Renewing the Hospital Precinct at UBC: A Restorative Approach

by

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Abstract

Humans are intimately connected to the natural environment, the place where we evolved and that provides us with the fodder for our very existence (Kellert & Wilson, 1993). Research confirms what we intuit – that people are restored through contact with natural landscapes (Ulrich & Parsons, 1992). Restorative experiences leave one feeling renewed; it has been shown that access to restorative landscapes reduces stress levels, accelerates healing, and eases mental fatigue. Kaplan and Kaplan have described the landscape elements that create restorative experiences, providing guidance to designers who wish to confer restorative experiences to site users, improving their well-being (Kaplan & Kaplan, 1998).

Hospital precincts are uniquely focused on the promotion of well-being, where many of the users are experiencing illness and negative stress and therefore would greatly benefit from implementing restorative landscapes. In particular the UBC hospital precinct could be improved to take advantage of the restorative aspects of nature, creating a better environment for all site users; students, hospital staff, residents and visitors.
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Preface

This project explores several topics relevant in landscape architecture today – therapeutic garden design, restorative landscapes, and design for elderly populations. Gardens have been associated with healing places for thousands of years, and exploration of this association has been interesting and fruitful for me. This project had its start in the summer of 2005 when I was working on campus at Campus and Community Planning at the University of British Columbia. I received a call from the Purdy Pavilion, a 205 bed extended care facility in the hospital precinct on campus. They wanted design ideas for a new garden space made possible by the removal of an MRI that had been housed outdoors at their facility. They also wanted ideas for the renovation of their existing therapeutic garden space; concerns included a retaining wall that needed to be replaced soon, and burdensome maintenance requirements arising from overgrown plant material. Hospital administration was aware for a growing body of empirical research showing that significant benefits to physical and psychological health are gained with access to natural environments. Hospital staff wanted garden space that would serve to link people to the natural world.

The precinct and its landscape are used by students, hospital staff and patients, including a group of residential and transitional care patients that live at the Purdy Pavilion. It seemed to me that Purdy's residents deserved special consideration as they make this place their home. The resident population has an average age of 85, 90% are in wheelchairs, 80% suffer from some form of dementia, and 20% have Parkinson's disease.

My design solution for the Purdy Pavilion includes a proposal for the entire precinct as I felt the need to create a larger context where a hospital garden may appropriately be sited. The project therefore allowed interventions at both the precinct and site scale. My solution includes plans for the precinct and two separate garden spaces, both for the exclusive use of Purdy residents, families and hospital staff. One of these is to be a resident's garden, and the other a redesign to the existing therapeutic garden space to add horticultural therapy opportunities to those that already exist at the Purdy Pavilion.
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1 Restorative Landscapes

1.1 Literature Review

Evolved response to natural landscapes
Humans are intimately connected with the natural environment. We have evolved in nature and it provides us with the fodder for our very existence. But nature provides us with more than just the things we need to survive. Even after basic needs are met humans continue to be captivated by natural elements; flora and fauna attract and hold our attention. Harvard professor of biology Edward O. Wilson has called this phenomenon “biophilia” which he defines as “the innately emotional affiliation of human beings to other living organisms” (Wilson, 1993, p31). He believes that this attraction stems from an evolutionary need to be aware of our surroundings and to select environments best suited to the survival of our species. Psychologist and author Stephen Pinker agrees, posing that “the brain strives to put its owner in circumstances like those that caused its ancestors to reproduce” (Pinker, 1997, p373). There is evidence that although technological advances have made it possible for man to live a daily existence removed from the natural environment our brains are still adapted to prefer immersion in the types of landscapes where our species had its beginnings.

Landscape preference
Several researchers have done work on landscape preference, and their findings are similar. Gordon Orians’ research supports Wilson’s hypothesis. He finds a cross cultural favouring of landscapes with characteristics similar to those of the African savannah, the environment which evidence points to as Homo sapiens’ home for the first two million years of the species’ evolution. The main elements of preference, Orians tells us, are clear views in all directions, clustered trees with spreading canopies for protection, open grasslands for easy movement and long views, varied topography for strategic surveillance, diversity of plant and animal life, and access to water (Orians & Heerwagen, 1992, p.558). Geographer Jay Appleton describes a similar kind of landscape as that most preferred by humans, a setting which offers clear views into the distance yet provides enough vegetation and topographic relief to provide cover (Appleton, 1975). This dialectic landscape of prospect and refuge not only resembles the savannah, but also constitutes an environment where man has tactical advantage over his prey and predators.

