during clinical peaks, and similarly allow for Maternal/Newborn staff to support Medical/Surgical patients during low activity periods
- The Acute Care Transport Service (ACTS) Team will travel to the Neonatal Observation Area in the Maternal Newborn Unit to support neonatal care, through stabilization and transfer when required. Each site accommodates approximately nine transfers yearly
- The Unit will be adjacent to the ICU, therefore the Medical/Surgical beds can serve as surge capacity for the ICU. Additionally, the ICU could expand into the Medical/Surgical beds, should MAHC be funded for additional ICU beds in the future
- Addition of one code compliant AIIR within the Unit.

Patient Profile

The Maternal Newborn Unit serves women and families in the Muskoka region primarily (over 80%). An additional 15% of MAHC's births are from patients living in the East Parry Sound Region. Selection of provider and proximity of the delivery site have traditionally been strong drivers for hospital selection.

General Medical/Surgical cases will be cared for at HDMH. Patients will be of all ages.

Emergency will be the primary source of admissions to the Medical inpatient beds, including referrals from physician offices who direct a patient to HDMH Emergency anticipating immediate admission. Medical repatriation from tertiary referral centres will be implemented to allow patients to recover closer to home when medically stable. Patients will arrive by ambulance/transfer vehicles and be brought directly to the appropriate Care Unit.

The Medical/Surgical Inpatient beds will support MAHC's Surgery Program, with a short inpatient LOS.

Scope of Services (Current and Projected)

The Maternal Newborn Services offers a full range of services to support successful pregnancy, delivery, and postpartum recovery. Specific activities of this service include:

- Assessment and monitoring of fetal well-being
- Antenatal care such as: non-stress tests and other investigations
- Interventions to address health of the mother or the fetus within the parameters of a Level 1 Unit
- Consultation with specialists to help manage pregnancy issues with referral for those concerns outside of the scope of a Level 1 Unit
- Full care monitoring and support to mother/family during birth
- Managing transfer to the OR for all C-sections
- Family support and education during postpartum recovery
- Assessment and examination of the newborn
- Interface with the ACTS Team to support optimal care for higher risk infants
- Engage appropriate members of the Clinical and Allied Health Teams to support care and bonding of the newborn and family as they prepare to leave the hospital
- Coordinate post discharge follow-up care plan with family
- Provide mother/baby assessments as needed following discharge.

Maternal/Newborn Care is delivered by a multidisciplinary team of providers that include the MRP who are both physicians (family physicians, anaesthetists, internists and general surgeons) and Registered Midwives (RM), a mixed model Nursing Team (RNs and RPNs), lactation support, learners, SWs, administrative support, spiritual care and volunteers.

The Medical/Surgical Inpatient beds offer a full range of services to support successful recovery from their reason for admission. The team will oversee the delivery and monitoring of inpatient care, as well as evaluate and address change in the medical disposition of admitted patients. Admission assessments, initiation of treatment orders, monitoring and ongoing consultation with the Care Team and the patient's family fall within the rubric of care. Specific activities of this service include, but are not limited to:

- Assessment and regular monitoring/recording of vital signs
- Monitoring and initiating interventions to alleviate discomfort

- Administering medication
- Assisting with personal care
- Diagnostic testing
- Consultation/Referral to specialists to manage issues
- Implementing treatment plan
- Engaging appropriate clinical support including members of the Allied Health Team to assess, educate and counsel patients on the treatment plan and follow-up care
- Teaching patients and families self-management techniques and empowering them to achieve improved well-being
- Family support and education during recovery
- Coordinate post discharge follow-up care plan with family.

Medical/Surgical Care is delivered by a multidisciplinary team of providers that include physicians (hospitalists, family physicians, internists and general surgeons), a mixed model Nursing Team (RNs and RPNs), PSWs, CNEs, pharmacists, dietitians, PTs, OTs, discharge planners, SWs, SLPs, RTs, administrative support, spiritual care, Indigenous patient support, volunteers, and learners. In future physician assistants and hospital attendants may be introduced.

Education

The Unit will accommodate up to two nursing students, one to two medical students/residents, one midwifery student and one RT leaner at any one time. It is anticipated that the Maternal Newborn Unit will continue to actively participate both locally, regionally and beyond in ongoing education to ensure best practice principles are being practices for and applied.

Research

In future, the Unit may participate in clinical research. No additional space would be required beyond shared workstations currently planned.

Linkages/ Partnerships

The Maternal Newborn Clinical Team maintains a critical relationship with Surgical Services for patients who need a C-section delivery and for assessment and treatment of postpartum complications of vaginal delivery. There is also a reliance on DI and labs to support the care of mothers and newborns as needed.

The ACTS Team supports stabilization and transfer of newborns to the appropriate Neonatal Intensive Care Unit (NICU).

The most significant program linkage of the Medical/Surgical beds will continue to be with the CCU to support acute patients if required, as well as provide surge capacity. The operational linkage with RT Services and Surgical Services is important, as are DI and the Laboratory. Given the amount and complexity of medications administered in the Medical/Surgical Unit, there will continue to be a very close program linkage with the Pharmacy.

Externally the prime linkages will be as follows:

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
FHT – Breastfeeding Clinics	Lactation support post discharge
Public Health – Well Baby Visits	Well baby and new mother support at home (higher risk families)
Books for Newborns – Library	New mother support
Women's and Children's Health Network	System support and planning
Orillia Soldier's Memorial Hospital (OSMH)	Level 2 Maternal/Newborn support and care

Workload (Current and Projected)

Volumes over the last 10 years have remained consistent between 250-300 births. Despite fertility rates decreasing in Ontario by 6% from 2012/13 to 2019/20, the Muskoka region's fertility rate has been relatively steady with a 5% increase[1]. Demographic forecasts for 20 years project 17% growth, with an additional 75 more births [2].

When examining the trends in market share of Obstetric programs serving the Muskoka region, over 40% of births by Muskoka residents are occurring at OSMH[3]. Although appropriate for higher risk deliveries, MAHC will continue to work with OSMH to repatriate low-risk deliveries back to MAHC to assist in creating much needed capacity for the Orillia region. It is believed that the creation of a purpose-built unit at SMMH as described will help with these efforts. With the repatriation of low-risk volumes from OSMH to capture 80% of the market share of Muskoka resident births, MAHC would expect to see an additional ~130 births over the next 20 years[4].

1. Sources: Discharge Abstract Database (DAD) 2012/13 – 2021/22, Statistics Canada Ministry of Finance (MoF) Population Projection Spring 2021 Release.
2. Sources: DAD 2012/13 - 2021/22, Statistics Canada MOF Population Projection Spring 2021 Release.
3. Sources: IntelliHealth, DAD 2012/13 – 2021/22.
4. Sources: IntelliHealth DAD 2017/18 - 2020/21; MoF Population Projections Spring 2021 Release; PSG Calculations.

Table 2. Historical and Projected Workload - HDMH

	Current			Projected
Department	**2019/20 Baseline**	**2020/21**	**2021/22**	**2031/32**
Total MAHC Births	247	267	306	430
Vaginal Births	148	182	200	0
C-section	99	85	106	0
Total HDMH Births	152	181	189	215
Vaginal Births	96	126	118	0
C-section	56	55	71	0

Table 3. Historical and Projected Workload – Outpatient Visits

	Current			Projected
Department	**2019/20 Baseline**	**2020/21**	**2021/22**	**2031/32**
Total SMMH Outpatient Visits	479	515	489	~500
Maternal	337	412	377	0
Newborn	142	103	112	0

Note:

1. Maternal volumes include prenatal and antenatal visits. Newborn visits are from discharge to 5 days of age.

Operational Description

Organization and Management

There will be one Manager responsible for the Maternal Newborn Program, with service delivery at both MAHC sites.

There will be one Manager responsible for the Medical Surgical inpatient beds (including Surgical beds within Maternal/Newborn Unit and Telemetry) at HDMH.

Education will continue to be supported through a CNE.

Maternal/Newborn medical oversight is provided by family medicine/obstetrical providers and RMs.

Medical/Surgical medical oversight will be provided through a shared model (internists, general surgery, family medicine and hospitalists).

Hours of Operation

The Maternal Newborn and Medical/Surgical Unit operates 24/7. MD will be on-call at all times. RT on-site 24/7.

The Surgical Team maintains a call rotation for surgical, anaesthesia and post-operative recovery to support unplanned C-sections. A learner may also attend emergency procedures.

Length of Stay

Maternal/Newborn patients will have an average length of stay of 24-48 hrs.

Patients will have a length of stay of 5-10 days (up to 14-21 days).

Workflow for Maternal/ Newborn Patients

Admission

Pregnant patients are pre-registered (generally after 20 weeks) and notify the Unit on departure for the hospital at the onset of labour (as able).

Preferred parking for Obstetrics patients will be provided as close as possible to the building's main entrance.

Patients will enter at the main door and be greeted by a reception desk staff (switchboard). If a patient presents as clinically unstable, they will be directed to the ED. Otherwise, the patient will be directed to the Maternal Newborn Unit. Currently patients are registered at this desk, but in future, registration practices will ideally transition to the patient (self-registration or check-in) or to the bedside. As MAHC's plan for technology integration develops, this pathway will be further refined.

When a patient presents to the ED, the Triage staff will determine the most appropriate care location by conferring with the RN staff on the Maternal Newborn Unit. This will either be the Emergency or the Maternal Newborn Unit and will be dependent upon various clinical factors, such as gestational age.

Access to/from the Maternal Newborn Unit will always be secured:

- Admitted patients/partners issued override (key card/pass)
- General waiting for public/extended family will be located outside the Maternal Newborn Unit entry
- Extended families are invited and escorted through the Unit by staff or authorized family member.

Upon arrival to the Maternal Newborn Unit, the patient will be assessed in the Triage/Treatment area by an RN and/or MRP.

Outpatient Care, Testing and Triage

Clinical support for Triage, antenatal assessment and testing and labour/birth care and postpartum follow-up is managed by a single team of RN's.

Such activities include triage of patients presenting with pregnancy concerns or who may be in labour, fetal assessment with non-stress testing, lab specimen collection, cervical ripening/induction preparation, mother and/or newborn examinations, lactation support, diagnostic tests, education, and counselling. This activity will largely be conducted in the Triage/Treatment area.

Planned antenatal testing, postpartum examinations, newborn assessments and cervical ripening/induction preparations are by appointment. Mothers in labour or with pregnancy concerns arrive on short or no notice.

Some patients in early labour or those seen for cervical ripening (Foley catheter or prostaglandin administration) will be discharged home after appropriate assessment and instructed as to when to return to the Unit.

Where possible, specimen collection (including bloodwork) will be facilitated on the Unit to foster patient and family centred care.

If required, a U/S unit is brought to the Unit if a patient is unable to travel to the DI Department. In future, all U/S will occur on the Unit to foster a patient-centred care model.

The LOS for outpatient newborn visits is one hour on average, and for mothers it ranges between 30 minutes – eight hours.

Labour and Birth

The pregnant person and partner will be admitted to an LBRP room following assessment. They will remain primarily in the room for their labour and birthing but may choose to walk the corridors during labour. The washroom will contain a tub for the mother to labour in, if desired. Additional labour support items (e.g., birthing ball) may be used and will be stored in the LBRP rooms.

Should a third labouring person present, when the two LBRP rooms are occupied, that patient can labour in a single Medical/Surgical inpatient room in the Maternal Newborn Unit.

Diagnostic reports are returned and reviewed by Clinical Team.

The Delivery Team will transfer the mother from an LBRP to the OR for a C-section when indicated.

Each birthing room will have an area for resuscitation and a complete post-delivery exam of the infant.

C-sections/Recovery

Elective C-sections are usually scheduled at the first procedure of the day timeslot in the OR. Currently there is an equal split between elective and unplanned C-sections.

Scheduled mothers will be seen by the General Surgeon in the month prior to delivery. Bloodwork (complete blood count [CBC] and group and screen) is done at the hospital Lab. Currently on the C-section day, mothers/partners are prepared in Day Surgery. In future, the Maternal Newborn Unit will admit mothers into a Medical/Surgical inpatient room where all pre-op preparation will occur. The mother will be transferred to the OR at the appropriate time. The partner will use the inpatient room to change into scrubs and store all personal belongings. The Surgical Team will collect the partner when ready for their attendance in the OR.

When an emergency C-section is indicated, Surgical Services will be notified. A Category 1 (CodeOB) or Category 2 will be called and the next available OR will be cleared. This protocol will also clear the designated room included in PACU. The mother is prepared as needed and transferred to the OR with the Maternal Newborn RN and team.

There should be space in the OR area to store an infant warmer, neonatal crash cart, neonatal vital signs monitor, and fetal monitor to be used for C-sections. This will avoid having to transfer these pieces of equipment during emergencies.

Additional support to manage newborn distress may be ordered by the physician at any point during delivery (e.g., Registered Respiratory Therapist [RRT]).

The newborn is generally examined immediately following delivery by the Newborn Team: MRP (Obstetrics MD or RM) and RRT. Mother/family are transferred to the designated space in PACU for recovery and maintaining mother/newborn dyad together is a priority of the model of care. An infant warmer will be available if skin-to-skin contact is limited. The Maternal Newborn RN will continue to care for the newborn and the OR RN will support the mother's recovery until transfer back to the Maternal Newborn Unit.

Neonatal Observation

A bay within the Triage/Treatment Area will be used for assessment and stabilization of the newborn prior to determining whether transfer for advance care is required. The area is also available should health or safety concerns require a newborn to be transferred to the care of the Clinical Team.

The room will accommodate an isolette or an infant warmer, a headwall with appropriate medical gases, the neonatal crash cart and three to four clinical staff (including a Neonatal Transport Team with transport isolette) around the baby.

Postpartum

Every effort is made to maintain the newborn with mother/family for the duration of the stay.

A discharge plan, including follow-up infant examinations will be developed. Allied Health Team may participate as required.

Workflow for Medical/ Surgical Patients

Admission

Emergency is the primary point of admission for most Medicine and some Surgical patients. The Ward Clerk in Emergency will admit and complete documentation for all patients admitted from Emergency. Some patients will have an arranged direct admission and will be registered upon arrival to the Unit. Some Surgical patients will have a scheduled admission and will register in the Surgical Services area upon scheduled arrival. In future, technology solutions may allow for the patient or family member to self-register through their phone or a portable tablet.

Medical Patient Assessment

With the support of accompanying staff/family, the assigned staff nurse completes the admission assessment and documentation, and orients patient/family on patient Unit facilities and protocols.

A patient record is opened, and orders initiated as part of the initial consultation with the admitting physician or by application of a clinical pathway as available.

Patient assessment will include recording of vital signs, medication reconciliation, skin and fall assessments, and an evaluation of potential communicable infections, PIV/Central lines, drains, wounds, CAM assessment (delirium), BRADEN scores (pressure ulcers), intake and output/fluid balance.

Patient Care

Single Bedrooms with attached washrooms/showers will be provided for all patients. Rooms will be zoned to accommodate patient care, care related activities of the Clinical Team and area for the family.

A designated patient room will be planned to support patients with BMI exceeding 45. The room will be larger to accommodate the patient and care activities comfortably and will include equipment to afford the Clinical Team support to move the patient as required. There will be a Bariatric room planned within the Telemetry beds and one within the remaining Medical/Surgical beds.

One AIIR will be available for patients who require airborne isolation. This will also be sized to accommodate bariatric patients and can be used for either purpose as required.

A clinical care plan is developed with the entire Clinical Team as quickly as possible following admission. This plan is reviewed daily to monitor patient progress and plan discharge.

In addition to identifying and documenting vital signs, changes in physical state and monitoring pain, the Nursing Team provide psychosocial/emotional support, education and assists with dressing, bathing, and other activities of daily living (ADL), where appropriate.

Changes in state of health are monitored with the admitting physician and Clinical Team.

The Clinical Team will examine and consult with the patient daily. Ideally patient rounds will include the full Clinical Team including Allied Health professionals. Learners will generally accompany their preceptors on rounds.

Regular rounds will be held to review each patient's goals and plan for discharge. Typically rounds include 12-15 people.

Specialty consultants may be asked to assess specific issues, either remotely or on-site.

The Rehabilitation Team will actively work with patients during their admission to maintain or improve their mobility. The Rehabilitation Team has many types of supportive equipment that are used by patients and with patients in their rooms. A storage room will be planned on the Unit to ensure that equipment is not stored in corridors.

Preparation for Discharge

The Nursing Team and MRP will update the patient treatment plan following clinical rounds.

Staff nurse will provide information to the patient/family on the care plan including the planned discharge date.

The family will consult with members of the Allied Health Team including the Flow Navigator (discharge planning) to gather information to support care following discharge. Home and Community Care will be contacted early in the patient's stay if there are potential issues identified with patient safety and independence at home.

General Support Activities

Diagnostic & Therapeutic Services

In addition to the patient monitors, U/S will be the main DI activity in the Maternal Newborn and Medical/Surgical Unit. In future, this may be conducted by the MRP at the bedside. Occasionally, portable x-rays and ECGs may be required. It is anticipated that some may also be performed in DI, including CT and MRI. Dedicated patient elevators capable of accommodating the patient bed, equipment, and a minimum of four staff are required if on different floors.

Although all computers can access PACS images, a dedicated PACS viewing terminal, will be required on the Unit to view radiological images in more detail when required.

Patient specimens will be transported from the Unit to the on-site Laboratory. Pneumatic tubes will be considered during the design stage. Lab staff will pack samples that must go off-site for analysis, in preparation for daily pick-up. Test results will be available electronically.

Pharmaceutical Services

All medication and Central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in ADUs. Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. To support patient safety, the work area will accommodate up to two clinical staff members at one time.

The Medication Room will also contain locked cupboard for storage of patient-own medications (including narcotics).

Pharmacy technicians are incorporated into the Clinical Team and conduct medication reconciliations on all new patient admissions.

Clinical pharmacists participate in inpatient rounds when possible and consult with patients and families as required.

Clean Supply

Clean Supply Rooms will include storage systems standardized to MAHC requirements. To carefully minimize waste, there will be limited supplies stored in the patient rooms. However, PPE supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high-density shelving. Staff will scan barcode labels in the Clean Supply Room and information will be accessed by Receiving staff. All stock requirements will be system generated based on point of use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen carts will be delivered on a regular basis to the units. The carts will be stored in the Clean Supply Room on the Unit. The Clean Supply Room will also accommodate a blanket warmer.

Two Clean Supply rooms will be planned on the Unit. One will primarily support the Maternal/Newborn activity and the other will support the Medical/Surgical activity.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to 'point of care' as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

The Soiled Utility Room will accommodate:

- A designated area for used instruments for collection and return to MDR (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)
- Bins/transfer carts for linen, recyclables, medical waste, and general waste will be available to collect and transfer to the loading dock for exchange by an external laundry service
- A disposal unit for liquid waste.

An alcove outside the Soiled Utility Room will be provided for a closed cart designed to collect patient meal trays.

Internal staff will continue to collect waste, recycling and dirty linen from the Unit.

Two Soiled Utility Rooms will be planned on the Unit. One will primarily support the Maternal/Newborn activity and the other will support the Medical/Surgical activity.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, will be covered for transport.

Equipment Storage

Emergency carts for resuscitation, difficult airways (adult) and neonatal resuscitation ('Code Pink') will be stored on the Unit. The adult cart will be in an alcove near the Care Team Station, and the neonatal cart will be in the Triage/ Treatment Area. Carts will be monitored by nursing staff in consultation with RT.

Patient care equipment must be available, operational, and quickly retrievable when it is required. An asset management system will be in place, with equipment tagged and trackable.

Equipment, both fixed and moveable, will be maintained in all delivery/postpartum rooms. Design will consider means to store this equipment so that it may be easily accessed as required. An area will be designated within the rooms for instrument packs and supplies brought for the procedure.

Portable equipment (e.g., 2 epidural pumps/poles, IV poles, wheelchairs, warmers, isolettes, CPAP machine, extra fetal monitor, extra bassinette, transport isolette) will be stored in an enclosed room for convenient access from corridor serving contiguous sub-units. Power bars at waist height will be required. Ideally the configuration of this room will accommodate a cross-circulation path between two entries to facilitate access and retrieval of equipment.

The LBRPs will contain storage cupboards to store birthing equipment (e.g., peanut ball, birth ball, squat ball).

A charging countertop will be accommodated within the care desk and team workrooms for hand-held devices. Additional alcoves may be identified for equipment that require power support within each zone.

Corridor alcoves are helpful for storing select equipment to facilitate frequency/emergent access or maneuverability related to size.

Protocols for cleaning and storage of patient support equipment will be established with the Clinical Team in the Care Unit and coordinated with Environmental Aides. This will occur off the Unit in a centralized cleaning space.

Maintenance and repairs will be performed by the regional Biomed Team. Requisitions for Biomedical service will be entered electronically and triaged by the Biomed Team. Items for repair will be cleaned and moved by clinical staff or Environmental Aides to a secure staging area. Units will be notified electronically when a repair is completed, and the item can be retrieved for return to the Unit.

Environmental Services

Environmental Aides will support the department continuously in the turnover of patient rooms, management and changing of damaged or inoperable furnishing/equipment and removal of soiled material. Daily maintenance protocols will be instituted in addition to response for emergency needs. Aides will manage the receipt and distribution of sterile instrument packs/closed procedure carts from the point of delivery to the Maternal Newborn and Medical/Surgical Unit.

Environmental requirements including new policies and procedures may evolve to incorporate new protocols for movement of clean and soiled material, equipment cleaning in response to the recent pandemic.

Nourishment & Meals

Inpatient meal trays will be delivered to the patient bedside by Dietary staff and collected following the meal. Menu selections will be available online for patients. Delivery carts from the kitchen will hold up to 20 patient trays. These carts should be stored in an alcove outside of the Soiled Utility Room.

Nourishments will be made available outside of meal trays following Ward Stock Policy and contained in a Nourishment Centre. This will be stocked by the Food Services Department and accessed by staff only. It is anticipated that in future, some on Unit meal preparation will be required, and the Nourishment Centre will accommodate this activity. There will be a Nourishment Alcove available for items such as ice and water and accessible to both staff and visitors.

Temperature monitored refrigerator will be provided in each patient room to maintain breast milk further supporting a "baby-friendly" model of care. An extra temperature monitored refrigerator will be planned within the Neonatal Observation room.

Patient Transport

MAHC has porters for transportation to and from DI. Otherwise, nursing staff and attendants are responsible for patient transfer elsewhere within the hospital.

Administration & Staff Spaces

The Ward Clerk will maintain responsibility for daily activity of the entire Unit from the Main Care Team Station located near the Maternal Newborn Unit entrance. Adjacent to the Care Team Station will be a Care Planning Room with table seating and shared workstations. These shared workstations will be available for Home Care and other external partners, Allied Health professionals, nursing and medical staff, and students.

An additional Satellite Care Team Station and Care Planning Room will be located within the Medical/Surgical Zone to support related activity.

The Unit will have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

An office for the Manager will be provided (planned within Critical Care component).

All staff will have access to staff facilities, locker rooms, changing rooms and washrooms with showers in a centralized location. Learners will be assigned day lockers. All staff will have access to locked cube lockers closer to the Unit. All staff will have access to a Lounge with comfortable seating and table seating, with a kitchenette (see Critical Care component).

On-call rooms will be centralized (see Physician and Staff Amenities component).

Security Services

Security is of particular importance on the Unit. Appropriate controls will be in place to ensure that the mother/baby dyad is maintained. Security services will be provided at MAHC on-site and summoned when required.

Access Control Systems will be utilized to ensure a safe and secure environment for patients, staff and visitors.

IP-based video surveillance camera is required in the Medication Room.

An active RTLS will be provided throughout the facility to support patient wandering. infant security and staff duress. Mobile duress buttons will be provided to staff. Fixed duress buttons will be available in select locations.

The visitor entrance to the Unit will be accessed through an access control system (either via cameras or intercom). Staff in the Unit will have control over release of the door from the nursing station or from opening the door from the inside. The access control system utilized will need to be integrated with the central hospital monitoring system to ensure that both systems functioning is monitored, as well as any activated alarms. The Unit will need to be lockable in emergency situations.

The space should be designed to help ensure the safety and security of all patients/family, staff, and visitors to be enhanced through:

- The configuration of the Unit to ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized
- Optimizing the visualization of the corridors and patient rooms, while also maintaining line of sight for the main entrance from the Main Care Team Station is required
- A second secure entrance/exit that will allow staff an alternate route out of the Unit
- Each patient space being equipped with a Code Blue/Pink call button.

Enabling Technologies

Information Systems

A centralized Care Team Station will be located on the Unit, near the public entrance. The Ward Clerk will have an assigned workstation within the care desk. A Satellite Care Team Station will be located within the Medical/Surgical Zone and have touchdown workstations.

Documentation stations or workstations will otherwise be touchdown and available to any member of the Clinical Team and learners. Stations/data entry keyboards will be available within the patient room, in the Care Team Station, in the Care Planning Room and with each medication cart. A workspace will also be provided in the Staff Lounge.

Some documentation stations may be planned for standing use and to accommodate easier viewing between team members and for demonstration/teaching.

Each Unit will also have a Consult Room that can be used for private telephone conversations, consultations, dictation or virtual care sessions.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the Inpatient Unit. In each patient room, there will be Wi-Fi for patient use in accessing the internet. Patient rooms will be equipped with IBTs and electronic dashboards which can display clinical information from Cerner HIS. Bedside terminals will provide the following capabilities and services:

- TV/entertainment
- Educational content
- EMR

- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

An RTLS based infant security system and controlled access to all areas will be implemented.

Telemetry Service

LBRP rooms will include dual monitors for in-room viewing of patient record side by side with the fetal monitor strip. Fetal/infant monitoring will also be accommodated in the Care Team Station with monitor banks installed in a discrete location within the Care Team Station for confidentiality.

Virtual Care

Inpatient rooms, including LBRP will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting rooms will be equipped with digital displays, video- and teleconferencing capabilities and presentation inputs to provide flexible and adaptable collaboration spaces.

Communication Systems

The Maternal Child Unit will be equipped with a state-of-the-art communications system to facilitate its activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff to staff wearable communication technology (e.g., Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue/Pink call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 4. Current and Projected Staffing - HDMH

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	11.00	38.08	13	7	7
Subtotal – Maternal/Newborn	*11.00*	*16.12*	*4*	*3*	*3*
Registered Nurse (RN)	10.00	10.08	2	2	2
Manager	1.00	1.00	1	0	0
Ward Clerk	0.00	5.04	1	1	1
Subtotal – Medical/Surgical Inpatient Beds	*0.00*	*20.16*	*4*	*4*	*4*
RN	0.00	15.12	3	3	3
Registered Practical Nurse (RPN)	0.00	5.04	1	1	1
Subtotal – Allied Health	*0.00*	*1.80*	*5*	*0*	*0*
Physiotherapist (PT)	0.00	0.40	1	0	0
Occupational Therapist (OT)	0.00	0.40	1	0	0
Physiotherapy (PT)/Occupational Therapy Assistant (OTA)	0.00	0.40	1	0	0
Social Work (SW)	0.00	0.40	1	0	0
Dietitian	0.00	0.20	1	0	0

Notes:

1. Maternal Newborn Manager will support both sites. Medical Surgical Manager (see Medical/Surgical component) will support all Medical Surgical beds at HDMH.
2. Ward Clerk will provide 24-hr/day coverage.

Design Objectives

Locations and Adjacencies

Physical adjacency of the Maternal Newborn Unit and Surgical Services with a connecting patient/service corridor to move a mother in labour to an OR and later to return from the PACU is critical to advancing the safety, quality, and comfort of the patient experience. Intrinsic to this smooth transfer is ensuring the sterility of the OR environment is maintained. Availability of protective clothing, gowns, head covers, masks etc. will be available to the Clinical Team wherever they enter a semi-restricted or restricted zone.

Convenient access to on-call space will support the Maternal Newborn staff.

Circulation to the public elevators will be exceptionally clear for mothers/partners from the main entrance.

Internal Organization

Maternal Newborn and Medical/Surgical Unit will be zoned into the following areas:

- Zone 1: Elevator Core & Lobby.
- Zone 2: Maternal Newborn & Medical/Surgical – All Maternal Newborn spaces with five Medical/Surgical beds with Support Spaces. Main Care Team Station and entrance to the Unit.
- Zone 3: Medical/Surgical – 10 Medical/Surgical beds with Support spaces.

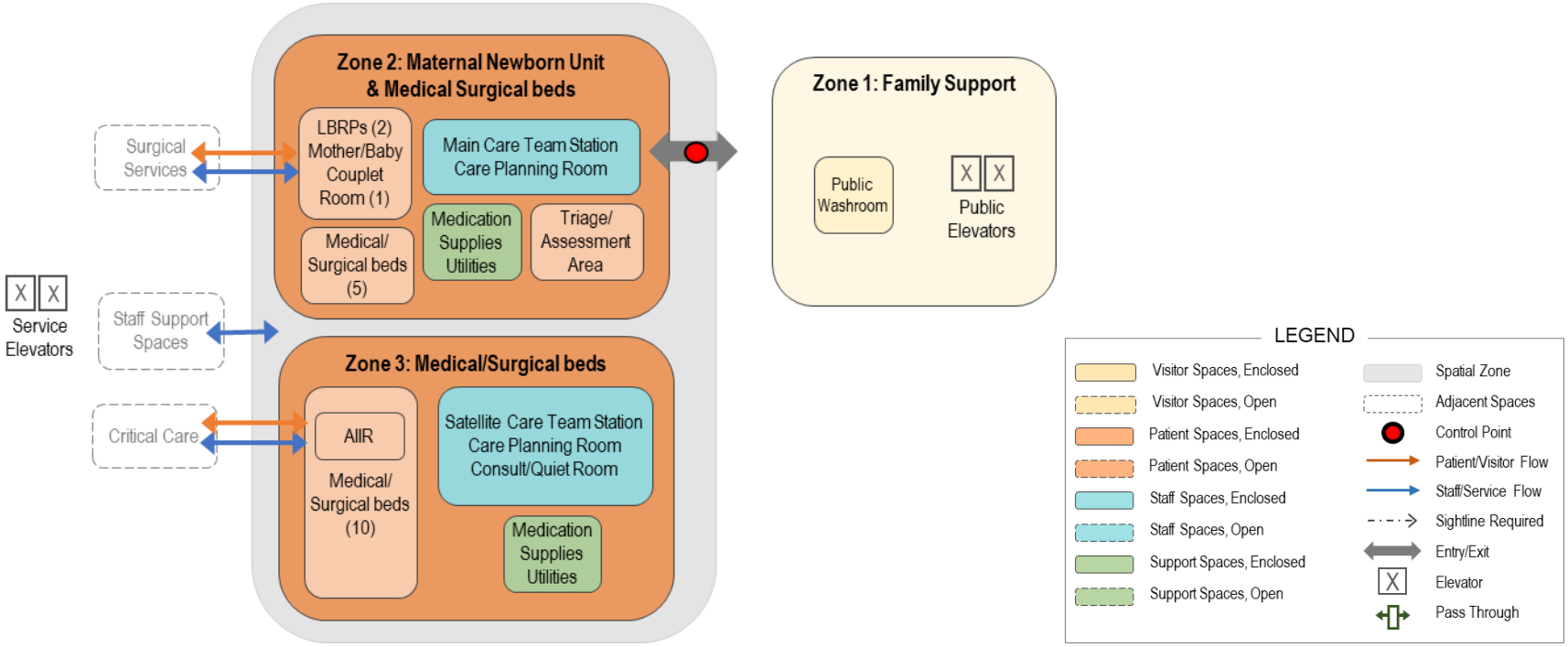
The internal organization of the Maternal Newborn and Medical/Surgical Unit reflects some important issues of service delivery:

- The Maternal Newborn Unit will provide a physical environment that is supportive of this important family event, with a layout that offers calm and quiet while ensuring efficient response to mothers/families during the LBRP experience.
- Baby-centred care is an essential to the Unit's model of care promoting skin-to-skin contact upon delivery and ensuring mother/infant/family are co-located throughout the postpartum stay.
- The Clinical Team is responsible for multiple activities in the department. The Main Care Team Station provides a central hub for review of activity, monitoring progress and identifying emergent issues with mothers and on occasion infants requiring observation in the Triage/Treatment area. Location of an enclosed Care Planning Room with the Station is required for private conversations.
- The Unit will be locked with specific protocol for access of visitors. Observation of access points will supplement monitoring equipment at all entries and exits.
- Respect for patient privacy and dignity will be maintained in the interface of Unit circulation, mother/family space and noise attenuation through the Unit.

