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**Note to reader:**

*Please note that significant supporting detail is contained within the appendices.*
EXECUTIVE SUMMARY

Consistent with the Government of British Columbia’s commitment to a more sustainable health care system, this Concept Plan sets out a proposal to revitalize St. Paul’s Hospital (SPH). The renewal will consolidate ambulatory (outpatient) services in a new building designed to synergize medical care, research and teaching. Providence Health Care’s (PHC) established leadership in innovation will drive the realignment of programs that emphasize partnerships between specialists and family physicians through inter-professional care models focusing on chronic disease, mental health and seniors care. In addition to creating additional ambulatory care capacity and more efficient service delivery, the project will relocate mental health beds into the inpatient tower, modernize operating rooms, and renew existing building infrastructure. Each of these components is essential to sustaining St. Paul’s Hospital for the foreseeable future.

The Need for Investment at St. Paul’s

St. Paul’s, in downtown Vancouver, is a vital part of BC’s health care system. It is a key service provider for Vancouver Coastal Health (VCH) and, as an academic health science centre, is essential for training students and residents and for providing specialized programs for the entire province. Although it continues to deliver world-class patient care, research and teaching, St. Paul’s is increasingly challenged by the age, condition and configuration of its facilities. Some hospital buildings are nearly a century old and all are at a high risk for system failure; they will not survive an earthquake or other major disaster. Critical infrastructure (structure, emergency generators, elevators, electrical and mechanical system distribution) is long passed its useful life and must be upgraded to ensure service continuity.

St. Paul’s has insufficient space to meet current needs for ambulatory care or to train the health professionals of tomorrow. PHC has worked aggressively to shift care from the inpatient to the outpatient setting, which has increased pressure on SPH’s outdated and undersized ambulatory care clinics. Over 50 clinics are dispersed across 19 locations. LEAN process redesign has yielded significant returns, but the poor physical layout limits further gains in efficiency or patient outcomes. The existing surgical suite requires renovation to facilitate patient flow, meet demand, and enlarge operating rooms to accommodate today’s (and tomorrow’s) procedures and technologies.

A new physical solution is required to replace at risk hospital buildings, upgrade the site’s failing infrastructure, and realize the benefits of care redesign which cannot be achieved within the constraints of the current environment.

Proposed Redevelopment

Drawing from detailed analyses of demographics, patient needs and emerging trends, as well as consultations with internal groups and advice from external experts, PHC proposes the construction of a new ambulatory care building at the corner of Comox and Thurlow streets. The centre will replace older facilities on the site and allow St. Paul’s to consolidate more than 95 per cent of its ambulatory services into one location.

This renewed environment will create a seamless and efficient journey for each patient by dramatically reducing wait times and providing quick access to diagnostics and the right health professionals. It will enable clinicians to work side-by-side with internationally renowned researchers, enabling continuous transfer of knowledge into health care solutions. Furthermore, consolidating ambulatory services in the new building will free space in the Providence and Burrard buildings. Selected components of these facilities will be renovated.
and modernized to increase capacity, improve patient care and enhance operational efficiency.

**Benefits and Strategic Alignment**
PHC’s proposed redevelopment will divert patients from inpatient admissions, reduce repeat outpatient visits, and advance the organization towards a new patient and family focused model that encourages prevention. PHC has demonstrated expertise to advance models of chronic disease management given its clear focus on populations at risk including chronic disease, mental health & addictions and seniors.

The overall benefit of this redevelopment is that it will address a long-standing, well-supported redevelopment priority of the VCH region. It will sustain SPH’s role in the provision of service to the region, particularly to the growing downtown core, and support its ability to continue as a sole provider of specialized services. The site’s viability is absolutely essential for managing risk within the health care system. Should a major disaster, electrical or other infrastructure failure take SPH out of service, core health services in Vancouver would be in chaos as there is no surge capacity in other facilities to manage SPH’s 20% of the regional volume.

The project outlined in this Concept Plan supports the goals, objectives and Key Result Areas set out by the Ministry of Health Services, and the objectives articulated by Vancouver Coastal Health in 2010.

**Costs and Timing**
PHC wishes to quickly initiate dialogue with the MoHS about the proposed project scope and options for meeting needs at St. Paul’s Hospital. As a starting point for discussion, this Concept Plan proposes renewal phased over seven years with two key stages of work:

- Selected renovations and further infrastructure upgrades (+/- $150 million) between 2017 and 2020.

The total project cost is estimated to range between $450 - $610 million. Escalation (estimated at $103 million to a construction mid-point in 2016) is excluded pending detailed construction scheduling to be completed as part of the Business Case. Benchmarking demonstrates that the capital cost is comparable to similar projects in BC.

The total project cost would be reduced by a PHC contribution of $40 million, provided by a capital campaign of the St. Paul’s Hospital Foundation. The cost of the project to the province could be further reduced by leveraging PHC’s assets. PHC owns its land and facilities – including properties beyond the SPH site – and it is uniquely positioned to utilize these assets to support the required investment upon the province’s approval of the project. Land costs have been negated in this project through utilizing PHC-owned land at the corner of Comox and Thurlow, the value of which is estimated at $40 million.

This renewal ensures that St Paul’s Hospital will continue to be a viable component of the health care system for the long term.

**Decision Request**
PHC requests approval to proceed with a Business Base for St. Paul’s Hospital renewal and that the Ministry of Health Services establish a Project Board to oversee the process.
1 BACKGROUND

St. Paul’s Hospital is a vital part of B.C.’s health care system, providing approximately 20 per cent of all acute care services in Vancouver Coastal Health. It also delivers highly-specialized programs, some of which are not available anywhere else in the province, along with world-renowned research and teaching. Without a renewal of St. Paul’s facilities, these capacities will be at risk and the Province could face critical barriers to meeting patients’ needs.

1.1 Providence Health Care

Providence Health Care (PHC) is one of the largest Catholic health care organizations in Canada, serving British Columbia for over 115 years. It owns/operates eight acute and residential care facilities in Vancouver with a total of 646 acute care, 700 residential and 76 rehabilitation, 12 hospice beds and 60 assisted living units. In addition, PHC oversees the operation of 7 community dialysis clinics across the VCH region. These facilities provide care for patients from local, regional and provincial populations.

PHC is a party to the Master Agreement between the Denominational Health Association and the Province, under which it maintains the right to own, manage, operate and conduct the affairs of its health facilities, and to plan and deliver health services in collaboration with other health bodies. As an affiliate, PHC receives its operating and capital funding through Vancouver Coastal Health (VCH), including designated funding for provincial programs from the Provincial Health Services Authority (PHSA).

PHC focuses its clinical care, teaching and research on six Populations of Emphasis, as defined through its strategic planning processes. These Populations of Emphasis provide a foundation for a purposeful integration of care, research and teaching:

People with complex medical and social needs (Urban Health): PHC specializes in meeting the health needs of a large urban population. Many of these patients are homeless and/or unemployed and have complex or chronic medical and mental health problems, including HIV-related illness and addictions. This population accounts for approximately 23 per cent of total inpatient days.

People with mental health risks and illnesses: The Mental Health Program includes general inpatient, ambulatory and specialized services, and specific tertiary programs within a framework of the best practices for mental health. Areas of emphasis include the treatment of severe anorexia or bulimia nervosa, support for individuals and families with reproductive mental health challenges, and treatment of severe chronic pain. The program focuses on inner city mental health and treatment of concurrent disorders (both a mental disorder and substance misuse). SPH has the only locked mental health unit in the Lower Mainland and sees 43 per cent of the most severe mental health emergency patients from across VCH.

People with HIV/AIDS risks and illnesses: The HIV/AIDS and Addiction Program is the largest of its kind in Canada. The inpatient unit is the tertiary referral centre for HIV positive cases and provides 70% of the province’s inpatient care for HIV/AIDS. The program distributes antiretroviral therapy throughout the province and monitors HIV related outcomes as part of the mandate of the B.C. Centre for Excellence in HIV/AIDS.

People with cardiovascular and pulmonary risks and illnesses: PHC is a major provider of the full spectrum of cardiovascular care, combined with active cardiac research. Activities include leading programs in coronary intervention, heart surgery and electrophysiology. SPH
is the province’s sole service provider in areas such as advanced heart failure and transplantation. Twenty-three per cent of all cardiac surgeries in B.C. are performed at St. Paul’s; 57 per cent of cardiac surgery patients live outside VCH. The Respiratory Division at St. Paul’s is a centre of excellence for patients with respiratory diseases and their families. Areas of expertise are achieved through integration of clinical services, education, training and research through the specialty clinics of Providence’s COPD Clinic, Asthma Clinic, and the Adult Cystic Fibrosis Clinic.

**People with renal risks and illnesses:** The Renal Program provides comprehensive assessment, treatment and training for patients, including pre-dialysis education and orientation to treatment options (kidney function clinic), in-centre haemodialysis, community haemodialysis (Vancouver, Sechelt, Squamish, Powell River, North Shore and Richmond), training for home peritoneal dialysis, assessment for kidney transplantation (cadaveric and living donor) and post-transplant follow-up. It also includes a 21-bed Nephrology/Urology inpatient unit. PHC serves about 17 per cent of British Columbians with chronic kidney disease, integrating treatment with research and education.

**People with complex needs in aging:** PHC provides an integrated continuum of geriatric services from outpatient and residential care to sub-acute, rehabilitation and acute care. The program includes specialized care for seniors who need support across a number of health care disciplines. PHC is transforming seniors’ care through with strategies focused on healthy aging, evidence-based care in acute settings, residential care redesign, and ambulatory services to meeting the needs of patients who have been recently discharged or who can be referred directly from the Emergency Department.

### 1.2 St. Paul’s Hospital

St. Paul’s Hospital (SPH) is PHC’s largest facility, providing a full continuum of primary, secondary, tertiary and quaternary care to patients in Metro Vancouver and from across British Columbia. SPH is an essential resource to VCH, providing 20 percent of all acute care and emergency department services within the region.

St. Paul’s also plays a vital role in the education and training of health professionals. In partnership with UBC, it provides hands-on experience and training for undergraduate and post-graduate medical students, with a potential for 356 year 1, 309 year 2 and 150 year 3 and 4 undergraduate students per year. The post-graduate programs are active with 186 residents on site per month. SPH is also a major site for the placement and mentorship of students in nursing and other health professions through partnerships with a broad range of educational institutions.

As one of the two general adult teaching hospitals in the province, PHC plays a significant role in the provision of specialized provincial programs, providing services which are often not provided at other facilities (full details of which are outlined in Appendix A). As a result, 44 percent of inpatient visits to the hospital are from outside Vancouver, as shown in Figure 1:
Through the Providence Health Care Research Institute (PHCRI), research is aligned with PHC’s Populations of Emphasis and spans all aspects of care delivery. The PHCRI partners locally with academic health sciences centres within VCH and PHSA, and collaborates nationally and internationally. It attracted more than $32.7 million in research awards in 2009/10.

1.3 Description of the St. Paul’s Hospital Campus

St. Paul’s Hospital is located on Burrard Street in downtown Vancouver. The campus includes:

**Burrard Building** constructed between 1912 and 1953 accommodates the emergency department; mental health inpatient units; various ambulatory care clinics; academic, research and administrative offices and support services.

**Comox Building** constructed as a nurses’ residence in 1930 with an addition in 1946, houses a miscellany of administrative and research offices that cannot be accommodated elsewhere on the campus.

**McDonald Building** built in 1961 and renovated in the 1980’s for research laboratories.

**The Providence Buildings**, erected in 1979 and 1989, have a range of diagnostic and treatment services including laboratory, pharmacy, medical imaging, surgery and interventional procedures; ambulatory care clinics; inpatient units; and support services such as physical plant and materiel management.

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1.4 Community Context

St. Paul’s Hospital is uniquely situated in its community. The campus is bordered by:

- **Burrard Street** to the east, an urban arterial connecting Vancouver’s downtown core and the Burrard Bridge, is a designated bicycle route

- **Comox Street** to the north is a municipally designated urban greenway

- **Thurlow Street** to the west borders the West End residential area and Nelson Park

- **Lane** to the south parallels the Davie Street commercial strip
The City of Vancouver projects that the Downtown Peninsula, which surrounds St. Paul’s Hospital, will be home to approximately 100,000 people by 2021 (an increase of 61% over 1996) and that employment in the area will increase to some 173,000 employees (up 28% from 1996). Both these statistics are indicative of a vibrant, dynamic community with a growing need for services including health care. Several distinct neighborhoods make up the immediate catchment area for St. Paul’s Hospital:

**West End** is a dense residential neighbourhood with a population of approximately 48,000 represented by the West End Residents Association, an active organization for community dialogue on issues of safety, development, and sustainability.

**Central Business District** employs some 77,000 people generally in high-rise office buildings. It is also Vancouver’s centre for tourism with major convention facilities, over 8 million overnight guests to its hotels and a cruise ship terminal which alone brings nearly 900,000 visitors to Vancouver annually.