Environmental psychologists Steven and Rachel Kaplan find that people prefer environments which provide them with the information they require to evaluate their surroundings (Kaplan and Kaplan, 1998). A balance between coherence and complexity is necessary; a setting that is orderly and unified yet has a rich array of elements. A combination of legibility and mystery must also exist. The preferred environment is easily read, yet gives the promise that more can be discovered if one were to venture further into the space.
Effects on well-being

Roger Ulrich's research shows the effect that simply viewing photos of natural elements has on hospital patients: reduced heart rates, reduced respiratory rates and lowered blood pressure (Ulrich & Parsons, 1992). Visual access to natural scenes from patient windows reduces stress, shortens the duration of post-operative hospital stays, reduces minor post-operative complications, and increases positive feelings. The Kaplans have reported that window views provide office workers with relief of the effects of mental fatigue, a condition that arises from over exercising one's capacity for directed attention (Kaplan & Kaplan, 1998). Russ Parsons suggests immune systems are positively affected when people are exposed to nature (Parsons, 1991). In all of these studies, subjects benefit from exposure to natural elements. They have restorative experiences that improve health problems - illness, stress, or mental fatigue - and are left feeling renewed.

Restorative elements

The Kaplans have isolated the landscape elements that they feel create restorative experiences. These need not all be present to gain restorative effects from landscapes, but the more that are present and the stronger their presence, the greater the effect will be. They are a sense of being away, fascination, extent, near nature and compatibility (Kaplan & Kaplan, 1998).

A sense of being away is achieved when one feels that they have been to a whole other world, an experience that can be provided through escape from aspects of life that are "ordinarily present and presumably not always preferred" (Kaplan & Kaplan, 1998, p.183). Common outdoor settings that give a sense of being away are parks, backyards or rooftop gardens; places where one is away from daily stressors and distractions.

Fascination is invoked when one's attention is fixed without the need for directed attention, allowing the mind to focus without effort, allowing for recovery from mental fatigue. Fascinating elements have a directly exciting quality which attracts people and keeps them from becoming bored. Human fascination is a difficult process to define. Kaplan and Kaplan state:

"central as such fascinating objects may be to recovering one's capacity for directed attention, they can only be a part of a larger picture. Much of human fascination revolves around issues of process as well as content. Humans are fascinated by carrying out various informational activities under circumstances of some uncertainty. They are fascinated by attempting to recognize in instances where recognition is difficult but not impossible. They are also attracted to predictions of uncertain events: gambling provides a classic example. And they are fascinated by learning, by following the thread of something of interest in order gradually to acquire a bigger picture, rather than by simply being taught new things. The strong preference for scenes high in mystery presumably expresses a related concern. These process fascinations are not, however, engaged merely by random sequences of interesting objects. An occasional fascinating element may challenge one's capacity for recognition, but if unconnected to a larger framework it will be only a momentary diversion or distraction. Even an extended sequence of fascinating elements, if unrelated to each other, will not engage our process fascinations. Thus fascination and extent are mutually supportive. Connectedness, or relatedness, or the existence of some larger pattern
is required in order to engage this high-level human motivation" (Kaplan & Kaplan, 1998, p.185).

Extent is the sense of being in a space that is part of a larger setting or is physically or psychologically large itself, allowing for the construction of a mental map of a space that includes the imagined as well as the visible (Kaplan & Kaplan, 1998). A space need not be physically large to have extent, as long as a site user is able to make a connection to the world beyond what is immediately perceived. The Kaplans point out that this is often the case in theatre stages where audiences conceptually understand sets to be part of a larger imaginary world. In designed landscapes this can be achieved many ways including providing views to features off site, or planting trees off site that will be visible from the site, psychologically expanding its boundaries. Small spaces can be subdivided into separate sub-spaces using screens such as vegetation, trellis, walls or fences blocking views that make it possible to take in the entire site at once. People are then caused to imagine what is beyond their field of view, increasing extent of a small space. Circuitous paths can be used to guide people through a site along a route with selected viewing points to achieve the same aim. A sound associated with recreational outdoor space, such as babbling water, or banners blowing in the wind can also be used to increase extent in a garden setting. If the source of the sound is not visible, a person is left to imagine the object that is making the noise, increasing extent by engaging the imagination.

Near nature is the provision of environments with a high amount of natural content where it is easily accessible to people. A neighbourhood park, even one small in scale, can be visited easily and often and offers an opportunity for frequent restorative experiences. Near nature is doubly important in creating restorative environments as natural elements such as water, plant and animals are powerful agents in engaging soft fascination.