- Staff facilities including a scrub dispenser may be shared with Surgical Services.
- The Triage/Treatment area will need to be adjacent to, with full visual access, the Care Team Station.
- A Satellite Care Team Station and Care Planning Room will be located within the Medical/Surgical Zone.
- Support spaces should be divided and located to support the two unique populations on the Unit (Maternal/ Newborn and Medical/Surgical).

The spatial organization should be generally as shown in the diagram below. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

One Medical/Surgical inpatient bedroom will be planned for AIIR. The other patient rooms will be single rooms and will offer contact protection as a result.

Alcoves will be planned for PPE and a select list of frequently used disposable supplies at the entrance to each patient room. Cabinetry would be preferred to prevent possible contamination of these items. Any storage solution must not interfere with circulation to the patient room or Unit corridor.

All patient rooms will have hand hygiene sinks/alcohol dispensers immediately available to entering clinicians, within view of the patient.

Staff hand hygiene sinks/alcohol dispensers will also be provided in the:

- Care Team Stations
- Medication Preparation Rooms
- Clean Supply Rooms and Soiled Utility Rooms
- Housekeeping Closet/Room
- Staff Lounge.

Additional considerations for soiled material include:

- Separation of clean and soiled materials
- Provisions for managing and handling hazardous or contaminated items
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment of patient infections.

Patient/Family

The Unit configuration will support mothers/partners in three different groups: Antenatal Services, LBRP and postpartum and newborn examinations following discharge. While these groups intermingle, comfort, security and privacy should be available to these groups on the Unit.

The washroom in the Triage/Treatment area will include an infant change station.

The Unit will support needs of mother/newborn and family staying overnight. There should be full access to the Nourishment Alcove, showers in patient rooms available to partners, and a refrigerator (temperature monitored) for breast milk storage and personal food supplies in each room.

Each birthing room will have area for resuscitation and a complete post-delivery exam of the infant.

Wayfinding

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit. Intuitive circulation cues and signage will be considered to ensure arriving mothers/partners are able to access the Maternal Newborn Unit quickly.

Accessibility & Corridor Design

Arriving mothers may need a mobility aid (wheelchair/stretcher) or staff assistance.

Public spaces, including washrooms and the Triage/Treatment Area will be planned to accommodate pregnant women, mothers with strollers/additional children. Wherever it is anticipated that a stretcher will be moved, the corridor must be wide enough to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Acoustic

Every effort must be made to maintain a quiet environment despite the sounds of equipment and staff working in the Maternal Newborn Unit. Acoustic privacy between patient rooms is mandatory.

Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors.

Medical Gases

Medical gases (oxygen, air, and suction) will be provided at each patient bed. Separate consoles will be available for the mother's bed and the infant warmer. Ideally this equipment will be behind screens that can be easily shifted for immediate access during the birthing process and in emergencies.

The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

Patient Privacy

Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.

Lighting

Lighting shall be designed to meet the clinical activities performed in the Unit. Patient comfort must also be addressed, including patient-controlled lighting. Nighttime lighting must accommodate patient sleeping yet ensure maintenance of nurse-patient observation.

Given the abundance of literature supporting the curative value of natural light and open views to the outside for recovery of the patient, the Unit will be designed such that each patient room has a window. Provision of natural daylight in each patient room is non-negotiable. Skylights will not be acceptable as the sole source of daylight.

Ergonomic Considerations

Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.

Security

The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design:

- The configuration of the Unit will ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized.
- The Maternal Newborn Unit will be equipped with a security system with audio/visual support at all access points. Exit doors will be equipped with time-delay locks to reduce opportunities to leave the Unit unobserved. Staff in the Unit will have control over release of the door from the nursing station or from opening the door from the inside. The access control system utilized will need to be integrated with the central hospital monitoring system to ensure that both systems functioning is monitored, as well as any activated alarms. The Unit will need to be lockable in emergency situations.
- Mothers and significant others may be issued technology (e.g., bracelet or swipe card) to accommodate moving on and off the Unit. Other family/visitors will be escorted to the patient room by mother/significant other/staff member. Newborns will not be moved from the Unit until discharge.
- Visibility to the entry/access points from the Care Team Station will support security with casual observation of general activity on the Unit.
- A second secure entrance/exit will allow staff an alternate route out of the Unit.
- Each patient space will be equipped with a Code Blue/Pink call button.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 5. *Space Table*

			Component Gross Area (CGSF / CGSM): TOTAL				**13,530**				**1257.0**		
			Component Gross Area (CGSF / CGSM): Maternal Newborn & Med Surg (5 beds)				**6,470**				**601.1**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				4,312				400.6		
			Component Gross Area (CGSF / CGSM): Medical/Surgical (10 beds)				**7,060**				**655.9**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				4,707				437.3		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Elevator Core and Lobby			**subtotal net area**		**60**		**subtotal net area**		**5.6**		**FOR MATERNAL/NEWBORN AND MED/SURG**
10	.001		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
			Zone 2: Maternal Newborn & Med/Surg (5 beds)			**subtotal net area**		**4,252**		**subtotal net area**		**395.0**		
10	.002		Care Team Station, Main			180	1	180		16.7	1	16.7		
		.01	*- workstation, ward clerk*	*1*	*50*				*4.6*					
		.02	*- touchdown workstation, staff*	*1*	*30*				*2.8*					
		.03	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.04	*- alcove, fetal monitor*	*1*	*10*				*0.9*				For Telemetry monitoring	
		.05	*- pneumatic tube*	*1*	*20*				*1.9*					
		.06	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/devices	Provide alcove/countertop
		.07	*- hand hygiene sink*	*1*	*10*				*0.9*					
10	.003		Care Planning Room			190	1	190		17.7	1	17.7		Provide glass wall to allow visibility into adjacent Care Team Station
		.01	*- table with chairs*	*4*	*30*				*2.8*					
		.02	*- workstation, touchdown*	*1*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*					Enclosed for dictation
10	.004		Triage/Treatment Area			370	1	370		34.4	1	34.4	For non-stress tests, inductions, newborn checks	
		.01	*- waiting, seat, standard*	*2*	*20*				*1.9*					
		.02	*- examination room*	*1*	*140*				*13.0*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.03	*- bay, infant warmer*	*1*	*140*				*13.0*				For infants requiring care/stabilization prior to transfer and also for newborn post discharge checks	Larger to accommodate transport isolette when required
		.04	*- supply and procedure carts*	*1*	*30*				*2.8*					
		.05	*- countertop refrigerator*	*1*	*10*				*0.9*					Temperature monitored for breast milk
		.06	*- hand hygiene sink*	*1*	*10*				*0.9*					
10	.005		Washroom, Patient/Public, Accessible			60	2	120		5.6	2	11.1		
														Include a change table
10	.006		Labour, Birthing, Recovery and Postpartum (LBRP)			420	2	840		39.0	2	78.0		
		.01	*- bed area including vestibule*	*1*	*300*				*27.9*					Provide clear zones for patient, staff and family use within the room
		.02	*- washroom, 3-piece*	*1*	*75*				*7.0*					Temperature monitored for breast milk
		.03	*- countertop refrigerator*	*1*	*10*				*0.9*					Include round tub with shower
		.04	*- infant warmer*	*1*	*10*				*0.9*					
		.05	*- alcove, storage supply*	*1*	*10*				*0.9*					
		.06	*- scrub sink (remote access)*	*1*	*15*				*1.4*					
10	.007		Mother/Baby Couplet Room			355	1	355		33.0	1	33.0		
		.01	*- bed area including vestibule*	*1*	*250*				*23.2*					
		.02	*- washroom, 3-piece*	*1*	*75*				*7.0*					
		.03	*- countertop refrigerator*	*1*	*10*				*0.9*					
		.04	*- infant warmer*	*1*	*10*				*0.9*					
		.05	*- hand hygiene sink*	*1*	*10*				*0.9*					
10	.008		Single Bedroom			290	5	1,450		26.9	5	134.7		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*160*				*14.9*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
10	.009		Alcove, Charting			15	3	45		1.4	3	4.2		Provide 1 alcove for each 2 beds
10	.010		Alcove, Emergency Equipment			20	1	20		1.9	1	1.9		
		.01	*- crash cart/difficult airways cart*	*1*	*10*				*0.9*					
		.02	*- code pink cart*	*1*	*10*				*0.9*					
10	.011		Alcove, Equipment			25	1	25		2.3	1	2.3		
		.01	*- portable U/S*	*1*	*15*				*1.4*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.02	*- epidural cart*	*1*	*10*				*0.9*					
10	.012		Medication Room			120	1	120		11.1	1	11.1		
		.01	*- automated dispensing unit (ADU)*	*1*	*60*				*5.6*					Double cell ADU
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- countertop workspace*	*1*	*40*				*3.7*					
10	.013		Clean Supply Room			120	1	120		11.1	1	11.1		
10	.014		Soiled Utility Room			130	1	130		12.1	1	12.1		
10	.015		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Locate adjacent to Soiled Utility Room
10	.016		Washroom, Staff			50	2	100		4.6	2	9.3		
10	.017		Nourishment Alcove			35	1	35		3.3	1	3.3		
10	.018		Equipment Storage			100	1	100		9.3	1	9.3		Provide power bars at 42" AFF (above floor level), cross circulation path between 2 entries
10	.019		Housekeeping Closet			40	1	40		3.7	1	3.7		
10	.020		left intentionally blank											
10	.021		left intentionally blank											
			Zone 3: Medical/Surgical (10 beds)			**subtotal net area**		**4,707**		**subtotal net area**		**437.3**		**Adjacent to ICU**
10	.022		Single Bedroom, Step-Down/CCU Surge			310	4	1,240		28.8	4	115.2		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*235*				*21.8*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
10	.023		Single Bedroom, AIIR (Bariatric)			365	1	365		33.9	1	33.9		Provide clear zones for patient, staff and family use within the room
		.01	*- anteroom*	*1*	*80*				*7.4*					Provide supply storage, data entry station
		.02	*- bed area*	*1*	*190*				*17.7*					Provide patient lift and IV ceiling track above the bed
		.03	*- washroom, 3-piece*	*1*	*80*				*7.4*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					Locate cupboards outside of room
10	.024		Single Bedroom			290	5	1,450		26.9	5	134.7		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*160*				*14.9*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
10	.025		Charting Alcove			15	5	75		1.4	5	7.0		Provide 1 alcove for each 2 beds
10	.026		Care Team Station, Satellite			180	1	180		16.7	1	16.7	To support Telemetry beds	Provide visibility to Telemetry beds
		.01	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.02	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.03	*- alcove, physiological monitors*	*1*	*30*				*2.8*				For Telemetry monitoring	
		.04	*- pneumatic tube*	*1*	*20*				*1.9*					
		.05	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/devices	Provide alcove/countertop
		.06	*- hand hygiene sink*	*1*	*10*				*0.9*					
10	.027		Care Planning Room			190	1	190		17.7	1	17.7		Provide glass wall to allow visibility into adjacent Main Care Team Station
		.01	*- table with chairs*	*4*	*30*				*2.8*					
		.02	*- workstation, touchdown*	*1*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*					Enclosed for dictation
10	.028		Consult Room/Quiet Room			120	1	120		11.1	1	11.1	Multipurpose - For MD calls, consult, virtual and also for family consult, family quiet	
10	.029		Alcove for Emergency Equipment			10	1	10		0.9	1	0.9		
10	.030		Medication Room			120	1	120		11.1	1	11.1		Double cell ADU
		.01	*- automated dispensing unit (ADU)*	*1*	*60*				*5.6*					
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- countertop workspace*	*1*	*40*				*3.7*					
10	.031		Nourishment Alcove			35	1	35		3.3	1	3.3	Public/staff use	Provide ice/water machine

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
10	.032		Washroom, Public, Accessible			60	2	120		5.6	2	11.1		
10	.033		Equipment Storage			200	1	200		18.6	1	18.6		Provide power bars at 42" AFF, cross circulation path between two entries
10	.034		Clean Supply Room			120	1	120		11.1	1	11.1		
10	.035		Soiled Utility Room			130	1	130		12.1	1	12.1		
10	.036		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Adjacent to Soiled Utility Room
10	.037		Washroom, Staff			50	2	100		4.6	2	9.3		
10	.038		Housekeeping Room			120	1	120		11.1	1	11.1	To support Maternal Newborn and Telemetry	
10	.039		Nourishment Centre			120	1	120		11.1	1	11.1	For staff and food services use, for ward stock, future meal prep. To support Maternal Newborn and Telemetry	Enclosed room
10	.040		left intentionally blank											
			Zone 4: Staff & Administrative Support		**subtotal net area**	**-**			**subtotal net area**	**0.0**				**Planned in ICU component**
			left intentionally blank											

11. Medical/Surgical Inpatient Unit

Functional Description (Current and Projected)

Summary

Inpatient Medical/Surgical Units provide assessment, treatment, follow-up, and education to support patients and families along the continuum of care, which includes acute care, chronic disease management, pre- and post-surgical care, palliative, and end of life care.

In the new HDMH build, Medical/Surgical Acute Care will be delivered through a total of 58 beds. To support the Maternal/Newborn Program, 15 Medical/Surgical beds will be planned within the Maternal/Newborn Unit. Additionally, these beds will be located adjacent to the Critical Care Unit (CCU) to allow for ICU surge capacity or future expansion if required (see Maternal Newborn and Medical/Surgical component for further detail).

This component outlines the function of the remaining 43 beds.

The Inpatient Units will be supported with the establishment of a Reactivation/Complex Medical Management (previous CCC) Unit at HDMH. The Reactivation beds will support an active care model for patients that are less acute/sub-acute and/or have delays in accessing services and supports from outside the hospital (often designated as alternate level of care [ALC]) (see Reactivation and Complex Medical Management component for further detail). All Medical/Surgical patients will be able to utilize the associated supports if appropriate to support their recovery and preparation for discharge (e.g., Home Simulation Evaluation Suite, therapy tub, and rehabilitation treatment gym).

Service Overview

Services are delivered by an Interprofessional Team of providers delivering a broad range of Medical and Surgical Inpatient services for patients requiring admission to hospital for diagnosis, observation, and treatment. Care delivery is patient- and family-centred, with the goal of delivering safe and excellent healthcare to assist in the recovery and smooth transition back home or to the community.

Currently, Inpatient Units at HDMH and SMMH provide care to surgical patients, ALC/failure to cope at home/elderly, general medical, respiratory (Chronic Obstructive Pulmonary Disease [COPD] and pneumonia), and stable cardiac/telemetry.

In future, inpatient units will allow for flexibility to respond to changes in patient census, including Medical Care, Surgical Care, Critical Care, Palliative, and Paediatrics. Patients will be provided single room accommodation with attached washrooms including roll-in showers for chairs/attendant support.

Clinical support services will be distributed to smaller service units/zones. The zones minimize travel distances for clinical and support staff to retrieve supplies and equipment. The smaller zones also allow cohorting of patients when required for staffing, infection control or specialized care.

Planning Principles and Assumptions

Acute Inpatient services will be developed to support the highest standard of service delivery, service quality and patient safety. The following assumptions reflect the model of care:

- The incorporation of best practice in patient care and service delivery as a core principle
- It is assumed that future technology will enable a wireless solution for Telemetry and all patients could be monitored if required
- Addition of two code compliant Airborne Isolation Rooms (AIR) within the Unit
- Accommodating the isolation of a group of beds in the event of an infectious outbreak in the community or in the facility is beneficial
- High-quality care in an environment that supports patient comfort, safety/security, and confidentiality through single patient rooms zoned to accommodate discrete areas for patients, staff, and family
- Family-centred care directed at the comfort and care needs of all patients especially aging adults
- Integrating technology to support and enhance patient safety, information collection and retrieval, patient monitoring, and to streamline service support
- Alignment with lean workflows to minimize unnecessary travel for patients and staff
- Enable delivery of clinical training across all health-related disciplines
- The local Family Health Team's (FHT) Palliative Team will continue to support Palliative Care to patients in hospital. There will be two beds planned to support Palliative Care within the Medical/Surgical bed complement at each MAHC site.

Patient Profile

General Medical/Surgical cases will be cared for at HDMH. Most patients will be 18 years or older, with the exception of some Paediatric surgical patients

Emergency will be the primary source of admissions to the Medical inpatient beds, including referrals from physician offices who direct a patient to HDMH Emergency anticipating immediate admission. Medical repatriation from tertiary referral centres will be implemented to allow patients to recover closer to home when medically stable. Patients will arrive by ambulance/transfer vehicles and be brought directly to the appropriate Care Unit.

The Medical/Surgical Inpatient beds will support MAHC's Surgery Program, with a short inpatient length of stay (LOS).

Recognizing that there are at least three to four active Palliative Care patients in hospital at any given time with an average LOS of 10 days and that the community has minimal supports for this population, MAHC is planning for a total of two designated palliative beds within the Medical/Surgical Inpatient beds. These beds would also be available for patients undergoing MAiD (Medical Assistance in Dying). Patient Bedrooms will be designed to accommodate

attending families in the care process and a Family Quiet Room will be planned. The Palliative Care spaces will support a peaceful, calm, and quiet environment. These beds will be flexible and can be used for non-Palliative patients as well.

Scope of Services (Current and Projected)

The Medical/Surgical Inpatient Units offer a full range of services to support successful recovery from their reason for admission. The team will oversee the delivery and monitoring of inpatient care, as well as evaluate and address change in the medical disposition of admitted patients. Admission assessments, initiation of treatment orders, monitoring and ongoing consultation with the Care Team and the patient's family fall within the rubric of care. Specific activities of this service include, but are not limited to:

- Assessment and Regular monitoring/recording of vital signs
- Monitoring and initiating interventions to alleviate discomfort
- Administering medication
- Assisting with personal care
- Diagnostic testing
- Consultation/Referral to specialists to manage issues
- Implementing treatment plan
- Engaging appropriate clinical support including members of the Allied Health Team to assess, educate and counsel patients on the treatment plan and follow-up care
- Teaching patients and families self-management techniques and empowering them to achieve improved well-being
- Family support and education during recovery
- Coordinate post discharge follow-up care plan with family.

Care is delivered by a multidisciplinary team of providers that include physicians (hospitalists, family physicians, internists and general surgeons), a mixed model Nursing Team (RNs and RPNs), PSWs, Clinical Nurse Educators (CNE), pharmacists, dietitians, PTs, OTs, discharge planners, SWs, SLPs, RTs, administrative support, spiritual care, Indigenous patient support, volunteers, and learners. In future physician assistants and hospital attendants may be introduced.

Education

The Unit will accommodate up to eight nursing students, four medical students/residents and one to two Allied Health students at any one time. It is anticipated that the Acute Inpatient Unit will continue to actively participate in telemedicine/teleconferencing events.

Research

In future, the Unit may participate in clinical research. No additional space would be required beyond shared workstations currently planned.

Linkages/ Partnerships

The most significant program linkage of the Medical/Surgical Inpatient Unit will continue to be with the CCU to support acute patients if required. The operational linkage with RT Services and Surgical Services is important, as are DI and the Laboratory. Given the amount and complexity of medications administered in the Medical/Surgical Unit, there will continue to be a very close program linkage with the Pharmacy.

Externally the prime linkages will be as follows:

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Family Health Team (FHT)	Palliative Care support to inpatients
Andy's House	Local Hospice providing Palliative support – inpatients transferred to when possible. Often have wait list, so patients will be cared for in hospital when required
Muskoka Hills Retirement Villa	Transitional care beds
Algonquin Grace Hospice	Local Hospice providing Palliative support – inpatients transferred to when possible. Often have wait list, so patients will be cared for in hospital when required
Centre for Addiction and Mental Health (CAMH)	Mental health support
Addictions Outreach	Mental health support
North Simcoe Muskoka (NSM) Palliative Network	Palliative support
NSM SGS (Specialized Geriatric Services)	Community elderly support
Community Paramedic Program	Work with vulnerable individuals in community providing support to avoid hospital admissions
WENDAT (Geriatric Support Service)	Community elderly support with transitions
MAOHT (Muskoka and Area Ontario Health Team [OHT])	System support

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Current	Projected
Department	**2019/20**	**2031/32**
Beds	28	43

Operational Description

Organization and Management

There will be one Manager responsible for the Medical Surgical Inpatient Units (including Surgical beds within Maternal/Newborn Unit and Telemetry) for each site.

Education will continue to be supported through a central shared CNE.

Medical oversight will be provided through a shared model (internists, general surgery, family medicine and hospitalists).

Hours of Operation

The Acute Inpatient Unit will operate continuously 24/7. MD will be on-call at all times. RT on-site 24/7.

Length of Stay

Patients will have a LOS of 5-10 days (up to 14-21 days).

Workflow

Admission

Emergency is the primary point of admission for most Medical and some Surgical patients. The Ward Clerk in Emergency will admit and complete documentation for all patients admitted from Emergency. Some patients will have an arranged direct admission and will be registered upon arrival to the Unit. Some Surgical patients will have a scheduled admission and will register in the Surgical Services area upon scheduled arrival. In future, technology solutions may allow for the patient or family member to self-register through their phone or a portable tablet.

Repatriation and inter-facility transfers will arrive at discrete entrance dedicated to those patients.

General waiting for public/extended family will be located outside the Unit entry in a Waiting Room (one per floor).

Patient Assessment

With the support of accompanying staff/family, the assigned staff nurse completes the admission assessment and documentation, and orients patient/family on patient unit facilities and protocols.

A patient record is opened, and orders initiated as part of the initial consultation with the admitting physician or by application of a clinical pathway as available.

Patient assessment will include recording of vital signs, medication reconciliation, skin and fall assessments, and an evaluation of potential communicable infections, PIV/Central lines, drains, wounds, CAM assessment (delirium), BRADEN scores (pressure ulcers), intake and output/ fluid balance.

Patient Care

Single Bedrooms with attached washrooms/showers will be provided for all patients. Rooms will be zoned to accommodate patient care, care related activities of the Clinical Team and area for the family.

Designated patient rooms will be planned to support patients with body mass index (BMI) exceeding 45. The room will be larger to accommodate the patient and care activities comfortably and will include equipment to afford the Clinical Team support to move the patient as required. There will be a Bariatric room planned within the Telemetry beds and one within the remaining Medical/Surgical beds.

Two Airborne Infectious Isolation Rooms (AIIR) will be available for patients who require airborne isolation. These will also be sized to accommodate bariatric patients and can be used for either purpose as required.

A clinical care plan is developed with the entire Clinical Team as quickly as possible following admission. This plan is reviewed daily to monitor patient progress and plan discharge.

In addition to identifying and documenting vital signs, changes in physical state and monitoring pain, the Nursing Team provide psychosocial/emotional support, education and assists with dressing, bathing, and other activities of daily living (ADL), where appropriate.

Changes in state of health are monitored with the admitting physician and Clinical Team.

The Clinical Team will examine and consult with the patient daily. Ideally patient rounds will include the full Clinical Team including Allied Health professionals. Learners will generally accompany their preceptors on rounds.

Regular rounds will be held to review each patient's goals and plan for discharge. Typically rounds include 12-15 people.

Specialty consultants may be asked to assess specific issues, either remotely or on-site.

The Rehabilitation Team will actively work with patients during their admission to maintain or improve their mobility. The Rehabilitation Team has many types of supportive equipment that are used by patients and with patients in their rooms. A storage room will be planned on the Unit to ensure that equipment is not stored in corridors.

Preparation for Discharge

The Nursing Team and most responsible physician (MRP) will update the patient treatment plan following clinical rounds.

Staff nurse will provide information to the patient/family on the care plan including the planned discharge date.

The family will consult with members of the Allied Health Team including the Flow Navigator (discharge planning) to gather information to support care following discharge. Home and Community Care will be contacted early in the patient's stay if there are potential issues identified with patient safety and independence at home.

General Support Activities

Allied Health Team

The Inpatient Units require support from a variety of central Allied Health resources, including dietitian, SLP, Palliative Care, SW, PT, and OT.

Diagnostic & Therapeutic Services

In addition to the patient monitors, portable x-rays, ECGs and U/S will be the main DI activities on the Inpatient Unit. It is anticipated that some may also be performed in DI, including CT and MRI. Dedicated patient elevators capable of accommodating the patient bed, equipment, and a minimum of four staff are required.

Although all computers can access PACS images, a dedicated PACS viewing terminal, will be required on the Unit to view radiological images in more detail when required.

Patient specimens will be transported from the Unit to the on-site Laboratory. Pneumatic tubes will be considered during the design stage. Lab staff will pack samples that must go off-site for analysis, in preparation for daily pick-up. Test results will be available electronically.

Pharmaceutical Services

All medication and central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in ADUs. Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. Medication Rooms will be distributed through the Inpatient Units to balance the number of rooms with the staff assigned to each room. To support patient safety, the work area will accommodate up to two clinical staff members at one time.

The Medication Room will also contain locked cupboard for storage of patient-own medications (including narcotics).

Pharmacy Technicians are incorporated into the Clinical Team and conduct medication reconciliations on all new patient admissions.

Clinical Pharmacists participate in inpatient rounds when possible and consult with patients and families as required.

Clean Supply

Clean Supply Rooms will include storage systems standardized to MAHC requirements. Clean Supply Rooms will be distributed within the inpatient floor to equalize travel time to each patient room. To carefully minimize waste, there will be limited supplies stored in the patient rooms. However, PPE supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high-density shelving. Staff will scan barcode labels in the Clean Supply Rooms and information will be accessed by Receiving staff. All stock requirements will be system generated based on point-of-use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen carts will be delivered on a regular basis to the Units. The carts will be stored in the Clean Supply Room on the Unit. The Clean Supply Rooms will also accommodate a blanket warmer.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to 'point of care' as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

Soiled Utility Rooms will be distributed to serve approximately 18 patient rooms. The Soiled Utility Room will accommodate:

- A designated area for used instruments for collection and return to MDR (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)

- Bins/transfer carts for linen, recyclables, medical waste, and general waste will be available to collect and transfer to the loading dock for exchange by an external laundry service
- A disposal unit for liquid waste.

An alcove outside the Soiled Utility Room will be provided for a closed cart designed to collect patient meal trays.

Internal staff will continue to collect waste, recycling and dirty linen from the Unit.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, will be covered for transport.

Equipment Storage

Emergency carts for resuscitation and difficult airways will be available on the Unit. Carts will be monitored by nursing staff in consultation with RT.

Patient care equipment must be available, operational, and quickly retrievable when it is required. An asset management system will be in place, with equipment tagged and trackable.

Portable equipment (e.g., IV pumps/poles, wheelchairs, commodes, shower chairs/trollies) will be stored in an enclosed room for convenient access from corridor serving contiguous sub-units. Power bars at waist height will be required. Ideally the configuration of this room will accommodate a cross-circulation path between two entries to facilitate access and retrieval of equipment.

Rehabilitation equipment may be stored in a dedicated storage room adjacent to the Rehabilitation Gym (see Reactivation and Complex Medical Management component).

A charging countertop will be accommodated within the care desk and team workrooms for hand-held devices. Additional alcoves may be identified for equipment that require power support within each zone.

Corridor alcoves are helpful for storing select equipment to facilitate frequency/emergent access or maneuverability related to size.

Within patient rooms, an alcove to store mobility devices (i.e., wheelchair, walker) will be considered during the design stage. This would allow for the device to be readily accessible without interfering with patient/staff movement throughout the room.

Protocols for cleaning and storage of patient support equipment will be established with the Clinical Team in the Care Unit and coordinated with Environmental Aides. This will occur off the Unit in a centralized cleaning space.

Maintenance and repairs will be performed by the regional Biomed Team. Requisitions for Biomedical service will be entered electronically and triaged by the Biomed Team. Items for repair will be cleaned and moved by clinical staff or Environmental Aides to a secure staging area. Units will be notified electronically when a repair is completed, and the item can be retrieved for return to the Unit.

Environmental Services

Environmental Aides will support the department continuously in the turnover of patient rooms, management and changing of damaged or inoperable furnishing/equipment and removal of soiled material. Daily maintenance protocols will be instituted in addition to response for emergency needs.

Environmental requirements including new policies and procedures may evolve to incorporate new protocols for movement of clean and soiled material, equipment cleaning in response to the recent pandemic.

Nourishment & Meals

Inpatient meal trays will be delivered to the patient bedside by Dietary staff and collected following the meal. Menu selections will be available online for patients. Delivery carts from the kitchen will hold up to 20 patient trays. These carts should be stored in an alcove outside of the Soiled Utility Room.

Nourishments will be made available outside of meal trays following Ward Stock Policy and contained in a Nourishment Centre. This will be stocked by the Food Services Department and accessed by staff only. It is anticipated that in future, some on Unit meal preparation will be required, and the Nourishment Centre will accommodate this activity. There will be a Nourishment Alcove available for items such as ice and water and accessible to both staff and visitors.

The two inpatient rooms to support Palliative Care will include small fridges to for patient/family use.