**Coal Harbour** covers 48 acres of land on the southern shore of Burrard Inlet between Stanley Park and Canada Place. The area has just over 2,500 residential units (mostly in new high-rise developments) as well as retail space, a hotel and community centre.

**False Creek North** is characterized by several key places of assembly including BC Place Stadium, GM Place Arena, and the Plaza of Nations.

**Yaletown** has grown from primarily a warehouse district into a vibrant mixture of art galleries, retail stores, restaurants, offices and residential developments.

**Downtown South** is a high-density residential neighbourhood, covering 55 hectares.

**Down Town East Side** has several well established neighbourhoods:

**Victory Square** home to many businesses, approximately 1,500 people mostly living in single room occupancy hotel rooms and proximate to the downtown campuses of several post-secondary institutions.

**Gastown & Chinatown** were designated historic districts by the Province in 1971.
Strathcona a diverse neighbourhood with some light industry and retail. Over 60% of residents speak Chinese as a first language.

Oppenheimer a residential area with working-class roots and a centre of cultural activities for several groups, including First Nations.

St. Paul’s is the primary provider of care to the 16,000 residents of the Downtown Eastside (DTES). Within this population, more than 10,000 people fulfill the DSM-IV criteria for harmful substance use. As many as 7,000 are injection drug users and many suffer from mental illness, which is often an underlying condition of both addiction and concurrent disorders. The DTES also includes a large and growing homeless population; since 2002, the numbers of homeless have increased by an estimated 235 per cent to a total of approximately 2,200.

Residents, workers and visitors of every socio-economic background form the community context of St. Paul’s Hospital – Vancouver’s downtown hospital.

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2 NEED FOR INVESTMENT

The age, condition and configuration of existing facilities at St. Paul’s Hospital create significant challenges for patients and care providers. By consolidating ambulatory programs and services and upgrading existing facilities, the SPH Renewal Project will provide more accessible, efficient care, allowing for improvements in health outcomes while keeping pace with growing demands.

2.1 Aging Infrastructure

The physical condition of the infrastructure at St Paul’s Hospital is deplorable. Multiple studies by independent consultants confirm that most of the buildings and services are at extreme risk of safety failure and shutdown. In 2003/04, the Ministry of Health commissioned VFA to audit the physical condition of all health care facilities in British Columbia\(^3\). The resulting *Facility Condition Assessment for British Columbia Health Services* assigned each building a Facility Condition Index (FCI), which is updated periodically. The provincial target, based on industry standards is a FCI of 0.10 or less. At St. Paul’s only the Providence II building meets this standard, the FCI of the Burrard building is extremely high at 0.44 and the Comox building at 0.88 is one of the worst in the province.

<table>
<thead>
<tr>
<th>Age</th>
<th>Issues</th>
<th>Appropriate Use</th>
<th>FCI*</th>
<th>Risk Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providence II (West) Building</td>
<td>Robust building; elevator, electrical, mechanical, IT infrastructure upgrades required</td>
<td>Inpatient, outpatient, diagnostic &amp; treatment, clinical corporate support services</td>
<td>0.10</td>
<td>Moderate</td>
</tr>
<tr>
<td>Providence I (East) Building</td>
<td>Robust building but unsprinklered and electrical plant at capacity; elevator, electrical, mechanical, IT infrastructure upgrades required</td>
<td>Inpatient, outpatient, diagnostic &amp; treatment, clinical corporate support services</td>
<td>0.18</td>
<td>Very High</td>
</tr>
<tr>
<td>Burrard Building</td>
<td>Heritage building; seismic, building envelope (windows), electrical, mechanical, IT upgrades required; Emergency Department renovated 2010</td>
<td>Entry, Emergency Department academic, research and administrative facilities</td>
<td>0.44</td>
<td>Extreme</td>
</tr>
<tr>
<td>Comox Building</td>
<td>Former nurses’ residence; poor environmental quality; elevator, electrical, mechanical systems beyond salvage</td>
<td>Unsuitable for any occupancy</td>
<td>0.88</td>
<td>Extreme</td>
</tr>
<tr>
<td>Boiler Plant</td>
<td>Boilers decommission 30 years ago, extensive hazardous material, electrical &amp; mechanical systems past point of failure</td>
<td>Unsuitable for any occupancy</td>
<td>Un-rated</td>
<td>Extreme</td>
</tr>
<tr>
<td>MacDonald Building</td>
<td>Research laboratories renovated in 1990’s</td>
<td>Research laboratories</td>
<td>0.37</td>
<td>Extreme</td>
</tr>
</tbody>
</table>

*Facility Condition Index (FCI) = \(\frac{\text{Cost of maintenance, repair, replacement of deficiencies}}{\text{Replacement value of the building}}\)*

Table 1: Physical Condition of St. Paul’s Hospital Facilities

\(^3\) *Facility Condition Assessment for British Columbia Health Services*, VFA, 2004 Updated 2009
2.1.1 Structural/Seismic Concerns

The Burrard building has good load-bearing capacity but the seismic capacity is only 10-20% of that required by the current Vancouver Building Bylaw. The exterior brick and terracotta cladding were seismically restrained several years ago but the interior terracotta partitions remain a significant hazard in an earthquake. Seismic improvements were carried out as part of the Emergency Department renovation on the main floor but the balance of the building, including the structure above the emergency department, remains at a high risk of failure.

The Providence buildings meet approximately 70% of the current post-disaster standard for seismic capacity. This higher standard addresses more than structural integrity and provides a greater probability of maintaining operational readiness after an earthquake. The structure will likely perform reasonably well seismically and the exterior brick and concrete cladding is appropriately restrained. Building systems (partitions, power, water, communications, heat, ventilation) however, are not restrained in accordance with current standards and are unlikely to remain functional after a significant seismic event.4

2.1.2 Building Systems

Building systems at St. Paul’s Hospital are old and in need of replacement or modernization5. For example:

- Emergency generators in the Providence building, which provide emergency power to the entire hospital, are past their life expectancy. Failure of both generators is predictable (one has failed twice in the past year) and would be catastrophic during a BC Hydro outage or disaster.
- Main electrical feeds to the Burrard building are so old they can no longer be tested for fear of failure.
- Plumbing pipes have numerous pinhole leaks necessitating frequent repair, major leaks shutdown departments and damage equipment.
- Medical vacuum and air compressors have surpassed their life expectancy and do not meet current code requirements, failure is predictable.
- Only Providence II is fully sprinklered – other buildings (including the 10 storey Providence I) are not.

2.1.3 Elevators

Most of St. Paul’s elevators are more than 30 years old and average 40 failures each month. In 2007 accreditation surveyors assigned the elevators their highest risk rating for likelihood, severity and urgency stating: “a lack of reliable elevators at the St. Paul's Hospital site may pose a risk to clients and staff”. Modernization for reliability and efficiency is mission critical.

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St. Paul’s Hospital Burrard Building Structural Assessment, Read Jones Christoffersen Consulting Engineers, February 17, 1995.
VCH/PHC Infrastructure Facilities Risk Assessment Projects, August 2010.
2.2 Spatial Configuration

2.2.1 Configuration of Ambulatory Care at St. Paul’s
The current configuration of ambulatory care clinics and services - scattered across the SPH site - creates barriers to patient access and undermines efficiency. More than 50 ambulatory clinics currently operate at St. Paul’s Hospital with services provided in 19 locations. As shown in Figure 3 below, many of the clinics are separate and distinct with no common intake, no common patient registration or scheduling systems, and no sharing of care plans or examination space6.

Legend
1 Cardiac Outpatients
2 Outpatient Psychiatry
3 Health Heart Clinic
4 Gastro-Intestinal Clinic
5 Eye Clinic
6 Ear, Nose, Throat Clinic
7 Surgical Outpatient Clinic
8 Physio & Occupational Therapy
9 Pre-admission Clinic
10 Surgical Daycare
11 Surgical Outpatient Clinics
12 Diabetes Clinics
13 Immune Deficiency Clinic
14 Rapid Access Clinic
15 Outpatient Cardiology
16 Renal Clinics
17 Medical Daycare
18 Respiratory Clinics
19 Geriatric Outpatient Clinic

Figure 3: Ambulatory Clinic Locations at SPH

This results in:

- difficulty in wayfinding
- multiple patient visits
- significant patient waiting\(^7\)
- duplication of laboratory tests, diagnostic tests, patient education and monitoring
- little or no coordination between multidisciplinary specialist clinicians and teams
- inefficient space utilization\(^8\)

For example, a patient with multiple chronic diseases who attends the kidney, cardiac, diabetes and lung clinics may have redundant visits or unnecessary blood draws to repeat or duplicate diagnostic tests. Unnecessary visits are costly and ultimately curtail the potential productivity of and access to clinics which are in high demand. From a patient perspective, this requires them to manage the myriad of providers and logistics. Many of St. Paul’s ambulatory patients come from out of Vancouver to access the specialist expertise, which also burdens the patient with additional travel and/or time away from work.

In September 2008, PHC contracted Stantec Architecture to assist in a time-motion study of five of PHC’s ambulatory chronic disease clinics. The study, which focused specifically on patient wait times and space utilization, found that – with centralized scheduling and space configurations – wait times could be reduced by 40 per cent and room utilization could be improved by 30 – 50 per cent\(^9\).

### 2.2.2 Operating Room Facilities

A key focus of SPH’s ambulatory programming is surgical day care. The continued shift towards day surgical procedures has placed significant demands on the operating rooms and supporting spaces which were built in 1979 – when the case mix, inpatient/outpatient split and technology was considerably different. Today’s surgical environment must respond to growing demand, growth in in minimally invasive surgery, and the increasing complexity of surgeries performed on an outpatient basis.\(^10\)

There are two key issues related to the operating rooms:

- Although two rooms have been renovated to accommodate minimally invasive surgical equipment, the other 12 rooms are vastly undersized (35 m\(^2\) compared to the recommended 84m\(^2\))\(^11\).

- Inadequate amount and ineffective layout of preoperative and postoperative space. Current literature would support the ratio of throughput capacity (beds to ORs) to be 3:1. Current throughput capacity (beds to ORs) at SPH is 1:1.\(^12\) In addition PHC Infection Control has identified the need for the design to address improved capacity to isolate patients.

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\(^7\) "Best Practice Solutions in Chronic Disease Management", David Chambers (2008).
\(^8\) Creating Time for Care\(^6\), Providence Health Care and Stantec Architecture (2008).
\(^9\) Ibid.
\(^11\) Ibid.
\(^12\) David Chambers Surgery Capacity Analysis (2010).
2.3 Insufficient Capacity to Meet Current Demand

2.3.1 Growth in Ambulatory Volumes

PHC’s outpatient visit volumes have increased by 33 percent in the last 5 years, as shown in Figure 4 below. This is consistent with the increasing shift in care from inpatient to outpatient settings.

![Figure 4 – PHC Ambulatory Visits](source)

This growth coupled with a lack of capacity is already undermining patient care. Capacity issues within the medical daycare (medical short stay unit) prevent the movement of patient services from inpatient to ambulatory.

2.3.2 Growth in Surgical Volumes

Capacity issues within surgical services are also significant. Figure 5 shows a 23.7% increases in surgical daycare cases between 2005/6 and 2009/10.

![Figure 5 – PHC Surgical Day Care Cases](source)

Current surgical capacity is not adequate to meet regional waitlist targets. Only twelve of the fourteen operating rooms are functional. Of these rooms, only seven are available for general surgeries as three rooms are dedicated to meeting demands for cardiac surgery and two rooms are dedicated to meeting demands for orthopedic surgery.

- 71% of surgical cases at Providence Health Care are performed within provincial waitlist targets

---

13 Source: PHC Annual Reports
14 Source: PHC ORMIS
• 3,612 surgical cases are waited at Providence Health Care as of October 2010. Wait list issues are most pressing in Orthopedic, General Surgery, Otolaryngology, Gynaecology, Plastic Surgery and Urology.16

2.4 Future Demand for Service

St. Paul’s Hospital is faced with significant increases in service demand. This is driven by a number of factors, including a growing, aging population. Between 2010 and 2030, the provincial population is expected to grow by nearly 28 percent, to 5.8 million. Within VCH, the increase will be approximately 23 percent.

As shown in Figure 6 below, the proportion of seniors (over age 65) is also rising. By 2030, seniors are expected to account for 29 percent of the B.C. population, and nearly 22 percent of the VCH population.

![Population Growth](image)

**Figure 6 – A Growing, Aging Population**17

Another key factor in growing demand is the rising burden of illness from chronic diseases, including mental illness. Currently, these illnesses affect about 34 percent of B.C.’s population but consume 80 percent of the combined physician payment, Pharmacare and acute care budgets.