The final restorative element described by the Kaplans is compatibility. Landscapes designed to be compatible with user needs support programs for the space and consider site conditions, then provide appropriate amenity to users. A compatible environment allows the user to do what they want to in a space comfortably and safely (Kaplan & Kaplan, 1998). Elderly populations “preferences include outdoor spaces that support informal and passive activities such as walking and talking with friends, gardening, nature observation of water, vegetation, and fauna; and panoramic views of a naturalistic softscape” (Browne, 1992). Browne also found that natural elements such as plants are commonly underutilized in outdoor settings for the elderly or not placed for maximum benefit. To accurately determine preferred uses for a new outdoor space at the Purdy Pavilion a questionnaire for residents, families and staff has been used and the findings are reported later in this document.

**Plants as restorative element**

Contact with plant material can be powerfully restorative of its own accord. When one grows plants, one takes on a nurturing role (Lewis, 1993). The garden rewards the gardener’s efforts with fruit, flowers and a sense of accomplishment and pride. Plants engage the gardener in a procession through the seasons. New shoots and buds create anticipation for the future, a feeling that is sometimes lost in the infirm and
elderly. As plants grow, the gardener receives positive feedback creating an emotional connection to the plants. Especially for patients in extended care where much personal control over one's life has been lost, a garden plot can be empowering as the gardener tends their space, and feels needed.

**Horticulture therapy**

Horticulture therapy takes advantage of the restorative qualities of plants by incorporating gardening as part of a patient's therapy program to improve their well-being. Health benefits for patients include aerobic exercise, relief from stress, and opportunities for social interaction. Many additional behavioural and social benefits can be accrued from participation in a horticulture therapy program (Mattson, 1992). Garden activities provide patients with opportunities for decision making and problem solving, reinstating a sense of control that is often lost when one enters institutionalized care. To get an idea of the benefits horticultural therapy activities typically transfer to patients, we can look at those listed by Vermont State Hospital.

**Figure 1.1 Benefits of Horticultural Activity**

| 15 ways that horticulture was used by the Activity Therapy Department at Vermont State Hospital to provide benefits to clients: |
|---|---|
| 1. Activities of Daily Living: By establishing daily routines in the garden, clients better understand the importance of cleanliness and health in their own lives. |
| 2. Ability to focus on a task: Through sensory stimulation, the client is motivated to become involved in the gardening activity. |
| 3. Enjoyment: By correct selection and adaptation of activities, the horticultural therapy insures that the client has an enjoyable experience. |
| 4. Work and frustration tolerance: Begin with simpler gardening tasks and gradually build to higher levels of job skills. Task analysis procedures may be helpful with challenging work. |
| 5. Socialization, cooperation: Sharing gardening experiences and plants provides meaningful interaction. |
| 6. Behavioural control: Aggressive behaviours can be constructively channelled through physical work. Work with non-threatening plant material in a comfortable environment encourages relaxation. |
| 7. Leisure time skills: Plant care and related activities can effectively occupy time. |
| 8. Reality orientation: Understanding the relationships of seasonal changes and plant growth and development are fundamental human perceptions. |
| 10. Self-expression: Floral or landscape design helps people make decisions and use plants in a creative way. |
| 11. Fine/gross motor skills: Many examples could be given of how we can use horticulture to develop these skills. Eye-hand coordination, physical conditioning and work endurance can be evaluated with various horticultural activities. |
| 12. Independence: Clients should be encouraged to make independent decisions and to accept the outcome of their actions. |
| 13. Assertiveness: Through experience with a variety of horticultural activities, clients gain experience and an ability to become more involved with decision making and eventual outcome. |
| 14. Intellectual stimulation: Curiosity may be aroused by sensory stimulation during the horticultural activity. Investigation of the natural world occurs during the process of gardening. |
| 15. Values clarification: By developing a trusting relationship with a client, the therapist is able to provide a setting in which problems and issues can be addressed. |

Source: Mattson, 1992, p. 164
Positive image
In addition to therapeutic opportunities, green outdoor environments provide site users with a positive image of their environments. A beautiful setting communicates that the people living and working in that place are valued, and deserving of extra care and attention. One could argue that this message is especially important to the ill and aging as it may have a positive effect on their health. A sense of self worth has a rehabilitative effect. Dr. Edward Stainbrook of the Department of Human Behaviour at the University of Southern California School of Medicine tells us that

"an environment of ugliness, dilapidation, dirtiness, over-built space, and a lack of natural surroundings confirms the negative self-appraisal a person may have developed through other contacts with society. Self-esteem is the keystone to emotional well-being" (Stainbrook, 1973, p.22).

Purdy Pavilion resident population
Purdy Pavilion is extended care facility serving a primarily elderly population with an average age of 85 years. Residents mainly require complex care; approximately 80 percent of residents suffer from some form of dementia, and an additional 20 percent have Parkinson’s disease. The environment-behaviour model for any space to be used by Purdy’s population must take these medical conditions into account.