Patient Transport

MAHC has porters for transportation to and from DI. Otherwise, nursing staff and attendants are responsible for patient transfer elsewhere within the hospital.

Administration & Staff Spaces

The 43 Medical/Surgical beds should be divided into two smaller Units, each with its own Staff Support spaces. Each will have a Ward Clerk and Clinical Lead who will maintain responsibility for daily activity on the Unit from a Care Team Station located near the Unit entrance. Adjacent to the Care Team Station will be a Care Planning Room with table seating and shared workstations. These shared workstations will be available for Home Care and other external partners, Allied Health professionals, nursing and medical staff, and students.

The Units will each have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

One shared larger Multipurpose Meeting Room will be available for family team meeting and larger Interprofessional Team rounds. This will accommodate up to 15 people.

Many roles involved in the support of Clinical Service provision require quiet/private office space at times (e.g., Managers, Clinical Leads, Clinical Educators, NPs, Patient Flow Navigators, Medical Chiefs). Recognizing that several of these roles support the care of patients across both sites, it is anticipated that many staff will require space both at HDMH and SMMH. A combination of Single Office space and Shared Office space (2 of each) has been planned within each clinical area. The intention is that these offices would be flexible use and bookable and could be assigned in future should a staff member become dedicated to a specific program and site.

All staff and learners will have access to staff facilities, locker rooms, changing rooms and washrooms with showers in a centralized location. All staff will have access to a shared Lounge with comfortable seating and table seating, a kitchenette, and cube lockers closer to the Unit.

On-call rooms will be centralized (see Physician and Staff Amenities component).

Security Services

Security services will be provided at MAHC on-site.

Access Control Systems will be utilized to ensure a safe and secure environment for patients, staff and visitors.

IP-based video surveillance camera is required in the Medication Room.

An active RTLS will be provided throughout the facility to support patient wandering and staff duress. Mobile duress buttons will be provided to staff. Fixed duress buttons will be available in select locations.

The space should be designed to help ensure the safety and security of all patients/family, staff, and visitors to be enhanced through:

- The configuration of the Unit to ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized
- Optimizing the visualization of the corridors and patient rooms, while also maintaining line of sight for the main entrance from the Care Team Station is required
- A second secure entrance/exit that will allow staff an alternate route out of the Unit
- Each patient space being equipped with a Code Blue call button.

Enabling Technologies

Information Systems

The 43 Medical/Surgical beds should be divided into two smaller Units, each with its own Staff Support spaces. Each will have a Care Team Station where the Ward Clerk will have an assigned workstation.

The Care Team Stations will also hold a bank of patient monitors so that cardiorespiratory monitoring of all Telemetry rooms can be viewed both at the station and in the patient room (Telemetry monitoring). The monitor bank should be in a discrete location for confidentiality. A PACS viewing monitor will also be located at the Care Team Stations.

Documentation stations or workstations will otherwise be touchdown and available to any member of the Clinical Team and learners. Stations/data entry keyboards will be available within the patient room, in the Care Team Station, in the Care Planning Room and with each medication cart. A workspace will also be provided in the Staff Lounge.

Some documentation stations may be planned for standing use and to accommodate easier viewing between team members and for demonstration/teaching.

Each Unit will also have a Consult Room that can be used for private telephone conversations, consultations, dictation or virtual care sessions.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the Inpatient Unit. In each patient room, there will be Wi-Fi for patient use in accessing the internet. Patient rooms will be equipped with IBTs and electronic dashboards which can display clinical information from Cerner HIS. Bedside terminals will provide the following capabilities and services:

- TV/entertainment
- Educational content
- EMR
- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

Virtual Care

Inpatient rooms will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting rooms will be equipped with digital displays, video- and teleconferencing capabilities and presentation inputs to provide flexible and adaptable collaboration spaces.

Communication Systems

The Inpatient Units will be equipped with a state-of-the-art communications system to facilitate its activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff to staff wearable communication technology (e.g., Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 3. Current and Projected Staffing - HDMH

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	55.44	90.50	26	15	15
Subtotal – Medical/Surgical (43 beds)	*55.44*	*79.40*	*18*	*15*	*15*
Manager	1.00	1.00	1	0	0
Ward Clerk	4.76	10.08	2	2	2
Clinical Lead	1.19	2.80	2	0	0
Registered Nurse (RN)	15.43	25.20	5	5	5
Registered Practical Nurse (RPN)	21.43	20.16	4	4	4
Personal Support Worker (PSW)	11.63	20.16	4	4	4
Subtotal – Allied Health	*0.00*	*11.10*	*8*	*0*	*0*
Physiotherapist (PT)	0.00	1.70	1	0	0
Occupational Therapist (OT)	0.00	1.70	1	0	0
Physiotherapy (PT)/Occupational Therapy Assistant (OTA)	0.00	5.10	3	0	0
Speech Language Pathologist (SLP)	0.00	0.60	1	0	0
Social Work (SW)	0.00	1.00	1	0	0
Dietitian	0.00	1.00	1	0	0

Notes:

1. Manager will support all Medical Surgical beds at HDMH.
2. Ward Clerks will provide 24-hr/day coverage.
3. Clinical Lead will work 5 days/week and 8 hrs/day.
4. Care model includes a mix of RNs, RPNs and PSWs.

Design Objectives

Locations and Adjacencies

The 43 beds should be divided into two Units, each with their own Care Team Station, Care Planning Room and other support spaces. The Palliative beds should be in a quiet area of the Unit, with the Family Lounge and public washroom adjacent.

Internal Organization

The Medical/Surgical Inpatient services will be zoned into the following areas:

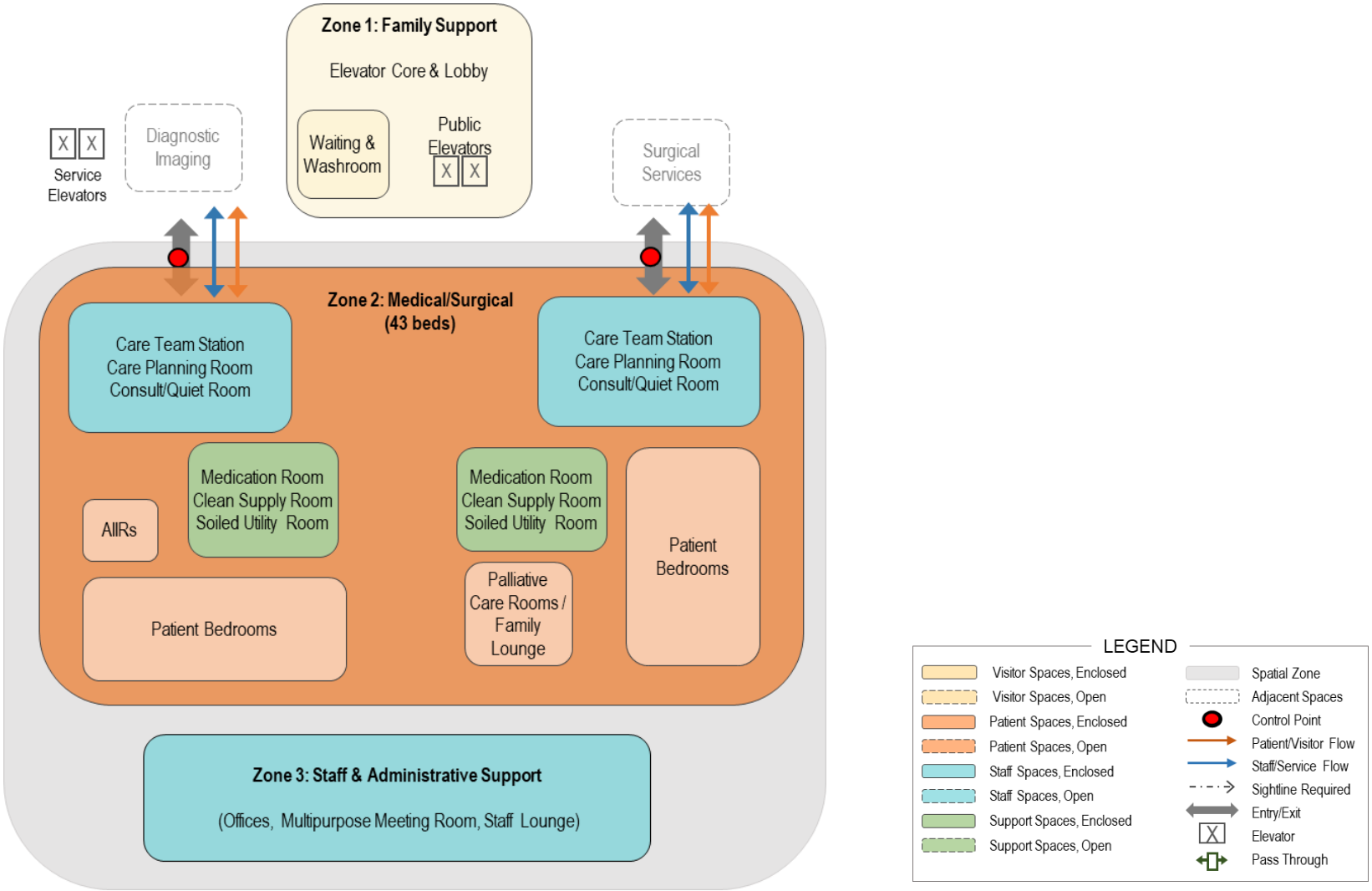
- Zone 1: Family Support
- Zone 2: Medical/Surgical – 43 inpatient beds and support spaces
- Zone 3: Staff & Administration Support - administrative and staff spaces need to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

Note the following specifics regarding configuration of the spaces comprising the Medical/Surgical Inpatient Units:

- The Care Team Station will be located to ensure visualization of the entrances to all patient rooms as well as the visitor entrance to the Unit
- The AIIRs should be located near the Care Team Station
- The Palliative Care beds should be located away from the general traffic flow for privacy and quiet
- The code cart will be located in a readily accessible area to all patient rooms
- Spaces should be configured to be equitably accessible from all patient rooms
- Administrative and staff spaces need to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationships – Medical/Surgical Inpatient Unit



Special Considerations

Infection Prevention and Control

Two Medical/Surgical patient rooms will be planned for AIIR. The AIIRs will have negative air pressure, with an anteroom and adjoining washroom. The anteroom will be utilized for staff to don and doff PPE according to organization's practices. There will be hand hygiene sinks in the anteroom, patient room and washroom.

The other patient rooms will be single rooms and will offer contact protection as a result.

Alcoves will be planned for PPE and a select list of frequently used disposable supplies at the entrance to each patient room. Cabinetry would be preferred to prevent possible contamination of these items. Any storage solution must not interfere with circulation to the patient room or Unit corridor.

All patient rooms will have hand hygiene sinks/alcohol dispensers immediately available to entering clinicians, within view of the patient.

Staff hand hygiene sinks/alcohol dispensers will also be provided in the:

- Care Team Stations
- Medication Rooms
- Clean Supply Rooms and Soiled Utility Rooms
- Housekeeping Room
- Staff Lounge.

Additional considerations for soiled material include:

- Separation of clean and soiled materials
- Provisions for managing and handling hazardous or contaminated items
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment of patient infections.

Patient/Family

The introduction of single patient rooms has many advantages:

- Superior privacy and confidentiality for patients
- Designated area within the room for family for overnight visits and comfortable furniture
- Additional infection control.

With these advantages, the patient room will also offer additional area for storage of supplies, mobility aides and furniture suitable for overnight accommodation.

The Unit will support needs of family who can play an important role in health restoration. Fixed sleeping accommodation is preferred in patient rooms to reduce the risk of interference with staff movement in a darkened room. Family space will be larger in the Palliative Care rooms along with a counter area where they can make refreshments.

Wayfinding

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labelled; signage to be well lit. Wayfinding should be designed to address the visual challenges some patients may be experiencing.

Accessibility & Corridor Design

Access to all public spaces, including washrooms and treatment spaces, must be accessible. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Provision will be made for bariatric patients in the two AIIR rooms within the Unit.

A ceiling-mounted patient lift will be provided in each patient room.

Acoustic

Every effort must be made to maintain a quiet environment despite the sounds of equipment and staff working in the Unit. Acoustic privacy between patient rooms is mandatory. Appropriate sound dampening techniques including insulation, and, in some situations, mechanical support may be considered, i.e., white noise.

Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors. Opportunities to bring natural light and views to circulation within the Unit will be important to staff working in this component.

Medical Gases

Medical gases (oxygen, air, and suction) will be provided at each patient bed. The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

Patient Privacy

Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.

Lighting

Lighting shall be designed to meet the clinical activities performed in an Inpatient Unit. Patient comfort must also be addressed, including patient-controlled lighting. Nighttime lighting must accommodate patient sleeping yet ensure maintenance of nurse-patient observation.

Given the abundance of literature supporting the curative value of natural light and open views to the outside for recovery of the patient, the Medical/Surgical Inpatient Unit will be designed such that each patient room has a window. Provision of natural daylight in each patient room is non-negotiable. Skylights will not be acceptable as the sole source of daylight.

Ergonomic Considerations

Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.

Security

The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design.

The configuration of the Unit will ensure that Care Team time with the patient is maximized and that travel time to support spaces is minimized.

Visualization of the patient rooms from the Care Team Station is required.

A second secure entrance/exit will be required for delivery/removal of material and also allow staff an alternate route out of the Unit.

Each patient space will be equipped with a Code Blue call button.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 4. *Space Table*

			Component Gross Area (CGSF / CGSM) : Medical/Surgical (43 beds)				**27,055**				**2513.5**	
			Net to Gross Ratio				1.50				1.50	
			Total Net Area (NSF / NSM)				18,036				1664.5	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Family Support			**subtotal net area**		**285**		**subtotal net area**		**26.5**		**For all services on same floor**
11	.001		Waiting Room, Family/Visitor			225	1	225		20.9	1	20.9		
		.01	*- seat, standard*	*8*	*20*				*1.9*					
		.02	*- wheelchair/scooter/bariatric*	*2*	*30*				*2.8*					
		.03	*- charging station/public telephone*	*1*	*5*				*0.5*					
11	.002		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
			Zone 2: Medical/Surgical (43 beds)			**subtotal net area**		**16,514**		**subtotal net area**		**1523.1**		
11	.003		Single Bedroom			290	39	11,310		26.9	39	1050.7		
		.01	*- bed area*	*1*	*160*				*14.9*					
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
11	.004		Single Bedroom, AIIR (Bariatric)			365	2	730		33.9	2	67.8		Provide clear zones for patient, staff and family use within the room
		.01	*- anteroom*	*1*	*80*				*7.4*					Provide supply storage, data entry station
		.02	*- bed area*	*1*	*190*				*17.7*					Provide patient lift and IV ceiling track above the bed
		.03	*- washroom, 3-piece*	*1*	*80*				*7.4*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					Locate cupboards outside of room
11	.005		Single Bedroom, Palliative			350	2	700		32.5	2	65.0		Locate at end of Unit
		.01	*- bed area*	*1*	*160*				*14.9*					
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.05	*- family alcove*	*1*	*60*				*5.6*					Provide Countertop, small fridge, sleeping accommodation
11	.006		Charting Alcove			15	22	330		1.4	22	30.7		Provide 1 alcove for each 2 beds
11	.007		Care Team Station			220	2	440		20.4	2	40.9		
		.01	*- workstation, ward clerk*	*1*	*50*				*4.6*					
		.02	*- printer/work area*	*1*	*20*				*1.9*					
		.03	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.04	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.05	*- pneumatic tube*	*1*	*20*				*1.9*					
		.06	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/ devices	Provide alcove/countertop
		.07	*- hand hygiene sink*	*1*	*10*				*0.9*					
11	.008		Care Planning Room			220	2	440		20.4	2	40.9		Provide glass wall to allow visibility into adjacent Main Care Team Station
		.01	*- table with 4 chairs*	*4*	*30*				*2.8*					
		.02	*- workstation*	*2*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*					Enclosed for dictation
11	.009		Alcove for Emergency Equipment			10	2	20		0.9	2	1.9		
11	.010		Medication Room			140	2	280		13.0	2	26.0		
		.01	*- automated dispensing unit (ADU)*	*1*	*70*				*6.5*					Triple cell ADU
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- medication cart*	*4*	*10*				*0.9*					
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.05	*- countertop workspace*	*1*	*10*				*0.9*					
11	.011		Nourishment Alcove			35	2	70		3.3	2	6.5	For public/staff use	Provide ice/water machine
11	.012		Washroom, Public, Accessible			60	4	240		5.6	4	22.3		
11	.013		Family Lounge			150	1	150		13.9	1	13.9		Adjacent to Palliative Care Bedrooms. Nourishment alcove included
11	.014		Equipment Storage Room			200	2	400		18.6	2	37.2		Provide power bars at 42" AFF, cross-circulation path between 2 entries
11	.015		Clean Supply Room			120	2	240		11.1	2	22.3		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
11	.016		Soiled Utility Room			130	2	260		12.1	2	24.2		
11	.017		Alcove, Food Tray Cart Holding			12	2	24		1.1	2	2.2		Locate adjacent to Soiled Utility Room
11	.018		Washroom, Staff			50	4	200		4.6	4	18.6		
11	.019		Housekeeping Closet			40	2	80		3.7	2	7.4		
11	.020		Consult Room/Quiet Room			120	2	240		11.1	2	22.3	Multipurpose - For MD calls, consult, virtual and also for family consult, family quiet	
11	.021		Nourishment Centre			120	2	240		11.1	1	11.1	For staff and food services use, for ward stock, future meal prep.	Enclosed room
11	.022		Housekeeping Room			120	1	120		11.1	1	11.1		
			Zone 3: Staff & Administrative Support			**subtotal net area**		**1,237**		**subtotal net area**		**114.9**		
11	.023		Office, Single			100	2	200		9.3	2	18.6	Flexible use	
11	.024		Office, Shared			140	2	280		13.0	2	26.0	Flexible use	Provide 2 workstations
11	.025		Multipurpose Meeting Room			325	1	325		30.2	1	30.2	For Patient rounds, family meetings, staff meetings	Table and chair seating for 15 people
11	.026		Lounge, Staff			432	1	432		40.1	1	40.1		
		.01	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.02	*- kitchenette*	*1*	*60*				*5.6*					
		.03	*- tables and chairs*	*6*	*25*				*2.3*					
		.04	*- soft seating*	*3*	*20*				*1.9*					
		.05	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.06	*- lockers, staff*	*40*	*2*				*0.2*				For day-use, staff and learners	Provide cube lockers
		.07	*- charging station*	*3*	*4*				*0.4*					

12. Pharmacy

Functional Description (Current and Projected)

Service Overview

MAHC Pharmacy Services include the purchasing, storage, dispensing, and distribution of medications, supported by a clinical pharmaceutical care model to enhance patient care. Clinical Pharmacy Services is patient-centred and semi-decentralized to program areas.

At HDMH services also include the packaging of unit dose oral medications for distribution to all MAHC sites.

At SMMH a Satellite Pharmacy located within the Ambulatory Zone will receive unit dose and stock medications from HDMH, as well as prepare and supply chemotherapy to the clinic.

The table below articulates the current and future dispensing and distribution services, by site, to support core programs across the MAHC system.

Table 1. Current and Future Services per Hospital Site

	Huntsville (HDMH)			***South Muskoka (SMMH)***		
Service	**Current**	**Future**	**Preparation Type**	**Current**	**Future**	**Preparation Type**
Medication Dispensing	ü	ü	-	ü	ü	-
Chemotherapy Intravenous (IV) Admixture	ü	-	-	-	ü	Hazardous/Sterile
IV Admixture (incl. Total Parenteral Nutrition [TPN])	ü	ü	Non-Hazardous/Sterile	ü	ü	Non-Hazardous/Sterile
Clozaril Dispensing	ü	ü	-	-	-	-
Bacillus Calmette-Guérin (BCG) Preparation – Hazardous, non-cytotoxic	-	-	-	ü	ü	Hazardous/Sterile
Clinical Pharmacy Services (on-units)	ü	ü	-	ü	ü	-
Compounding (non-sterile, non-hazardous)	ü	ü	-	-	-	-

Planning Principles and Assumptions

The following planning assumptions are to be noted for Pharmacy Services:

- HDMH will be the site for all unit dose packaging capability, and transport medication to SMMH
- All ADUs will interface seemlessly with unit dose packaging (PAC-MED) machines
- MAHC will continue to use larger ADUs in key locations to support overnight needs, in lieu of a 'night cupboard' system
- CPOE will be implemented (planned for 2025) for medication orders, with a closed loop barcode system on inpatient units
- There will be further implementation to unit-based clinical Pharmacy Services, with pharmacists clinically assessing orders on the unit and the technicians filling orders in the dispensary
- Patient supplied medications will be kept in appropriate locked space within the medication rooms on inpatient units. They will not be integrated into the ADUs.

Patient Profile

Pharmacy Services will extend to inpatients, and certain outpatient services including dialysis, ophthalmology, and oncology.

Scope of Services (Current and Projected)

HDMH Pharmacy functions will include:

- Storage, control, and supply of all medications, including purchasing, pre-packaging and distribution
- Order review of computerized order entries; timely and accurate drug distribution
- Unit dose packaging for distribution from ADUs
- Management and replenishing of ADUs for designated treatment areas of the hospital, including the anaesthesia cart ADUs
- Manual crash cart medication replenishment
- Preparation of medications for dialysis, systemic therapy (chemo) and ambulatory infusion clinics at the SMMH
- Specialized non-sterile compounding of solutions, ointments, etc.
- Dispensing of Clozaril (clozapine) medication to local retail pharmacies
- Quality management activities including quality improvement, incident reporting, adverse drug reaction reporting and audits within the context of a safe medication practices

- Clinical services as part of pharmaceutical care model including therapeutic drug monitoring, patient and staff education, drug dosing, drug information, and consultation
- Drug information services includes teaching, research, and staff orientation and development.

Education

Pharmacy Services will be actively involved in providing educational placements for students from University Pharmacy Programs such as PharmD Residents and Community College Pharmacy Technician Programs.

At any given time, there may be up to two learners in the department, a resident, and a technician student.

Research

Pharmacy Services do not currently support any research in the way of clinical trials, should there be trials in the future, there would be no requirement for dedicated space within the Pharmacy to support. The MAHC First Line project does rely on knowledge support from Pharmacy, however there are no space requirements/impact.

Linkages/ Partnerships

The table below outlines current partnerships, which are anticipated to continue to be in place in the future.

Table 2. Linkages and Partnerships

Linkages/Partnerships	Description
Soldiers Memorial (Orillia)	Supplying ward stock for Nephrology Program
Royal Victoria Regional Health Centre (Oncology)	Supplying Oncology medications
Health Sciences North (satellite for Oncology)	Supplying Oncology medications
Local Retail Pharmacies	Supplying Clozaril medication

Workload

The table below describes the current and projected workload of Pharmacy Services.

Table 3. Annual Workload

	Current	Projected
Measure	**2022/23**	**2031/32**
Orders Verified	137,091	175,476
Doses by Site - Cerner	540,000	691,200
Doses by Site - Omnicell ADUs	950,604	1,216,773

Notes:

1. Excludes manual doses for OR, ER patients, crash carts and MAiD doses.
2. Cerner doses are verified orders only, does not include the additional doses pulled by nursing staff thru ADUs.

Operational Description

Organization and Management

Pharmacy Services will continue to operate under the leadership of a MAHC Director of Outpatient and Support Services and MAHC Manager of Pharmacy, Oncology and Infusion. Similarly, there will continue to be a Team Lead for technicians and a Professional Practice Lead (PPL) (pharmacist) responsible for both sites. Currently the PPL is present two days/week and in the future the goal is to increase to four days/week if possible.

Overnight, pharmacist support is provided by remote pharmacists who do order entry and verification.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 4. Hours of Operation

	Current			Projected		
	Weekday	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Pharmacy	7:00am - 6:00pm Pharmacist coverage 6:00pm - 7:00am	8:00am - 6:00pm (tech) 8:00am - 4:00pm (pharmacist) Pharmacist coverage 6:00pm - 8:00am	8:00am - 6:00pm (tech) 8:00am - 4:00pm (pharmacist) Pharmacist coverage 6:00pm - 8:00am	7:00am - 7:00pm (tech) 7:00am - 7:00pm (pharmacist) Pharmacist coverage 7:00pm - 7:00am	7:00am - 7:00pm (tech) 7:00am - 7:00pm (pharmacist) Pharmacist coverage 7:00pm - 7:00am	7:00am - 7:00pm (tech) 7:00am - 7:00pm (pharmacist) Pharmacist coverage 7:00pm - 7:00am

Workflow

Purchasing

Purchasing of pharmaceuticals will be coordinated by the Pharmacy technician, under the supervision of a pharmacist. Minimum and maximum order levels will be established. Most orders will be generated on the computer system and communicated electronically i.e., uploaded to wholesalers, and when required via fax/phone. Shipments will be received in the Pharmacy by the technician, verified, and stocked in the appropriate Storage Area. It is anticipated that by 2031/32 the Pharmacy will be under electronic inventory and orders will be received electronically.

All expiry dates will be checked prior to dispensing and expired medications will be returned to the vendor or collected by wastage.

Manufacturing & Packaging

Most items will be purchased in a manufactured form. MAHC will use automated unit dose packaging for oral solids and narcotics/controlled medications, where possible.

Manufacturing of certain IV medications, ointments, creams and other topical applications will be prepared in the Pharmacy (if not available commercially) in compliance with the National Association of Pharmacy Regulatory Authorities (NAPRA) Standards, on an as needed basis.

Medication Order Processing & Administration

There are several steps to the order processing and administration functions for Pharmacy Services as outlined below:

- Orders will be entered electronically into the patient EMR (CPOE planned for 2025) and processed immediately
- Orders will be received instantly in the Pharmacy and acknowledged
- Real time allergy and drug-interaction checking will be done at the time of ordering – enhancing medication safety, reducing transcription errors, and lowering risk of error with drugs of similar name
- Patients will have their wristband and medications scanned and verified using a barcode scanner or mobile device before any medication administration
- Medications prepared by nurses will have the labels printed out in medication rooms using Pharmacy label printer
- All Medication Administration Records (MARs) will be electronic and updated in real time
- Decision support tools to monitor utilization of barcode scanning.

ADU Replenishment

All medications will be stocked and dispensed from ADUs (both towers and flex-lock fridge systems), and technicians will replenish the ADUs daily or as required according to min and max par levels. The following table outlines the planned locations and quantities for ADUs at HDMH.

Table 5. Proposed Counts of ADUs

	2031/32		
	Projected Beds	**ADC Count**	**Comments**
Inpatient Services	121	8	
Maternal/Surgical Unit	17	2	
Critical Care Unit (CCU)	10	1	
Medical/Surgical Unit	43	2	
Integrated Stroke Unit	14	1	
Reactivation & Complex Medical Management	37	2	
Emergency Services	0	1	
Surgical Services	0	1	Plus anaesthesia carts
Renal Dialysis	0	1	

Replenishment of Medication to SMMH

HDMH will supply most drugs to SMMH, except for items ordered directly to the Satellite Pharmacy located within the Ambulatory Care component; these include cytotoxic oncology meds.

The technician at SMMH will replenish the ADUs daily or as required according to minimum and maximum par levels; and HDMH will ship medications to SMMH at regular intervals to support.

General Support Activities

Supplies, Cleaning & Disposal

The Pharmacy will be cleaned daily by Environmental Service (EVS), who will collect Pharmacy waste (including biohazard waste) from the listed holding areas on a scheduled basis and transport to the waste dock for outside pick-up. Access to sterile compounding rooms requires EVS staff with specific training, therefore designated staff for Pharmacy should be considered.

Supplies (weekly or as needed) arrive from Materials Management on cart and will be broken down in appropriate space (de-boxing etc.).

Linen Services

Pharmacy staff will use PPE where required; these will be supplied by Materials Management and stored in Pharmacy.

Staff Resources

Staff Support spaces such as Lounges and lockers will be centralized with one per floor.

The Pharmacy Administrative area will require an office to be shared between PPL and Pharmacy Manager, and workspace for technicians/flex office.

Space is required for staff orientation/training and storage space for a training ADU.

Occupational Health and Safety

Universal safety precautions and guidelines (NAPRA) will be followed to ensure employee safety in the preparation of IV medications.

Enabling Technologies

Information and Communication Systems

Pharmacy Services require reliable and effective IT/Communications Services for efficient operation. The IT design should address:

- Connectivity between the IV Formation Zone and the Dispensing Zone with hardwired two-way video/audio via closed circuit (not wireless)
- Patient clinical information systems and electronic records
- Wireless and hospital network requirements, high capacity and speed for digital equipment
- Wearable communication technology (e.g., Vocera) for agile staff communications.

Staffing (Current and Projected)

Pharmacy staff are shared resources, covering both hospitals.

Currently, Monday – Friday there are five Pharmacy technicians at each site, along with two pharmacists. On weekends, there are three Pharmacy technicians and one pharmacist covering both sites, and one remote pharmacist. In the future, staffing is anticipated to increase by an additional two to three FTEs for both pharmacists and Pharmacy technicians.

The PPL pharmacist works two days a week, with expectation to increase up to 1.0 FTE in the future.

Table 6. Current and Projected Staffing

	Current	Projected 2031/32			
Pharmacy	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	22.58	25.98	12	9	1
Pharmacy Technician	14.48	17.48	7	5	0
Pharmacy Manager	1.00	1.00	1	1	0
Pharmacists/Supervisor	6.50	6.50	4	2	1
Professional Practice Lead - Pharmacist (PPL)	0.60	1.00	1	1	0

Note:

1. Total current and projected staffing is for both MAHC sites.

MAHC also holds a service contract with a third-party to provide remote pharmacist services. Currently overnight and weekend services as noted in Table 5: Hours of Operation. In the future, MAHC will need to maintain this coverage with either a local (budgeted) resource or continue this service, ideally weekend daytime coverage by local.