As our population continues to grow and age, the prevalence of chronic illness is expected to greatly increase demand for health care services. Providence Health Care’s *Populations of Emphasis* (through which it focuses its services) are also the segments of the BC population which are anticipated to be the largest drivers of future health service demand. For example:

• **Cardiovascular disease** is the leading cause of death for Canadians. In 2007/08, 4.8 percent of British Columbians (5.5% of men and 4.1% of women) had cardiovascular disease – representing a steady increase in prevalence over recent years. Rates of cardiovascular disease are expected to continue rising over the next 20 years as more people develop age-related risk factors such as high blood pressure and diabetes.

16 Ibid.
• **Respiratory disease**: According to 2007/08 data, BC’s rate of smokers is 18.2% of the total population aged 12 and over (20.9% of men and 15.6% of women), a number which has grown in recent years. Likewise, according to case reports for 2006/07, 12.4% of the BC population aged 5 through 54 (11.7% of men and 13.1% of women) had asthma, with the prevalence of asthma consistently increasing from approximately 8.0% since 2001/02. The rate of Chronic Obstructive Pulmonary Disease (COPD) in the BC population in 2007/08 was 5.0% of those aged 45 and over.

• **Kidney disease** is also expected to affect a growing number of people as our population ages. Since 2001, the number of cases has increased by an average of 26 per cent per year to a total of more than 13,000 province-wide, including more than 3,700 within VCH.

• **Dementia** can affect adults of any age but most commonly occurs among seniors. Rates of dementia in British Columbia have steadily increased in recent years and are expected to continue rising as our population ages. According to case reports for 2007/08, 7.2% of BC seniors (5.9% of men and 8.3% of women) had dementia.

• **Mental Health and Addictions**: By 2015, the number of British Columbians who receive mental health and substance use assessments and planning interventions will increase by 20 per cent. The urban setting of St. Paul’s and its proximity to the high-needs population of the Downtown Eastside make accommodation of these patients a significant issue.\(^{18}\)

• **HIV/AIDS**: At the end of 2008 there were an estimated 65,000 people in Canada living with HIV, up from 57,000 in 2005. Of these approximately 26% were unaware of their infection. It is estimated that between 2,300 and 4,300 new HIV infections occur in Canada each year, though many of these are not reported immediately. In 2008, 350 new cases of HIV were reported in BC (389 in 2007), with 192 of these occurring in VCH. By 2009, 46 new cases of AIDS were diagnosed in BC, ranking it as one of the highest rates in Canada.

Highlights of key demographic and service pressures due to the incidence of disease are outlined in Appendix B.

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\(^{18}\) Healthy Minds, Healthy People. A Ten Year Plan to Address Mental Health and Substance Use in British Columbia. Ministry of Health (2010).
2.5 Education and Research Space Needs

As an academic health sciences centre, St. Paul’s Hospital plays a vital role in training BC’s future health care professionals. SPH is the sole provider of many services (as outlined in Appendix A), and consequently the only teaching site for some subspecialties. Increasing student enrolment is straining the already overcrowded facilities, threatening the quality of the educational experience.

The UBC Faculty of Medicine will increase the number of medical students, residents and concomitant staff at St. Paul’s some 65% by 2014. A functional space program developed in 2007, with parameters updated in 2009\(^9\) identified a need for an additional 2,050 m\(^2\) within PHC to accommodate this growth. PHC consolidated some services and relocated others outside the hospital site to make way for the expansion. The Ministry of Health has provided $5.1M in funding to complete the priority renovation projects.

PHC placed more than 1,600 students in Nursing, Allied Health and Medical Technology in 2009. The number of students in these programs will increase substantially. Given the critical health human resource shortages that BC is facing, it is essential that facilities be created which can support the volume of students and encourage interprofessional education and practice.

PHC also anticipates significant growth in the funded research activity over the next 3 to 5 years. This will mean an increase in funded research personnel from 655 full time equivalents (FTEs) to between 940 and 1,050 FTEs, and an additional 6,000 m\(^2\) of space\(^20\) based on researcher input and standard programming benchmarks.

2.6 Leased Property

There is insufficient space at St. Paul’s Hospital to house its current operations or the growing demand it faces in the future. To accommodate the shortfall, Providence Health Care currently leases 8,000 m\(^2\) of commercial property at an annual cost of more than $4.1 million.

<table>
<thead>
<tr>
<th>Location</th>
<th>Area (m(^2))</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>1190 Hornby</td>
<td>5,500</td>
<td>Research, Infection Prevention/Control, Family Practice, Administrative Offices</td>
</tr>
<tr>
<td>840 Cambie</td>
<td>900</td>
<td>Health Records (Transcription)</td>
</tr>
<tr>
<td>1080 Howe</td>
<td>600</td>
<td>Health Records</td>
</tr>
<tr>
<td>1033 Davie</td>
<td>400</td>
<td>Heart Centre Clinic</td>
</tr>
<tr>
<td>650 W Georgia</td>
<td>400</td>
<td>St. Paul’s Hospital Foundation</td>
</tr>
<tr>
<td>1200 Burrard</td>
<td>200</td>
<td>Rheumatology Clinic</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

*Table 2: Off-site Leased Facilities*

The steady migration of functions off-site has been underway since 2000 as PHC has made every effort to liberate space at the hospital for patient care. At first, the moves were limited to

\(^9\) UBC engaged Resource Planning Group Inc. to prepare functional programs for planned expansions in each of the Vancouver Coastal, Fraser, Northern and Vancouver Island Health Authorities. Figures cited here are from the St. Paul’s Hospital/Providence UBC Medical School Expansion Functional Program (September 2009).

\(^20\) “Providence Health Care Research Institute Space Needs Study”, Resource Planning Group (September 14, 2009).
administrative functions. However, as shown in Table 2 above, PHC has recently begun renting
space for new or expanding ambulatory care clinics.

Locating clinics outside the hospital undermines efficiency and complicates the patient journey. Over the past four years, PHC has looked for opportunities for space in reasonable proximity to PHC, but clinicians and researchers are highly resistant to a model which creates a geographical divide between different components of their work (e.g. OR, inpatient, clinic, teaching, research). It should also be noted that many landlords in the downtown area will not rent space for clinics (or physician offices) limiting options for future offsite leasing.

A rigorous policy implemented in 2010 (see Appendix C for the Corporate Space Policy) to optimize administrative space use has already had some success in maximizing space efficiency. However, it is becoming increasingly difficult to identify individuals or groups who can be relocated from the hospital without excessively compromising operational efficiency or patient care.

2.7 Opportunity for Innovation in Care Delivery: The Driver for Renewal

Without renewal at St. Paul’s, PHC will be unable to achieve its vision of aligning the organization to the future of health care delivery, and in particular the dynamic future of ambulatory care. Renewal at St. Paul’s is essential to address emerging trends in health service delivery. These include:

- A shift from acute care to focus more on primary and community care – a theme woven through B.C.’s health sector strategies including the Integrated Health Network and Attachment strategies, which focus on high-needs populations
- Less invasive surgeries, allowing for faster recovery times and more ambulatory/outpatient/day-care (as opposed to inpatient) surgical care
- Increased public awareness and advocacy of patients for access to care and quality of service
- Greater engagement of patients and families through a Patient-Centered Care approach (planning services from the patient’s perspective)
- Rapid expansion of remote and web technologies, enabling provision of “virtual” care and allowing patients to engage more directly in self-managing chronic diseases
- Continued focus on process flow and improvement through LEAN and other quality improvement tools
- A shift towards inter-professional delivery of care and educational strategies
- Shortages in key health professions, driving the need to constantly re-evaluate the optimal use of staff scope of practice and mix of staff
- Adoption of electronic medical record technology which enables improved coordination of care, tracking of patients along clinical pathways, and monitoring of clinical guidelines
- A fiscal imperative to “bend the cost curve” to manage system demand within fewer resources
3 PROPOSED REDEVELOPMENT

Building on earlier planning work and the need for effective use of financial resources, PHC is proposing the construction of a new 21,215 m² ambulatory care building on the SPH site. The project would also include needed upgrades to the existing hospital buildings to increase capacity, improve patient care and enhance operational efficiency.

3.1 Process for Developing the Concept Plan

The need for renewal at St. Paul's has long been recognized. A comprehensive planning process conducted between 2002 and 2005 included a Strategic Options Analysis, which concluded that the best solution would be the full consolidation of all PHC acute facilities onto a new site, with costs offset by PHC’s commitment of equity through leveraging existing and surplus assets.

The new-site option was ultimately rejected as too expensive. In June 2010, the Minister of Health indicated his support for a renewal of St. Paul’s. Planning since that time has focused on renewing St. Paul’s as part of a longer-term strategy to revitalize the entire Burrard Street site.

The vision developed for an earlier-proposed Centre for Ambulatory and Surgical Treatment was revisited by a steering group and refreshed to reflect the evolution of ambulatory care service provision and design, as well as an acknowledging PHC’s achievements in the intervening years.

Fundamental principles and planning assumptions (discussed in Section 4.2.2) were established to guide programming and siting assumptions, and an inventory of ambulatory and surgical day care activity was compiled. During this inventory, current volumes were verified with PHC’s Administrative Decision Support.

Internal Consultation

PHC’s program management structure provided the framework for internal consultation. More than 20 groups were consulted about program scope, access and flow issues, factors driving volume projections, future programmatic directions and other material issues. Composite program volumes and functions were reviewed. Several key programmatic options were also reviewed to test whether the proposed program would maximize opportunities.

External Expertise, Internal Review and Validation

Resource Planning Group (RPG) was retained to create an abbreviated master program (also known as order-of-magnitude space requirements) based on established planning guidelines. The resulting output was benchmarked with other comparable facilities. Additional external advice was sought from David Chambers, Director of Research, University Research Institute to provide a targeted analysis of the abbreviated master program with a lens of LEAN operational flow and space design principles.

The revised program was reviewed with internal groups to ensure accuracy and incorporate their feedback. Test fits of the program were developed and confirmed that appropriate floor areas and adjacencies can be achieved. Program leadership validated the test fit from a care delivery perspective and identified opportunities for enhanced synergies to be explored in the next, more detailed stage of analysis.

21 Strategic Options Analysis & Business Case for Implementing Acute Care-Related Elements of the Providence Legacy Project (June 4, 2004, Draft 4)
Space vacated by the relocation of clinics from the Burrard and Providence buildings was inventoried and assessed for potential reuse. This assessment was augmented with information from independent studies (hazardous material, structural/seismic, building envelope, elevator, mechanical, electrical, information technology) of required infrastructure upgrades to produce an overall scope of work for the hospital’s physical rehabilitation.

BTY Group (cost and project management consultants) prepared an overall estimate of cost for the proposed renewal of St. Paul’s based on the functional program and scope of rehabilitation. Cost estimates are discussed in Section 5.

3.2 Description of Each Component of Planning

3.2.1 Objectives

Within the context of key drivers behind the need for site renewal (as outlined in Section 2), the PHC Senior Leadership Team endorsed a programming and building solution to meet the following objectives:

- **Optimize ambulatory care delivery and space utilization.** Our ultimate goal is to improve the quality, access and safety of patient care delivered in our organization. The proposed renewal solution would deliver care using LEAN design principles to optimize space utilization. The building solution will incorporate LEED Gold level features.

- **Develop a coordinated care model.** PHC will reinvent its care delivery model to design patient care and flow from a patient perspective, improving coordination of care amongst disciplines and various specialties and programs, reducing the number of patient visits, and improving the engagement of patients and families in their care. PHC’s leadership in chronic disease management (at the MoHS/BCMA Shared Care Committee) is actively building partnerships between family physicians and specialists and will be foundational for this redesign.

- **Consolidate acute bed capacity for improved patient experience, safety and efficiency.** The design and construction of the new ambulatory care facility will align with our long-term Master Plan and vision for the site to support the repatriation of the mental health beds to the Providence Building for improved patient experience, safety and efficiency.

- **Free additional space for teaching and research.** Our organizational vision is to continue to grow as an academic health science enterprise. Integral to achieving that vision is the availability of space to house external grant-funded research projects, and to support the UBC plan for academic expansion.

- **Link unattached patients to primary care.** PHC will be active in the broader BC-wide “Attachment Initiative” through the General Practitioner Services Committee, particularly focusing on the local need for increased attachment to family physicians for our at-risk, severely addicted and mentally-ill downtown Vancouver population.

- **Optimize integrated care, teaching and research.** The St. Paul’s renewal will allow PHC to shorten the cycle from research discovery through to new care protocol. Through a model that integrates care providers, students, teachers and researchers, knowledge translation will be accelerated to deliver improved patient outcomes.
3.2.2 Program Planning Assumptions and Constraints

Ambulatory services provided by Providence Health Care were reviewed and volumes projected to a 10-year planning horizon of 2020. The ambulatory service review included Medicine, Surgery & Surgical Day Care, Cardiac, Renal, HIV/AIDS, Mental Health, Elder Care, Maternity, Primary Care/Chronic Disease Management, Diagnostic Imaging and Laboratory services, Infection Prevention and Control, Interprofessional Practice and Education and Research were integrated.