Old age brings special design considerations (Jones, 1996). People over 65 years of age typically have reduced visual acuity. This population requires three times more light to see well than younger people, and glare causes difficulty. People at this age tend to gaze downward, and will not fully enjoy design elements they have to look up to see. Age affects perceptual ability. The elderly have difficulty identifying objects or locations and take comfort in familiar objects and places enjoying most those environments with a homelike quality. A gradual loss of motor function results in a lack of strength, agility and stamina. Aging leads to sensory deficiencies such as poor hearing and a reduced sense of smell. This implies a need for rich sensory environments with sounds, scents and textures in close proximity to seating. Elderly individuals have a reduced range of environmental and atmospheric conditions in which they are comfortable and prefer resting areas without bright light, glare, drafts and excessive heat while preferring lightly shaded areas.

Parkinson’s disease is characterized by a gradual increase of muscular rigidity and weakness. Slowing response in voluntary movements results in a characteristic shuffling gait. A general reduction of range of motion and tremors reduce fine motor skills (Wichrowski, Chambers & Ciccantelli, 1998). Environments for this population should be obstacle-free, and employ minimum possible slopes. Decorative elements should be placed when they can be easily touched as reaches are negatively affected by Parkinson’s disease. To accommodate difficulties in walking, doors should not have sills and the transition between indoors and outdoors should be as seamless as possible.
Dementia, specifically Alzheimer's disease, has a dramatic effect on people's perceptual abilities. Moyra Jones research describes typical difficulties experienced by Alzheimer's patients (Jones, 1996). Alzheimer's sufferers see patterns of light and dark in flooring as changes in level. For example, a floor with a black and white checker pattern could appear as rectangular paving stones set amid a grid of rectangular holes making it difficult for patients to use. To an Alzheimer's patient, the shadow cast on the ground by an overhead trellis may seem like a pit in the sidewalk. Such patterns of light and dark on the ground may prevent patients from using a space, or cause people to freeze or fall. Sharp contrasts between brightly and dimly light spaces also cause difficulty. For example, standing in a brightly lit hallway a patient may perceive an adjacent dimly lit room as a dangerous cave, and not want to enter in. Even lighting or transition zones between brightly and dimly lit areas are needed. Glare, light reflected on surfaces such as newly polished floors or glass table tops, raises perceptual issues for this population. A gleaming hallway may appear as a large puddle to someone with Alzheimer's, and for this reason, no highly polished or glazed surfaces should be used. Also of difficulty is figure ground definition, the ability to perceptually separate a visual scene into a foreground and a background. To assist figure ground definition monochromatic colour schemes should be avoided. The point where walls meet floors can be visually indistinct to Alzheimer's patients, causing a sort of visual white-out that makes navigating space difficult. For this reason it is important that walls and floors be different colours or made of visually distinct materials. Alzheimer's patients have difficulty navigating spaces and benefit from simple, geometric spaces and memorable landmarks to assist in them in way-finding. The term way-finding refers to the ability of site users to travel through a space and reach a desired destination. Alzheimer's patients often forget where they are and why they are there, and will sometimes try to return to their homes and responsibilities from their previous lives. This creates a need for secure spaces to protect them from potentially dangerous wandering. Circulation routes should be looped to return site users to their starting points. Non-toxic materials should be used exclusively as Alzheimer's patients are known to put inedible objects in their mouths.

In recent years, there has been increased interest in designing gardens specifically for Alzheimer's patients, using design criteria that address the needs of this special population. Such gardens do more than provide amenity for patients. Mooney and Nicell found a dramatic positive effect on Alzheimer's patients in their study at the Cedarview Lodge in Vancouver (Mooney & Nicell, 1992). Patients who used the garden showed a marked reduction in incidents of aggressive behaviour, a benefit to patient well-being and to staff.

**Questionnaire Results**

As part of the information gathering for this project, a questionnaire was delivered to Purdy staff, residents, and residents' families. Detailed results are included in Appendix 2 of this paper. General trends emerged. A strong interest in places to visit with family and friends outdoors, a place for small group gatherings, light gardening and bird and animal watching was indicated (80% of respondents or
more). Interest in the following design elements was shown; a patio, seating areas in shade, shade trees, fruit trees, flowers and a fountain or pond.

Garden as a place for dying

As many of the residents at the Purdy Pavilion spend their last days in this place, it seems appropriate to mention gardens’ roles as places that connect people with the cycles of life and death. Catherine Howett tells us that “the art of the garden ought not to conceal from us the truth that our own lives participate in these processes; rather, the garden that gives expressive form to the mysteries of time, change, and mortality may itself effect a potent transformation, reconciling us to nature, offering us again the possibility of loving surrender and an ascent to what is beyond our understanding” (Howett, 1993, p.255). Perhaps settings that demonstrate the passage of living material into senescence would offer comfort to those at the end of their lives.