Design Objectives

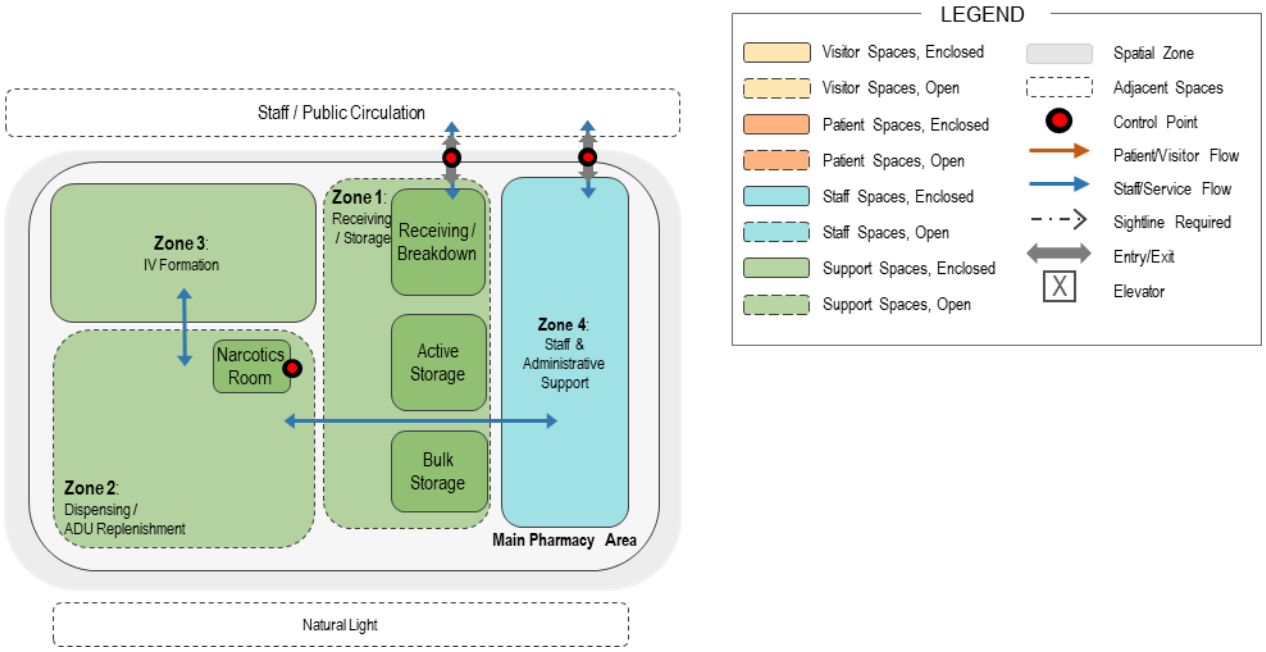
Locations and Adjacencies

The Pharmacy should be located with convenient access to circulation routes for inpatient units, as well as efficienct and convenient access to dialysis and surgical services. The Pharmacy should be located to permit natural light for staff, however, the Narcotic Room should not be located on an exterior wall.

Internal Organization

The spatial organization should be generally as shown in the diagram below. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Adjacency Diagram



Special Considerations

Infection Prevention and Control

All equipment, furnishings and finishes must be easily cleaned and utilize materials able to withstand repeated contact by approved hospital grade disinfectants and decontamination products. Sterile isopropyl alcohol is a required standard for cleaning of equipment and supplies in the sterile compounding areas. Separate flows (clean vs dirty) must be established for movement of staff, supplies and materials; and sufficient access is required to personal protective equipment.

Clarity of Spatial Organization

The Pharmacy should be subdivided into zones: Receiving and Storage Area, Dispensing/ADU Replenishment, IV Formation, and Staff & Administrative Support. The planning and design of these areas is contingent on the equipment selected. Areas allocated in the space table reflect general areas included within the Pharmacy. Specific planning will be required to address integration of information systems, modular storage, inventory units and narcotic storage in relation to the flow of staff and production within the Pharmacy.

Acoustic	The Staff & Administrative Support Zone, used for clinical consultation and drug information, should be acoustically separate from the larger machinery (packagers) and busy flow of receiving areas.
Architectural/Structural/ Electrical/Mechanical	IV, hazardous, and sterile medication preparation rooms must be divided from dispensary though staging and anterooms, following all applicable standards and codes. There should be an area to store dedicated cleaning equipment for the cleaning staff (particular to IV Formation). Air handling and air quality requirements must be met to maintain proper sterility and integrity in medication preparation. Room temperature and humidity must be controlled and monitored for drug storage and for employee comfort as per NAPRA requirements. Manufacturers installation guidelines specify the proximity to walls and other equipment. Sufficient space (minimum 1 foot) shall be provided around equipment for housekeeping to effectively clean around. Hand hygiene sinks, emergency showers and eyewash stations to be readily accessible to Pharmacy areas per applicable codes and standards. Refrigerators must be alarmed, connected to a central monitoring system, and must monitor and record temperature. Separate refrigerator units are required for storage of hazardous and non-hazardous drugs. A tube system will be used for stat medications which can be sent via a pneumatic tube system.
Lighting	Appropriate lighting levels are required to ensure the safe and efficient review of orders and preparation of medications. Access to natural light should be provided in areas of the Pharamcy where staff work all day, with consideration for the proper storage conditions for medications that are light sensitive.
Ergonomic Considerations	Layout of the space will promote collaboration and interaction among staff. Consideration to ergonomic height adjustable design throughout all working areas.
Security	The Pharmacy will be secured, and access controlled by employee RFID badge (swipe access). A camera system will be used for monitoring entrances and the Narcotics Room from central security. No patient access to the work areas of the Pharmacy will be possible.

Codes & Standards

In addition to the above criteria, the facility must conform to NAPRA standards as well as recognized national, provincial, and local building codes as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 7. *Space Table*

			Component Gross Area (CGSF / CGSM)				**2,765**				**256.9**		
			Net to Gross Ratio				1.30				1.30		
			Total Net Area (NSF / NSM)				2,125				197.4		
CO	**RN**	**SN**	**Element**	**Qty**	**NSF**	**Unit Area (sf)**	**Units**	**Total Net Area (sf)**	**NSM**	**Unit Area (sm)**	**Units**	**Total Net Area (sm)**	**Room Intent**	**Specific Design Criteria / Comments**
			Zone 1: Receiving/Storage Area			**subtotal net area**		**380**		**subtotal net area**		**35.3**		
12	.001		Receiving/Breakdown Area			150	1	150		13.9	1	13.9		Provide 42-48' wide door
		.01	*- decasing area*	*1*	*80*				*7.4*					To accommodate 10 totes at any given time, plus cart
		.02	*- receiving/purchasing station*	*1*	*40*				*3.7*					
		.03	*- waste holding*	*1*	*10*				*0.9*					
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.05	*- PPE cart*	*1*	*10*				*0.9*					
12	.002		Storage, Bulk			230	1	230		21.4	1	21.4		
		.01	*- storage, non-refrigerated*	*1*	*100*				*9.3*					Accommodate approx. 200 lin feet of shelving
		.02	*- storage, refrigerated, 36 cu ft*	*2*	*20*				*1.9*				For vaccines, insulin, etc.	Provide double door fridge
		.03	*- freezer, -20c*	*2*	*20*				*1.9*				For infusion bags	
		.04	*- IV storage bulk*	*1*	*40*				*3.7*					
		.05	*- flammable cabinet*	*1*	*10*				*0.9*					Include flammable cabinet 4' wide x 4' high
12	.003		left intentionally blank											
			Zone 2: Dispensing/ADU Replenishment			**subtotal net area**		**625**		**subtotal net area**		**58.1**		
12	.004		Order Entry Review			200	1	200		18.6	1	18.6		Locate in quiet area
		.01	*- workstation, technician*	*5*	*30*				*2.8*					Provide workspace for 3 techs
		.02	*- label printer, fax/scanner/copier*	*1*	*40*				*3.7*					
		.03	*- stationary supplies*	*1*	*10*				*0.9*					
12	.005		Narcotics Room			80	1	80		7.4	1	7.4		Provide security by means of camera, swipe card access
		.01	*- controlled substance storage tower (ADU)*	*2*	*10*				*0.9*					
		.02	*- workstation with computer*	*1*	*50*				*4.6*					
		.03	*- storage, refrigerated*	*1*	*-*				*-*					Undercounter refrigerator
		.04	*- distribution cart, lockable*	*1*	*10*				*0.9*					

CO	RN	SN	Element	Qty	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
12	.006		PAC-MED Packaging Station (Automated)			100	1	100		9.3	1	9.3		Consider separate room
		.01	*- packaging/product labelling station*	*1*	*40*				*3.7*					Provide autoprint machine and counter space with terminal
		.02	*- workstation*	*1*	*30*				*2.8*					
		.03	*- storage, supplies*	*1*	*20*				*1.9*					
		.04	*- bulk package (manually pre-packs)*	*1*	*10*				*0.9*					Provide counter for prepping pre-packs of meds for manually unit dose
12	.007		Cart/Tote Holding Area			75	1	75		7.0	1	7.0		3' carts, locate adjacent to packaging station
12	.008		Non-Hazardous Non-Sterile Compounding			60	1	60		5.6	1	5.6		
		.01	*- work counter with terminal*	*1*	*30*				*2.8*					
		.02	*- utility sink*	*1*	*20*				*1.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
12	.009		Workstation, Pharmacist			50	2	100		4.6	2	9.3		
12	.010		Eyewash Station			10	1	10		0.9	1	0.9		Determine best zone
12	.011		left intentionally blank											
			Zone 3: IV Formation			**subtotal net area**		**380**		**subtotal net area**		**35.3**		
12	.012		IV Staging/Dispensing			140	1	140		13.0	1	13.0		Shared for 2 rooms
		.01	*- counter w/ printer*	*1*	*60*				*5.6*					
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.03	*- supplies/cart circulation*	*1*	*60*				*5.6*				IV bags and supplies	
		.04	*- circulation/pass-through*	*1*	*10*				*0.9*					From Sterile Clean Room (compounding room)
12	.013		Housekeeping Closet			40	1	40		3.7	1	3.7		
12	.014		Anteroom for Sterile Compounding			100	1	100		9.3	1	9.3		
		.01	*- change/gowning area*	*1*	*40*				*3.7*					
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.03	*- eyewash station*	*1*	*10*				*0.9*					
		.04	*- emergency deluge shower*	*1*	*10*				*0.9*					
		.05	*- stool*	*1*	*5*				*0.5*					
		.06	*- waste receptacle*	*1*	*5*				*0.5*					
		.07	*- fridge for non-hazardous*	*1*	*20*				*1.9*					

CO	RN	SN	Element	Qty	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
12	.015		Non-Hazardous Sterile Clean Room (ISO 7)			100	1	100		9.3	1	9.3		
		.01	*- clean filed cabinet 6' (ISO 5)*	*1*	*80*				*7.4*					
		.02	*- transfer cart*	*1*	*10*				*0.9*					
		.03	*- pass-through to IV Staging*	*1*	*10*				*0.9*					
12	.016		left intentionally blank											
			Zone 4: Staff & Administrative Support			**subtotal net area**		**740**		**subtotal net area**		**68.7**		
12	.017		Office, Private			100	1	100		9.3	1	9.3	Shared between PPL/Manager	
12	.018		Office, Shared			140	1	140		13.0	1	13.0	Shared office for technicians, flex space	Provide 2 workstations
12	.019		Clinical Resource Room			190	1	190		17.7	1	17.7		
		.01	*- meeting table*	*1*	*80*				*7.4*					Provide small meeting table
		.02	*- storage, journals*	*1*	*30*				*2.8*					
		.03	*- workstation, touchdown*	*1*	*30*				*2.8*				For learners and visiting staff	
		.04	*- training space with ADU*	*1*	*50*				*4.6*					
12	.020		Washroom, Staff			50	1	50		4.6	1	4.6		
12	.021		Staff Lounge			260	1	260		24.2	1	24.2		
		.01	*- hand hygiene sink*	*1*	*10*				0.9					
		.02	*- kitchenette*	*1*	*60*				5.6					
		.03	*- table and chairs*	*6*	*25*				2.3					
		.04	*- lockers, staff*	*20*	*2*				0.2					Provide cube lockers

13. Physician and Staff Amenities

Functional Description (Current and Projected)

Summary

This component details the support spaces included within the HDMH for staff, students, and medical staff.

Service Overview

Physician and Staff Amenities are intended to support the well-being and productivity of staff, students, and medical staff.

These amenities will facilitate staff recruitment and retention, as well as ongoing day-to-day work-life of MAHC staff and students. The safety of staff members, particularly during off-hours, will be primary.

These spaces will be detailed below, but generally speaking refer to locker and lounge space, as well as access to spaces for rest and respite (e.g., on-call spaces, quiet rooms).

Planning Principles and Assumptions

General planning principles will include:

- A separate staff and medical staff entrance (covered) will be provided
- In the pursuit of MAHC's commitment to advancing equity and inclusion, and providing a supportive work environment for staff, the Locker Area has been planned as a gender-neutal space with shared locker space and individual change cubicles/rooms
- Uniform dispenser machine(s) will be utilized, located centrally in an alcove within the hallway by the staff and medical staff entrance
- Lockers will be assigned to full-time staff, part-time staff, and physicians. A system will be implemented for locker usage by casual staff and students. Cube lockers decentralized to the work areas will be for day use only and remain unassigned.

Patient Profile

Not applicable to this component.

Scope of Services (Current and Projected)

The following amenities have been included as part of the facility/site as an asset to quality of work-life:

- Exterior spaces, such as staff bike storage and outdoor seating for meals and breaks

- On-Call Rooms (6) for physicians and/or other staff who need overnight accommodation in the course of their clinical support to patients (e.g., ED, ICU, Maternal/Child)
- Staff lockers, with associated change space, washrooms, and showers
- Medical Staff Locker Area and Lounge.

Note: dedicated space for medical students (including locker space) has been included in the *Administration Services* component within the NOSM space allocation.

Lounge space has been decentralized to clinical areas with cube lockers for day use storage of personal items. Administration and related departments will have a kitchenette available with their central Multipurpose Meeting Room. It is anticipated that programs/services too small to require a dedicated lounge space will share with an adjacent, larger program/service area.

A Multi-Faith Healing Room has been included as part of the Main Lobby portfolio of space, intended for quiet reflection, prayer, and respite. Additionally, Consult/Quiet Rooms have been included within the inpatient areas for use by families and staff requiring a calm and peaceful space for private discussion or individual respite.

Education

Not applicable to this component.

Research

Not applicable to this component.

Linkages/ Partnerships

Not applicable to this component.

Workload (Current and Projected)

Not applicable to this component.

Operational Description

Organization and Management

Physician and Staff Amenities will be under the management of Human Resources. The assignment of lockers will also be managed by Human Resources.

Hours of Operation	Physician and Staff Amenities will continue to be accessible 24/7 and will be available only through the use of a swipe card or other electronic means at each entry and exit.
Duration of Visit	Not applicable to this component.
Referrals & Scheduling Appointments	Not applicable to this component.
Workflow	Not applicable to this component.
General Support Activities	
Supplies, Cleaning & Disposal	EVS will be responsible for cleaning and upkeep of Physician and Staff Amenities. EVS will stock and restock the facilities with towels, toilet tissue, paper towels etc. Waste, recycling and sharps containers will be available for staff and physicians. EVS will collect and dispose of soiled and waste materials as per the established routines.
Infection Control	As a shared space, Physician and Staff Amenities will comply with all IPAC initiatives and protocols to maintain a healthy and safe work environment.
Security Services	Security provisions will include: ▪ Electronically controlled access (e.g., by swipecard or similar technology) ▪ Camera monitoring outside the staff entrance and other areas as determined during design ▪ Security features (and lighting) for safe travel between the staff entrance and the staff parking lot ▪ Secured bicycle storage.

Enabling Technologies

Physician and Staff Amenity spaces will be part of the MAHC wireless network. Hardwired phones may also be provided in these facilities.

Charging stations will be provided for telephones and other wireless devices.

Staffing (Current and Projected)

Not applicable to this component.

Design Objectives

Locations and Adjacencies

The location of the staff Locker Area shall be directly adjacent to the staff entrance. There shall be ease of access to the support departments and stairwells and elevators for travel to work areas.

Medical Staff lockers and Lounge shall be centrally accessible to the clinical area (e.g., inpatient units). Locate these two functions adjacent to each other.

On-Call Rooms should also be located central to the inpatient units, for ease of access.

The bike racks shall be directly outside the staff entrance. Note: they must be covered and secured.

Internal Organization

Not applicable to this component

Special Considerations

Physician and Staff Amenities shall be bright and welcoming.

While this component details amenities requiring space, the essential importance of less tangible aspects of staff wellness, such as access to natural light, air quality, thermal comfort, views to the exterior, consistency of design and layout across program/services, soothing colours and design of space, as well as other factors impacting the work environment cannot be overstated. These design and environmental aspects will be significant influencers of employee performance, motivation, happiness, and well-being.

Additionally, while outdoor space will not be exclusive to staff and students, the importance of walking paths and landscaping on the HDMH site should be considered an ‘amenity’ for the well-being of all using the site – whether staff/student or patient/visitor.

A vestibule directly inside the staff entrance door is recommended to assist with temperature control. A corridor with space to carry out staff screening would be valuable prior to entering the Locker Area.

The shower areas will each be planned with a “dressing/undressing” anteroom. This anteroom will be internally lockable to ensure security for all staff during their shower.

Toilet and change facilities shall be lockable rooms not cubicles. Electrical capability shall be provided in the change facilities e.g., for breast pumps.

Infection Prevention and Control

As previously mentioned, attention to cleaning protocols and IPAC initiatives/policies will be required in shared space.

Handwash sinks shall be provided in the Lounges in addition to the kitchen sinks.

Disabled Access & Corridor Design

The locker room and Lounge areas shall be accessible to employees who may be in a wheelchair or using crutches.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for staff, physicians and students. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 8. *Space Table*

			Component Gross Area (CGSF / CGSM) : TOTAL				**5,454**				**506.7**		
			Component Gross Area (CGSF / CGSM) : On-Call Rooms				**810**				**75.3**		
			Net to Gross Ratio				1.35				1.35		
			Total Net Area (NSF / NSM)				600				55.74		
			Component Gross Area (CGSF / CGSM) : Staff Locker Area				**3,659**				**339.9**		
			Net to Gross Ratio				1.35				1.35		
			Total Net Area (NSF / NSM)				2,710				251.77		
			Component Gross Area (CGSF / CGSM) : Medical Staff Facilities				**986**				**91.6**		
			Net to Gross Ratio				1.35				1.35		
			Total Net Area (NSF / NSM)				730				67.82		
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Exterior Spaces			**subtotal net area**		**-**		**subtotal net area**		**0.0**		
13			Bike Storage, Secured	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)		Covered and secured
13			Picnic Tables/Outdoor Seating	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)	For staff and public seating	Decentralized throughout campus
13			Entryway, Staff Entrance	(---)	(---)	(---)	1	(---)	(---)	(---)	1	(---)		Covered
			Zone 2: On-Call Rooms			**subtotal net area**		**600**		**subtotal net area**		**55.7**		
13	.001		On-Call Room			80	6	480		7.4	6	44.6	To accommodate MDs who live further away and need to stay overnight	Provide bed, desk, computer with telehealth link, dimmable lighting, soundproof, small fridge, small safe, charging station(s) Provide occupancy indicator to show when in use Including panic alarm
13	.002		Washroom with Shower			60	2	120		5.6	2	11.1		Adjoining the On-Call Rooms complete with shower

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 3: Staff Lockers			**subtotal net area**		**2,710**		**subtotal net area**		**251.8**		
13	.003		Locker Area, Staff			2,610	1	2,610		242.5	1	242.5		Non-gendered
		.01	*- vestibule, privacy*	*1*	*80*				*7.4*					
		.02	*- lockers*	*240*	*7*				*0.7*					Lockers will be individually lockable; provide lockable personal device charging stations
		.03	*- shower room*	*4*	*60*				*5.6*					Including drying area, seat, hooks for clothing, full length mirror Non-gendered
		.04	*- washroom*	*6*	*60*				*5.6*					
		.05	*- change cubicle, standard*	*6*	*25*				*2.3*					Including hooks for clothing, seat, full length mirror Non-gendered
		.06	*- change cubicle, accessible*	*2*	*50*				*4.6*					Including hooks for clothing, seat, full length mirror Non-gendered
13	.004		Uniform Supply Alcove			50	2	100		4.6	2	9.3		
			Zone 4: Medical Staff Facilities			**subtotal net area**		**730**		**subtotal net area**		**67.8**		
13	.005		Locker Area, Medical Staff			410	1	410		38.1	1	38.1		
		.01	*- vestibule, privacy*	*1*	*50*				*4.6*					
		.02	*- lockers*	*15*	*7*				*0.7*					Lockers will be individually lockable; provide lockable personal device charging stations
		.03	*- shower room*	*1*	*60*				*5.6*					Including drying area, seat, hooks for clothing, full length mirror Non-gendered
		.04	*- washroom*	*2*	*60*				*5.6*					
		.05	*- change cubicle, standard*	*1*	*25*				*2.3*					Including hooks for clothing, seat, full length mirror Non-gendered
		.06	*- change cubicle, accessible*	*1*	*50*				*4.6*					Including hooks for clothing, seat, full length mirror Non-gendered
13	.006		Medical Staff Lounge			320	1	320		29.7	1	29.7		
		.01	*- seating, lounge*	*4*	*20*				*1.9*					Include charging stations
		.02	*- table and chairs*	*1*	*100*				*9.3*					
		.03	*- workstation, touchdown*	*1*	*30*				*2.8*					
		.04	*- phone room*	*1*	*40*				*3.7*				Bookable; enclosed room to support quiet work, phone calls	Include desk, telephone, computer workstation; virtual health capable
		.05	*- kitchenette*	*1*	*60*				*5.6*					
		.06	*- hand hygiene sink*	*1*	*10*				*0.9*					

14. Reactivation and Complex Medical Management Unit

Functional Description (Current and Projected)

Summary

The Reactivation and Complex Medical Management Unit is a 37-bed unit intended to support and assist care for two distinct populations, largely seniors.

Reactivation beds are intended to support and assist in the reactivation of patients that are less acute/sub-acute and/or have delays in accessing services and supports from outside the hospital e.g., longer stay patients waiting for services post discharge. This model supports individuals who no longer need acute medical care but are not yet ready to go home, and helps patients avoid a repeat Emergency Department (ED) visit or admission. Recognizing that the hospital experiences high rates of ALC (Alternative Level of Care) patients, this Unit is anticipated to address the main reasons for ALC designation outlined above.

Complex Medical Management beds will support adults with organic physical and cognitive deterioration due to medical condition or age and are deemed medically complex/medically fragile. These patients require a hospital stay and active low-intensity rehabilitation to reach and maintain optimal physical, sensory, intellectual, psychological and social functional levels to improve quality of life. The Unit's Multi-Specialty Clinical Team will address a range of physical, cognitive, and sensory issues common to these conditions, and frequently integrates complex technology into the treatment plan. These patients often have limited options for care in other institutions. These beds have historically been called Complex Continuing Care (CCC).

Service Overview

The model of care incorporates senior friendly treatment to allow successful integration into community settings, reducing ALC length of stay. Care plans will be directed to enable patients with significant medical issues to be successfully transitioned to a community setting. These settings may include Long Term Care (LTC), a retirement home, other community dwellings or even to an appropriate home environment. The goal of the Unit will be to assist recovery by providing the personal support, nursing and rehabilitative care necessary to help the individual patient maintain or regain their mental and physical competence/well-being and a certain level of independence during extended hospitalization.

Using the 'assess and restore' principles of convalescence, respite and restorative care, a wide range of services and activities will be designed to provide frail adults with an integrated approach to care, including a high level of activation throughout the day (as tolerated), more timely access to assessment, earlier identification of need, care navigation, respite and engagement with services and a variety of health care partners to optimize community reintegration. Effective socialization is a critical component of the treatment paradigm.

The Care Team is comprised of Physicians (Family Physicians, Hospitalists), clinical learning support, nursing professionals, an array of Allied Health professionals and personal support workers. Administrative staff provides support to the team.

In future, the care will be delivered in:

- Medical/Surgical Inpatient rooms
- Rehabilitation Treatment Gym and Therapy Assessment Room (for OT and Speech Language Pathologist [SLP])
- Home Simulation Evaluation Area (includes a bedroom, 4-piece washroom [with tub], laundry station [washer/dryer] and kitchenette [including stove])
- Lounge and Dining/Activity Room.

Planning Principles and Assumptions

Reactivation and Complex Medical Management Services will be developed to support the highest standard of service delivery, service quality and patient safety. The following assumptions reflect the model of care:

- Single patient care rooms designed using a universal template. Each room will have a ceiling lift and a private washroom. The rooms will be zoned to accommodate discrete areas for patients, staff, and family (including storage space for personal belongings).
- Space and supports would feel residential rather than institutional, and would encourage socialization and support patients at risk of wandering (through monitoring systems).
- Ambulatory devices including wheelchairs, walkers and other devices to meet a range of physical needs and activities will be assigned to patients during their stay, if the patient does not already have their own. Allied Health team members will identify required devices upon arrival and ensure patients are properly fitted to the device to ensure comfort and safety.
- Patients admitted to the Unit often require extended stays. Communal areas are available to enhance socialization and maintain optimal physical/mental awareness and help patients' lives align with a regular day at home. These facilities should accommodate patient's family members. The Unit will include area to support:
  - communal dining (with capacity for approximately 80-90% of patients at one sitting, some family members and some staff when feeding assistance required), as well as recreational and social activities
  - personal care by staff or family members
  - therapeutic training, ADL (Activities of Daily Living) assessment
  - Assessment Rooms with specialized equipment available to diagnose, physical or cognitive issues and deliver appropriate care

  - while private rooms will offer sufficient area to complete assessment for some patients, a Rehabilitation Gym with specialized equipment will be available to assess, monitor and improve physical movement.
- Appropriate staff, who are educated and trained to treat and support these individuals as longer-term clients, who are older and often frail.
- Access to outdoor space is important for patient well-being.
- Seven day per week model including evening activities.

Patient Profile

The population of the Reactivation and Complex Medical Management Unit is adults over the age of 18. While a significant portion of the patients are seniors, the population should be considered as "frail adults" in recognition of the varying ages and conditions. Patients deemed appropriate for admission to the Reactivation beds cannot be clearly identified by any single criterion or diagnosis. Patients most likely to benefit from care in the Unit are those who are medically stable and would benefit from focused intervention to either maintain or improve current function.

It is important to recognize that many of these patients have cognitive impairment. These patients may also be affected by health issues such as infectious illnesses; chronic disease; frailty; increased risk of falls; or declining ambulation and capacity challenges which can be supported in this environment.

Most commonly, Reactivation patients will include:

- Patients awaiting LTC placement (medically stable – meet criteria for LTC facility)
- Assess and Restore patients – medically stable – awaiting discharge home or to another facility with supports.

Complex Medical Management Patients:

- Are medically stable but complex, co-morbidities have been established and a plan of care has been developed.
- Need low-intensity active rehabilitation to improve function and quality of life so that they can return to community living if possible.
- Require ongoing 24/7 nursing support, however, do not require the intensity of support of acute care settings nor acute rehabilitation settings.
- May be challenged with diminished ambulation, neurological disorders, sensory issues or assistive devices
- Do not qualify for a high-intensity rehabilitation program
- Complexity may include patients who:
  - exhibit delirium

- have mental health issues or reactive/responsive behaviours
- are experiencing addictions issues with a current treatment plan in place.

Scope of Services (Current and Projected)

The care paradigm for the Reactivation and Complex Medical Management Unit will address:

- High-quality care in an environment that supports patient comfort, safety/security, sensory orientation, spiritual care and confidentiality
- An integrated model of care engaging patient and family and encouraging participation in decision-making regarding patient care needs
- Identifying and integrating lean workflows to minimize unnecessary travel for patients and staff
- Integrating technology to support and enhance patient mobility
- Developing targeted care plans for each patient to support discharge to an optimal setting at home, in a LTC facility or in another community setting
- Support clinical training in complex disease management and care across all health-related disciplines.

The following services will be provided in the Reactivation and Complex Medical Management Unit:

- Restorative care for patients to build strength and stamina, enabling them to better manage at home or prepare for higher intensity rehabilitation
- Transitional care for patients after an acute or rehabilitative stay while they prepare for discharge
- Cognitive behavioural support to help patients manage mild to moderate behavioural and/or cognitive impairment or wandering
- Convalescent care to help patients maintain strength while awaiting another medical procedure or transition to rehabilitation.

These services will be supported through the following functions:

- Personal Care Support
- Recreation services
- Sensory Support
- Rehabilitative, restorative, or skilled care

- Physical therapy
- Occupational therapy
- Speech therapy
- Wound care
- Fall prevention
- Nutritional counseling and dietary planning
- Spiritual care
- Social Work.

Education

The Unit will accommodate up to four to five nursing or Personal Support Worker (PSW) students at any one time. There may also be up to one to two medical students or residents, and up to one to two Allied Health students. It is anticipated that the Unit may participate in telemedicine/teleconferencing events.

Research

In future, the Unit may participate in clinical research. No additional space would be required beyond shared workstations currently planned.

Linkages/ Partnerships

The most significant program linkage of the Unit will be with Home and Community Care to facilitate discharge to home with support or to another facility such as a LTC home. Internal linkages will include minimal support from Diagnostic Imaging (DI), Laboratory and Pharmacy.

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Retirement homes and LTCs	Discharge destination
Home and Community Care Coordinators	Arrange LTC applications and home care services
Alzheimer Society	Community services
MAHC SASOT (Seniors Assessment and Support Outreach Team)	Geriatric outreach services
SGS (Specialized Geriatric Services)	Hospital and community-based health care services supporting frail older adults and their caregivers
FHTs	Primary care in community

Linkages/Partnerships	Description
FHT Palliative Care Team	Hospital and Community palliative support
WENDAT	Geriatric community support services and MH support
Behavioural Supports Ontario	Education and community support
Home at Last	Assists with transition from hospital to home
Helping Hands	Home care provider
Muskoka Seniors	Community support services
Mobility Vendors	Mobility device fitting (wheelchairs)
Community Paramedics	Community outreach monitoring and care
Local Orthotics Provider (Orthopodist)	Foot care
Community Clergy	Spiritual care

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Current	Projected
Department	**2019/20**	**2031/32**
Beds	24	37

Note:

1. MAHC is currently funded for 24 CCC beds. As part of the Rehabilitation Care Alliance's review and reclassification of rehabilitation beds, MAHC's CCC beds have been planned as Complex Medical Management beds. These have been planned with capacity for Reactivation patients, recognizing the similarities of care needs between both populations.

Operational Description

Organization and Management

There will be one Manager of the Reactivation and Complex Medical Management Unit.

Education will continue to be supported through a central shared Clinical Nurse Educator.

Medical oversight will be provided through a shared model (Internists, General Surgery, Family Medicine and Hospitalists).

Hours of Operation

The Reactivation and Complex Medical Management Unit will operate continuously 24/7.

Length of Stay

Reactivation Patients will have a length of stay of up to 60 to 90 days and have a known discharge location. Some Complex Medical Management patients may have a longer length of stay, as finding an appropriate discharge destination may be challenging.