Consistent with MoHS direction, no increase to the inpatient bed capacity was contemplated, in order to focus entirely on the opportunity to meet growing health service needs through a robust ambulatory program.

Service planning utilized a variety of data sources including:
- Strategic Options Analysis & Business Case for Implementing Acute Care-Related Elements of the Providence Legacy Project. (June 4, 2004, Draft 4)
- Regional Surgical Executive Council (RSEC) – Research Allocation Methodology (RAM) Needs Based Analysis. (2009)
- Providence Health Care – Surgical Projections aligned with Vancouver Acute Surgical Projection Methodology (2011), which can be found in Appendix E.
- MOH Chronic Disease Management Data (MSP, PharmaCare, and Discharge Abstract databases (2007/08).
- Providence Health Care Chronic Disease Management Strategy. (2009)
- Best Practice Solutions in Chronic Disease Management. David Chambers (2008)
- PHC Strategic Directions (2009-2012)
- St Paul's Hospital/Providence UBC Medical School Expansion Functional Program. Resource Planning Group (2008, updated 2009)

Service Planning also included extensive consultation with key internal stakeholders including physicians and physician leaders, program and clinical leaders, researchers, inter-professional leads and executives.

Provincial and health authority (VCH and PHSA) policy and planning direction was incorporated into discussions where possible, supported by planning documents from VCH regional councils, Cardiac Services BC, BC Provincial Renal Agency, STOP HIV/AIDS initiative, and policy documents/planning priorities of the MoHS Health Systems Planning Division.

Service planning was essential to:
- confirm 2010 ambulatory visit data including type and number
- review assumptions about the relocation of a given service to a separate ambulatory building, given its required service adjacencies
- incorporate PHC’s chronic disease management (CDM) Strategy, focusing on redesigning care delivery for patients with chronic conditions (such as chronic obstructive pulmonary disease, renal disease, congestive heart failure, and diabetes) to provide the best possible coordinated care
• forecast surgical day care needs in coordination with the VGH Jimmy Pattison Operating Room(s) projections/Vancouver Acute surgical projections
• update projected ambulatory needs for 2020 from those originally presented in PHC’s Business Case for renewal (2005)
• identify opportunities for clinical knowledge translation through the integration of teaching and research.

Further details of planning assumptions are included in Appendix D and E.

Each ambulatory service was reviewed to determine options for siting (either remaining in its current location, remaining in an existing building, or whether it was eligible for location in an adjacent ambulatory building). Factors considered included the service’s requirements for clinical adjacency with hospital services for patient safety, the staffing model for the service, whether the service used any dedicated capital equipment, and the hours of operation for the service.

3.3 Clinical Program and Projected Volumes

The output of the planning work was an Abbreviated Master Program prepared by Resource Planning Group in December 2010 (included as Appendix F). It outlines the features and requirements of a new Ambulatory Building, which would allow PHC to bring together more than 95 per cent of the ambulatory services at St. Paul’s into one location. The total space requirement for the program is 16,319 component gross square metres (21,215 m² overall building area).

The Master Program brings together:
• St. Paul’s Hospital clinics (multidisciplinary clinics which are part of hospital operations, but not including private physician offices or visits)
• Diagnostic testing (phlebotomy, and medical imaging) related to the ambulatory volume
• Surgical day care and endoscopy (8 ORs and 6 procedure rooms)
• Hemodialysis (excluding “In Centre” dialysis, which will remain in Providence Tower)

The composite set of services which were determined eligible for this adjacent ambulatory building will significantly reduce the number ambulatory care locations and therefore maximize clinical adjacencies while minimizing patient and staff movement. The adjacent location decongests the inpatient and acute areas of the hospital, as well as diverts patient and pedestrian traffic away from the Emergency Dept of St. Paul’s Hospital.

The table below provides detail on the range of clinics and associated services that would be consolidated in a new ambulatory building, along with current and projected patient volumes.

<table>
<thead>
<tr>
<th>Program</th>
<th>Clinics</th>
<th>2010</th>
<th>2020</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>Cardiac General – Heart Transplant Clinic, Arrhythmia Clinic,</td>
<td>29,861</td>
<td>36,904</td>
<td>46,398</td>
</tr>
<tr>
<td></td>
<td>Congenital Heart Clinic, Cardiac Obstetric Clinic, Healthy Heart/Rehab,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Heart Function Clinic, Pacer Clinic, Transcather Valve Clinic, Atrial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fib Clinic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac</td>
<td>Cardiac Special – Holter monitors, ECG, Exercise Testing</td>
<td>16,990</td>
<td>20,997</td>
<td>26,398</td>
</tr>
<tr>
<td>Imaging &amp; Lab</td>
<td>Echo, Phlebotomy, Radiology, Ultrasound</td>
<td>91,279</td>
<td>108,349</td>
<td>127,395</td>
</tr>
<tr>
<td>Service</td>
<td>Description</td>
<td>2019 Visits</td>
<td>2020 Visits</td>
<td>2021 Visits</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>Elder Care</td>
<td>Geriatric Clinic</td>
<td>2,500</td>
<td>2,630</td>
<td>4,075</td>
</tr>
<tr>
<td>HIV</td>
<td>HIV/AIDS, Infectious Disease Clinic</td>
<td>14,798</td>
<td>18,373</td>
<td>22,954</td>
</tr>
<tr>
<td>Maternity</td>
<td>Fetal Monitoring Clinic, Maternal Fetal Medicine Clinic, Maternity Admission Clinic (pre-op c/s)</td>
<td>2,192</td>
<td>2,456</td>
<td>2,681</td>
</tr>
<tr>
<td>Medicine</td>
<td>Medicine General - Diabetes Clinic, Rapid Access Clinic, Thyroid-Endocrinology Clinic, Respiratory Medicine Clinics</td>
<td>39,607</td>
<td>46,791</td>
<td>61,541</td>
</tr>
<tr>
<td>Medicine</td>
<td>Medicine General - Medical Short Stay Unit, CF Clinic, PFTs, EEG, EMG</td>
<td>13,172</td>
<td>15,996</td>
<td>19,526</td>
</tr>
<tr>
<td>Mental Health</td>
<td>Acute Psychiatry, Eating Disorders, Chronic Pain, Mental Health Outpatient</td>
<td>20,199</td>
<td>23,500</td>
<td>25,666</td>
</tr>
<tr>
<td>Primary Care</td>
<td>Primary Care strategy for unattached patients</td>
<td>N/A</td>
<td>20,000</td>
<td>23,399</td>
</tr>
<tr>
<td>Renal</td>
<td>Kidney Function clinic, Integrated Care clinic, PD clinic, transplant clinic, vascular access clinic, HD &quot;in centre&quot; visits</td>
<td>53,634* (see note)</td>
<td>40,720</td>
<td>47,370</td>
</tr>
<tr>
<td>Rehabilitation Therapy</td>
<td>Physiotherapy &amp; Occupational Therapy</td>
<td>16,093</td>
<td>18,760</td>
<td>21,011</td>
</tr>
<tr>
<td>Surgery</td>
<td>Surgery Clinics – Ophthalmology Follow Up Clinic, ENT, Audiology, Colorectal Clinic, Pain Clinic, Ortho Clinic, Hematology Clinic, Musculoskeletal Clinic, Neurology Clinic, Vascular Clinic, General Surgery Clinic, Plastics/Dermatology Clinic, Diet Clinic, Urology Clinic, Gynecology Clinic, Rheumatology Clinic, Stoma Clinic, Electrophysiology</td>
<td>62,297</td>
<td>71,550</td>
<td>81,026</td>
</tr>
<tr>
<td>Surgery</td>
<td>Surgical Intervention – Surgery Same Day, Surgery Procedures, GI Procedures</td>
<td>16,358</td>
<td>19,548</td>
<td>22,813</td>
</tr>
</tbody>
</table>

| Total                   |                                                                 | **378,710** | **446,574** | **531,253** |

*Projected annual visits for Renal Clinic include only 30,209 (50%) of the 60,418 projected hemodialysis visits for 2020. Due to patient acuity, the other portion of the projected hemodialysis visits will need to remain as “in centre” visits at St. Paul’s Hospital.*

_table_3: Clinics and services in the New Ambulatory Building
3.4 Projected Space Requirements

The Abbreviated Master Program prepared by Resource Planning Group applies space planning standards to the volumes to arrive at the project space requirements. While Appendix F provides more detail, Figure 7 provides a summary of the current and projected space for the ambulatory building components:

**Current Ambulatory Clinics**

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Entry Lobby</td>
<td>225 m²</td>
</tr>
<tr>
<td>Central Meeting Facilities</td>
<td>275 m²</td>
</tr>
<tr>
<td>Interprofessional Teaching</td>
<td>350 m²</td>
</tr>
<tr>
<td><strong>Subtotal A: Support space</strong></td>
<td>850 m²</td>
</tr>
<tr>
<td>Cardiac Outpatients</td>
<td>549 m²</td>
</tr>
<tr>
<td>Health Heart Clinic</td>
<td>318 m²</td>
</tr>
<tr>
<td>Diabetes Clinics</td>
<td>700 m²</td>
</tr>
<tr>
<td>Respiratory Clinics</td>
<td>896 m²</td>
</tr>
<tr>
<td>Outpatient Cardiology</td>
<td>585 m²</td>
</tr>
<tr>
<td>Rapid Access Clinic</td>
<td>404 m²</td>
</tr>
<tr>
<td>Pre-admission Clinic</td>
<td>371 m²</td>
</tr>
<tr>
<td>Eye Clinic</td>
<td>471 m²</td>
</tr>
<tr>
<td>Ear, Nose, Throat Clinic</td>
<td>562 m²</td>
</tr>
<tr>
<td>Surgical Outpatient Clinic</td>
<td>996 m²</td>
</tr>
<tr>
<td>Physio/Occupational Therapy</td>
<td>870 m²</td>
</tr>
<tr>
<td>Outpatient Psychiatry</td>
<td>1,079 m²</td>
</tr>
<tr>
<td><strong>Subtotal B: Ambulatory Clinics</strong></td>
<td>11,569 m²</td>
</tr>
<tr>
<td>Outpatient Cardiology</td>
<td>557 m²</td>
</tr>
<tr>
<td>Immune Deficiency Clinic</td>
<td>541 m²</td>
</tr>
<tr>
<td>Renal Clinics</td>
<td>711 m²</td>
</tr>
<tr>
<td>Medical Daycare</td>
<td>415 m²</td>
</tr>
<tr>
<td>Geriatric Outpatient Clinic</td>
<td>688 m²</td>
</tr>
<tr>
<td><strong>Subtotal C: Surgery/GI Procedures</strong></td>
<td>3,900 m²</td>
</tr>
<tr>
<td>Surgical Daycare</td>
<td>252 m²</td>
</tr>
<tr>
<td>Gastro-Intestinal Clinic</td>
<td>601 m²</td>
</tr>
<tr>
<td><strong>Total component gross area</strong></td>
<td>11,565 m²</td>
</tr>
<tr>
<td><strong>Equivalent building gross area</strong></td>
<td>19,757 m²</td>
</tr>
</tbody>
</table>

**Proposed Ambulatory Clinics**

<table>
<thead>
<tr>
<th>Clinic</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Disease Management</td>
<td>2,197 m²</td>
</tr>
<tr>
<td>Integrated Clinic</td>
<td></td>
</tr>
<tr>
<td>Diagnostics, Cardiac &amp; Neurology Clinics</td>
<td>1,825 m²</td>
</tr>
<tr>
<td>Medicine, Surgery, Maternal / Fetal and Pain Clinics</td>
<td>2,660 m²</td>
</tr>
<tr>
<td>Rehabilitation Therapy</td>
<td>875 m²</td>
</tr>
<tr>
<td>Mental Health Clinics</td>
<td>654 m²</td>
</tr>
<tr>
<td>Immune Deficiency Clinic</td>
<td>892 m²</td>
</tr>
<tr>
<td>Renal Clinic</td>
<td>1,476 m²</td>
</tr>
<tr>
<td>Medical Day Care</td>
<td>215 m²</td>
</tr>
<tr>
<td>Elder Care Services</td>
<td>775 m²</td>
</tr>
<tr>
<td><strong>Subtotal B: Ambulatory Clinics</strong></td>
<td>11,569 m²</td>
</tr>
<tr>
<td>Surgical Day Care</td>
<td>3,900 m²</td>
</tr>
</tbody>
</table>

*note that current also incorporates reduction in Main OR rooms (space not listed here)

**Total component gross area (A+B+C)** | 12,419 m²
**Building gross area** | 21,215 m²

*Figure 7: Summary of Current and Projected Space*
3.5 Vision for the Ambulatory Care Model

Throughout the discussion and planning that led to this Concept Plan, several key themes emerged which will be the launching point for future service and building design:

Interprofessional Care Model to support coordinated care
Patients visiting a PHC ambulatory clinic can expect their care to be delivered by an interprofessional team, varying in composition depending on patient needs. The team may include Registered Nurses, Nurse Practitioners, Dieticians, Therapists, Social Workers, General Practitioners, Specialists and others.