If one were to choose a place to spend the end of their days, it is easy to imagine that a garden would provide a more reassuring setting than a hospital ward. Death is often associated with a return to nature which gave us life. Poet Kahlil Gibran asks the question “for what is it to die, but to stand in the sun and melt into the wind?” Ready access to the natural world seems appropriate to this process.

1.2 A History of Hospital Gardens

Mircea Eliade views gardens as places apart from ordinary life, places where one feels in touch with powers greater than themselves, a quality he refers to a sacred space (Eliade, 1960). Through time a connection has been made between gardens and the sacred function of healing. “Long after humans had begun to erect dwellings, local healing places were nearly always found in nature – a healing spring, a sacred grove, a special rock or cave” (Cooper Marcus & Barnes, 1999, p.1). Since the beginning of history, from historic labyrinths, meditation gardens and scholars’ retreats to recent Schreber gardens and city parks, people have used gardens as places for retreat, meditation and healing.

In Europe during the Middle Ages gardens were associated with places of healing (Gerlach-Spriggs, Kaufmann & Warner, 1998). Charitable religious orders cared for the sick and poor who repaid their hosts with prayers for their souls. Patients were often pilgrims, orphans or vagrants. The cover of Hortus Sanitatis, a book of plant and herb lore published in Mainz in 1491, shows a consultation between physicians in a sick room of such an institution. At this time monasteries and convents served as hospitals, and their facilities included cloister gardens and medicinal gardens where plants useful in treating diseases were cultivated. Most such hospitals were small, housing between five and ten residents, although some such as Saint Gall in Switzerland and Hotel-Dieu in Paris grew to become large institutions.
The cloister was the centre space of the monastery, enclosed by the church to the north and other by buildings such as the kitchen, cellar and dining hall on the remaining sides. This open green space was typically edged by an arcade walkway, its interior space divided into four equal quarters planted with grass or flowers. At the centre of the garden a water source and often an evergreen tree that served as a religious symbol. The cloister garden presented the viewer with an orderly view of nature. Its simple geometry and directed view induced a reflective mood, suited to a restorative experience.

At the end of the Middle Ages monasticism faded away. Healing places of the Renaissance and Reformation did not place as much importance on outdoor environments for the ill. Crop failures, political and religious conflict and the plagues of the 14th and 15th centuries left local governments unable to develop effective health programs. It is not until the 18th century that we see a resurgence in interest in
the healing potential of landscapes. However, even as the charitable hospitals of the Middle Ages fell into disrepair, work was being done that paved the way for future innovations in restorative gardens. The period between the 15th and 18th centuries saw the rise of a scientific approach to medicine. Disease, once attributed to poverty, was now seen as the result of infections spread through the air. Statisticians speculated that a healthy population would result in greater prosperity for all, increasing interest in public health. Nursing orders were established and treatment of mental patients improved. New military hospitals led the way for innovation in hospital design (Gerlach-Spriggs et al., 1998).

Pavilion hospitals of the 17th to 18th centuries were designed to take advantage of new medical knowledge. Special attention was paid to hygiene, and patients were given access to fresh air and sunshine, and large gardens were commonly part of the plan. The Royal Naval Hospital at Stonehouse in England is a notable example of a pavilion hospital from this period. It consisted of a u-shaped arrangement of five buildings around a central rectangular lawn. The buildings were joined by a covered colonnade. Each ward in the hospital was situated to take advantage of ventilating breezes. Pavilion designs also commonly employed a tooth-combed design where single wards were placed at right angles to a central corridor maximizing opportunities for solar access. Hospital grounds had generous gardens for use by patients. Even those who could not walk were given views to the outdoors. Florence Nightingale the famous nurse and health care reformer of this era said that:

"second only to fresh air...I should be inclined to rank light in importance for the sick. Direct sunlight, not only daylight, is necessary for speedy recovery...I mention from experience, as quite perceptible in promoting recovery, being able to see out of a window, instead of looking against a dead wall; the bright colours of flowers; being able to read in bed by the light of the window close to the bed-head. It is generally said the effect is upon the mind. Perhaps so, but it is not less so upon the body on that account" (in Gerlach-Spriggs et al, 1998, p.16).

The idea that landscapes offered restorative experiences to patients continued to gain support through the Romantic era. German theorist Christian Hirschfeld wrote that all hospitals should be in rural settings.

Figure 1.4 Royal Navy Hospital

Source: Postcard World, 2006
on sunny hilltops amid gardens where patients can stroll and gaze upon cheerful plantings (in Gerlach-Spriggs et al., 1998, p.18). He felt that the enjoyment of nature would lead to a healthy life. In America, this scholarship led to the development of mental hospitals such as the Friends Asylum, built in Philadelphia in 1817. This type of asylum aimed to create a restful, homelike setting for patients, allowing them to recover from the stresses that were thought to be the cause of their illness. Such hospitals were set outside the city with very large, protected, well-maintained grounds that provided patients with pleasant vistas and opportunities for farming or gardening that would be prescribed as part of their treatment.