Workflow

Admission

The Reactivation and Complex Medical Management Unit will control bed flow (transfers, repatriations, direct admissions). Applications for admission to the Unit will be submitted by inpatient units and reviewed for appropriateness by Unit leaders against a set of formalized criteria. Following approval, a bed is identified, and the Unit informs the Ward Clerk to enter the transfer.

Arriving patients will be expected. With few exceptions, they are escorted by paramedics or transfer service workers directly to the assigned room. There will be a designated entrance to the hospital for patient transfer arrivals.

Patients will usually come into the Unit from the Acute Inpatient Unit or ED.

Patient Assessment

With the support of accompanying staff/family, the assigned Staff Nurse completes the admission assessment and documentation, orients the patient/family to the patient unit's facilities and protocols.

If required, a patient record is opened, and orders initiated as part of the initial consultation with the admitting physician or by application of a clinical pathway as available.

Patient assessment will include vital signs, medication reconciliation, skin and fall assessments, head to toe physical assessments, an evaluation of potential communicable infections, PIV/central lines, drains, wounds, CAM assessment, BRADEN scores, intake and output/ fluid balance. The Allied Health Team will also conduct their own assessments.

A clinical care plan is developed with the entire Clinical Team as quickly as possible following admission. This plan is reviewed regularly to assess patient progress.

Patient Care

Single Bedrooms with attached washrooms/showers will be provided for all patients. Rooms will be zoned to accommodate patient care, care related activities of the Clinical Team and area for the family.

Recognizing that some of this patient population may exhibit challenging behaviours at times due to their cognitive decline, having visibility into the patient rooms would be beneficial. Additionally, some patients may interfere with a workstation in the patient room, therefore preference for this Unit would be to have documentation alcoves with windows outside all patient rooms. This will facilitate visibility into patient rooms and can accommodate either a fixed workstation or a WOW (workstation on wheels) as that technology solution is determined in future.

Ideally patients with similar clinical requirements (Neurological/Behavioural Issues, Low-Intensity Rehabilitative Care, High-Intensity Reactivation) will be co-horted in groups of rooms within a patient Unit. It is unlikely admissions among these groups with align with availability of rooms within a specific cohort.

The inpatient rooms will provide sufficient area for many low-intensity rehabilitation activities if equipment to support these activities is portable.

Care on the Unit will be provided by an interprofessional team of PSWs and Registered Practical Nurses (RPNs) working up to their full scope of practice and led by a Registered Nurse (RN) Clinical Lead. In addition to identifying and documenting vital signs, changes in physical state and monitoring pain, the staff provides psychosocial and emotional support to the patient and family, education and assists with dressing bathing and other ADL.

Changes in state of health are monitored with the admitting physician and Clinical Team.

Patient rounds will include representation from the spectrum of providers that support this patient group including Allied Health professionals. The Clinical Team will examine and consult with the patient daily. Learners will generally accompany the primary physician on rounds. Staff meeting areas are required for Clinical Team discussions to obviate the need for discussing patients in the corridors and other public areas of the Unit.

Allied Health professionals and therapy assistants bring a broad-based approach to assess and restore physical mobility and maximize functional independence for patients following a medical event or resulting from age/disease related physical and cognitive decline. The team develops and supervises direct interventions, evaluates progress, and supports the Clinical Team and in planning and preparing for a successful discharge.

Specific patient care activities on this Unit will vary by the diagnosis and prognosis, however, the extended length of stay will require additional areas for clinical activities and treatment. While not all patients will be independently mobile or able to leave their room, therapeutic recreation provides assessment, care education and resources to assist patients in maintaining/identifying activities that support participation and enjoyment in day-to-day life.

For those patients focusing on Reactivation, resources and spaces will target this purpose. A Physiotherapist, Rehabilitation Assistant, Occupational Therapist, SLP and Recreation Therapist will lead patients through active

rehabilitation and recreation/socialization. As such, a shared Rehabilitation Treatment Gym is planned to support this therapy. Equipment such as nesting stairs with a ramp, portable step, parallel bars, recumbent stepper, and an arm bike/foot peddler station are used regularly with patients to help regain strength and mobility. The Rehabilitation Team also has many other types of supportive equipment that are used by patients and with patients in their rooms. A storage room will be planned on the Unit to ensure that equipment is not stored in corridors.

A shared Therapy Assessment Room with storage will be planned for a variety of individual assessment with staff such as Occupational Therapy or Speech Language Therapy.

In order to both practice ADL skills required for independent home living, as well as be assessed for discharge readiness, patients, families and therapists will have access to a Home Simulation space. This will include a bedroom, 4-piece washroom (with tub), laundry station (washer/dryer) and kitchenette (including stove). The laundry facilities would be available for family use of patient belongings.

A Dining/Activity Room and Patient Lounge will serve for mealtime dining and recreation and socialization activities (e.g., exercise classes, holiday/birthday celebrations, baking classes, board or other organized games, as well as televised sporting events). These rooms being adjacent to each other with the ability to open them up and make one larger room at times would be beneficial. The patient can partake in daily activities or access the common spaces on the Unit and in the building as their abilities allow.

Access to an outdoor garden/patio space where any patient can be safely escorted in the company of an appropriate provider/family member is critical. Some patients may be in a bed; therefore, access doors should accommodate this. A ground floor location is preferred but roof-top space can be developed for decks/raised gardens. The area should provide some protection from direct sunlight and prevailing winds. Staff supervision requires clear visibility of the entire area. Emergency call buttons will be available to summon assistance.

Family members and caregivers are welcome to spend as much time with the patient as they wish, and assistance with therapy and self-sufficiency is encouraged. Group programs are available for family members and caregivers for psychosocial support and education purposes. A shared Family Lounge with a fridge to store food will be planned. This will facilitate peer support and provide a quiet space for family members to break/decompress from care demands of their loved one. Should a family want to have a private meal with their loved one, the Lounge could be booked for this purpose.

Planning for patients with forms of dementia and other neurological issues including safe spaces for repetitive behaviours will be considered in ongoing design.

Patient Discharge

The Nursing Team and most responsible physician will update the patient treatment plan following clinical rounds.

Staff nurse will provide information to the patient/family on the care plan including the planned discharge date.

The family will consult with members of the Allied Health Team including the Flow Navigator (discharge planning) to gather information to support care following discharge. Home and Community Care will be contacted early in the patient's stay if there are potential issues identified with patient safety and independence at home.

General Support Activities

Allied Health Team

The Reactivation and Complex Medical Management Unit requires support from a variety of Allied Health resources, including Dietitian, SLP, Palliative Care, Social Work, Physiotherapy, Occupational Therapy, and Spiritual Care, Activation Coordinator.

Diagnostic & Therapeutic Services

Minimal use of DI or Laboratory Services as required if patients deteriorate or dependant upon their clinical care plan. In this case, portable x-rays, ECGs and ultrasound may be used at the bedside. Some patients may also be transferred to DI for testing, including CT. Dedicated patient elevators capable of accommodating the patient bed, equipment, and a minimum of four staff are required.

PACS viewing terminals, will be required on the Unit to view radiological images.

Patient specimens will be transported from Clinical Units to the on-site laboratory. Pneumatic tubes will be considered during the design. Lab staff will pack samples that must go off-site for analysis, in preparation for daily pick-up. Test results will be available electronically.

Pharmaceutical Services

All medication and central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in automated dispensing units (ADU). Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. Medication Rooms will be distributed through the inpatient units to balance the number of rooms with the staff assigned to each room. To support patient safety, the work area will accommodate up to two clinical staff members at one time.

The Medication Room will also contain a locked cupboard for storage of patient-own medications (including narcotics).

Pharmacy Technicians are incorporated into the Clinical Team and conduct medication reconciliations on all new patient admissions.

Clinical Pharmacists participate in inpatient rounds when possible and consult with patients and families as required.

Clean Supply

Clean Supply Rooms will include storage systems standardized to MAHC requirements. Clean Supply Rooms will be distributed within the inpatient floor to equalize travel time to each patient room. In order to carefully minimize waste, there will be limited supplies stored in the patient rooms. However, personal protective equipment (PPE) supplies will be stored in an open cabinet outside each patient room (with additional shelving for other supplies as necessary).

Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system with high density shelving. Staff will scan barcode labels in the Clean Supply Rooms and information will be accessed by Receiving staff. All stock requirements will be system generated based on point-of-use consumption. Supply orders will be automatically generated with established on-hand safety stock levels.

Linen carts will be delivered on a regular basis to the units. The carts will be stored in the Clean Supply Rooms on the Unit. The Clean Supply Rooms will also accommodate a blanket warmer.

Soiled Collection & Disposal

Soiled material will be collected and contained as close to 'point of care' as possible and aggregated for removal to the Soiled Utility Room. In addition, planning will contain soiled material for transport especially on elevators and provide for managing and handling hazardous or contaminated items.

The Soiled Utility Room will accommodate:

- A designated area for used instruments for collection and return to MDR (who are responsible for the cleaning, decontamination, sterilization and packaging of all procedural equipment and instruments)
- Bins/transfer carts for linen, recyclables, medical waste, and general waste will be available to collect and transfer to the Laundry Department and the loading dock
- A disposal unit for liquid waste.

An alcove outside the Soiled Utility Room will be provided for a closed cart designed to collect patient meal trays.

Internal staff will continue to collect waste, recycling and dirty linen from the Unit.

All equipment cleaning (e.g., commode chairs or wheelchairs) will be centralized and not cleaned on the Unit. All equipment will be transported to the centralized cleaning space. If visibility soiled, they will be covered for transport.

Equipment Storage

Emergency carts for resuscitation and difficult airways will be available on the Unit. Carts will be monitored by nursing staff in consultation with Respiratory Therapy.

Patient care equipment must be available, operational, and quickly retrievable when it is required. An asset management system will be in place, with equipment tagged and trackable.

Portable equipment (e.g., IV pumps/poles, wheelchairs, commodes, shower chairs/trollies) will be stored in an enclosed room for convenient access from corridor serving contiguous sub-units. Power bars at waist height will be required. Ideally the configuration of this room will accommodate a cross-circulation path between two entries to facilitate access and retrieval of equipment.

Some Rehabilitation equipment will be stored in the Rehabilitation Gym, however a separate Rehabilitation storage room for mobility support devices (e.g., walkers and specialty wheelchairs) would be beneficial.

A charging countertop will be accommodated within the Care Desk and team workrooms for hand-held devices. Additional alcoves may be identified for equipment that require power support within each zone.

Corridor alcoves are helpful for storing select equipment to facilitate frequency/emergent access or maneuverability related to size.

Within patient rooms, an alcove to store mobility devices (i.e., wheelchair, walker) will be considered during the design stage. This would allow for the device to be readily accessible without interfering with patient/staff movement throughout the room.

Protocols for cleaning and storage of patient support equipment will be established with the Clinical Team in the Care Unit and coordinated with Environmental Aides. This will occur off the Unit in a centralized cleaning space.

Maintenance and repairs will be performed by the regional Biomed Team. Requisitions for Biomedical service will be entered electronically and triaged by the Biomed Team. Items for repair will be cleaned and moved by clinical staff or Environmental Aides to a secure staging area. Units will be notified electronically when a repair is completed, and the item can be retrieved for return to the Unit.

Environmental Services

Environmental Aides will support the department continuously in the turnover of patient rooms, management and changing of damaged or inoperable furnishing/equipment and removal of soiled material. Daily maintenance protocols will be instituted in addition to response for emergency needs.

Environmental requirements including new policies and procedures may evolve to incorporate new protocols for movement of clean and soiled material, equipment cleaning in response to the recent pandemic.

Nourishment & Meals

Most patients (90%) on the Reactivation and Complex Medical Management Unit will take their meals on the Unit within a Multipurpose Room to encourage socialization. Patients will continue to use the online meal order system.

For those patients unable to leave their room or bed, a meal tray can be brought to their bedside.

Inpatient meal trays will be delivered by Dietary staff and collected following the meal. Delivery carts from the kitchen will hold up to 20 patient trays. These carts should be stored in an alcove outside of the Soiled Utility Room or Dining Room.

Nourishments will be made available outside of meal trays following Ward Stock Policy and contained in a Nourishment Centre to be located within the Dining/Activity Room. This will be stocked by the Food Services Department and accessed by staff only. It is anticipated that in future, some on Unit meal preparation will be required, and the Nourishment Centre will accommodate this activity. There will be a Nourishment Alcove available for items such as ice and water and accessible to both staff and visitors.

Patient Transport

There are porters available to transport patients to and from DI. Otherwise, nursing staff and attendants are responsible for patient transfer within the hospital.

Administration & Staff Spaces

The Ward Clerk and Clinical Lead will maintain responsibility for daily activity on the Unit from a centralized Care Team Station located near the Unit entrance. Adjacent to the Care Team Station will be a Care Planning Room with table seating and shared workstations. These shared workstations will be available for external partners, Allied Health professionals, nursing and medical staff, and students.

The Unit will have a Consultation Room to meet with patients and families, but can also be used for private telephone calls, consultations, dictation, or virtual care sessions.

A shared larger Multipurpose Room will be available for family team meeting and larger interprofessional team rounds. This will accommodate up to 15 people.

Many roles involved in the support of Clinical Service provision require quiet/private office space at times (e.g., Managers, Clinical Leads, Clinical Educators, Nurse Practitioners, Patient Flow Navigators, Medical Chiefs). Recognizing that several of these roles support the care of patients across both sites, it is anticipated that many staff will require space both at HDMH and SMMH. A combination of single office space and shared office space (2 of each) has been planned within each clinical area. The intention is that these offices would be flexible use and bookable and could be assigned in future should a staff member become dedicated to a specific program and site.

All staff and learners will have access to staff facilities, locker rooms, changing rooms and washrooms with showers in a centralized location. All staff will have access to a shared Lounge with comfortable seating and table seating, a kitchenette, and cube lockers closer to the Unit.

On-call rooms will be centralized. (see Physician and Staff Support Spaces component).

Security Services

Security services will be provided at MAHC on-site.

Security is of particular importance on the Reactivation and Complex Medical Management Unit. Appropriate controls will be in place to ensure that patients do not wander off the Unit. An active Real-Time Locating System (RTLS) will be provided throughout the facility to support patient wandering and staff duress. Also, Access Control Systems will be utilized to ensure a safe and secure environment for patients, staff and visitors.

IP-based video surveillance camera is required in the Medication Room.

Mobile duress buttons will be provided to staff. Fixed duress buttons will be available in select locations.

The space should be designed to help ensure the safety and security of all patients/family, staff, and visitors to be enhanced through:

- The configuration of the Unit will ensure that nursing time with the patient is maximized and that travel time to support spaces is minimized.
- Optimizing the visualization of the corridors and patient rooms, while also maintaining line of sight for the main entrance from the Care Team Station is required.
- The visitor entrance to the Unit will be accessed through an access control system (either via cameras or intercom). Staff in the Unit will have control over release of the door from the nursing station or from opening the door from the inside. The access control system utilized will need to be integrated with central hospital monitoring system to ensure that both systems function is monitored, as well as any activated alarms. The Unit will need to be lockable in emergency situations.
- A second secure entrance/exit will allow staff an alternate route out of the Unit.
- Each patient space will be equipped with a Code Blue call button.

Enabling Technologies

Information Systems

A centralized Care Team Station will be located on the Reactivation and Complex Medical Management Unit, near the public entrances. A Ward Clerk will have an assigned workstation within the Care Team Station.

Documentation stations or workstations will otherwise be touchdown and available to any member of the Clinical Team and learners. Stations/data entry keyboards will be available within the patient room, in the Care Team Station, in the Care Planning Room and with each medication cart. A workspace will also be provided in the Staff Lounge.

To facilitate visibility into patient rooms, documentation alcoves outside of patient rooms will be planned. Either a fixed workstation or a WOW could be accommodated.

Some documentation stations may be planned for standing use and to accommodate easier viewing between team members and for demonstration/teaching.

Each Unit will also have a Consult Room that can be used for private telephone conversations, consultations, dictation or virtual care sessions.

Wireless Technology

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation within the Unit. In each patient room, there will be Wi-Fi for patient use in accessing the internet. Patient rooms will be equipped with Integrated Bedside Terminals (IBTs) and electronic dashboards which can display clinical information from Cerner HIS. Bedside terminals will provide the following capabilities and services:

- TV/entertainment
- Educational content
- Electronic health record
- Hospital information
- Phone calls (softphone)
- Nurse call button
- Environmental controls, including lights and room temperature.

Virtual Care

Inpatient rooms will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting Rooms will be wired to allow for telehealth sessions.

Communication Systems

The Reactivation and Complex Medical Management Unit will be equipped with a state-of-the-art communications system in order to facilitate its activities. Specifications will be developed in consultation with the electrical consultant, architect, and users during the design stage and are expected to include such items as the following:

- Telephone(s) for staff use – the number to be determined during the design stage
- Telephone and television cabling, as determined during design
- Nurse call system from each patient bed
- Staff to staff wearable communication technology (e.g. Vocera)
- Video camera and audio link to the secure entrance, with remote control of the entrance door to control and allow visitor access
- Emergency call bells from patient washrooms
- Code Blue call buttons in each patient bedroom.

Staffing (Current and Projected)

Table 3. Current and Projected Staffing - HDDM

	Current	***Projected 2031/32***			
Category	***2022/23 FTE (from SMMH)***	***Total FTE***	***Headcount per Day***	**Headcount per Evening**	**Headcount per Night**
Total	23.37	73.97	28	10	10
Subtotal – Clinical Care	*23.37*	*55.82*	*14*	*10*	*10*
CCC NP	1.00	1.00	1	0	0
Manager	0.00	0.50	1	0	0
Ward Clerk	1.00	2.52	1	1	0
Clinical Lead, RN	0.00	1.40	1	0	0
Registered Nurse (RN)	4.57	10.08	2	2	2

	Current	Projected 2031/32			
Category	***2022/23 FTE (from SMMH)***	***Total FTE***	***Headcount per Day***	**Headcount per Evening**	**Headcount per Night**
Registered Practical Nurse (RPN)	9.91	20.16	4	4	4
Personal Support Worker (PSW)	6.89	20.16	4	4	4
Subtotal – Allied Health	*0.00*	*18.15*	*9*	*0*	*0*
Activation Coordinator	0.00	1.70	1	0	0
Physiotherapist	0.00	4.25	2	1	0
Rehabilitation Assistant	0.00	6.80	4	0	0
Occupational Therapist	0.00	3.40	2	0	0
Speech Language Pathology (SLP)	0.00	0.40	1	0	0
Communication Disorders Assistant	0.00	0.40	1	0	0
Social Worker	0.00	1.00	1	0	0
Dietitian	0.00	0.20	1	0	0

Notes:

1. Ward Clerk working 12-hour days, 7 days/week.
2. Clinical Lead will work 5 days/week and 8 hrs/day.
3. Care model includes a mix of RPNs and PSWs led by Clinical Lead (RN).
4. Activation Coordinator, Physiotherapy, Occupational Therapy and Rehab Assistants 8-hr days 7 days/week.

Design Objectives

Locations and Adjacencies

The Reactivation and Complex Medical Management Unit will be self-contained with no traffic flowing through it to reach another area of the hospital. Visitor access will be via the public corridor system, not via another department, and ideally easy to access for families, without having to walk through many other areas.

Access to a planned outdoor space should be planned to accommodate this population. A garden area on the grounds will be considered for patients who can be escorted from the Unit by staff or families. This would also allow for the Rehabilitation Team to assess and develop skills navigating an outside environment.

Internal Organization

The Reactivation and Complex Medical Management services will be zoned into the following areas:

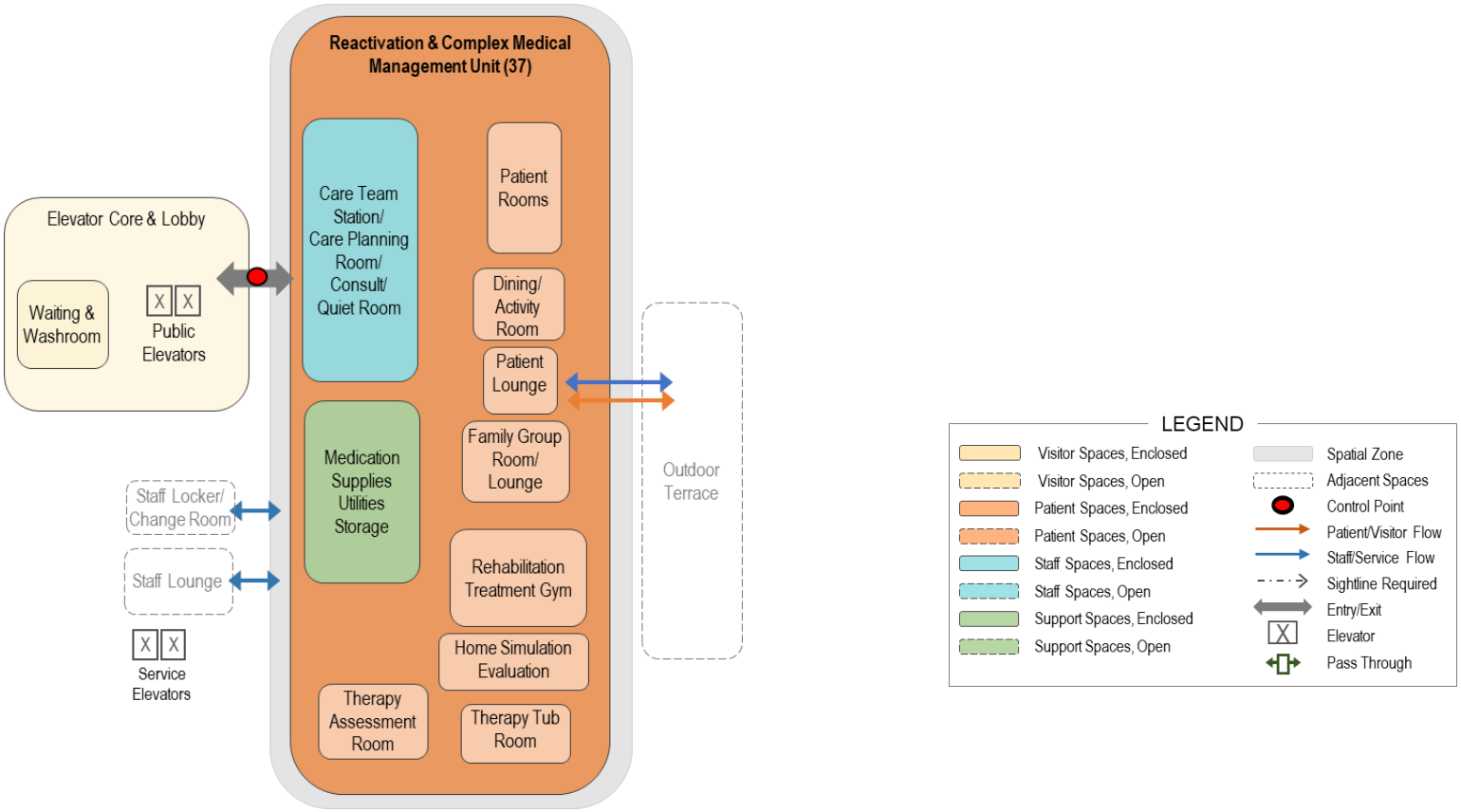
- Elevator Core & Lobby
- Patient Zone
- Patient Care Support – spaces should be configured to be equitably accessible from all patient rooms
- Staff Support – administrative and staff spaces need to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

Note the following specifics regarding configuration of the spaces comprising the Unit:

- The Care Team Station will be located to ensure visualization of the entrances to all patient rooms as well as the visitor entrance to the Unit. The Care Team Station will have space to accommodate two to three patients in wheelchairs during the evening or nighttime who may be 'sundowning'.
- The code cart will be located in a readily accessible area to all patient rooms.
- Access to outdoor space for patients and families would be of benefit.
- Spaces should be configured to be equitably accessible from all patient rooms.
- The Dining/Activity Room and Patient Lounge should be adjacent if possible, with the ability to connect the rooms at times. Direct access to the outdoor space from the Patient Lounge would be beneficial.
- Configuration of the corridor into a loop if possible, could serve as a walking track for patients, which would be beneficial in their rehabilitation.
- Grouping of beds into enclosable pods would allow for the safe containment of wandering or behavioural patients when required.
- Administrative and staff spaces need to support the multidisciplinary team to work quietly and meet with colleagues to discuss patient care.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

Patient rooms on the Reactivation and Complex Medical Management Unit will be single rooms and offer contact and droplet protect ion as a result.

Alcoves will be planned for PPE and a select list of frequently used disposable supplies at the entrance to each patient room. Cabinetry would be preferred to prevent possible contamination of these items. Any storage solution must not interfere with circulation to the patient room or Unit corridor.

All patient rooms will have hand hygiene sinks/alcohol dispensers immediately available to entering clinicians, within view of the patient.

Staff hand hygiene sinks/alcohol dispensers will also be provided in the:

- Care Team Station
- Medication Room
- Clean Supply Room and Soiled Utility Room
- Housekeeping Room
- Staff Lounge.

Additional considerations for soiled material include:

- Separation of clean and soiled materials
- Provisions for managing and handling hazardous or contaminated items
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment of patient infections.

Patient/Family

The introduction of single patient rooms has many advantages:

- Superior privacy and confidentiality for patients
- Designated area within the room for family for overnight visits and comfortable furniture
- Additional infection control.

With these advantages, the patient room will also offer additional area for storage of supplies, mobility aides and furniture suitable for overnight accommodation.

The Unit will support needs of family who can play an important role in health restoration. Fixed sleeping accommodation is preferred in patient rooms to reduce the risk of interference with staff movement in a darkened room.

A shared Family Lounge with a fridge to store food will be planned. This will facilitate peer support and also provide a quiet space for family members to break/decompress from care demands of their loved one. Should a family want to have a private meal with their loved one, the Lounge could be booked for this purpose.

Wayfinding	All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit. Wayfinding should be designed to address the visual challenges many of the Complex Rehab patients may be experiencing.
Accessibility & Corridor Design	Access to all public spaces, including washrooms and treatment spaces, must be accessible. Features such as automatic sliding door entries should be considered. Transfer poles will be utilized in future; therefore, any structural requirements should be considered. Patients would benefit from a circular corridor to facilitate wandering in a safe, controlled environment. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage. A ceiling-mounted patient lift will be provided in each patient room.
Acoustic	Every effort must be made to maintain a quiet environment in spite of the sounds of equipment and staff working in the Unit. Acoustic privacy between patient rooms is mandatory. Appropriate sound dampening techniques including insulation, and, in some situations, mechanical support may be considered, i.e., white noise.
Environmental	In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors. Opportunities to bring natural light and views to circulation within the Unit particularly in the Lounge areas will be important to staff working in this component.
Medical Gases	Medical gases (oxygen, air, and suction) will be provided at each patient bed. The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.
Patient Privacy	Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.
Lighting	Patient comfort must also be addressed, including patient-controlled lighting. Nighttime lighting must accommodate patient sleeping yet ensure maintenance of nurse-patient observation.

Given the abundance of literature supporting the curative value of natural light and open views to the outside for recovery of the patient, the Unit will be designed such that each patient room has a window. Provision of natural daylight in each patient room is non-negotiable. Skylights will not be acceptable as the sole source of daylight.

Ergonomic Considerations

Staff work environments (desks, counter-heights, etc.) shall be designed to ensure that ergonomic requirements are met.

Security

The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design.

The configuration of the Unit will ensure that Care Team time with the patient is maximized and that travel time to support spaces is minimized.

Visualization of the patient rooms from the Care Team Station is required.

Video monitoring of group spaces would be beneficial with monitors at Care Team Station.

The Unit will be equipped with a security system with audio/visual support at all access points. Exit doors will be equipped with time-delay locks to reduce opportunities to leave the Unit unobserved. Staff in the Unit will have control over release of the door from the nursing station or from opening the door from the inside. The access control system utilized will need to be integrated with central hospital monitoring system to ensure that both system function is monitored, as well as any activated alarms. The Unit will need to be lockable in emergency situations.