Interprofessional care is the provision of comprehensive health services to individuals by multiple Health Care Professionals who work collaboratively to deliver quality care within and across settings. In this model of care delivery, all health professionals work to their full scope of practice allowing them to focus on care within their realm of expertise. Improved collaboration and teamwork through will assist in managing increasing workloads, reduce wait times, and improve the quality of care. The benefits to the patient are significant including timely access to a variety of health professionals (during one visit) who can assist with preventative care, and/or treat a specific illness or condition.

Interprofessional teams link services and people. Implementation of an interprofessional model of care within PHC’s ambulatory setting will:
- ensure access to comprehensive primary care for unattached patients
- facilitate access to specialized ambulatory services
- enhance communication between Health Care Professionals and with the patient
- enhance service coordination and transitions across sectors/care settings
- support self-management

Integration of care, teaching and research to advance evidence-based care
The ambulatory centre will be a hub of innovation, where clinicians work side-by-side with internationally renowned researchers, enabling continuous transfer of knowledge into care solutions. This approach will also enhance opportunities to engage patients as partners in planning their care, as well as identifying possible participants for new and ongoing research studies. The large number of ambulatory care patients in a coordinated care environment presents an opportunity to develop patient registries to collect data to support the development of new knowledge.

A state of the art day surgical facility
The new centre will support additional same-day surgical procedures, assisted by the latest technologies that use less invasive methods, resulting in improved recovery times for patients and more efficient discharge. Many patients have benefitted from PHC’s implementation of an efficient day surgery environment in its “swing rooms” for foot, ankle and wrist surgery. The knowledge gained can now be spread on a larger scale to leverage these gains for a much broader patient population.

Strong patient and family focus
The service design will analyze the care process from a patient perspective, and reinforce their role in their care. A focus on prevention will support patients to better plan their wellness strategies in partnership with caregivers.

Attachment to Primary Care
“Unattached” patients will be linked with family physicians, allowing better overall management of health needs in the community, and reduced utilization of emergency and inpatient services.
Strong IMIT backbone to support coordinated and efficient care
Patient care will be improved through an integrated information technology system and electronic health record, telemedicine support, automated patient registration, electronic informational displays and other supports to improve workflow efficiency and reduce patient wait times.

Flexibility for addressing changes in demand
Volumes have been forecast to 2020 based on utilization trends, population growth, and any known programmatic changes. It is recognized that change is a constant in health care, and that new service models, clinical demand and therapies may arise which will change volumes. To ensure flexibility and best use of capital dollars, the approach will be to plan services and design the facility in the way to maximize the organization’s ability to adapt to future needs through utilizing the following strategies:

- Peer lines of sight (team communication/integration, support, teaching)
- Patient visibility (maximizing safety and efficiency from arrival to departure)
- Proximity of support areas/shared equipment to optimize resources and reduce stress/fatigue
- Robust information technology infrastructure to support evolving software and devices
- Resilience of standardized rooms/facilities to accommodate changes in census or protocols
- Adaptability of modular/mobile cabinetry/furnishings/building services for different modalities
- Expansion through re-zoning units linked by staff areas or relocation of strategic “soft” space.
3.6 Master Plan Implementation

3.6.1 Evolution of the Master Plan

Architects Underwood McKinley Smith developed a Master Plan for St. Paul’s Hospital which established the framework for total replacement of its existing time-worn buildings. Phases I and II of that plan were achieved with construction of the Providence buildings in 1979 and 1988.

The St. Paul’s Hospital Master Plan Update, 1992 by Resource Planning Group with Matsuzaki Wright Architects reaffirmed the complete replacement concept with a major new Phase III building at Comox and Thurlow Streets.

In 1999 Henriquez Partners / IBI Group prepared a new Master Plan for the site including several options for redevelopment. The recommended direction preserved the concept of a building at Comox and Thurlow Streets but introduced retention of the Burrard building.

After a public selection process Henriquez Partners / IBI Group were again selected to produce a Business Case & Part B Study containing detailed explorations of the development potential of the St. Paul’s site as well as partnership opportunities on adjacent sites. The zoning and urban design issues addressed in the report remain valid, are incorporated in the current proposal and will be explored more fully in the Business Case.

Burrard Building Public Spaces Project by Raymond Pradinuk Architect confirmed the viability of enhancing the Burrard Street entrance to the Hospital. This feature is maintained in the current proposal.

The Providence Legacy Project A Vision for Health Care Renewal, 2002 by Henriquez Partners / IBI Group includes analyses of all Providence Health Care sites. The vision articulated for St. Paul’s Hospital (in the context of an overall strategy for all Providence sites) strengthened its role as an academic health science centre serving an urban and provincial population with renewal occurring in 4 phases:

- New building at Comox and Thurlow Streets
- New building in the centre of the property on Comox Street
- Renovation and restoration of Burrard Building
- Partnership for new tower on private land adjacent St. Paul’s

Strategic Options Analysis & Business Case for Implementing Acute-Care-related Elements of the Providence Legacy Project, 2003 developed with Partnerships BC, explored options for redevelopment of St. Paul’s on both the existing and an alternate site. Though the new site option had merit it proved unaffordable. Elements of the option to renew St. Paul’s at the existing site put forward in the analysis remain valid and are reflected in the current proposal:

- Increased capacity and improved condition for Emergency Services (accomplished with investments in 2010 to the Burrard building)
- Mental Health relocated from Burrard building
- Ambulatory Care consolidated in new building at Comox and Thurlow Streets

The analysis also called for the closure of St. Vincent’s Hospital and relocation of many of its services to St. Paul’s Hospital. This closure and consolidation was executed on the premise that there would be redevelopment to provide suitable space to house transferred volumes at St. Paul’s.
Redevelopment of the St. Paul's campus can occur in two phases as illustrated below:

**Existing Site Configuration**

**Phase 1**
- Demolish Comox building
- Construct a new building at the corner of Comox and Thurlow streets
- Renovate Burrard and Providence buildings

*Phase 1 of the Master Plan is illustrated in greater detail in Appendix G.*

**Phase 2**
- Construct a new building on Comox Street, incorporating or replacing wings of the Burrard and MacDonald buildings.
3.6.2 Alternatives Considered

Alternatives to the proposal were considered but did not prove feasible. These included:

**Vertical expansion over the Providence building podium**
This would be extremely disruptive and limited in size by the bearing and seismic capacity of the existing structure and soils (report by RJC Structural Engineering Consultants).

**Demolition of buildings other than Comox**
This would cause the loss of valuable assets such as the iCapture (wet research) facilities in MacDonald building; or the recently completed $12 million renovation to the Emergency Department as well as the historic value of the Burrard building. Note also that Comox building has by far the worst CFI of any building on the campus.

**Purchase of additional land**
This would be at considerable cost given the downtown Vancouver location and would most likely not be contiguous thereby contributing to care delivery inefficiencies. Over the past ten years PHC has attempted to purchase adjacent properties without success.

**Leasing of off-site ambulatory clinic space**
Similarly, PHC has looked for large-scale off-site leasing opportunities but none have been able to deliver an option which has significant critical mass, sufficient proximity, operational efficiency, required clinical adjacency or clinician support.

3.6.3 Urban Design Considerations

The proposal addresses the challenges and opportunities presented by the site’s location and the requirements of the City of Vancouver’s Downtown Official Development Plan and Downtown District zoning bylaw.

**Use**
The property is zoned for public and institutional occupancies. Though no other use is contemplated at this time commercial, residential or recreational/cultural uses are also permitted.

**Density**
The maximum allowable floor area which can be constructed on the St. Paul’s Hospital campus is approximately 162,900 m² representing a Floor Space Ratio (FSR) of 6 times the area of the land. The built area is expected to be developed as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area of existing buildings</td>
<td>99,300</td>
</tr>
<tr>
<td>- demolition of Comox Building</td>
<td>- 8,000</td>
</tr>
<tr>
<td>+ new building</td>
<td>+ 21,000</td>
</tr>
<tr>
<td>Area at completion of Phase 1</td>
<td>112,300</td>
</tr>
<tr>
<td>+ potential additional area</td>
<td>+ 50,600</td>
</tr>
<tr>
<td>Area at completion of Phase 2</td>
<td>162,900</td>
</tr>
</tbody>
</table>
Height
The allowable building height is 91.4 m. Protected view cones (shown in yellow at right) will however limit the practical height of development in the area of Comox and Thurlow streets to the height of the existing Providence Building.

Access, Parking & Loading
Vehicular access to the site is complicated by the difficulty of left hand turns from Burrard Street and the one way (south) direction of Thurlow Street. A bicycle lane along Burrard precludes vehicle drop-off at the historic entry to the Hospital. New buildings will mitigate these difficulties with new entries along Comox Street.

The Concept Plan cost estimate prepared by BTY (see Appendix H) includes $10.9 million for below grade parking for stalls developed as part of the building infrastructure. Municipal requirements stipulate that a minimum of 1 parking stall per 145m² of gross floor area and maximum of 1 stall per 114m² are required. These will be provided below grade.

<table>
<thead>
<tr>
<th>Area in m²</th>
<th>Maximum required</th>
<th>Minimum required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Providence building</td>
<td>55,625</td>
<td>488</td>
</tr>
<tr>
<td>Burrard building</td>
<td>20,795</td>
<td>182</td>
</tr>
<tr>
<td>New building (as programmed)</td>
<td>21,215</td>
<td>186</td>
</tr>
<tr>
<td>Total</td>
<td>97,635</td>
<td>856</td>
</tr>
<tr>
<td>Existing parking at Providence building</td>
<td>- 426</td>
<td>- 426</td>
</tr>
<tr>
<td>New parking required if deficiency addressed</td>
<td>430</td>
<td>247</td>
</tr>
<tr>
<td>Parking as included in current estimate of costs:</td>
<td>- 290</td>
<td>- 290</td>
</tr>
<tr>
<td>3 floors (8100m² @ 30m²/stall)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Deficiency (surplus) 140 (43)

A complete traffic study and parking analysis will be conducted as part of the business case.

The proposal respects these municipal requirements and those anticipated to be required through the municipal development permit process including:

- Restriction of building shadows cast on adjacent residences and Nelson Park
- Redevelopment of hard and soft landscape with appropriate lighting around the perimeter of the campus
- Development of landscaped courtyards with seating and weather protection between buildings and at the Burrard Street entry
- Municipal art to enhance the entries, reinterpret the Burrard centre block façade and facilitate the traditional Christmas Lights of Hope display and fundraising campaign
- Promotion of parking mitigation strategies including bicycle facilities, public transport programs, car pooling and inter-site van transport

St. Paul’s Hospital is of tremendous historic significance in the City and classified as an “A” building on the Vancouver Heritage Registry. Though it is not protected by either municipal or provincial statute preserving the Burrard Building is an important civic contribution. Demolition of the Comox building has long featured in master plans for the site. The City may require an independent assessment of its salvageability prior to demolition and would be undertaken as part of the business case.
3.7 Project Scope

This Concept Plan proposes implementation of Phase 1 of the Master Plan for St. Paul’s Hospital. A project of this scope will meet current and foreseeable needs while preserving the potential for a future Phase 2.

The proposal reflects the evolution of the Master Plan, the principles consistently identified for consolidation of Ambulatory Care services\(^{22}\) and retention of the Burrard building\(^{23}\). The project scope includes:

- Construction of a new 21,215m\(^2\) building for Ambulatory Care
- Renovations to Providence buildings
- Renovations to Burrard building
- Infrastructure upgrades

3.7.1 New Ambulatory Care Building at Comox and Thurlow Streets

Ambulatory care services will be relocated from Burrard and Providence buildings into a new building at Comox and Thurlow Streets. Although the development site is constrained by existing streets, and the height is practically limited to that of the adjacent Providence building, the proposed new facility takes full advantage of the development potential of this valuable property. The overall area of the building as currently programmed will be 21,215m\(^2\). In conformance with BC government requirements the project will incorporate LEED Gold level features.

As shown in Figure 7 below, services will be distributed over 10 floors above grade and one floor partially below grade, with 3 floors of underground parking. Lower floors will be aligned with the existing Providence building to maximize flexibility and the efficient flow of patients, staff and materiel. Conceptual test fits show that the building will accommodate the full functional program developed for ambulatory care services with integrated academic and research capacity.