**Figure 1.5 Friends Asylum**

![Friends Asylum](source.png)

Source: Philadelphia Buildings, 2006

This kind of treatment met with great success. However, burgeoning populations led by waves of immigration overwhelmed the system just as political leaders cut funding for health care. Pavilion hospitals faced the same pressures, and in addition suffered an increased spread of disease from one patient to the next. Hospitals were in crisis, and by the mid 1800's it was “questioned whether hospitals ought to be closed altogether” (Gerlach-Spriggs et al., 1998, p.22).

Germ theory and antiseptic practices fuelled the next wave of medical advancements. Louis Pasteur's development of vaccinations and Robert Koch's work on infectious diseases brought new hope. Demands grew for increasingly specialized facilities in hospitals.

At the end of WWII technological advances caused rapid changes to hospital design. Efficiency was the new ideal, resulting in multi-storey compact hospitals which used less land and energy. Patients were grouped according to their conditions with contagious patients separated from the main population. Gardens were no longer a part of hospital designs, and the land they had once been allotted was now used for parking lots. There were exceptions to this rule, but trends towards efficiency in the 20th century led to high-rise hospitals that looked much like office towers.
Today, many health care facilities are modelled after another common urban structure, the shopping mall, complete with arcades of shops and atria. Author and landscape designer Nancy Gerlach-Spriggs feels that this is not a positive development.

"To be sure, such spaces are familiar enough to patients, staff, and visitors, and in that sense the replicas of commercial designs will make them comfortable. But they ignore the special emotional needs of a health care facility" (Gerlach-Spriggs et al., 1998, p.33).

She recommends the integration of outdoor spaces that provide restorative experiences for staff, visitors and patients. This idea seems to be taking hold as we enter the 21st century. Healing gardens are once again becoming an accepted part of the hospital landscape.

1.3 Precedent Studies

An examination of places and projects in Vancouver that deal with restorative experiences in hospital settings was undertaken to provide context for this project and to generate possible design solutions. In the case of Banfield Pavilion, the garden supports therapeutic programs and is well supported with human resources. Cedarview's Alzheimer's garden was completed as part of an investigation into the effect that outdoor spaces could play in dealing with specific populations. The Wellness Walkways project is integrated into the fabric of the larger community, and is part of amenity provided to pedestrians in the community, but with expanded intentions. A common thread in all of the projects listed here is design response that addresses the needs and abilities of the users.

Banfield Pavilion, Vancouver General Hospital, Vancouver, BC

The Banfield Pavilion is part of the Vancouver General Hospital Campus. It is a 198 bed extended care facility dealing mainly with geriatric patients. In size and population it is very similar to the Purdy Pavilion at the University of British Columbia. Like the Purdy Pavilion, this hospital has embraced the idea that landscape can support healing functions. Evidence of the role that natural elements play at the Banfield Pavilion is present throughout the facility. Residents participate in gardening programs that vary in scale from the landscape area they maintain at the main entrance, to balcony and rooftop gardens. Shelagh Smith, a horticultural therapist, is employed to facilitate programs with the residents and to help maintain the plantings on site.

Several strategies are in place to ensure that residents have ready access to sensually rich environments. At small scale, residents make use of existing balcony space as each floor puts forth an entry in the annual balcony garden competition. The plant pots used in this program are of sizes and heights that make them accessible to those who tend them. At a larger scale, the Pavilion has taken advantage of an existing rooftop to create a 3,000 square foot garden. The rooftop garden is the most intensively used and designed restorative space at the Pavilion and is the setting for the majority of the horticulture therapy programs on site. Several strategies are employed to ensure the garden is easily used and maintained by residents. An automatic door opens on to the rooftop garden. Walkways are wide, smooth and free of obstructions.
Accessible planters suited for use by those in wheelchairs hold plants with interesting textures and pleasant aromas. Automatic irrigation means hoses do not obstruct pathways. Hanging baskets are on pulley systems so that they can easily be lowered for maintenance by residents. Design elements allow horticulture therapy programs to take place even in inclement weather. A covered walkway allows residents to use outdoor space despite rain or heat and moveable planters come indoors for programs when the residents prefer not to venture outdoors.

Shelagh Smith has amassed a collection of gardening tools adapted to residents' mobility and function. These tools serve to enable and encourage residents to participate in garden programs.