Each patient space will be equipped with a Code Blue call button.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 4. *Space Table*

			Component Gross Area (CGSF / CGSM)				**29,230**				**2715.6**		
			Net to Gross Ratio				1.50				1.50		
			Total Net Area (NSF / NSM)				19,488				1810.5		
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Family Support			**subtotal net area**		**280**		**subtotal net area**		**26.0**		
14	.001		Waiting Room, Family/Visitor			220	1	220		20.4	1	20.4		1 per floor (Reactivation & Complex Medical Management and Integrated Stroke Unit)
		.01	*- seat, standard*	*8*	*20*				*1.9*					
		.02	*- wheelchair/scooter/bariatric*	*2*	*30*				*2.8*					
14	.002		Washroom, Public, Accessible			60	1	60		5.6	1	5.6		
			Zone 2: Reactivation and Complex Med Management - Patient Care (37 beds)			**subtotal net area**		**13,169**		**subtotal net area**		**1223.4**		
14	.003		Single Bedroom			290	37	10,730		26.9	37	996.8		Provide clear zones for patient, staff and family use within the room
		.01	*- bed area*	*1*	*160*				*14.9*					Provide patient lift and IV ceiling track above the bed
		.02	*- washroom, 3-piece*	*1*	*60*				*5.6*					
		.03	*- entry vestibule/hand hygiene sink*	*1*	*55*				*5.1*					
		.04	*- alcove, PPE/supply storage*	*1*	*15*				*1.4*					
14	.004		Charting Alcove			15	19	285		1.4	19	26.5		Provide 1 alcove for each 2 beds
14	.005		Care Team Station, Main			350	1	350		32.5	1	32.5		
		.01	*- workstation, ward clerk*	*1*	*50*				*4.6*					
		.02	*- printer/work area*	*1*	*20*				*1.9*					
		.03	*- workstation, touchdown*	*3*	*30*				*2.8*					
		.04	*- workstation, physician/viewing*	*1*	*40*				*3.7*					Provide PACS viewing monitor
		.05	*- pneumatic tube*	*1*	*20*				*1.9*					
		.06	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/devices	Provide alcove/countertop
		.07	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.08	*- patient observation area*	*1*	*100*				*9.3*				Area to accommodate patients who are 'sundowning'	

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
14	.006		Care Planning Room			230	1	230		21.4	1	21.4		Provide glass wall to allow visibility into adjacent Main Care Team Station
		.01	*- table with chairs*	*4*	*25*				*2.3*					
		.02	*- workstation, touchdown*	*3*	*30*				*2.8*					
		.03	*- workstation, telephone privacy*	*1*	*40*				*3.7*					Enclosed for dictation
14	.007		Care Team Station, Satellite			90	1	90		8.4	1	8.4		
		.01	*- workstation, touchdown*	*2*	*30*				*2.8*					
		.02	*- alcove, medical equipment/devices*	*1*	*20*				*1.9*				For recharging medical equipment/ devices	Provide alcove/countertop
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
14	.008		Consult Room/Quiet Room			120	1	120		11.1	1	11.1	Multipurpose - For MD calls, consult, virtual and also for family consult, family quiet	
14	.009		Alcove for Emergency Equipment			10	1	10		0.9	1	0.9		
14	.010		Medication Room			120	2	240		11.1	2	22.3		
		.01	*- automated dispensing unit (ADU)*	*1*	*60*				*5.6*					Triple cell ADU
		.02	*- refrigerator, single door*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- countertop workspace*	*1*	*40*				*3.7*					
14	.011		Nourishment Alcove			35	2	70		3.3	2	6.5	For public/staff use	Provide ice/water machine
14	.012		Washroom, Public, Accessible			60	2	120		5.6	2	11.1		
14	.013		Equipment Storage			180	1	180		16.7	1	16.7		Provide power bars at 42" AFF, cross circulation path between two entries
14	.014		Clean Supply Room			120	2	240		11.1	2	22.3		
14	.015		Soiled Utility Room			130	2	260		12.1	2	24.2		
14	.016		Alcove, Food Tray Cart Holding			12	2	24		1.1	2	2.2		Locate adjacent to Soiled Utility Room
14	.017		Washroom, Staff			50	2	100		4.6	2	9.3		
14	.018		Housekeeping Room			120	1	120		11.1	1	11.1		

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
14	.019		left intentionally blank											
			Zone 3: Therapy and Support			**subtotal net area**		**1,402**		**subtotal net area**		**130.3**		
14	.020		Patient Lounge			390	1	390		36.2	1	36.2		Adjacent to Dining/Activity Room with access to outdoor terrace space if possible. Adjoining wall could be opened to allow for one larger room
		.01	*- lounge seating*	*12*	*25*				*2.3*					Provide comfortable lounge seating
		.02	*- storage cabinet*	*1*	*50*				*4.6*					
		.03	*- television area*	*1*	*40*				*3.7*					
14	.021		Dining/Activity Room			1,000	1	1,000		92.9	1	92.9	7 tables of 4 patients, for meals and activities (patients, family/staff)	Locate adjacent to patient lounge with access to outdoor terrace space if possible. Adjoining wall could be opened to allow for one larger room
		.01	*- seats, dining table and chairs*	*28*	*30*				*2.8*					
		.02	*- storage cabinet*	*1*	*45*				*4.2*					
		.03	*- nourishment centre*	*1*	*105*				*9.8*				For staff and food services use, for ward stock, future meal prep.	Enclosed room
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
14	.022		Alcove, Food Tray Cart Holding			12	1	12		1.1	1	1.1		Locate adjacent to Dining/Activity Room
			Zone 4: Therapy and Support (shared with Integrated Stroke Unit)			**subtotal net area**		**3,430**		**subtotal net area**		**318.7**		
14	.023		Rehabilitation Treatment Gym			1,130	1	1,130		105.0	1	105.0		Locate near entrance to department for shared use by Stroke outpatients
		.01	*- supervised therapy stations*	*6*	*135*				*12.5*					Include circulation around equipment
		.02	*- work area*	*1*	*50*				*4.6*					
		.03	*- workstation, touchdown*	*5*	*30*				*2.8*					Anticipate Workstations on Wheels
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.05	*- seat, standard*	*3*	*20*				*1.9*				For outpatients to wait if necessary	
		.06	*- storage equipment*	*1*	*50*				*4.6*				For exercise balls, hand weights and other training equipment	Provide wire carts
14	.024		Washroom, Patient, Accessible			60	2	120		5.6	2	11.1		
14	.025		Equipment Cleaning Room			200	1	200		18.6	1	18.6	To support all equipment cleaning at HDMH site	
		.01	*- soiled holding*	*4*	*15*				1.4					
		.02	*- equipment washer*	*1*	*50*				4.6					
		.03	*- equipment drying*	*4*	*15*				1.4					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
		.04	*- circulation*	*1*	*30*				2.8					
14	.026		Rehabilitation Equipment Storage			180	1	180		16.7	1	16.7	For wheelchairs, walkers, assistive devices for inpatients	Locate adjacent to Rehab Treatment Gym
14	.027		Therapy Assessment Room			140	2	280		13.0	2	26.0	For private assessment by Occupational Therapy and Speech Language	Include storage cupboard
14	.028		Allied Health Workroom			550	1	550		51.1	1	51.1	For touchdown work by Unit Staff	
		.01	*- workstation, touchdown*	*12*	*30*				*2.8*					
		.02	*- workstation, telephone privacy*	*2*	*40*				*3.7*					
		.03	*- lockers, staff*	*40*	*2*				*0.2*				For day-use, staff and learners	Provide cube lockers
		.04	*- storage equipment*	*1*	*30*				2.8					
14	.029		Therapy Tub Room			220	1	220		20.4	1	20.4		
		.01	*- therapeutic tub*	*1*	*170*				*15.8*					
		.02	*- washroom, 2-piece*	*1*	*50*				*4.6*					Provide access from within the tub room
14	.030		Home Simulation Evaluation (ADL Suite)			500	1	500		46.5	1	46.5		
		.01	*- ADL Kitchenette*	*1*	*180*				*16.7*					
		.02	*- washroom, 4-piece*	*1*	*100*				*9.3*					Provide small fridge, counter, sink, cupboards and electric stove
		.03	*- bedroom*	*1*	*140*				*13.0*					Include tub (home-like environment)
		.04	*- washer/dryer with counter space*	*1*	*80*				*7.4*				Holding area for wheelchairs for patient use	
14	.031		Washroom, Staff			50	2	100		4.6	2	9.3		
14	.032		Family Lounge			150	1	150		13.9	1	13.9		Include Nourishment Alcove
14	.033		left intentionally blank											
14	.034		left intentionally blank											
			Zone 4: Staff & Administrative Support			**subtotal net area**		**1,207**		**subtotal net area**		**112.1**		
14	.035		Office, Single			100	2	200		9.3	2	18.6	Flexible use	
14	.036		Office, Shared			140	1	140		13.0	1	13.0	Flexible use	Provide 2 workstations

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
14	.037		Multipurpose Meeting Room			325	1	325		30.2	1	30.2	**Shared with ISU**. Used for Patient rounds, family meetings, staff meetings. 2 multipurpose rooms planned in total (other planned with Critical Care component) and available for all clinical programs.	Table and chair seating for 15 people
14	.038		Lounge, Staff			542	1	542		50.4	1	50.4	**Shared with Integrated Stroke Unit**	
		.01	*- hand hygiene sink*	1	10				*0.9*					
		.02	*- kitchenette*	1	60				*5.6*					
		.03	*- tables and chairs*	8	25				*2.3*					
		.04	*- soft seating*	6	20				*1.9*					
		.05	*- workstation, touchdown*	2	30				*2.8*					
		.06	*- lockers, staff*	40	2				*0.2*				For day-use, staff and learners	
		.07	*- charging station*	3	4				*0.4*					
14	.039		left intentionally blank											

15. Renal Dialysis

Functional Description (Current and Projected)

Service Overview

Dialysis Services will continue to be provided at HDMH and in future will expand from eight to nine stations.

Planning Principles and Assumptions

- Single siting of Dialysis at HDMH to ensure ideal regional coverage for services as determined by Ontario Renal Network (ORN).
- Eight Treatment Stations separated by retractable glass partitions that would provide optional privacy between the patients without compromising the openness of the space or the natural light. All stations to be able to accommodate either stretcher or dialysis chair. Will need to include storage space for one additional stretcher.
- One enclosed treatment room.
- Two dialyzing shifts per day, six days per week.
- Interprofessional team-based approach to care, consistent with the staffing models of the RRP.
- Nurse (RN/RPN) to patient ratio of 1:3.
- Potential for continued integration of virtual care methods to maximize participation of patients and efficient access to the Interprofessional Team.

Patient Profile

Patients cared for by the Renal Dialysis Program at MAHC include residents of the Muskoka region requiring Dialysis treatment.

Scope of Services (Current and Projected)

Interprofessional care for patients with Stage 5 Chronic Kidney Disease, requiring hemodialysis services, including ambulatory community patients. In addition to Dialysis treatments the following activities will be carried out at the Centre:

- Nursing assessments on day of treatment at the bedside
- Consultations by Care Team members at the bedside
- Examinations and small procedures in an Exam/Consult Room adjacent to the stations.

Education will be provided on an individual and group basis by Interprofessional Team members. One-to-one teaching will occur at the bedside or in the Exam/Consult Room. In addition, broadband capabilities at the stations will allow patients connectivity for viewing educational programs.

Education

Students of NOSM will train in HDMH and may spend time learning in the Dialysis Clinic. In addition, NPs and nursing students will train in the clinic.

Research

Not applicable to this component.

Linkages/ Partnerships

Table 1. Linkages and Partnerships

Linkages/Partnerships	Description
Family Health Teams	Primary caregivers to clinic patients, complementary services
Nurse Practitioner Clinics	Primary caregivers to clinic patients, complementary services
Hospital partners e.g., Orillia, Barrie, Sudbury	Specialty services, referrals, virtual services, clinics e.g., Dialysis
Home and Community Care	Support for clinic patients to remain at home
Community Paramedics	Help maintain and stabilize chronic disease patients in the community
Muskoka Seniors	Social supports
Alzheimer's Society	Family and patient support
Canadian Mental Health Association (CMHA)	Complementary services and supports. Future mental health programs
Muskoka Area Ontario Health Team (MAOHT)	Assistance in coordinating care, maximizing effectiveness
Ontario Renal Network (ORN)	Improving access to kidney care; oversight and system management
Geriatric Care Team	Multidisciplinary approach to serving geriatric patients

Workload (Current and Projected)

Table 2. Historical and Projected Workload

	Historical	Projected
Clinic Annual Visits	**2019/20**	**2031/32**
Dialysis	3,861	5,616[1]

Note:

1. Assumes 9 treatment chairs, 2 operating shifts and 6 days/week.

Operational Description

Organization and Management

Dialysis has a local Manager reporting to the Director, Clinical Services.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 3. Hours of Operation

	Current			Projected		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Dialysis Clinic	6:30am-6:30pm	6:30am-6:30pm	Closed	7:00am – 11:00pm	7:00am – 11:00pm	Closed

Arrival, Registration and Check-in

Clerical staff at the reception desk will check-in and register patients. Clerical staff also carry out screening during an outbreak situation.

Scheduling is carried out by the on-site Centre Clinical Coordinator.

Patients are scheduled to arrive in two different time blocks – morning and afternoon. A Waiting Area will be available for patients and for families/escorts who are accompanying the patients.

Patient Assessment & Care

The nurse will greet the patient at the Waiting Area and escort them to the assessment and treatment area.

Often patients will have a walker, wheelchair or scooter and these need to be parked in a location close to the Treatment Station.

The attending nurse will have supplies waiting at the station. Nurses/technicians will have the machine primed and programmed.

During treatment, Allied Health staff and nephrologists will carry out consultations at the Dialysis Station. Sensitive discussions can be held in a private Exam/Consult Room. Physical assessments and small procedures are carried out in exam/procedure rooms adjacent to the hemodialysis area. Staff can access a locked Medication Room where stock medications have been delivered.

Hemodialysis staff can draw blood as part of the Dialysis treatment and samples will be picked up and transported to the Lab as required.

Patients will reweigh themselves if able or will be reweighed with the assistance of the attending nurse when their Dialysis treatment is finished before exiting the treatment area and have a final verbal consultation with staff prior to their next treatment appointment.

Reporting

Clinical documentation, including orders for medications, labs and diagnostic tests will be available through the EMR.

The Unit Clerk will have an assigned workstation at the Team Station. Patient information collection will be supported through the availability of workstations at the bedside (1 per 3 patients) and touchdown stations for documentation at the Team Station(s), available to any member of the Clinical Team and learners. Quieter, private work areas will be provided for confidential discussions, phone calls/virtual meetings and to allow staff to focus on tasks. These can be found within the Exam/Consult Room and the case conference/team room.

Some documentation stations will be planned for standing use to accommodate easier viewing between team members and for demonstration/teaching.

The Manager will work out of a private office for confidential matters and meetings.

Technical/Biomedical

In-house technologists provide technical support for dialysis machines and the water treatment system. They will fulfill this function in dedicated space in the LTC building, ideally within the Dialysis Centre.

Maintenance and repair of non-dialysis equipment e.g., IV pumps, blood pressure pumps etc. will be performed by PHC Biomedical Engineering staff at the hospital building.

A Reverse Osmosis (RO) Water Room will be provided within a short distance of the Dialysis Centre with adjacency to service elevators.

General Support Activities

Diagnostic & Therapeutic Services

Most patients requiring Diagnostic Imaging (DI) will be ambulatory and will walk to and from the DI department unaided. If the patient is not ambulatory, DI Porter Aides will transport patients to and from DI.

Blood will be drawn by nurses in Dialysis. It will be transported to the Laboratory via a pneumatic tube system.

Pharmaceutical Services

All medication and central IV accessories will be stored and distributed from the Medication Room. Most medication including first doses and narcotics will be maintained in automated dispensing units (ADU). Those not located within the ADU will be stored in locked cupboards or refrigerators.

The Medication Room will be acoustically private and will contain ward stock, a refrigerator dedicated to medications only, hand hygiene sink, a countertop working area with computer access, and adequate space for storage. The room will meet specifications for the safe storage and preparation of medication. To support patient safety, the work area will accommodate staff members with carts. Medication carts must be locked in a secure space when not in use.

The Clinical Pharmacist will support the Care Team, reviewing patient medications and treatment plans as required. They will be available to assist with changes/substitutions and support student and patient education.

Supplies & Linen

The Clean Supply Room will include storage systems standardized to MAHC requirements. Materials Management staff will monitor and replenish supplies for all Clinical Services, using a top-up system and high-density shelving. The delivery cycle will be determined by minimum and par-level stock of all products. For planning purposes, the number of monitored carts will be established with the Materials Management Team. From time to time, the Unit will exceed the daily quota of certain supplies, and they will call for the delivery of extra supplies as needed.

Linen carts will be delivered on a regular basis and stored in the Clean Supply Room. The Clean Supply Room will also accommodate a blanket warmer.

Sterile instrument packs for procedures will be delivered by MDRD and stored in the Clean Supply Room.

Equipment

Stored in the patient care area:

- Emergency cart for resuscitation. These are monitored by the nursing staff with support from Respiratory Therapy (RT) and Pharmacy to ensure supplies/medications are replenished and updated.
- A designated number of pumps, monitors, and other power equipment will be stored in a central location within the treatment area.
- Extra dialysis machine will be stored in the Technical Service Room.

Access to a power bar or multiple outlets at waist height will be used to maintain or recharge any electronic equipment.

Environmental Services

Cleaning will be carried out by EVS. They will utilize the Housekeeping Closet provided within the clinic. Clinic staff will carry out the turnover of patient spaces and cleaning of equipment.

EVS staff on the “transport shift” will collect waste, recycling and soiled linen from the Soiled Utility Room.

Nourishment and Meals

Nutrition Alcove will be available for staff to access ice, water and snacks to assist with patient well-being. Patients can store their own snacks in this space. Stocking and upkeep will be managed by Food Services.

Patient Transport

Nursing staff and attendants are responsible for patient transfer within the hospital. MAHC will consider the addition of porters for the future. This is particularly important for Dialysis patients needing assistance between the main entry and the Dialysis Unit.

Administration & Staff Spaces

The Unit Clerk and Charge Nurse will maintain responsibility for daily activity from a centralized Care Team Station that contains shared touchdown workstations. These shared workstations will be available for Allied Health professionals, nursing and medical staff, students and other external partners.

Office for the Manager will be provided.

Allocation of staff spaces will follow the corporate model.

Security Services

A CCTV camera will be located in the Medication Room. Mobile duress buttons will be provided for staff and physicians.

Enabling Technologies

Information Systems

Clinical documentation, including orders for medications, labs and diagnostic tests will occur in MAHC's Health Information System (HIS). This system will be fully integrated to optimize patient safety, facilitate easier patient access to their health information, standardize assessment and workflows for clinicians and remove any technological barriers that prevent timely care.

Key components of the system include:

- Standardized electronic documentation to facilitate interprofessional collaboration and connections with community resources
- Computerized Provider Order Entry (CPOE) with clinical decision support
- Patient portal with access to their health information, questionnaires and e-scheduling
- Voice dictation at source
- Virtual care
- Data privacy and security.

Finally, an after-visit summary will be provided to the patient (via app or print-out); summary to include education, next appointment, follow-up directions, as well as any other prescriptions or requisitions. Patients will have the ability to access their own portal to access private health information and be part of the care plan.

Virtual Care

Treatment Stations will have the capability to host remote rounds for off-site specialists to participate and view/interact with the patient and Care Team. Mobile equipment is preferred. Meeting rooms at HDMH will be equipped with digital displays, video- and teleconferencing capabilities and presentation inputs to provide flexible and adaptable collaboration spaces.

Communication Systems

Planning assumes the availability of wireless technologies which will have a significant impact on communications, data recording, data retrieval, and documentation. In each Treatment Station there will be Wi-Fi for patient use in accessing the internet. Electronic dashboards will be utilized which can display clinical information from Cerner HIS. Bedside terminals or portable workstations will provide the following capabilities and services:

- Educational content
- EMR
- Hospital information.

Staffing (Current and Projected)

Table 4. Current and Projected Staffing

Huntsville Site	***Current***	***Projected***			
Category	**2022/23 FTE**	**2031/32 Total FTE**	**2031/32 Headcount/Day**	**2031/32 Headcount/Evening**	**2031/32 Headcount/Night**
Total	5.40	7.80	6	0	0
Dialysis Ward Clerk	0.40	0.40	1		
Dialysis RN	4.30	6.00	3		
Dialysis RPN	1.20	1.20	1		
Dialysis Manager	0.20	0.20	1		

Notes:

1 RPN – 7.5 hrs/day, 6 days/week

2 RN – 2x12 hrs/day, 1x8 hr, 6 days/week

3 In future, consideration to a 3rd shift will be made to accommodate for more patients

Design Objectives

Locations and Adjacencies

This component should have proximate access to the main entrance and patient drop-off and pick-up area.

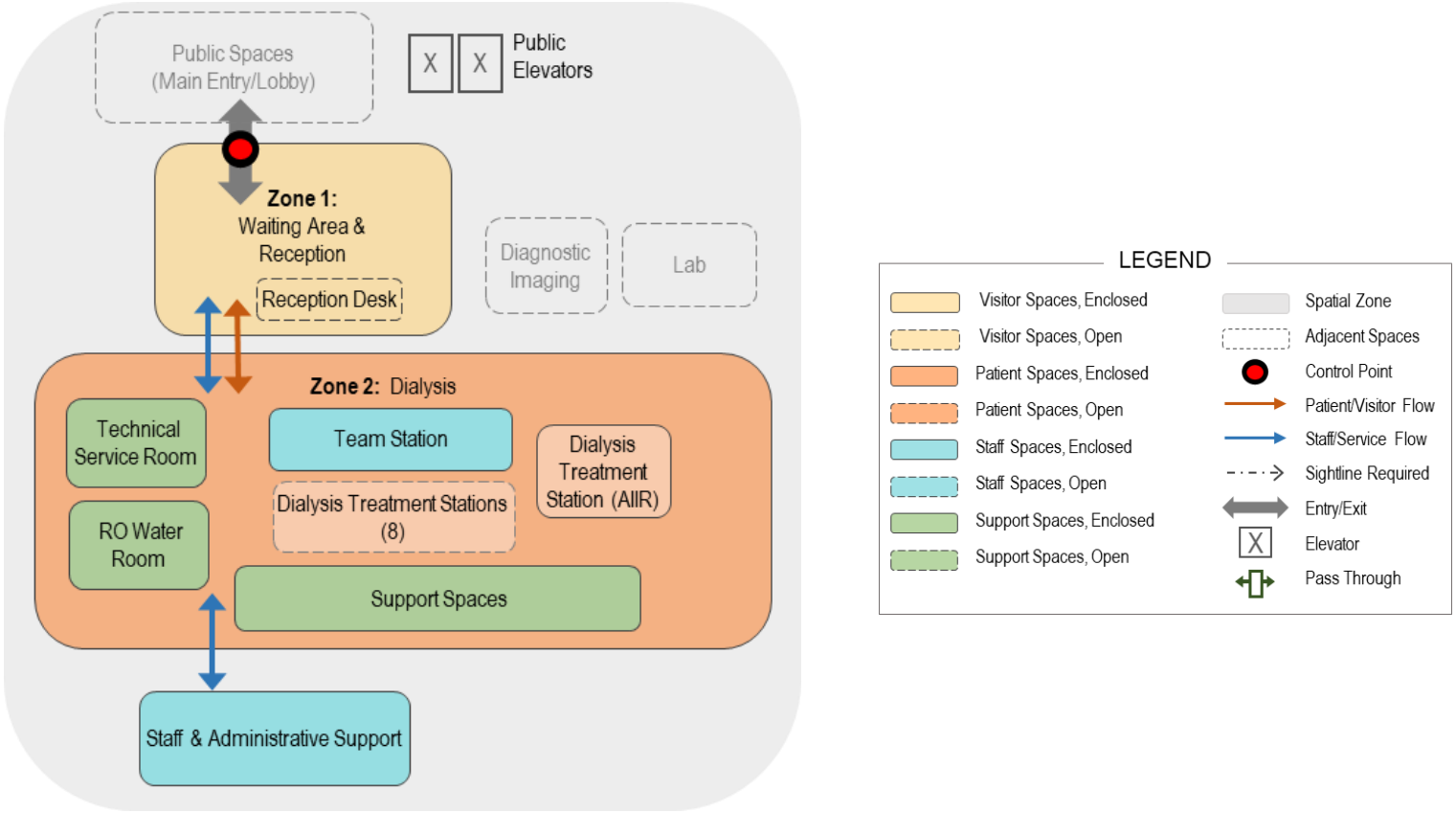
Internal Organization

Renal Dialysis will be organized into the following zones:

1. Waiting Area & Reception
2. Dialysis
3. Staff & Administrative Support.

The spatial organization should be generally as shown in the diagram on the following page. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram



Special Considerations

Infection Prevention and Control

Infection Control in Renal Dialysis will be supported with:

- Treatment Stations enclosed on three sides, ideally with operable glass on the sides
- Availability of an Airborne Isolation Room (AIR) in Dialysis
- Distribution of PPE in wall mounted storage at all public entries and throughout the clinic.

The open Treatment Stations will have a minimum of one hand hygiene sink per three patients.

Staff hand hygiene sinks will also be provided at:

- Care Team Station
- Medication Room
- Soiled Utility Room
- Clean Supply Room
- Housekeeping Closet.

Important considerations include:

- Separation of clean and soiled materials
- Transportation routes for soiled materials separate from public corridors, when possible
- Containment of soiled material for transport to the disposal point
- Appropriate ventilation and pressure control to maintain containment within rooms.

Wayfinding

Access from the main entrance and drop-off/pick-up area to Renal Dialysis should be direct, easy and supplemented by effectively placed signage.

Wayfinding should be intuitive between the Waiting Area and the treatment areas, for entering and exiting. Treatment Stations and rooms should have easily identified numbering for patient wayfinding.

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labeled; signage to be well lit. Wayfinding should be designed to address the visual challenges some patients may be experiencing.

Accessibility & Corridor Design

Access to all public spaces, including washrooms and treatment spaces, must be accessible. Power door operators are required at the entrance/exit to the department and in any patient care areas. Internal corridors must be wide enough for two wheelchairs to comfortably pass each other. Wherever it is anticipated that a stretcher will be moved, the corridor must be sufficiently wide to allow for getting a stretcher in and out of the room. Corridors will not be used as places for storage.

Complete access for those with physical disabilities must be planned for in Renal Dialysis. All spaces and circulation areas should be configured with the functional abilities/disabilities of patients in mind, including the use of all categories/types of wheelchairs. Other considerations may include:

- Motion sensor operated doors
- Lever style door hardware
- Sinks and other fixtures/equipment designed with wheelchair users in mind.

Acoustic

All walls and partitions for treatment areas, washrooms, etc. will be provided with acoustic insulation to ensure that conversations and other sounds do not leak through them.

Insulation to be provided above the ceiling tiles in the Exam/Consult Rooms for noise reduction purposes, as per OTN guidelines. Ceiling height should be no greater than 10 feet. Nine feet is the ideal height.

Air/Environmental

In consideration of the philosophy and practice of patient-centred care, the environment should be as non-institutional in appearance as possible, with a warm and welcoming décor that is pleasant and conducive to health and wellness. The environment should incorporate natural elements from the outdoors.

Dialysis patients spend several hours receiving treatments. Access to windows is very important to their well-being. The ability to socialize and support each other has been very valuable in the current open layout and design. The partitions between Treatment Stations should have glass that can open between stations to allow for these types of interactions.

Floor colours need to be consistent throughout but contrasting with walls and corners to assist the visually impaired.

Exam/Consult Room colours should be solid gray blue in matte or flat finish, as per OTN guidelines.

Medical Gases

Medical gases (oxygen, air, and suction) will be provided at each patient Treatment Station and in the Exam/Consult Rooms. The number of outlets will be determined during the next stage of planning. The mechanical consultant will ensure that the number of outlets meets the applicable Code requirements.

Patient Privacy

Though patient privacy is achieved through staff behaviour, the physical environment can be a positive contributor. For example, placement of doors and swings of doors can impact patient privacy. The architect shall maintain vigilance during the design stage in this regard.

Lighting	Individual lighting controls are important at Treatment Stations and Exam/Consult Rooms, and offices. Lighting should be 4100 Kelvin CRI > 91.
Ergonomic Considerations	Design of all millwork and placement of electrical outlets, switches, etc. shall consider ergonomics. OH&S staff shall be consulted during detailed design in order to ensure compliance with ergonomic expectations.
Security	The design of the space should help to ensure the safety and security of all patients/family, staff, and visitors to be enhanced through the design. Visualization of the patient Treatment Stations from the Care Team Station(s) should be achieved to as great an extent as possible. Each patient space will be equipped with a Code Blue call button.
Codes & Standards	In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 5. *Space Table*

			Component Gross Area (CGSF / CGSM)			**4,230**			**393.0**			
			Net to Gross Ratio			1.40			1.40			
			Total Net Area (NSF / NSM)			3,020			280.6			

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 1: Waiting Area and Reception			**subtotal net area**		**275**		**subtotal net area**		**25.5**		
15	.001		Reception/Registration			100	1	100		9.3	1	9.3		
		.01	*- workstation, clerk*	*1*	*50*				*4.6*					
		.02	*- associated office equipment*	*1*	*50*				*4.6*					
15	.002		Waiting Area			115	1	115		10.7	1	10.7		
		.01	*- seat, standard*	*3*	*20*				*1.9*					
		.02	*- seat, accessible/bariatric*	*1*	*30*				*2.8*					
		.03	*- closet, coats / boots*	*1*	*25*				*2.3*					
15	.003		Washroom, Public, Accessible	60		1	60		5.6	1	5.6			
15	.004		left intentionally blank											
			Zone 2: Dialysis	**subtotal net area**				**2,575**		**subtotal net area**		**239.2**		
15	.005		Patient Assessment	30		1	30		2.8	1	2.8			Include in floor weigh scale
15	.006		Scooter & Wheelchair Parking	30		1	30		2.8	1	2.8			
15	.007		Exam/Consult Room	120		1	120		11.1	1	11.1			
15	.008		Dialysis Treatment Station - Stretcher/Chair	100		8	800		9.3	8	74.3			Provide ceiling-mounted TV with pillow speaker, Open stations
15	.009		Hand Hygiene Station	10		3	30		0.9	3	2.8			

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
15	.010		Dialysis Treatment - Isolation/Bariatric			275	1	275		25.5	1	25.5		
		.01	*- stretcher/chair/prep alcove*	*1*	*160*				*14.9*					Provide ceiling-mounted TV with pillow speaker, ceiling track for portable lift
		.02	*- anteroom*	*1*	*55*				*5.1*					
		.03	*- washroom*	*1*	*60*				*5.6*					
15	.011		Team Station			110	1	110		10.2	1	10.2		
		.01	*- workstation, touchdown*	*3*	*30*				*2.8*					
		.02	*- printer/work area*	*1*	*20*				*1.9*					
15	.012		Washroom, Patient, Accessible			60	1	60		5.6	1	5.6		
15	.013		Nutrition Alcove			35	1	35		3.3	1	3.3		
15	.014		Clean Supply Room			200	1	200		18.6	1	18.6		Larger to accommodate extra Dialysis supplies
15	.015		Alcove, Linen Cart & Blanket Warmer			30	1	30		2.8	1	2.8		
15	.016		Medication Room			120	1	120		11.1	1	11.1		
15	.017		Soiled Utility Room			130	1	130		12.1	1	12.1		
15	.018		Storage, Equipment			140	1	140		13.0	1	13.0		
15	.019		Technical Service Room			190	1	190		17.7	1	17.7		Provide floor drainage
		.01	*- dialyser machine work area*	*1*	*35*				*3.3*					
		.02	*- stainless steel sink*	*1*	*15*				*1.4*					
		.03	*- machine work counter*	*1*	*35*				*3.3*					
		.04	*- computer work area*	*1*	*30*				*2.8*					
		.05	*- storage*	*1*	*75*				*7.0*					
15	.020		RO Water Room			200	1	200		18.6	1	18.6		Locate directly adjacent or within the suite
15	.021		Housekeeping Closet			75	1	75		7.0	1	7.0		
15	.022		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria / Comments
			Zone 3: Staff & Administrative Support			**subtotal net area**		**170**		**subtotal net area**		**15.8**		
15	.023		Office, Clinical Leadership			100	1	100		9.3	1	9.3	Shared Office	
15	.024		Washroom, Staff			50	1	50		4.6	1	4.6		
15	.025		Lockers, Staff			2	10	20		0.2	10	1.9		Provide cube lockers

16. Surgical Services & MDRD

Functional Description (Current and Projected)

Service Overview

Muskoka Algonquin Healthcare's (MAHC) Surgical Service will continue to offer inpatient, outpatient, elective and emergency/unscheduled surgical procedures including emergency C-sections at both hospital sites.

MAHC will continue serve the local population as well as residents of remote communities in the surrounding region. The patient and family experience in Surgical Services will be supported by high quality care, delivered in a comfortable physical environment. The patient care environment will be respectful, compassionate, and culturally sensitive to the patient and their family/community.