![Figure 8: Illustrative Fit of Program to Building](image-url)

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\(^{22}\) Lean Flow Analysis by David F. Chambers and PHC clinical leaders; Centre for Ambulatory Surgical Treatment (CAST) Output Specifications, 2006 by Resource Planning Group Inc.; The Providence Legacy Report, 2006 by Busby Perkins + Will / Farrow Partnership

\(^{23}\) Burrard Building & Wings Adaptive Re-Use Study, April 1995 by Henriquez Partners/IBI Group
The ambulatory building location and connectivity enables good site circulation for internal and external pedestrian traffic, and underground parking vehicle flow, as illustrated in Figure 8.

### 3.7.2 Renovations to Existing Buildings

**Providence Building**

Consolidating ambulatory services in the new building will free space on inpatient floors of the Providence building. These floors will be renovated to allow:

- relocation of mental health beds from Burrard building
- reconfiguration of bed allocations to address needs and optimize efficiencies by service type – with no net increase in inpatient beds
- improved infection control through room design or maximization of single rooms

Other ambulatory services relocated from Providence building level 2 and 3 will free space that can be renovated to address current operational deficiencies and forecasted demand for diagnostic and treatment services. The BTY cost report includes renovation of the surgical suite to meet operational needs. With outpatient volumes transferred to the new Ambulatory building, the existing operating rooms can be reduced in number and increased to functional size.
The relocation of selected portions of the laboratory and diagnostic imaging areas will provide for some adjacent redevelopment to address current issues of crowding and design standards which will be prioritized with the Lower Mainland diagnostic departments.

For the purposes of the Concept Plan, assumptions have been made about the scope of renovations, and may be referenced in further detail in BTY’s cost report in Appendix H. The Business Case process will evaluate the options and value proposition of the renovation options.

**Burrard Building**
Space vacated by the relocation of inpatient and ambulatory services will be renovated for research, academic, administrative and clinical offices. The relative merits and financial benefits of allocating space to each of these will be evaluated in the business case. Although the new building will have its own entry, the historic Burrard building will continue to be a front door to St. Paul’s Hospital and will be renovated and enhanced.

**MacDonald Building**
No spatial renovations to the MacDonald Building are anticipated. It will however benefit from infrastructure upgrades for emergency power, heating, and cooling available from the new building.

### 3.7.3 Infrastructure Upgrades
The proposal for renewal of St. Paul’s Hospital includes significant infrastructure upgrades to ensure the viability of its buildings for the foreseeable future. These include upgrades for code compliance, seismic capacity, building envelope, elevators, electrical and mechanical systems.

The new ambulatory care building’s electrical and mechanical plants will be sized to properly service its own requirements and:

- Service the extremely deficient Burrard and MacDonald buildings via an underground service tunnel
- Provide redundancy to the Providence buildings in the event of failure of its equipment via connections at the parkade and 4th floor (mechanical) levels.
**Mechanical Services**

Like much of downtown, the St. Paul’s receives steam from Vancouver Central Steam. Service enters through the Providence Building and is distributed across the campus to provide heat, hot water and sterilization. The line is currently capped at the northern extremity of Providence building and will be extended into the new building. A second point of entry for steam at the new building will allow for redundancy in case of failure. These systems will be extended to Burrard and MacDonald buildings via the service tunnel.

New distribution equipment will be installed where the service tunnel enters the Burrard building in the area of an existing mechanical room. Hot water heat, domestic water and sewage piping will be replaced as areas are renovated. Ventilation and conditioned air will be added.

Burrard and Providence I buildings will be fully sprinklered (note Providence II is the only building fully sprinklered at present).

The existing Boiler building will be demolished once the service tunnel and new distribution centre in Burrard building are in place.

**Electrical Services**

BC Hydro intends to change the high voltage supply to St. Paul’s from the current 12.5 KiloVolts (KV) to 25 KV. The electrical rooms in the new building will have 25KV service, transformers, generators and switchgear sufficient to serve the new building, Burrard and MacDonald buildings as well as provide redundancy for emergency services in Providence Building. This will alleviate load on the Providence building equipment and facilitate replacement of its old (failing) generators and (at capacity) switchgear as well as the upgrades necessitated by the transition to 25KV power.

Other systems to be replaced or revised are:
- Fire Alarm (in conjunction with the addition of sprinklers)
- Intercom
- Door control devices (magnetic locks)
- Access control
- CCTV
- Audio/duress
- Intrusion alarm monitoring
- Nurse call

**Information Technology**

The distribution system (rooms, structured cabling, network equipment and uninterrupted power source) for information technology will be replaced in Burrard building and upgraded in Providence buildings.

**Elevators**

All existing elevators in Burrard and Providence buildings will be upgraded to meet current codes and standards.

**Seismic Upgrades**

Seismic upgrades to the Burrard building include:
- Rock anchored shear walls with drag struts
- Structural connection of north and south wings to centre block at each floor
- Removal of interior clay tile partitions

Mechanical and electrical systems in both Burrard and Providence buildings will be restrained as these are installed or replaced.

**Code Upgrades**

The integrity of exits in Burrard and Providence buildings (fire separation, hardware, rails, wired glass, fire-stopping, service enclosures, fire dampers) will be upgraded.

**Building Envelope Upgrade**

Existing single glazed, wood windows in the Burrard building will be replaced with thermally broken, aluminum, double glazed units.

**Hazardous Material**

Asbestos containing materials (mechanical insulation, flooring, drywall compound, plaster, ceiling tile), vermiculite, and mercury or pcb containing equipment will be removed.
3.8 Strategic Alignment

St. Paul’s Hospital Renewal is a key component of Providence Health Care’s Strategic Plan. Redevelopment of the physical infrastructure is a fundamental enabler for the further integration of care, teaching and research to advance a sustainable health delivery model, improve patient safety, the patient experience and to recruit and retain staff and physicians.

These strategies align with the Vancouver Coastal Health Goals and Objectives (2010-2012), and the provincial objectives of the Ministry of Health Services’ Key Result Areas. Alignments of the particular contributions to be achieved through implementation of the St. Paul’s Hospital Renewal are outlined below:
### Ministry of Health Goal #1: Improved Health and Wellness for British Columbians

<table>
<thead>
<tr>
<th>MOH Key Result Area (KRA)</th>
<th>VCH 2010-12 Objective</th>
<th>St. Paul’s Hospital Renewal Contribution</th>
</tr>
</thead>
</table>
| 1 Implement targeted health promotion and prevention initiatives to reduce incidence of chronic disease | 2.1 Reduce health inequities in the populations we serve through focused improvements in core public health programs | • PHC’s Chronic Disease Management strategy is extended to additional specialties. This model is the basis of a provincial strategy to enable Family Practitioners to manage chronic disease and reduce reliance on specialist care.  
• Self-management of patient care is promoted through technology and education as integral components of the care plan  
• Research is integrated with care so discoveries (i.e. biomarkers of organ-failure) translated to clinical arena more quickly  
• The spread of HIV/AIDS is reduced through the expansion of High Active Anti-Retroviral Therapy (HAART) and associated outpatient services treating newly identified HIV patients |

### Ministry of Health Goal #2: British Columbians have the majority of their health needs met by high quality community based health care and support services.

<table>
<thead>
<tr>
<th>MOH Key Result Area (KRA)</th>
<th>VCH 2010-12 Objective</th>
<th>St. Paul’s Hospital Renewal Contribution</th>
</tr>
</thead>
</table>
| 2 Implement an integrated system of community health care to more effectively meet the needs of frail seniors and patients with chronic and mental health and substance use conditions | 2.2 Build on VCH integration strategies to support implementation of the MOH directive to deliver integrated primary care, home and community care and community mental health services | • Increased capacity for patient populations of highest need who drive system demand (seniors, mental health, chronic disease)  
• High needs patients are attached to community based physicians through a targeted primary care strategy  
• PHC’s expertise in areas of strength (mental health, addictions, seniors and chronic diseases - heart, lung, renal, diabetes) extended in Integrated Health Networks through advanced communications technology and outreach strategies.  
• Addiction services are repatriated to communities with PHC as the hub for a coordinated network of services  
• Research is integrated with care so discoveries (i.e. biomarkers of organ-failure) translated to clinical arena more quickly  
• The spread of HIV/AIDS is reduced through the expansion of High Active Anti-Retroviral Therapy (HAART) and associated outpatient services treating newly identified HIV patients |
### Ministry of Health Goal #3: British Columbians have access to high quality acute care services when they need them.

<table>
<thead>
<tr>
<th>MOH Key Result Area (KRA)</th>
<th>VCH 2010-12 Objective</th>
<th>St. Paul's Hospital Renewal Contribution</th>
</tr>
</thead>
</table>
| 4 Use patient focused funding to increase access to cost effective elective surgeries and improved efficiencies in the other hospital services | 4.4 Respond to provincial patient-centered funding model. | • Operating room capacity is increased through the addition of OR and procedure rooms to address targeted need for timely access  
• Increased capacity for more complex surgeries and evolving technologies in renovated OR’s  
• Cost per surgical case is reduced with efficient physical environment |
| 5 Improve the quality, safety and consistency of key clinical services by implementing a guideline driven clinical care management system for hospital care | 1.1 Use a standardized, rigorous process to accelerate the creation and broad use of evidenced-based protocols in all clinical areas and programs.  
1.3 Build a regional medication reconciliation system across the continuum | • Research is integrated into clinical settings and supports the development evidence-based care guidelines for BC. |
| 6 Drive LEAN across the hospital service sector | 4.1 Embed LEAN thinking at all levels to fulfill objectives and to deliver quality outcomes. | • LEAN clinical and support service design, along with LEAN space policies and building design are implemented |
| N/A Achieve greater efficiency in the delivery of quality diagnostic services | N/A | • IT systems and radiology/specialist collaboration is leveraged to increase appropriateness of ordered tests  
• Diagnostic services are integrated into the single point of care approach to patient care |
| N/A | 4.2 Develop and implement best practices in care management to reduce unnecessary days of stay. | • Outpatient care is integrated across multiple chronic diseases to streamline care, minimize outpatient visits and reduce hospitalization |

### Ministry of Health Goal #4: Improved innovation, productivity and efficiency in the delivery of health services.

<table>
<thead>
<tr>
<th>MOH Key Result Area (KRA)</th>
<th>VCH 2010-12 Objective</th>
<th>St. Paul's Hospital Renewal Contribution</th>
</tr>
</thead>
</table>
| 9 Optimize use of health human resources to improve clinical care and productivity | 3.1 Continue our workforce utilization efficiency strategies by using data-driven decisions to match staffing to clinical volumes and patient acuity.  
3.1. Enhance workforce utilization and match staffing to clinical volumes and patient acuity  
3.2 Recruit and retain the | • Services are redesigned to optimize staffing model/mix and effective participation of each team member  
• Facility and service redesign supports interprofessional practice and education |
3.3 Build organizational capacity by strengthening leadership and management competencies

4.7 Continue our commitment to “Green Care” alternatives by reducing waste and our carbon footprint.

3.9 Expected Benefits and Outcomes

The proposed redevelopment offers a wealth of benefits for our patients, the hospital, the VCH region, local community, city and province:

- **Development of a care model which is built around the principles of coordinated interprofessional care, promoting wellness and engagement of patients as partners in their self-management of chronic disease, to improve overall health outcomes.**

The catalyst for the philosophy in service redesign has been the innovative integrated care models which have developed in SPH’s areas of clinical strength in heart, lung and renal. The Integrated Care Clinic looked at this shared patient population and planned a coordinated approach to caring for the patient’s multiple needs. The programming for the whole of the new ambulatory care centre will embrace this philosophy. Centralized scheduling, coordination of diagnostic visits and a high functioning electronic medical record are the essential components to improve the care experience and yield the following benefits:
  - Reduction in the number of ambulatory care visits
  - Greater predictability of workflow improving the efficiency of the work and thus decreasing the cost of that work
  - Minimized cycle times for care plan development, increasing the potential to care for more patients with the same resources already allocated to operate these clinics

- **Improved attachment between patients and family physicians**

The clinical programming for the ambulatory care centre has recognized that a key variable for continuity of care is the identification of community primary care providers for unattached patients so that they are linked appropriately to the healthcare system. The centre’s program is aligned with the GPSC’s Attachment Initiative, and will provide training opportunities for GPs and medical students in serving marginalized populations. SPH is the optimal site, as its Family Practice residency program is the largest training program for GPs in the province.

Health system costs will be reduced through decreased inpatient bed utilization: A recent study by the Ministry of Health in BC studied patterns of hospital use by Richmond residents. The study found that when a patient had a single family physician (as the most responsible care provider) there was a significantly reduced risk of hospitalization. In addition, about 21% excess hospital bed days were used by people without a primary care physician.