**Cedarview Lodge, North Vancouver, BC**

Cedarview Lodge is a 150 bed seniors' residential care facility located in North Vancouver. Professor of Landscape Architecture, Patrick Mooney, and Cedarview administrator, P. Lenore Nicell, undertook this project with funding from Health and Welfare Canada. Meeting the special needs of Alzheimer's patients and responding to best practices in the development of special care facilities, this garden was opened in May, 1990. A study was undertaken in conjunction with the opening of the garden to assess the effect that the new garden would have on residents.
The stated design intent of the garden was to:

- reduce glare on pathways and entryways
- provide a continuous loop so that residents were naturally led back to the building entry, thereby avoiding disorientation
- contain a central trellis and tree grove, which were to act as landmarks and allow residents to orient themselves
- be enclosed, but with the surrounding fence screened in a way that residents were not attracted to the site edge
- contain plants that are non-toxic so that there is no danger of poisoning from ingesting plant material
- contain footpath lights and handrails intended to minimize danger of residents falling in the garden by providing continuous even lighting and support
- contain some seasonal colour but be low key, rich in familiar fragrances, and intended to soothe rather than visually stimulate residents
- increase the apparent size of plantings, as there was a relatively high ratio of walkway to planted area. There were four seating areas, all partially shaded and planted to give an illusion of privacy (Mooney & Nicell, 1992).

Researchers tracked changes in incident reports at Cedarview Lodge and other facilities that had gardens and compared them with facilities without gardens. The comparison revealed a dramatic difference in the numbers of violent incidents and falls with those facilities with gardens enjoying significantly fewer
negative incidents. These findings support the view that specially designed outdoor environments can have a positive effect on dementia patients.

**Mount Pleasant Wellness Walkways, Vancouver, BC**

This project was completed in 1999 for the City of Vancouver by UBC landscape architecture professors Patrick Mooney and Don Luymes. It looked at the role a walking circuit could play in this Vancouver neighbourhood which has three healthcare facilities in its boundaries including Mount Saint Joseph's Hospital (Mooney & Luymes, 2000). The intent was to generate design solutions that would engage the full range of potential site users.

Recommendations included a series of circuits designed to be accessible to people with mobility constraints; the elderly or those with disabilities. Sidewalks were to be at least 1.8 meters wide to accommodate wheelchair traffic and use saw-cut control joints for maximum paving smoothness. Rest areas with accessible benches and decorative plantings were to be placed every 100 meters, ensuring short trips between comfortable seating opportunities. Corner bulges and traffic circles would calm traffic within the study area. Street crossings were to be well marked and have perpendicular curb ramps directly aligned with sidewalks and crosswalks. Tea Swamp Park, an existing park within the study area, would be retrofitted with accessible furniture and a universal water fountain.

Way-finding would be supported throughout the area. Clear signage would be installed at intersections and rest areas. Different circuits would be colour coded; paving and plantings would match the colour of the circuit travelled. Special landscape areas and heritage interpretation markers would serve as landmarks, assisting way-finding. For complete project guidelines, see Appendix A.

**Figure 1.8 Wellness Walkway**

![Wellness Walkway Image](Source: Author's Photos)
2 Context

2.1 National Trends

Canada's population is aging. An increase in the elderly population will translate to greater demands on the UBC Hospital Precinct over time. Statistics Canada predicts that by 2030, 20 percent of the population will be 65 years of age or older. This trend is reflected in British Columbia where it is predicted that by 2021, 18.3 per cent of residents will be seniors, translating to approximately 552,660 seniors living in Vancouver (British Columbia Statistics, 2006). In addition, demographic forecasts predict dramatic growth in Vancouver's overall population. Between 1991 and 2021 the population of the GVRD will increase from 1.78 million to 3.02 million, a 70 percent increase, including a 247 percent increase in the segment of the population 65 years old and older (GVRD Strategic Planning Department, 1994). Considering that approximately 10 percent of seniors require formalized care such as that offered at the Purdy Pavilion at UBC located in the study site. It follows that by 2021 we can increased demand for extended care as roughly 55,266 people will be housed in such facilities in the Vancouver area.

The implication of this trend for the study site is an anticipated increase in demand on UBC's hospital precinct, perhaps even its expansion, and an increased opportunity for positive influence as visitor numbers increase.

Figure 2.1 Canada's Aging Population

![Canada's Aging Population](image)

Portion of Canadian Population 65 and over

Source: Statistics Canada

Figure 2.2 Caring for Older Canadians

![Caring for Older Canadians](image)

Community Care, Family and Friends

Institutional Care

90% 10%

Source: Mount Allison University, 2002
2.2 Context within the Region

The Greater Vancouver Regional District creates the larger setting for the study site. Biophysically, the region enjoys one of the most amenable climates in Canada. A mountain range on Vancouver Island to the west and proximity to the ocean give Vancouver its mild climate. Vancouver has a mean temperature of 2.8 degrees Celsius in January, its coldest month, and 17.3 degrees Celsius in July, its warmest month allowing for comfortable year-round outdoor activity. The city is located in the mid-latitudes of North America where warm, humid air masses from the south meet cooler northern air resulting in precipitation. The study site receives 1200 to 1300 millimetres of precipitation annually, most of it falling in the winter months, making covered outdoor areas especially attractive from November to March (Wynn & Oke, 1992).