Surgical Services will be planned to support:

- A patient-focused environment delivering care that reflects best practice
- Patient comfort and satisfaction with attention to local demographics
- Physical and operational support of sterile process in the Surgical Suite
- An efficient flow of patients and staff from admission to discharge
- Enhanced local surgical service offerings, through the addition of new surgical specialties and site specialization
- Continued development to advance procedural technique, patient safety, and operational efficiency within this service.

Future Surgical Services will include Operating Rooms (OR) at both sites, but they will differ in their respective surgical offerings and specialization. The **HDMH site** will provide emergent surgeries (e.g., linked to the HDMH OR, ICU or C-section activity) and inpatient surgeries for those with higher post-operative care requirements and/or recovery period. Some General Surgery outpatients will also be cared for at HDMH. The **SMMH site** will also provide emergent surgeries, and will consolidate MAHC's ambulatory activity, with Procedure Rooms and the Day Surgery Unit to support a robust ambulatory Surgical Centre.

Planning Principles and Assumptions

The HDMH and SMMH Surgical Suites will accommodate scheduled and unscheduled procedures for inpatients and outpatients. ORs and Patient Care Areas will be developed to provide maximum flexibility to serve population needs for MAHC patients.

General assumptions used for planning future Surgical Services and Endoscopy at HDMH include:

- The Surgical Suite will support state-of-the-art service delivery, comply with all building, health and safety codes, and provide optimal flexibility to accommodate ongoing advancement in Surgical Services.
- Surgical volumes for MAHC will increase as surgical cases previously transported to regional hospitals are repatriated to MAHC (for orthopaedics and plastic surgery), as well as in keeping with overall demographic growth and aging.
- ORs will be planned, fitted, and equipped for all procedures. No rooms will be designed/assigned for a specific service or specialty.
- Surgical Services will be planned to support designated circulation within unrestricted, semi-restricted and restricted zones. Protocol for scrubs, and head, face and shoe covers passing between restricted, semi-restricted and unrestricted areas will be established and maintained.
- Pre-operative and recovery space will continue to be colocated and used flexibly to allow for optimal use of staffing and space resources.
- The program will focus on continual improvement in clinical outcomes and procedural efficiency supported by an effective working environment for the Clinical and Service Team.
- The patient and family journey, initiated at arrival, will continue from admission/registration, surgical preparation/ procedure through to a phased post-procedure recovery and return home or to an inpatient care bed. Other admitted patients will be prepared in ICU/Inpatient Care Unit (IPU) or the ED and transferred to the Surgical Suite.
- Medical Device Reprocessing Department (MDRD) will be centralized at each site; with a direct adjacency (horizontal or vertical) to Surgical Services to allow for proper workflow and movement of clean/soiled materials; MDRD will meet the standards of MAHC's Infection Prevention & Control (IPAC), Canadian Standards Association (CSA), Provincial Infection Diseases Advisory Committee (PIDAC), Accreditation Canada, Health Canada, and other relevant associations.
- Increased substitution of non-invasive diagnostics including CT scan and new technologies such as ingestible cameras for diagnostic endoscopies.
- Increased use of regional blocks for anaesthesia.
- Continued growth of outpatient surgery and minimally invasive procedures; Note: these will be performed predominantly at the SMMH site in future.
- With technological advances and appropriate procedure space, more advanced endoscopy procedures could be accomodated at MAHC in the space planned; Note: these will be performed at the SMMH site in future.

Patient Profile

Surgical patients will either be inpatient, outpatient, same day admission, or admissions from the ED.

Most patients will be adults; however, a small number of paediatric procedures will be provided on-site.

Scope of Services (Current and Projected)

Surgical Services

Surgical Services at HDMH will include two ORs. Surgical activity will include:

- General surgery
- Obstetrics elective and urgent C-sections
- Endoscopy (small volume for inpatient and emergent patients).

The surgical program at HDMH will focus on service to its inpatient and emergent population, with a modest amount of Day Surgery volume to provide general surgery access close to home and make best use of OR resources and capacity. Unscheduled endoscopy inpatient and emergent cases will be accommodated on-site at HDMH as required but are anticipated to be low in volume, with the vast majority of this activity happening on a scheduled basis at SMMH as part of its Day Surgery Program. As the number of endoscopy cases will be small, activity will be accommodated within the two ORs, a specialized procedure room is not planned.

The MAHC Team of general surgeons and anaesthesiologists will continue to engage a team of specialty surgeons from other hospitals in the region for certain scheduled patient procedures.

The table that follows describes the current units and the planned location of each modality for the 2031/32 planning horizon.

Table 1. Current and Projected Modalities

Modality	*Current*	*Projected (10 years)*
General Surgical Procedures	Both sites	Both sites
Minor Surgical Procedure	Both sites	Single sited
Cataracts	Single sited	Single sited
Endoscopy	Both sites	Primarily single sited

Note: services shown above as located at both sites in future will vary in volume and/or patient mix.

Medical Device Reprocessing Department (MDRD)

The MDRD will continue to be responsible for reprocessing of reusable devices, including surgical instruments and hardware, metal containers (basins, trays) and consignment instruments/supplies. It will also be responsible for the cleaning/sterilization of scopes and probes used in procedures throughout the hospital.

MDRD staff will be responsible for the reprocessing, inspection, and care of all surgical instruments. They will also maintain responsibility for the selection and packaging and storing all instruments and equipment between uses. Specific services include:

- Receiving case carts, soiled instruments, vessels and metal ware used at the site
- Cleaning, inspection, sterilization, and storage of equipment/instruments for all procedures
- Receipt and storage of disposables required for sterile packs or maintained in the Sterile Core of the Surgical Suite for use in procedures
- Preparation of standardized instrument sets, carts, and equipment for distribution to other patient care units including Emergency, Critical Care, and Inpatient Units
- Support maintenance and stocking of crash carts ensuring all required material including respiratory supplies/ equipment, medications, instruments/equipment are available and ready for use.

Education

MAHC is affiliated with the Northern Ontario School of Medicine (NOSM), and as such will include learners in clinical areas. Growth in NOSM at MAHC is anticipated in future across all clinical areas.

Four to six learners (including medical students, residents, and/or nursing) may be present in the HDMH Surgical Services area at any given time.

Research

As with other MAHC clinical programs, staff in this area will undertake continuous quality improvement (CQI) initiatives that focus on program evaluation and patient satisfaction.

It is not anticipated that Surgical Services will undertake any research studies in future, however they will support research studies of others, as required.

Linkages/ Partnerships

Table 2. Linkages and Partnerships

Linkages/Partnerships	Description
Orillia Soldiers Memorial Hospital	OSMH provides specialists and support
Haliburton Highlands Health Services	MAHC provides consults
West Parry Sound Health Centre	MAHC provides urology consults
Georgian Bay General Hospital	MAHC provides urology consults

Workload (Current and Projected)

Table 3. Historical and Projected Workload

		Historical			*Projected*
HDMH Component	**Measure**	**2017/18**	**2018/19**	**2019/20**	**2031/32**
Total, Day Surgery		**747**	**757**	**772**	**712**
General Surgery	Cases	633	644	674	712
Otolaryngology	Cases	79	100	62	0
Plastic Surgery	Cases	n/a	7	35	0
Other	Cases	35	6	1	0
Total, Inpatient Surgery		**287**	**262**	**217**	**424**
General Surgery	Cases	215	188	145	225
Family Practice/General Practice Medicine	Cases	64	63	57	174
Other	Cases	8	11	15	25
Total, Ophthalmology		**515**	**765**	**759**	**0**
Cataracts	Cases	515	765	759	0
Total, Endoscopy		**2,440**	**2,446**	**2,301**	**117**
Inpatient	Cases	152	105	93	117
Day Surgery	Cases	2,288	2,341	2,208	0
Total, Post Anaesthesia Care Unit (PACU)		**1,572**	**1,806**	**1,799**	**0**
Inpatient	Visits	278	253	237	0
Day Surgery	Visits	1,294	1,553	1,562	0

Notes:

1. MAHC is currently part of a regional program for orthopaedics surgery, with orthopaedics beginning on-site at HDMH in 2021/22, therefore showing no historic volumes. At present, orthopaedics at HDMH runs 4 days/month. Projections assume a repatriation of 25% of the volume of MAHC catchment area patients (current market share is approximately 3%). Future activity for Orthopaedics will occur at the SMMH site.
2. Plastic surgery volumes assume an additional 15% repatriation of patients from the MAHC catchment area (current market share for MAHC is approximately 19%).
3. Future planning assumes OR availability of 1,840 Hours per year (46 weeks/year, 5 days/week, 8 hours/day).

Operational Description

Organization and Management

The Surgical Services Manager and the Charge Nurse will maintain responsibility for daily operations in the Surgical Suite.

Hours of Operation

Current and future hours of operation are noted in the table below.

Table 4. Hours of Operation

	Current			***Projected***		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Day Surgery	7:00am-5:00pm	-	-	8 hours/day	-	-
Operating Rooms (OR)	8:00am start; last case 2:30pm	On-call	On-call	8 hours/day	On-call	On-call
Endoscopy/Procedures Suite	HDMH: 5 days/ week 8:30am-4:00pm (last case at 4:00pm) SMMH: 3-4 days/ week	-	-	8 hours/day	-	-
Post Anaesthesia Care Unit (PACU)	7:00am-5:00pm	-	-	8 hours/day	-	-

	Current			Projected		
Modality	**Weekdays**	**Saturday**	**Sunday**	**Weekday**	**Saturday**	**Sunday**
Medical Device Reprocessing Department (MDRD)	8:00am-6:00pm	Every other weekend at site that is on-call 8:00am-6:00pm	On-call	8:00am-9:00pm	On-call	On-call

Notes:

1. PACU is used for preparation and recovery for surgery and endo patients currently.
2. OR hours reflect scheduled procedures. The OR will remain on-call during off hours for emergency surgeries (e.g., emergency C-sections).
3. Future OR hours assume 46 weeks/year, 5 days/week, 8 hours/day.
4. MAHC Surgical Services will continue to utilize a shared call system for physicians whereby a rotation is used between the two sites for on-call services. Surgeons will be on-call when their site is on-call. The Nursing Team will be on-call 24/7 to support emergency surgeries.

Duration of Visit

Table 5. Duration of Visit

Modality	Average Room Turnaround Time (Mins)
Inpatient	30
Outpatient	20
Outpatient Cataract	5
Endoscopy	10

Referrals & Scheduling Appointments

Scheduled surgical appointments will be booked through the Surgical Liaison Office (located at SMMH), who also book any required pre-procedure visits (e.g., bloodwork, diagnostics). Note: pre-procedure visits for HDMH patients will be accommodated at HDMH.

An electronic platform (SeamlessMD at present) will continue to be utilized for virtual guidance, monitoring, and support for surgical patients. The application will be accessed electronically by patients to connect with nursing staff in advance of their procedure, and post-procedure for follow-up and monitoring.

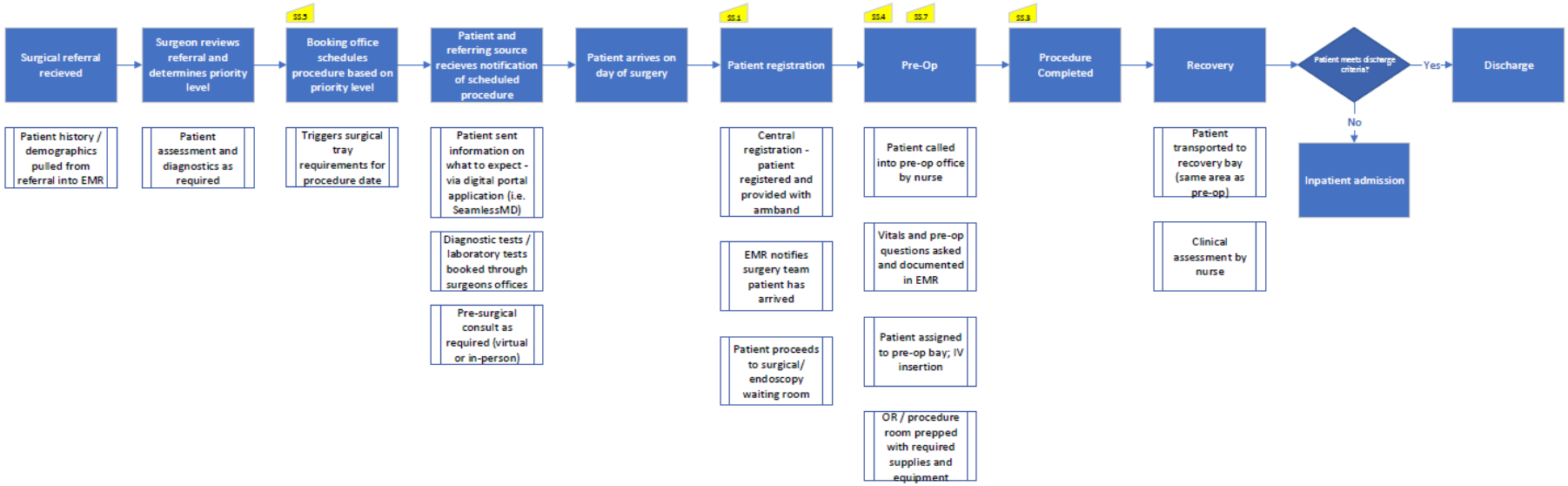
At their initial meeting with the Clinical Team, patients will be provided a link to information about their upcoming procedure and contact information for any questions. In advance of the procedure, nursing staff will access the platform to provide any required education, instructions, reminders, and schedule testing, as required.

Patient profiles and the anticipated procedure will determine the requirement for an inpatient encounter, a 'virtual encounter' or a telephone conversation. As much as possible, patients will have completed pre-registration activities via online, virtual or phone portals.

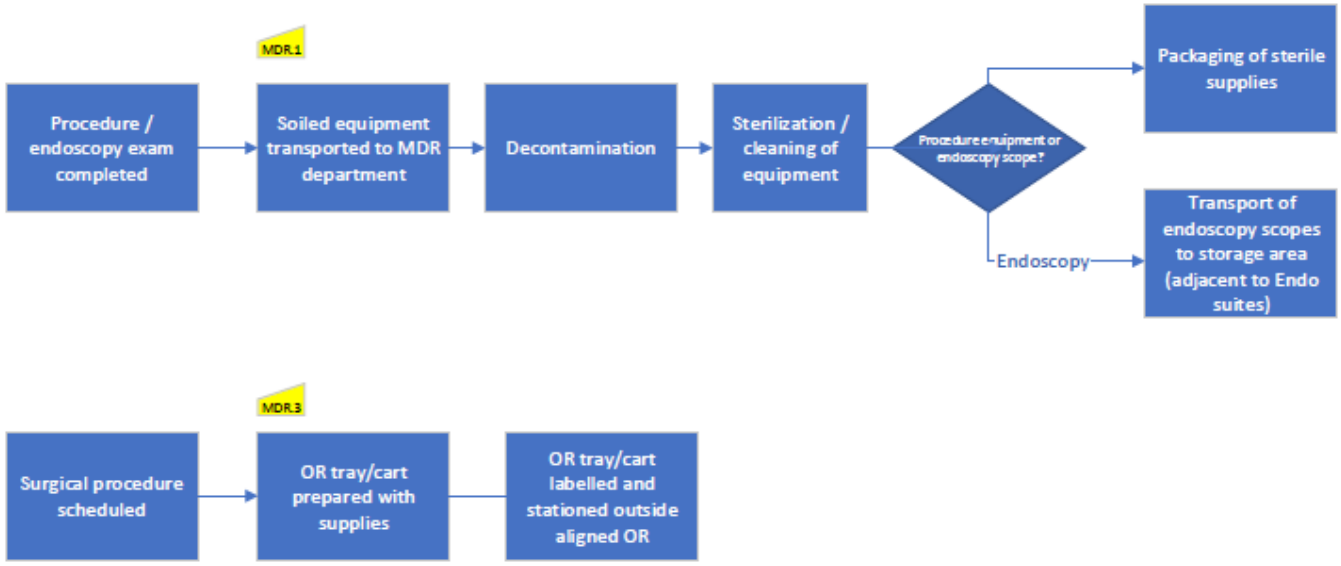
Note: an anaesthesiologist may request a pre-operative consult or speak to the patient in the consultation room or the OR.

Workflow

Surgical Services/PACU



Medical Device Reprocessing Department



Registration and Consent

For scheduled surgery patients, on the day of their procedure, patients will self-register at a kiosk in the lobby, or if necessary, at the bedside during their pre-operative assessment.

Patient Changing & Preparation

Surgical Suite

Following registration, the patient/family will proceed to the Waiting area within Surgical Services. The Unit Clerk will be responsible for check-in and escorting the patient to a change area (often with a family member). The escorting family member(s) will return to the Waiting area once the patient moves to the OR.

Patients will complete any pre-operative activities and change with or without assistance from family and store any belongings. Family will wait in the Waiting area which will include electronic status boards for information purposes.

Once changed, pre-op preparation may include assessment by nursing, anaesthesia and surgery and initiation of IVs prior to transfer to OR.

Pre-operative patients will be prepared in an enclosed bay. Glass doors or partitions will be electrochromic or include integral blinds to enhance visual and acoustic privacy.

Designated staff will complete a standardized checklist to verify identity, confirm pre-operative protocols, procedural site, and that consent has been appropriately completed.

Paediatric patients will remain with their parent(s)/caregiver(s) until transferred to the OR by a staff member. Following the completion of the procedures a staff member will provide appropriate scrubs/gowns and escort parents to meet the child in recovery area.

Anaesthesia equipment including a spinal cart, epidural equipment (supplies/pumps) will be stored in the Anaesthesia Workroom. An alcove will be designated for the epidural care in Day Surgery when procedures are required.

The small number of endoscopy procedures required at HDMH for inpatients will be accommodated in the OR.

Procedure Completion and Quality Assurance

Surgical Suite

Scheduled patients prepared and waiting for surgery will be transferred by stretcher to the OR.

Patients entering the Restricted Zone will wear hospital gowns and a head covering. Blankets will cover the patient while in transfer.

Stations stocked with additional head covers, gowns and masks will be available at any entrance to this corridor from staff or service corridors of the hospital. Public corridors are not anticipated beyond the patient/family waiting room.

Should patients walk to the OR, a stretcher will be moved outside the OR to transport patients to the PACU following the procedure.

Ceiling lifts to assist patients onto the operating/procedure table are preferred to manual transfer.

General anaesthesia will be initiated in the OR. Anaesthesia blocks will be administered in Day Surgery, in the private stretcher area.

The Surgical Team will scrub outside the OR/Procedure Room. A scrub sink may serve two adjacent ORs.

Ceiling-mounted booms with flexible arms will be used to maintain the floor area of the OR clear of cords and tripping hazards.

Surgical devices/equipment required for procedures will be assembled in the Sterile Core and moved to the OR prior to the start of surgery.

Room cleaning/turnover between procedures will be established with EVS. The scrub nurse will collect and contain soiled instruments/equipment for transfer to Soiled Collection for return to MDRD. An assigned EVS worker will move linen, trash and waste to bins in Soiled Collection prior to cleaning equipment/surfaces and changing protective covers for the next procedure.

Workspace/dictation stations will be provided immediately outside the OR for physicians to complete documentation and other activities while the room is cleaned for the next procedure. Stations should offer acoustic privacy for telephone calls.

Elective C-sections

Elective C-sections are usually scheduled at the first procedure of the day in the OR. When an emergency C-section is indicated, Surgical Services will be notified. Priority 1 protocol will be initiated, and the next available OR will be cleared. The mother will be prepared as needed (e.g., IV started) and transferred to the OR with the Maternal Newborn RN. The partner will change into scrubs in the inpatient room and wait for the Surgical Team to collect them when ready.

Scheduled mothers will be seen by the general surgeon one week before for assessment and bloodwork (group and screen). Currently on the C-section day, mothers/partners are prepared in Surgical Services. In future, the Maternal Newborn Unit will admit mothers into a Medical/Surgical inpatient room where all pre-op preparation will occur. The mother will be transferred to the OR at the appropriate time. The partner will use the inpatient room to change into scrubs and store all personal belongings. The Surgical Team will collect the partner when ready for their attendance in the OR.

There should be space in the OR area to store an overbed warmer, neonatal crash cart, neonate vital signs monitor, and fetal monitor to be used for C-sections. This will avoid having to transfer these pieces of equipment during emergencies.

Additional support to manage newborn distress may be ordered by the physician at any point during delivery (e.g., respiratory therapist).

After the C-section, the mother, newborn and partner will move to PACU for supervised recovery from anaesthesia and following clearance return to the Maternal Newborn Unit for postpartum care.

The newborn is generally examined immediately following delivery by the Maternal Newborn RN. Mother/family are transferred to the designated space in PACU for recovery and maintaining mother/newborn together is a priority of the model of care. An infant warmer will be available if skin-to-skin contact is limited. The Maternal Newborn RN will continue to care for the newborn and the OR RN will support the mother's recovery until transfer back to the Maternal Newborn Unit.

Post – Procedure Processes

Post Anaesthesia Care Unit (PACU)

Anaesthesiologists and nursing staff will transport patients directly to the PACU following surgery. The anaesthesiologist/OR nurse will report on surgical procedure and patient condition. Once the patient is wheeled to a designated bay, the assigned PACU nurse will begin the monitoring protocol.

All preparation and recovery spaces will be enclosed with hard walls and glass 'breakaway' doors to facilitate access in an emergency. Staff will require direct observation to the patient's head either via direct line of sight from corridor observation alcoves outside each room or from the Communications Station in the PACU.

After discharge, the patient will continue to be followed by the Surgical Team through the electronic platform and dashboard. Level and duration of monitoring will vary by patient need but may include daily wellness checks or other remote monitoring. Patients will be flagged for intervention and escalated back to their physician as determined.

Reporting

Workspace/dictation stations will be provided immediately outside the OR and Procedure Rooms for physicians to complete documentation and other activities while the room is cleaned for the next procedure. Stations should offer acoustic privacy for telephone calls.

Transcription/Voice Recognition

Technology will be leveraged to the highest degree possible, including future consideration for transcription and voice recognition utilization to improve physician efficiency and workflow.

General Support Activities

Coordination of the nursing staff with the site's EVS staff will be studied to ensure all staff is optimized to full scope of practice.

Supplies, Cleaning & Disposal

Supply restocking will be in keeping with MAHC-wide supply stocking processes.

Housekeeping Closets will be distributed throughout Surgical Services. A dedicated closet will be maintained for the exclusive use within the Surgical Suite. Other(s) will be distributed to ensure reasonable access to other areas. Rooms will accommodate carts, equipment, and supplies for interim/terminal cleaning within the restricted areas.

Instrument Sterilization – MDRD

Instrument sterilization will be completed in MDRD. Instruments will be processed and packed with sterile supplies onto closed case carts in the MDRD. Carts will be moved by MDRD techs to designated locations within a sterile corridor that serves each OR. Closed carts will be moved to the appropriate OR once the room has been cleared for the next procedure.

Additional supplies/disposables may be stored in the sterile storage and delivered on request to the OR.

Additional carts packed for emergency procedures will be maintained in a designated area of the MDRD.

MDRD will be responsible for cleaning and sterilization of endoscopes, bronchoscopes, cystoscopes, and U/S probes used in many areas of the hospital. This instrumentation is delicate and requires specific handling. MDRD techs will be assigned to this process.

Endoscopy equipment will be placed in a container in the OR, carried to Soiled Collection and delivered through the pass-through window/cabinet to scope washing area. Scopes will be soaked, to remove major debris and disinfected before delivery through a pass-through window/cabinet to the adjacent processing room for sterilization.

Infection Control

Access to the working areas will be limited to authorized personnel.

Within Surgical Services, all patients will be treated with "routine practices". Appropriate PPE and an area to gown are required at the entry to any room. Appropriate signage/notification will be developed to identify a patient under contact or other precautionary measures for antibiotic-resistant organisms.

Within MDRD, entrances to clean/contaminated areas will require an anteroom equipped with a hand hygiene sink. Gowns will be removed before the staff re-enters the vestibule to depart.

Pharmaceutical Services

A Medication Room will be available proximate to the PACU. An ADU with a smaller subset of anaesthesia medication will be available in the OR.

Laboratory Services

Surgeons may collect tissue, bone, fluid samples during a procedure. Laboratory support will be required for specimen analysis intra-operatively where an immediate review and report is required or post-operatively.

Pneumatic Tube stations are anticipated at the main desk in the Surgical Suite and in the PACU Care Team Station.

Diagnostic Services

Portable imaging equipment for use in surgery (e.g., C-Arm, portable x-ray) will be stored in the OR. The units will move to a service area for cleaning following each deployment.

RT will support newborn infants in the OR if required. They will also respond to Code Blue calls within Surgical Services.

Staff Resources

A Surgical Lounge will be included as part of the Surgical Suite for physician use.

Staff Locker and Lounge space will be included within the space planned for Surgical Services.

Security Services

Both Surgical Services and MDRD will have very restricted access. Entry will require a swipe card or other access technology.

All visitors will require an escort and appropriate clothing in the Clean and Soiled areas.

Volunteer Services

The surgical Waiting area may include a volunteer presence.

Enabling Technologies

State-of-the-art patient monitoring will support all aspects of surgical care. Technology platforms, use of predictive technology, and the degree of integration with the patient record that are utilized within Surgical Services in future will be determined as planning proceeds. Components/features for consideration may include:

- Standardized electronic documentation to facilitate interprofessional collaboration and connections with community resources
- Computerized Provider Order Entry (CPOE) with clinical decision support
- Closed loop bedside medication administration and reconciliation processes
- Patient portal and e-scheduling
- Voice dictation at source
- Mobile computing
- Real time tracking
- Electronic referrals platform

- Virtual care
- Data privacy and security.

It is assumed that hands-free, voice activated communication system will be available to clinical staff.

It is also assumed that the Surgical Suite will include some form of patient tracking to inform the waiting family of the patient's progress though the procedure and staged recovery. Electronic tracking of equipment will be a consideration for the future.

Communication Systems

A direct communication system between the ORs to MDRD will be required for stat deliveries, and to PACU for workflow and patient status.

Equipment

Equipment Storage room(s) will be provided, supplemented by equipment alcoves to keep hallways clear. Carts will be purchased for specialized equipment to allow movement of equipment in and out of rooms.

Implementation of a radio-frequency identification device program will be considered to reduce time required to locate the equipment.

Emergency (crash) carts for resuscitation and difficult airways will be available in the Surgical Suite.

All patient positions will have a ceiling lift. Lifts in the OR will be integrated with other surgical equipment.

Staffing (Current and Projected)

Table 6. Current and Projected Staffing - HDMH

	Current	Projected 2031/32			
Category	**2022/23 FTE**	**Total FTE**	**Headcount per Day**	**Headcount per Evening**	**Headcount per Night**
Total	19.71	16.40	11	0	0
Subtotal, Surgical Services	*15.71*	*13.60*	*9*	*0*	*0*
Manager, Surgical Services & MDRD	1.00	1.00	1	0	0
Registered Nurse (RN) First Assist	1.00	1.00	1	0	0
Surgical Suite Liaison	1.00	1.00	1	0	0
RN	8.91	8.00	4	0	0
Operating Room (OR) Tech (Registered Practical Nurse [RPN])	2.80	1.60	1	0	0
Clinical Lead	1.00	1.00	1	0	0
Subtotal, Medical Device Reprocessing Department (MDRD)	*4.00*	*2.80*	*2*	*0*	*0*
MDRD Technician	4.00	2.80	2	0	On-call

Notes:

1. Manager, Surgical Services & MDRD is a shared role across both sites.
2. The Seamless Nurse role is a shared position with Ambulatory Care.
3. Surgical Suite Liaison staffing is included with central registration in 2023/23.

Design Objectives

Locations and Adjacencies

Most scheduled patients will arrive through the main lobby entrance. While advances in information systems will support electronic pre-registration, in future arriving patients may pre-register at home or a kiosk on arrival. If required, registration may occur at the bedside. Clear wayfinding between the main lobby and Surgical Services will be required.

Surgery as a service area is dependant on the immediate availability of supplies and equipment to support their work. In addition, the increasing sophistication of technology and tools used in surgery relies on an integrated team of technical and support available at a moment's notice to support clinical activities (e.g., MDR, radiology and laboratory) and address equipment issues (clinical engineering, information technology and operations and a range of engineering specialist). Access from these service groups for routine support and preventive maintenance as well as emergent issues will enhance the overall utilization of the ORs.

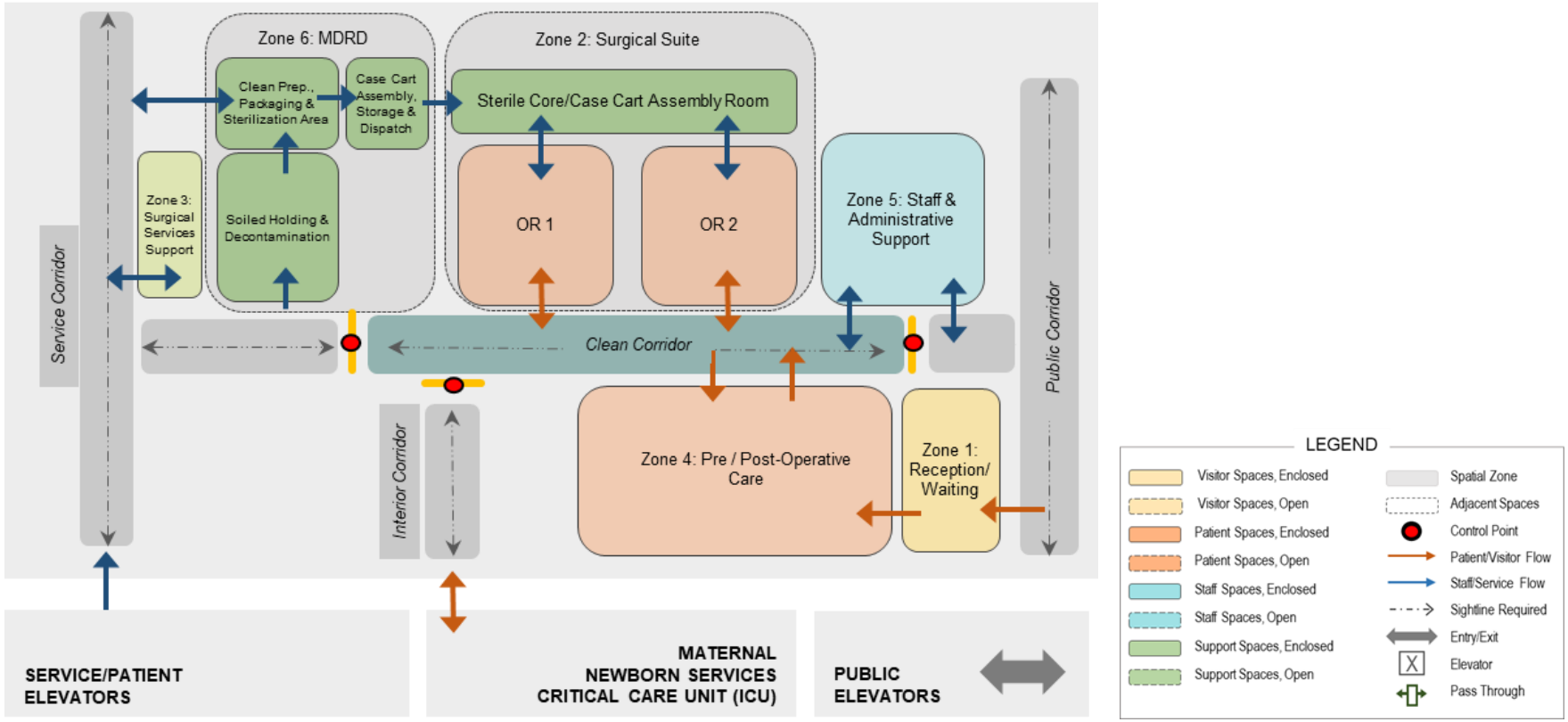
The following additional adjacencies/relationships (in order of priority) will be essential to operations, patient and materials flow, and most imporantly, patient safety:

- Direct adjacency to the Maternal/Newborn Unit with a connecting patient/service corridor to move a mother in labour to an OR and later to return from the PACU is critical to advancing the safety, quality, and comfort of the patient experience. Intrinsic to this smooth transfer is ensuring the sterility of the OR environment is maintained
- Direct horizontal or vertical connection to MDRD is required; a horizontal connection is considered highly preferable for patient safety, infection control and optimal workflow
- Reasonable proximity to the ICU, to optimize workflow and safety for transfer of care for critically ill patients
- Reasonable proximity to the physician Lounge.