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• **Strengthened partnerships between specialists, family physicians and other providers**
  Despite the number of specialized programs that exist for chronic diseases, the majority of patients are treated by their primary care provider.\(^{26}\) The “Rapid Access to Consultative Expertise”\(^{27}\) program which now offers consultation services in a number of subspecialties for family physicians across BC reflects the continuing evolution of an earlier PHC cardiology consult model.\(^{28}\) The model supports the management of the patient with chronic disease by the family physician, which releases valuable specialist clinic capacity to reduce waitlists, provides immediate consultation, and minimizes patient travel.
  Moreover, the hub of clinical activity in this new ambulatory building with programs built around PHC’s populations of emphasis offers opportunity for telemedicine partnerships, outreach, and partnerships with local community groups, Native Health, and other key providers.

• **Expanded capacity to meet demand for outpatient care and surgical day care, resulting in improved access and reduced wait times**
  The renewal of St. Paul’s will increase the outpatient capacity to manage demand until 2020, and beyond. This is required to support the appropriate shift of care to outpatient care, away from costly inpatient settings. An additional 1,700 day surgery cases per year will be performed (an increase of 10.5%), and an additional 71,472 outpatient visits will be accommodated (an increase of 17.5%). PHC will build on its success with the “swing rooms”, which have demonstrated a clear increase in surgical throughput and wait list improvement. The additional capacity will ensure ability to meet the surging health care demands of a growing and aging population, coupled with the increasing incidence of chronic disease. The financial and workflow benefits of moving all of ambulatory care to a purpose-built facility with operating principles which reinforce connectivity between its components and predictable, scheduled activity offers tremendous benefits for the system.

• **Improved patient safety and infection control through the creation of an appropriate ambulatory care environment which meets the latest standards, and the separation of inpatient and outpatient facilities**
  There are three advances that this project will offer to improve the safety of the patient care environment. First, the seismic and infrastructure upgrading of the site will improve overall safety and business continuity of the site in an emergency. Second, the development of purpose-built space for ambulatory care which meets today’s design standards and specifications will improve patient and staff safety. Third, the relocation of the mental health beds (which include the Lower Mainland’s only secured mental health unit) from the 1930s Burrard Building to the Providence Tower, an environment designed for inpatient care, will increase the safety of the care environment for this very vulnerable population.

  The ambulatory care environment is very busy and involves a broad cross-section of patients. In addition, the expertise and geographic location of St. Paul’s attracts a large number of patients who are homeless or living in shelter or single room occupancy settings and are at increased risk for infection. At the current time, the patients attend clinics at multiple locations in the hospital, some of which are co-located with inpatient units. With the building of a new ambulatory care centre, the associated 500,000 patient encounters will now take place in a discrete location away from inpatient care, reducing traffic of the public through acute care areas. In addition, the new facility enables PHC to apply infection control best practice into the design of exam room sizing, ventilation, waiting areas and optimum co-location of different patient populations to minimize infection.

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\(^{28}\) Lear et al, 2010.
• **Improved patient satisfaction**

Today’s patients and families are better informed than ever before. The vision for the service model will incorporate Patient Centered Care as a cornerstone of the service design process. Through designing around the ambulatory patient, the objective will be to re-think care from a perspective of wellness, rather than illness; and coordination of care rather than a series of visits. In addition, the building’s systems and processes will be designed to leverage technology and building design principles to promote a healing environment and minimize unnecessary waits in the care process. All of these aspects will translate into improved patient satisfaction.

• **Reduced cycle times from research to care innovation, through co-locating researchers with clinical care, supported by an organizational R&D “engine”**

Knowledge translation is defined as “a dynamic and iterative process that includes synthesis, dissemination, exchange and ethically-sound application of knowledge to improve the health of Canadians, provide more effective health services and products and strengthen the health care system”\(^{29}\). The key success factor for this process is bringing together both the researchers and those who use the knowledge to provide care. The Centre for Excellence in HIV/AIDS is a perfect example of the benefits of a purposeful link between researchers and clinical care to bring the benefit of new discoveries to patient care as soon as possible. The design of the new ambulatory centre will focus on integration of research as part of the care team. PHC is also re-orienting its organizational approach to innovation, through a partnership with the Institute for Healthcare Improvement (IHI) which will support rapid cycle quality improvement.

• **Improved capacity for recruitment, retention and utilization of scarce and costly health professionals**

Given the workforce shortages that BC faces, developing, recruiting, retaining, and making the most effective use of our health care professionals has never been more important. Academic health science centres play an essential role in developing a well-educated workforce that can compete on a global scale in attracting talent\(^{30}\). The training of subspecialists can only take place in academic centres. The redevelopment of the ambulatory care environment and the key resources such as the operating rooms, as well as enabling access to research space, are essential to attracting and retaining the best and the brightest clinicians and scientists.

Furthermore, Providence Health Care has taken a leadership role implementing RN/LPN skill mix redesign, Care Delivery Model Redesign (CDMR) and using an evidence-based approach to maximizing care at the bedside\(^{31}\). This renewal will extend the opportunity to translate this learning to the ambulatory care environment, starting with using the data to inform facility design.

• **Provide local and provincial research-driven economic stimulus**

Academic Health Science Centres are important components of the economy. They not only develop the talent, but also create the knowledge that will transform health technology, diagnostics and service delivery. They develop relationships between private and public sector to accelerate technology transfer and commercialization of discoveries.\(^{32}\) All of this activity is a key source of revenue and employment for the city of Vancouver, while building a more skilled workforce.

• **Provide opportunities for clinical and non-clinical revenue generation**

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\(^{29}\) Canadian Institute of Health Research, [http://www.cihr-irsc.gc.ca/e/29418.html](http://www.cihr-irsc.gc.ca/e/29418.html).

\(^{30}\) *Moving at the Speed of Discovery: From Bench to Bedside*, Association of Canadian Academic Health Organizations (ACAHO), (2007).

\(^{31}\) *Creating Time for Care*, Stantec and PHC, (2008).

\(^{32}\) ACAHO, (2007).
The development of a new facility offers attractive options for various types of revenue, both clinical and non-clinical. The Business case will evaluate the various opportunities to use the additional space capacity to meet health system demand. The proposed redevelopment will make use of a flexible building design which will ensure St. Paul’s ability to adapt and respond to need.

3.10 Risks of Not Proceeding

Given the hospital’s crucial role in serving the city, region and province – including its role as sole provider of many specialized services – it is imperative that renewal of the site proceed in order to ensure sustainability of the site and service continuity for the Lower Mainland and the residents of BC.

Some of its buildings are at risk for cataclysmic failure during an earthquake, meaning that health services could no longer be provided due to system failures (e.g. electrical systems). St. Paul’s is the only hospital located on the downtown peninsula. In the event of a major disaster, travel by bridge may not be possible, leaving St. Paul’s as the essential service provider for the thousands of residents, workers, and visitors in the downtown core. Core health services in Vancouver would be in chaos as there is no surge capacity in other facilities to manage SPH’s 20% of the regional volume, or the provincial services for which PHC is the sole provider. As a result, the confidence of the public in their health care system would be seriously undermined.

The hospital’s continued viability, including its ability to withstand earthquakes, is absolutely essential for managing risk within the health care system.
4 PROPOSED BUDGET AND FUNDING STRUCTURE

This recommended option renews the St Paul’s site for the foreseeable future. The following cost estimates are a reliable indication of the investment required to complete new building works, renovations and upgrades to existing buildings and infrastructure, within the proposed timeframe.

4.1 Estimated Project Costs

BTY Group, a highly-respected cost management consultancy with significant experience in B.C.’s healthcare field, was engaged to provide capital and total-project cost estimates. These were developed based on a construction management approach. The scope of the project includes a new ambulatory building on the north-west corner of the St. Paul’s site, as well as renovations and infrastructure upgrades to the older buildings on site.

Costs for new construction include LEED Gold investment, and construction will incorporate wood whenever appropriate in accordance with the First Wood Act and applicable building codes. The cost includes lease and tenant improvements to accommodate staff and programs currently in the Comox building, which would be demolished. Escalation estimated at $103 million to a construction mid-point in 2016, is excluded pending detailed construction scheduling to be completed as part of the Business Case.

The full report from BTY is included as Appendix H, and cost estimates should be interpreted with a range of plus or minus 15 per cent.

The estimated total cost of the project is between $451-$610 million. The capital construction costs for the new building and associated infrastructure will be expended between 2014 and 2017 and the renovations and system upgrades essentially between 2017 and 2020. Table 4 shows separate estimates for various components of the work.
<table>
<thead>
<tr>
<th>Item</th>
<th>Scope 1 Demolition</th>
<th>Scope 2 New Construction</th>
<th>Scope 3 Renovations</th>
<th>Scope 4 Building Upgrade</th>
<th>Scope 5 Site Work</th>
<th>Scope 6 Elevator Upgrade</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Land Cost (Excluded)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>B. Construction</td>
<td>3,791,800</td>
<td>156,291,400</td>
<td>76,958,100</td>
<td>26,046,500</td>
<td>3,589,700</td>
<td>3,363,600</td>
<td>270,041,100</td>
</tr>
<tr>
<td>C. Allowances</td>
<td>796,200</td>
<td>24,225,100</td>
<td>20,393,700</td>
<td>6,902,000</td>
<td>556,000</td>
<td>891,500</td>
<td>53,764,500</td>
</tr>
<tr>
<td>D. Professional Fees</td>
<td>511,000</td>
<td>20,362,000</td>
<td>13,192,000</td>
<td>4,466,000</td>
<td>383,000</td>
<td>145,000</td>
<td>39,059,000</td>
</tr>
<tr>
<td>E. Municipal &amp; Connection Fees</td>
<td>19,000</td>
<td>3,409,000</td>
<td>395,000</td>
<td>134,000</td>
<td>18,000</td>
<td>18,000</td>
<td>3,993,000</td>
</tr>
<tr>
<td>F. Management &amp; Overhead</td>
<td>455,000</td>
<td>15,795,000</td>
<td>6,085,000</td>
<td>2,059,000</td>
<td>362,000</td>
<td>266,000</td>
<td>25,022,000</td>
</tr>
<tr>
<td>G. Legal Expenses</td>
<td>55,000</td>
<td>2,166,000</td>
<td>487,000</td>
<td>165,000</td>
<td>50,000</td>
<td>21,000</td>
<td>2,944,000</td>
</tr>
<tr>
<td>H. Project Contingency</td>
<td>52,000</td>
<td>2,087,000</td>
<td>1,008,000</td>
<td>341,000</td>
<td>41,000</td>
<td>23,000</td>
<td>3,552,000</td>
</tr>
<tr>
<td>J. Furnishings, Fittings &amp; Equipment</td>
<td>0</td>
<td>72,206,600</td>
<td>14,602,800</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>86,809,400</td>
</tr>
<tr>
<td>K. Information Technology</td>
<td>0</td>
<td>5,760,000</td>
<td>9,786,900</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>15,546,900</td>
</tr>
<tr>
<td>L. Harmonized Sales Tax</td>
<td>215,000</td>
<td>11,457,000</td>
<td>5,416,000</td>
<td>1,520,000</td>
<td>189,000</td>
<td>179,000</td>
<td>18,976,000</td>
</tr>
<tr>
<td>M. Leased Space (Comox Decanting)</td>
<td>11,000,000</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11,000,000</td>
</tr>
<tr>
<td><strong>Total Project Cost (2010 Dollars)</strong></td>
<td><strong>$16,895,000</strong></td>
<td><strong>$313,759,100</strong></td>
<td><strong>$148,324,500</strong></td>
<td><strong>$41,633,500</strong></td>
<td><strong>$5,188,700</strong></td>
<td><strong>$4,907,100</strong></td>
<td><strong>$530,707,900</strong></td>
</tr>
</tbody>
</table>

Notes:
1) The estimated costs are considered appropriate for a construction management form of contract with competitively bid sub-trade pricing. Markups and contingencies have then been added so that the estimate can be used as a reasonable basis for a construction budget for a high-quality facility, whether the procurement method is Design-Build or Construction Management.
2) Based on the limited information received, please anticipate +/- 15% accuracy on the presented estimate.
3) Leased Space (Comox Decanting) cost was provided by Providence Health Care.