Internal Adjacencies

The spatial organization should be generally as shown in the diagram below. The diagram illustrates conceptual relationships only and should not be treated as an architectural design. It should only be used to emphasize and identify important adjacencies and patient/visitor flows and staff/service flows. The diagram is not to scale.

Figure 1. Functional Relationship Diagram – Surgical Services



Special Considerations

Infection Prevention and Control

To optimize IPAC soiled or infectious material will be contained and transported via a prescribed route that does not intersect with other routes.

The flow of clean and decontaminated supplies and equipment to the area will not compromise universal precautions or aseptic techniques.

The OR will require a Sterile Core with no cross traffic between clean supplies and soiled/decontaminated areas. A direct and dedicated link is required from the Sterile Storage Core to the ORs. A distinct and separate pathway is required from the OR to the MDR decontamination entrance.

IPAC in Surgical Services will be achieved through:

- Zoning of the space as noted above
- The use of hand hygiene sinks, scrub sinks, and other fixtures and equipment in conformance with CSA standards
- Specially designed HVAC systems in compliance with the CSA standard for health facilities, including HEPA (high-efficiency particuate filter) filtered supply air system
- The use of impervious, seamless, durable and easily cleaned surfaces and easily cleaned equipment that tolerates approved disinfectants
- Installation of a seamless floor with a coved base extending no less than 6" above finish floor. No floor drains will be permitted.

Clarity of Spatial Organization

As previously mentioned, clear delineation between patient/family spaces and the Sterile Core must be maintained. This will be accomplished through signage and security infrastructure but should also be intuitive through design.

Wayfinding

All entry/exit, alarm, fire detection, fire exit plans, sprinkler systems should be labelled; signage to be effectively placed for maximum visibility and appropriately lit when necessary.

Disabled Access & Corridor Design

Regional demographics include a rapidly growing population over 60. This warrants attention to planning and design features to accommodate special requirements that accompany aging including sensitivity to lighting, floor patterns and use of specific colors as well as the need for the support of a family member for dressing, clarifying communications etc.

Seating in Waiting areas should be selected to be comfortable but also accommodate the physical challenges common to older adults.

Acoustic

All walls and partitions for exam/consult rooms, meeting rooms, washrooms, etc. will be provided with acoustic insulation to ensure that conversations and other sounds do not leak through them.

Within the OR and surrounding support zones, sound attenuation and acoustics are important for concentration and privacy. Appropriate sound dampening techniques including insulation and, in some situations, mechanical support, (i.e., white noise) may be considered.

Patient Privacy

Confidentiality of patients is additionally important in hospitals serving smaller communities. As previously mentioned, acoustics and sound transfer in all patient and family spaces should be of key concern.

Lighting

For flexibility, lighting should be adaptable for minimally invasive surgery use, with dimmable pot lights and zoned switching of all lighting fixtures.

Opportunities to bring natural light and views to corridors and lounge areas are important for staff working in these areas. Similarly, natural light and views within the Waiting areas would be beneficial for families waiting for loved ones in surgery.

Ergonomic Considerations

The placement and mobility of elements used in surgical delivery (e.g., monitors, equipment booms) shall consider how to maintain the intended objective of a universal space with a range of individuals working in that environment.

Equipment including ceiling lifts and transfer boards will be considered to reduce staff injuries. Anti-fatigue mats may be requested for by specific clinicians.

In procedure areas ceiling-anchored booms for lighting and equipment ensures the floor area is clear reducing potential hazards as the Surgical Team moves around the room.

Security

As previously mentioned, the Surgical Suite will be a controlled access space. Though this will largely be accomplished by security infrastructure and wayfinding, the design of the Unit should also allow for clear demarcation between patient/family spaces and restricted access spaces.

Codes & Standards

In addition to the above criteria, the facility must conform to recognized national, provincial, and local building codes and standards as they may relate to safety and accessibility for patients, staff, and visitors. Architects are also instructed to refer to CSA Z8000-18 Canadian Health Care Facilities.

Projected Space Requirements

Table 7. *Space Table*

			Component Gross Area (CGSF / CGSM) : TOTAL				**11,030**				**1024.7**		
			Component Gross Area (CGSF / CGSM) : Surgical Services				**8,770**				**814.8**		
			Surgical Services - Net to Gross Ratio				1.55				1.55		
			Surgical Services - Total Net Area (NSF / NSM)				5,658				530.3		
			Component Gross Area (CGSF / CGSM) : MDRD				**2,260**				**210.0**		
			Surgical Services - Net to Gross Ratio				1.35				1.35		
			Surgical Services - Total Net Area (NSF / NSM)				1,675				155.6		
CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Zone 1: Reception/Waiting			**subtotal net area**		**347**		**subtotal net area**		**32.2**		
16	.001		Reception/Waiting, Surgery			150	1	150		13.9	1	13.9		
		.01	*- volunteer workstation*	*1*	*30*				*2.8*					
		.02	*- workstation, touchdown*	*1*	*30*				*2.8*				Patient check-in	
		.03	*- seat, standard*	*3*	*20*				*1.9*					
		.04	*- wheelchair/scooter/bariatric*	*1*	*30*				*2.8*					
16	.002		Changing, Patient (Day Surgery)			137	1	137		12.7	1	12.7		
		.01	*- cubicle, change, standard*	*1*	*25*				*2.3*					
		.02	*- cubicle, change, accessible/family-assistance*	*1*	*50*				*4.6*					
		.03	*- lockers, patient belongings*	*6*	*7*				*0.7*					
		.04	*- alcove, linen cart & hamper*	*1*	*20*				*1.9*					
16	.003		Washroom, Patient, Accessible			60	1	60		5.6	1	5.6		
			Zone 2: Surgical Suite			**subtotal net area**		**2,705**		**subtotal net area**		**251.3**		**(Semi-Restricted Zone)**
16	.004		Entry, Surgical Suite (Semi-restricted)			15	1	15		1.4	1	1.4		
		.01	*- alcove, ppe*	*1*	*5*				*0.5*				For gowns/masks/bonnets/shoe covers	
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
16	.005		Care Team Station, Surgical Suite			115	1	115		10.7	1	10.7		Provide visual access to OR entries
		.01	*- workstation, clinical lead*	*1*	*50*				*4.6*					
		.02	*- stand-up workstation*	*1*	*30*				*2.8*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.04	*- circulation, 25%*	*1*	*25*				*2.3*					
16	.006		Pneumatic Tube			20	1	20		1.9	1	1.9		
16	.007		Alcove, Hemabank			20	1	20		1.9	1	1.9		
16	.008		Alcove, Formalin Storage Cabinet			5	1	5		0.5	1	0.5	Required for decanting formalin for tissue samples	
16	.009		Workroom, Anaesthesia			175	1	175		16.3	1	16.3		
		.01	*- blood gas analyzer*	*1*	*25*				*2.3*					
		.02	*- utility sink*	*1*	*15*				*1.4*					
		.03	*- work area*	*1*	*40*				*3.7*					Incl. blood gas analyzer, workstation for line set-up
		.04	*- equipment*	*1*	*30*				*2.8*				For spinal cart, epidural cart, anaesthesia machine, rapid infuser, cell saver, supply cart (1)	
		.05	*- workstation, touchdown*	*1*	*30*				*2.8*				For physicians	
		.06	*- circulation, 25%*	*1*	*35*				*3.3*					
16	.010		AIR Induction			220	1	220		20.4	1	20.4		Must be contiguous with direct access to 1 OR (Tuberculosis [TB] or other airborne infections)
		.01	*- procedure, induction*	*1*	*140*				*13.0*					
		.02	*- anteroom, staff*	*1*	*80*				*7.4*					Incl. scrub sink, PPE cart
16	.011		Operating Suite			635	2	1,270		59.0	2	118.0	Restricted zone	
		.01	*- operating room*	*1*	*600*				*55.7*					
		.02	*- scrub sink*	*1*	*10*				*0.9*					Two scrub stations/unit
		.03	*- alcove, stretcher*	*1*	*25*				*2.3*				For patient lifts, stretchers outside Operating Room	
16	.012		Sterile Core/Case Cart Assembly Room			465	1	465		43.2	1	43.2		
		.01	*- equipment cart*	*1*	*250*				*23.2*					
		.02	*- equipment cart, for unscheduled/emergency procedures*	*1*	*30*				*2.8*					
		.03	*- case cart*	*2*	*25*				*2.3*					
		.04	*- circulation, 40%*	*1*	*135*				*12.5*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
16	.013		Storage, Equipment			255	1	255		23.7	1	23.7		
		.01	*- specialty equipment room*	*1*	*150*				*13.9*				For specialty tables, monitors etc.	Provide double door access to room
		.02	*- alcove, equipment*	*2*	*30*				*2.8*				For patient lifts, stretchers outside ORs	Provide 1 for each OR
		.03	*- alcove, diagnostic imaging*	*1*	*20*				*1.9*				Shared alcove for C-Arm, U/S, lead shields, lead aprons etc.	
		.04	*- alcove, stretcher*	*1*	*25*				*2.3*					
16	.014		Emergency Equipment			40	1	40		3.7	1	3.7		
		.01	*- restricted airways*	*1*	*10*				*0.9*					
		.02	*- crash cart (paediatric)*	*1*	*10*				*0.9*					
		.03	*- crash cart (adult)*	*1*	*10*				*0.9*					
		.04	*- cart, malignant hyperthermia*	*1*	*10*				*0.9*					
16	.015		Washroom, Staff			50	1	50		4.6	1	4.6		
16	.016		Housekeeping Closet			40	1	40		3.7	1	3.7		Provide floor sink w/ eyewash, storage for cleaning supplies
16	.017		Closet, Liquid Waste Disposal			15	1	15		1.4	1	1.4		
16	.018		left intentionally blank											
16	.019		left intentionally blank											
			Zone 3: Surgical Services Support (Unrestricted)			**subtotal net area**		**140**		**subtotal net area**		**13.0**		
16	.020		Soiled Collection			140	1	140		13.0	1	13.0		Must be contiguous with MDRD Receiving
		.01	*- case cart staging*	*2*	*10*				*0.9*					
		.02	*- medical waste, recycling, soiled linen staging*	*2*	*25*				*2.3*					
		.03	*- utility sink*	*1*	*20*				*1.9*					
		.04	*- hand hygiene sink*	*1*	*10*				*0.9*					
		.05	*- circulation, 25%*	*1*	*40*				*3.7*					
16	.021		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Zone 4: Pre-/Post-Operative Care			**subtotal net area**		**1,810**		**subtotal net area**		**172.8**		
16	.022		Entry to/from Surgical Suite			20	1	20		1.9	1	1.9	Clean/Semi-restricted	
		.01	*- alcove, ppe*	*1*	*10*				*0.9*				For gowns/masks/bonnets/shoe covers	
		.02	*- hand hygiene sink*	*1*	*10*				*0.9*					
16	.023		Care Team Station			150	1	150		13.9	1	13.9		Unobstructed visibility to all areas
		.01	*- workstation, Charge Nurse*	*1*	*50*				*4.6*					
		.02	*- workstation, touchdown*	*1*	*30*				*2.8*					
		.03	*- workstation, stand-up*	*1*	*30*				*2.8*					
		.04	*- printer/work area*	*1*	*30*				*2.8*					
		.05	*- hand hygiene sink*	*1*	*10*				*0.9*					
16	.024		Alcove, Linen Cart			20	1	20		1.9	1	1.9	For Linen Cart and blanket warmer	Provide power for blanket warmer
16	.025		Alcove, Emergency Cart			15	1	15		1.4	1	1.4		
16	.026		Alcove, Supply Cart			15	1	15		1.4	3	4.2		Medical supply carts (2), PPE cart; decentralized within PACU care area
16	.027		Alcove, Equipment Storage			20	1	20		1.9	2	3.7	For epidural cart, block cart	
16	.028		Patient Care Area			570	1	570		53.0	1	53.0	May accommodate family	
		.01	*- stretcher bay*	*4*	*130*				*12.1*					Semi-private bays, include ceiling lift
		.02	*- workstation, nurse*	*2*	*15*				*1.4*				Shared between 2 rooms	
		.03	*- hand hygiene sink*	*2*	*10*				*0.9*				Shared between 2 rooms	
16	.029		Patient Bay, AIIR			250	1	250		23.2	1	23.2	Room assigned to patient for both prep/recovery	
		.01	*- anteroom*	*1*	*80*				*7.4*					
		.02	*- patient room*	*1*	*130*				*12.1*					Include sink, ceiling lift
		.03	*- washroom, 2-piece*	*1*	*40*				*3.7*					Door opens into the patient area
16	.030		Patient Bay, Enclosed			150	1	150		13.9	1	13.9	For postpartum family care/paediatric, patient requiring additional privacy (e.g., for seclusion)	
		.01	*- private room*	*1*	*130*				*12.1*					Include ceiling lift
		.02	*- alcove, infant warmer*	*1*	*10*				*0.9*					
		.03	*- hand hygiene sink*	*1*	*10*				*0.9*					

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
16	.031		Washroom, Patient, Accessible			60	1	60		5.6	1	5.6		
16	.032		Medication Room			120	1	120		11.1	1	11.1		
16	.033		Clean Supply Room			120	1	120		11.1	1	11.1		
16	.034		Soiled Utility Room			130	1	130		12.1	1	12.1		
16	.035		Washroom, Staff			50	1	50		4.6	1	4.6		
16	.036		Housekeeping Room			120	1	120		11.1	1	11.1		
16	.037		left intentionally blank											
16	.038		left intentionally blank											
			Zone 5: Staff & Administrative Support (Semi-restricted)			**subtotal net area**		**656**		**subtotal net area**		**60.9**		
16	.039		Scrub Dispenser			80	1	80		7.4	1	7.4		Locate in alcove outside Locker Rooms
16	.040		Staff Locker Room			246	1	246		22.9	1	22.9	Lockers for MDRD technicians will be included here	
		.01	*- vestibule*	*1*	*30*				*2.8*					
		.02	*- lockers, staff*	*12*	*7*				*0.7*					
		.03	*- day lockers, learners*	*1*	*7*				*0.7*					
		.04	*- change cubicle*	*1*	*25*				*2.3*					Full height doors and partitions between cubicles
		.05	*- washroom, staff*	*1*	*50*				*4.6*					Full height doors
		.06	*- shower/change room, staff*	*1*	*50*				*4.6*					
16	.041		Staff Lounge			230	1	230		21.4	1	21.4		
		.01	*- seating, lounge*	*4*	*20*				*1.9*					
		.02	*- table and chairs*	*1*	*50*				*4.6*					
		.03	*- workstation, touchdown*	*1*	*30*				*2.8*					
		.04	*- kitchenette*	*1*	*60*				*5.6*					
		.05	*- hand hygiene sink*	*1*	*10*				*0.9*					
16	.042		Office, Manager			100	1	100		9.3	1	9.3	Surgical Services/MDRD	
16	.043		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Zone 6: MDRD (restricted)			subtotal net area		1,675		subtotal net area		155.6		
			Soiled Holding and Decontamination											
16	.044		Soiled Cart Holding			85	1	85		7.9	1	7.9		
		.01	*- decontam supply cart*	*1*	*15*				*1.4*					
		.02	*- case cart staging*	*2*	*15*				*1.4*					
		.03	*- hopper sink, mop & pail*	*1*	*40*				*3.7*					
16	.045		Waste Holding			15	1	15		1.4	1	1.4		
		.01	*- container holding*	*2*	*5*				*0.5*				For waste/glass/biohazard/recycling	
		.02	*- soiled linen hamper*	*1*	*5*				*0.5*					
16	.046		Soiled Processing			285	1	285		26.5	1	26.5		
		.01	*- washer/disinfector w/ transfer carts, soap storage*	*2*	*50*				*4.6*					
		.02	*- pass-through air-lock window*	*1*	*15*				*1.4*					
		.03	*- workstation incl. double basin sink (w/ eyewash, RO water)*	*1*	*30*				*2.8*					
		.04	*- cart wash with cueing space*	*1*	*140*				*13.0*					
16	.047		Scope Reprocessing Area			135	1	135		12.5	1	12.5		
		.01	*- cleaning station with triple sink*	*1*	*50*				*4.6*					
		.02	*- scope reprocessor (future)*	*1*	*40*				*3.7*					
		.03	*- ultrasonic washer*	*1*	*30*				*2.8*					Could be located outside of Scope Reprocesssing Area
		.04	*- pass-through dryer*	*1*	*15*				*1.4*					Could be located outside of Scope Reprocesssing Area
16	.048		Hand Hygiene Station			10	1	10		0.9	1	0.9		
16	.049		Supplies/Chemicals Room			50	1	50		4.6	1	4.6		
16	.050		Housekeeping Room			75	1	75		7.0	1	7.0		
16	.051		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Clean Preparation, Packaging & Sterilization Area											
16	.052		Vestibule, Staff Change Area			60	1	60		5.6	1	5.6		Include sink, PPE
16	.053		Pass-Through Conveyor			15	1	15		1.4	1	1.4		
16	.054		Unloading Zone Washer Decontaminator			20	1	20		1.9	1	1.9		Include 1 future machine
16	.055		Unloading Zone Drying Cabinet			10	1	10		0.9	1	0.9		
16	.056		Cart Staging/Unloading (Cart Wash Exit)			40	1	40		3.7	1	3.7	Staging area before sorting to clean-up sinks, washers	
		.01	*- case cart/table unloading*	*2*	*10*				*0.9*					
		.02	*- utensil cart*	*2*	*10*				*0.9*					
16	.057		Instrument Assembly/Packing Area			240	1	240		22.3	1	22.3	Includes loading area	
		.01	*- set-up/pack table*	*1*	*120*				*11.1*					
		.02	*- Peel Pack and Tool assembly workstation*	*1*	*80*				*7.4*					
		.03	*- instrument storage cabinet*	*2*	*10*				*0.9*					
		.04	*- supply cart*	*2*	*10*				*0.9*					
16	.058		Sterilization Area			210	1	210		19.5	1	19.5		
		.01	*- steam unit, hi-vac pass-through*	*1*	*65*				*6.0*					
		.02	*- steam unit, small*	*1*	*40*				*3.7*					
		.03	*- loading area*	*2*	*20*				*1.9*					
		.04	*- unloading and cool down area*	*2*	*20*				*1.9*					
		.05	*- low temperature unit*	*1*	*25*				*2.3*					Tabletop unit
16	.059		Documentation Station			30	1	30		2.8	1	2.8	For quality assurance (QA)/quality control (QC) documentation	
16	.060		left intentionally blank											

CO	RN	SN	Element	QTY	NSF	Unit Area (sf)	Units	Total Net Area (sf)	NSM	Unit Area (sm)	Units	Total Net Area (sm)	Room Intent	Specific Design Criteria
			Case Cart Assembly, Storage & Dispatch											
16	.061		Ordering Desk/Dispatch Station			30	1	30		2.8	1	2.8	For QA/QC documentation	
16	.062		Case Cart Holding			85	1	85		7.9	1	7.9		
		.01	*- case cart empty*	*3*	*10*				*0.9*					
		.02	*- transfer/top-up floor cart*	*3*	*10*				*0.9*				For replenishing other clinical areas and delivery of product to OR	
		.03	*- circulation*	*1*	*25*				*2.3*					
16	.063		Supplies Storage			150	1	150		13.9	1	13.9		
16	.064		Storage, Patient Equipment			120	1	120		11.1	1	11.1		
16	.065		Hand Hygiene Station			10	1	10		0.9	1	0.9		
16	.066		left intentionally blank											

1.3.2.2.6. HOSPITAL ESTIMATED OPERATING COSTS WITH FUNDING SOURCES AND BASED ON THE PCOP GUIDELINES

See Volume 1.

Part B Elements

1.3.3.4 PROJECTED SPACE REQUIREMENTS

Table 13. Projected Space Requirements

	Component	Stage 1.3 2024 Functional Program (cgsf)	G/N Ratio Used
	Totals	**172,359**	
1	Administrative Services		
	- Administrative Suite	3,860	1.25
	- Information Technology	2,725	1.25
	- Occupational Health & Safety & IPAC	440	1.25
	- Meeting Spaces	1,775	1.25
	- Northern Ontario School of Medicine	2,180	1.25
	- Switchboard/Scheduling	330	1.25
2	Critical Care Unit	11,340	1.50
3	Diagnostics (incl. cardio respiratory)	7,550	1.45
4	Emergency Department	13,220	1.50
5	Facilities Support Services		
	- Environmental Services	1,355	1.15
	- Materials Management	4,205	1.15
	- Plant Operations & Maintenance	2,100	1.15
	- Storage (pandemic and files)	-	
6	Food & Nutrition Services		
	- Kitchen	4,620	1.25
	- Cafeteria	2,880	1.25

	Component	Stage 1.3 2024 Functional Program (cgsf)	G/N Ratio Used
7	Integrated Stroke Unit	10,895	1.50
8	Laboratory Services		
	- Laboratory Services	3,325	1.30
	- Morgue	855	1.30
9	Main Lobby		
	- Main Lobby	1,500	1.40
	- Auxiliary (incl. gift shop)	1,205	1.40
	- Foundation	1,780	1.40
	- Security	295	1.40
	- Spiritual Care	630	1.40
10	Maternal/Newborn, Med/Surg & Telemetry	13,530	1.50
11	Medical/Surgical Inpatient Unit	27,055	1.50
12	Pharmacy	2,765	1.30
13	Physician & Staff Amenities	5,454	1.35
14	Reactivation & Complex Medical Management Unit	29,230	1.50
15	Renal Dialysis	4,230	1.40
16	Surgical Services & MDRD		
	- Surgical Services (incl. endo)	8,770	1.55
	- Medical Device Reprocessing	2,260	1.35

1.3.6 PROJECT SCHEDULE

1.3.6.1 SUMMARY

The overall project schedule can be found on the following page. The overall schedule aligns with the dates provided by Infrastructure Ontario as part of their June 2024 Market Update. It assumes that the project will be delivered under a Design Build Finance (DBF) model. The ultimate model selected will be negotiated with the Ministry of Health following this submission. Delivery under any other model will result in changes to this preliminary schedule and sequence of activities. It also assumes that there will be some early works projects including relocating the helipad and building the access road to the north. The remainder of the project, including building the new hospital, demolishing the existing hospital and site work for parking and landscaping would be completed as one project.

The schedule also assumes that Ministry of Health review and approval will be required after each stage (2.1, 2.2, 2.3, 3.1) and the Ministry of Health review time will be as noted in the schedule. Any changes to these assumptions will result in changes to the overall schedule.

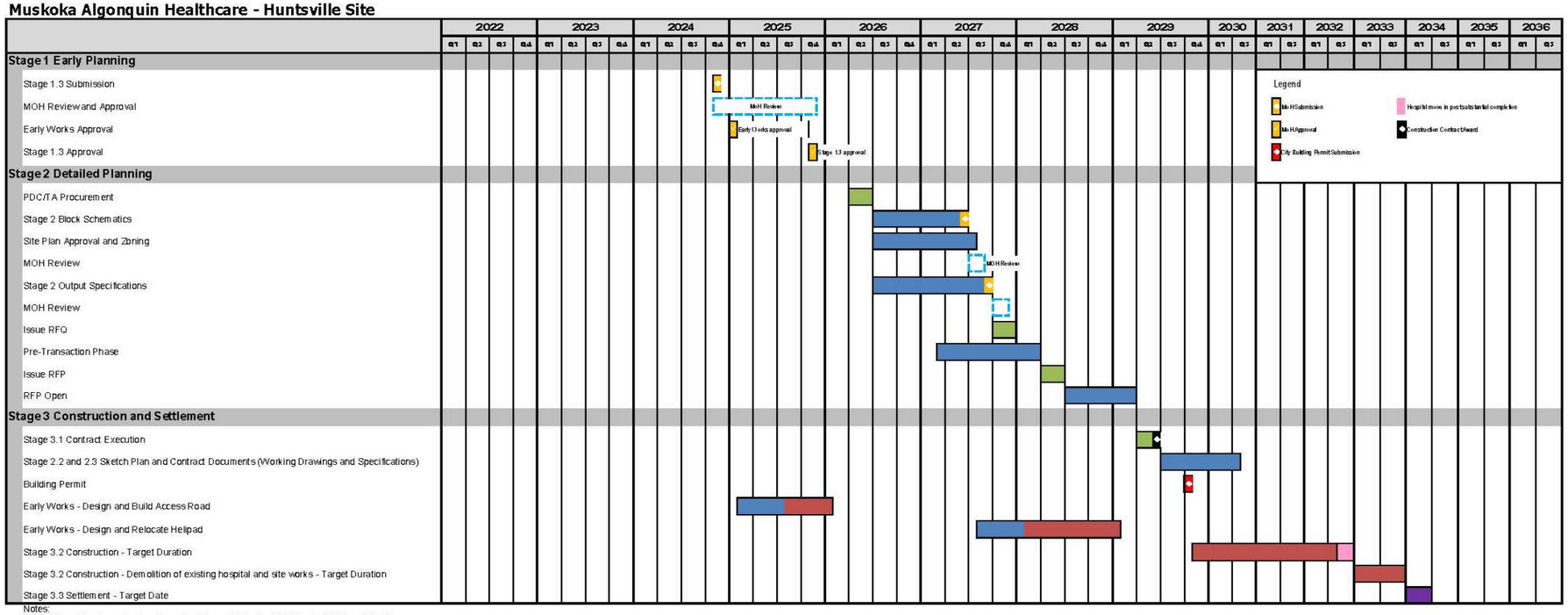
1.3.6.2 UPDATED PROJECT SCHEDULE

Stantec

Version 1
9/20/2024

Schedule
Stage 1.3 Draft Submission

Muskoka Algonquin Healthcare - Huntsville Site



Notes:
1. Ministry of Health review timelines should be validated by MAHC with Ministry of Health.
2. Construction durations are initial estimates and reflect current market conditions.

1.3.7 LETTERS OF ATTESTATION

Refer to Appendix 1-B.

Appendix 3-H

GREYSTONE

Mr. Tim Miller
Director of Facilities and Operations Project Management
Muskoka Algonquin Healthcare
100 Frank Miller Drive
Huntsville, Ontario
P1H 1H7

March 27, 2024

RE: Memorandum of Understanding - Secondary Access to Huntsville District Memorial Hospital Site

This letter is to document and confirm the mutual understanding between 1901364 Ontario Inc. ('Greystone') and Muskoka Algonquin Health Care ('MAHC') regarding the provision of secondary access to Earl's Road for the Huntsville District Memorial Hospital Site (the 'Hospital Site'), to be part of the development of the property owned by Greystone, located directly north of the Hospital Site (the 'Greystone Site').

Greystone intends to develop the Greystone Site with several types of housing in support of the housing needs related to the growth and development of the hospital in the area. This development will offer a mix of rental, condominium, and freehold housing.

In support of both the development and the expansion of the hospital, Greystone intends to offer the land required for a road allowance in support of a new public roadway or private driveway allowing the connection of the MAHC Site to Earl's Road (subject to timing, alignment and design details which are to be confirmed). This connection is of mutual benefit to both Greystone and the Hospital. It provides access from Earl's Road to the Greystone development as well as providing a secondary vehicular connection to the MAHC Site, which is a requirement for a new hospital by the Ministry of Health and Long Term Care. It also offers extremely convenient housing options for MAHC staff, which is a current issue in Muskoka. This letter is provided in support a Stage 1.3 Capital Planning submission to the Ministry of Health for the new hospital. It is Greystone's and MAHC's understanding that to meet contemporary requirements, a secondary access will be required to the Hospital Site.

An initial redevelopment concept for the Greystone Site is attached to this letter for reference, highlighting the proposed secondary access for the Hospital Site.

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Greystone and MAHC have a longstanding collaborative working relationship and have been discussing the need for this secondary access to the Hospital Site through the Ministry of Health Capital Planning process. Both parties agree that:

1. Providing access to the Hospital Site through the Greystone Site development is mutually beneficial, given synergies between the proposed new hospital and planned residential development.

2. Greystone and MAHC will continue to work collaboratively through the planning and design processes for both Sites, to explore the optimal location, advance the detailed design, cost sharing and ultimately to secure this secondary access for the Hospital Site either as a public road and/or through easement agreements, to the satisfaction of the Ministry of Health's requirements.

3. Both parties will continue to consult one another as more detailed planning progresses for both sites, to ensure development plans move forward in alignment. This may also include engagement with the Town, District, and any other identified stakeholders to advance the optimal location and design for this new access to the Hospital Site.

To this end, an initial meeting was held with the Town of Huntsville on November 3, 2023, to discuss the proposed secondary access. The Town was supportive, As outlined above, MAHC and Greystone will continue to work together as detailed design and planning is advanced on both sites, to optimize the location and design of this secondary access road, and to respond to any feedback received through these processes.

This letter has been provided for the benefit of the Ministry of Health at this early stage in the process, to demonstrate the mutual agreement and feasibility of this proposed secondary access to the Hospital Site.
Sincerely,

Patrick Dubé
President

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