**Table 4: Project Cost Estimate Summary Table**

### 4.2 Cost Comparisons

A unit cost analysis completed by BTY and adjusted as per note #2 in the table below to ensure an equitable comparison, shows the estimated cost and unit rate of the new ambulatory care building falls within the benchmark range for similar health care facilities which have been completed or are under construction currently in BC.
### Escalated Building Cost  Dec-2010

<table>
<thead>
<tr>
<th>Project (1)</th>
<th>Escalated Building Cost  Dec-2010</th>
<th>GFA</th>
<th>Benchmark Rate $/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern BC Hospital</td>
<td>$253 million (Approx.)</td>
<td>41,063 m²</td>
<td>6,165</td>
</tr>
<tr>
<td>Southern BC Hospital</td>
<td>$137 million (Approx.)</td>
<td>18,017 m²</td>
<td>7,612</td>
</tr>
<tr>
<td>Interior BC Hospital</td>
<td>$201 million (Approx.)</td>
<td>36,604 m²</td>
<td>5,481</td>
</tr>
<tr>
<td>Interior BC Hospital</td>
<td>$145 million (Approx.)</td>
<td>16,862 m²</td>
<td>8,604</td>
</tr>
<tr>
<td>Northern BC Hospital</td>
<td>$238 million (Approx.)</td>
<td>32,313 m²</td>
<td>7,360</td>
</tr>
</tbody>
</table>

| SPH New Building (adjusted) (2) | $140 million (Approx.) | 21,215 m² | $6,034 /m² |
| SPH New Building             | $146 million (Approx.) | 21,590 m² | $7,239 /m² |

**Notes:**
1. Due to the confidential nature of these projects, BTY cannot disclose specific information for the above projects.
2. To facilitate an equitable comparison, construction cost and unit rate ($/m²) have been adjusted to exclude the parkade, service tunnel and 50% of the powerhouse cost. The latter services both the new and existing building.

Given the similar nature and scope of service, PHC requested that BTY undertake a detailed comparison between the Surrey Outpatient Facility and the proposed SPH ambulatory centre. The SPH project benchmarks favourably, at 5.7% less than the Surrey comparator.

<table>
<thead>
<tr>
<th>A. Project Information</th>
<th>Surrey Outpatient Facility</th>
<th>New IATRC Building, St. Paul’s Hospital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Floor Area</td>
<td>18,017 m²</td>
<td>21,215 m²</td>
</tr>
<tr>
<td>Parkade Area</td>
<td>12,528 m²</td>
<td>8,100 m²</td>
</tr>
<tr>
<td>Mid-point Construction</td>
<td>October 2009</td>
<td>(Dec. 2010 Price)</td>
</tr>
<tr>
<td>Total Construction Cost</td>
<td>$134,448,200</td>
<td>$154,244,300</td>
</tr>
</tbody>
</table>

| B. Inflation Adjustment | | |
|-------------------------| | |
| Adjust SOF price from Oct. 2009 Price to Dec. 2010 Price (-4.5%) | | (-$6,050,200) |

| C. Scope Adjustments | | |
|----------------------| | |
| Remove parkade component | ($11,275,200) | ($10,983,600) |
| Remove site development component | ($1,871,700) | ($1,017,100) |
| Remove Power Plant Cost from St. Paul’s Price (say 50%) | ($14,238,000) |

| D. Pricing Adjustment | | |
|-----------------------| | |
| Add cost premium to SOF price for downtown location (15%) | $17,287,700 |
| Add Design and Construction Contingencies to St. Paul’s Price (15%)* | $19,200,800 |

**TOTAL ADJUSTMENT (B to D)** | ($1,909,400) | ($7,037,900) |

**ADJUSTED CONSTRUCTION COST FOR COMPARISON PURPOSE** | $132,538,800 | $147,206,400 |

**GROSS FLOOR AREA** | 18,017 m² | 21,215 m² |

**UNIT COST (Dec. 2010 Price, Downtown Location, Building Only)** | 7,356 /m² | 6,939 /m² |

**VARIANCE** | ($418) / m² or -5.7% |

* Contingencies already covered in P3 Contract
4.3 Proposed Timeframe

Assuming PHC is granted approval to proceed with a business case in 2011, the new facility could be occupied by 2017 and the full St. Paul’s Renewal Project could be completed by 2020. Project milestones are shown below.

<table>
<thead>
<tr>
<th>Event</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval to Proceed</td>
<td>June 2012</td>
</tr>
<tr>
<td>Complete Business Case</td>
<td>August 2013</td>
</tr>
<tr>
<td>Space Leases Moves, Comox Demolition</td>
<td>2013</td>
</tr>
<tr>
<td>Complete Procurement</td>
<td>2014</td>
</tr>
<tr>
<td>Begin Ambulatory Building Construction</td>
<td>2014</td>
</tr>
<tr>
<td>Ambulatory Building Occupancy</td>
<td>2017</td>
</tr>
<tr>
<td>Complete Renovations to Vacated Space</td>
<td>2020</td>
</tr>
</tbody>
</table>

Note: The Business Case will contain detailed timeline analysis and will identify opportunities to accelerate work in order to address urgent infrastructure risks on site.

4.4 Funding and Partnership Opportunities

PHC owns its land and facilities – including properties beyond the SPH site – and it is uniquely positioned to leverage assets to help enable the required investment. The value of the land provided by Providence Health Care to the project is estimated at $40 million.

As soon as there is approval from Government to move forward to project implementation, PHC will work with its partners to ensure available asset potentials are maximized to support the project implementation.

PHC also has a well-established network of donors and through the St. Paul’s Hospital Foundation, expects that a capital campaign would generate $40 million towards project costs.

4.5 Risks

The scope, cost and timing of the project as outlined in this Concept Plan could be impacted by a number of risks, for example:

- Economic changes affecting construction costs (+/-)
- Additional site issues re contamination and demolition
- Infrastructure failures require earlier investment
- Program agreements with VCH increase workloads or change case mix
- Operating costs increase beyond expectations
- City Development Plan and building approvals take longer than anticipated
- Foundation can not raise $40 million
- Other BC P3 opportunities limit RFP responses and increase costs for our project
- Risk that debt and equity is not available at anticipated terms
- Risk that appropriate decanting space is not available at economic rates

At this early stage, these examples should be considered illustrative. During the Business Case phase, PHC will undertake a thorough analysis of all potential risks and identify mitigating strategies to create a Risk Register.
5 COMMUNICATIONS AND PUBLIC CONSULTATION

Between January 2004 and June 2010, Providence Health Care participated in numerous one-on-one meetings and large public gatherings with major community stakeholders as part of an ongoing engagement process regarding the future of St. Paul’s Hospital. These included three public forums in the West End, one public forum in the Downtown Eastside, and over 30 meetings where more than 60 stakeholder groups were represented.

After Hon. Kevin Falcon’s public comments of June 2010 regarding the future of St. Paul’s Hospital, the number of meeting requests to PHC increased, and subsequently, PHC representatives have had meetings with:

- Vancouver Coastal Health Board of Directors
- Vancouver Coastal Health Senior Executive Team
- Lower Mainland Facilities Planning
- Hon. Mary McNeil, MLA, Vancouver-False Creek
- Spencer Chandra-Herbert, MLA, Vancouver-West End
- Brent Granby, Executive Director, West End Residents’ Association
- Save St. Paul’s Coalition (public forum)
- Tapestry Healthcare Foundation Board of Directors
- St. Paul’s Hospital Foundation Board of Directors
- University of British Columbia, Faculty of Medicine
- The City of Vancouver
- AIDS Vancouver
- BC Persons With AIDS
- BC Centre for Disease Control
- Lower Mainland Purpose Society
- Provincial Corrections
- Camp Moomba
- Healing Our Spirit
- Red Road Aboriginal AIDS Society
- Positive Women’s Network
- A Loving Spoonful
- Dr. Peter Centre
- YouthCO
- Heart of Richmond AIDS Society
- Vancouver Area Network of Drug Users
- Friends for Life
- McLaren Housing
- Asian Society for the Intervention of AIDS
- The engagement has also included several media interviews, including with such major mainstream media outlets as CBC-Radio (Early Edition interview with PHC CEO Dianne Doyle), Vancouver Sun, and Global TV (Dianne Doyle interview) in October 2010.

Consultation to date has shown that there is substantive support for the project (please refer to Appendix I for a letter of support from the City of Vancouver). As the Concept Plan and potential Business Case processes unfold, PHC will design and implement a comprehensive communications and community engagement plan, as outlined below:
Communications Objectives:

- To understand residents’, patients’, and stakeholders’ concerns and interests regarding Providence’s vision to renew St. Paul’s Hospital.

- To provide information to help affected stakeholders shape an informed and educated opinion about future health-care options in their communities.

- To develop a Providence-stakeholder network and relationships to provide regular updates on the progress of the renewal project.

Communications Strategies – Providence is planning for a three-phased approach to communications planning as follows:

**Phase One: Assessment**

Through ongoing community engagement, develop an improved understanding of residents’ and stakeholders’ knowledge, opinion and concerns regarding PHC’s renewal vision and plans.

**Phase Two: Planning**

Use the feedback from stakeholder groups to adapt operational and communications plans and materials to address community and stakeholder concerns and information needs.

**Phase Three: Messaging**

Communicate appropriately with residents and stakeholders to provide the information they require to shape an informed and educated opinion about the renewal plan and ongoing process.

A comprehensive public engagement process will build on past engagement strategies and the resulting stakeholders’ feedback/information, should the provincial government approve of the latest business case and the viability of St. Paul’s Hospital renewal plan.
6 DECISION REQUEST

Providence Health Care requests approval to proceed with a Business Case for St. Paul's renewal, and that the Ministry of Health Services establish a Project Board to oversee the process.

6.1 Business Case Scope and Milestones

The full Business Case will further develop and test risk, outcomes, value for money, and operational impact. PHC views the Business Case as a valued opportunity to work with partners in the healthcare system, with a particular focus on VCH and PHSA to develop a solution which advances care in the Lower Mainland and the province. The Business Case will:

- Finalize the service model
- Develop and assess optimum redevelopment solutions, including consideration of the potential of a privately owned adjacent site becoming an integral part of the St Paul's Hospital redevelopment
- Finalize all cost elements comprising the total funding requirement for the project
- Identify funding sources for the project
- Identify debt implications of the project for the Province
- Discuss other relevant accounting issues
- Develop a master site development plan to facilitate municipal development approvals
- Develop procurement options, analysis and project implementation plan

The scope of work will include, for example:

- Service design and programming
  - Confirmation of service scope and siting, in partnership with VCH
  - Workload forecasting
  - Assess business cases for new/expanded programs
  - Diagnostic service forecasting/assumptions in partnership with LM department
  - Run Bed Allocation Methodology (BAM) to determine optimum bed configuration
  - Service design to achieve objectives of patient centered design, integration of care and chronic disease management model, LEAN patient flow
- Preparation of detailed functional program(s)
- Information technology plan
- Site Master Plan
  - Assessment of existing buildings
  - Traffic study, with examination of local impact
  - Parking study
  - Independent review, Comox building heritage viability
  - Hazardous Materials report (including destructive testing)
- Indicative Design
- Capital cost estimate (Class C)
- Equipment plan
- Procurement Cost Analysis
- Operational cost modeling
  - Start-up, transition and move-in costs
  - Clinical and non-clinical operating costs
- Risk analysis
• Funding analysis  
  o Financing alternatives  
  o Leasing analysis  
  o Evaluation of retail and revenue generation opportunities  
• Preparation of output specifications and documentation for RFP/EOI

Given that that PHC was granted approval to proceed in June 2012, the Business Case can be completed by August 2013. Key milestones are shown below.

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval to proceed</td>
<td>June 2012</td>
</tr>
<tr>
<td>Complete team selection</td>
<td>August 2012</td>
</tr>
<tr>
<td>Complete service design</td>
<td>October 2012</td>
</tr>
<tr>
<td>Functional program first draft and budget review</td>
<td>January 2013</td>
</tr>
<tr>
<td>Preliminary design and budget review</td>
<td>April 2013</td>
</tr>
<tr>
<td>Indicative design and budget review</td>
<td>May 2013</td>
</tr>
<tr>
<td>Procurement model and financial analysis</td>
<td>June 2013</td>
</tr>
<tr>
<td>Final Business Case completed</td>
<td>August 2013</td>
</tr>
</tbody>
</table>

### 6.2 Estimated Cost of Business Case

The total cost for the business case, including a complete analysis of the value proposition, is estimated at $4.3 million. The scope, requirements, and costing methodology for the Business Case was developed using the template provided by Lower Mainland Facilities Planning.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service Plan</td>
<td>700,000</td>
</tr>
<tr>
<td>Facilities Plan</td>
<td>2,400,000</td>
</tr>
<tr>
<td>Procurement Analysis and Costing</td>
<td>200,000</td>
</tr>
<tr>
<td>Document development</td>
<td>500,000</td>
</tr>
<tr>
<td>Approval Process</td>
<td>100,000</td>
</tr>
<tr>
<td>Contingency</td>
<td>100,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$4,000,000</strong></td>
</tr>
</tbody>
</table>
APPENDICES

Appendix A: St. Paul’s Hospital Contribution to the British Columbia Health Care System
Appendix B: Factors Driving Future Demand for Service at St. Paul’s Hospital
Appendix C: Providence Health Care Corporate Space Policy
Appendix D: Detailed Planning Assumptions
Appendix E: Surgical Volume Projections – VCH Model
Appendix F: Abbreviated Master Program for Ambulatory Care Centre (RPG)
Appendix G: St. Paul’s Hospital Master Plan – Phase I
Appendix H: BTY Cost Report
Appendix I: Letter of Support from City of Vancouver, dated January 21, 2011