The site falls in the Fraser Wetter Maritime Coastal Douglas Fir Biogeoclimatic Zone receives an average of 1,919 hours of sunlight each year (Wynn & Oke, 1992) and is situated in USDA plant hardiness zone 8. A wide selection of plant material can be grown here, and gardening is a popular recreational activity.

The campus' physical layout has been planned to celebrate its position and to make a visual connection to the larger region. The street grid on campus is aligned to provide a view down Main Mall to the north shore mountains. This view serves as a visual terminus to main mall, and is a powerful connection between UBC and the larger region.

Figure 2.2 UBC's Position in the GVRD

Source: Remax Realty, 2005

2.3 Context within the University

The approximately 495 hectares that make up the University of British Columbia are located on the western-most edge of Vancouver. The campus enjoys an idyllic location bordered by Burrard Inlet to the north, the Strait of Georgia to the west and parkland to the southeast. Its situation amid ocean and
parkland leaves it disconnected from the greater fabric of the city, and as a result, the University functions largely as a separate entity.

The University’s vision statement, Trek 2010, lists five pillars around which goals and strategies are determined; research, learning, community, people and internationalization. The pillar called ‘people’ is most directly related to this project as it states that the university values rich environments for all members of the campus community. Goals and strategies relating to people include “ensuring that all members of the UBC community have the best possible surroundings in which to live, study, work and play” (UBC, 2004) suggesting strong support for initiatives to improve landscapes on campus.

From the inception of the university, land usage plans designated the study area as part of a section of campus set aside for medical buildings. There are several buildings immediately adjacent to the study site with amenities of interest to people living and working in the study area. University Village is located to the north east. The village’s food outlets, convenience stores, financial services, hairdresser, drycleaner, newsstand, dollar store, gifts and house-wares make it a popular destination. Regent College, an interdenominational graduate school of theology, is directly east and once included a pleasant park with seating as part of its grounds. The college is currently undergoing renovations, and although the garden has been demolished while an underground library is installed, there are plans to reconstruct the previously existing landscape once construction is complete. To the south west, the Technology Enterprise Facility (TEF) with its convenience store and Starbucks coffee shop draws customers from across this quadrant of campus. To the west of the site is the Health Sciences Parkade, which provides parking in close proximity to the study area. To the north are the Woodward Biomedical Library and the Instructional Resource Centre (IRC), co-located in a complex that includes a food outlet and an indoor mall.
2.4 The Hospital Precinct

The hospital precinct is on the eastern edge of campus and houses of three hospital buildings; Koerner Pavilion, Detwiller Pavilion and Purdy Pavilion. The precinct is bounded by the Instructional Resource Centre (IRC) to the north, Wesbrook Mall to the east, the Life Sciences Centre (LSC) to the south and Health Sciences Mall to the west.

Amenities

The site has several amenities that are shared and enjoyed by people living and working in the precinct.
The Acute Care Unit Patient Park is located in the north western part of the precinct. It was designed by Vagelatos and Associates, a Vancouver landscape architecture firm, and opened in 1987. The park is currently closed as is it serves as the staging ground for a renovation to the Biomedical Research Centre immediately to the north.

**Figure 2.5 Patient Park**

Patient Park will be altered before it is re-opened to the public. In a schematic design report prepared in March 2003, Vagelatos Associates lists planned changes including improved access to the park through the addition of an entrance to the park from Health Sciences Mall. This entrance will provide direct access to the park for people working in the neighbouring research facility and invite passing pedestrians to cut through on their way to destinations in the hospital precinct. It is hoped that this change will make Patient Park available to a wider variety of users.

**Pedestrian Breezeway**

An outdoor pedestrian mall is created in the space between Koerner and Purdy Pavilions. This mall currently offers the greatest pedestrian amenity on site. In warm weather people sit in the shade along its edges. A covered walkway planted with wisteria leads from Health Sciences Mall to the entrance to Koerner Pavilion. The mall also leads to the main access point for Patient Park.
Koerner Cafeteria and Tunnel
A cafeteria is located on the ground floor of the Koerner Pavilion, and is one of the few places on campus where a healthy meal can be purchased at a reasonable cost. It is a popular dining choice for staff, students and hospital residents. The Koerner Pavilion is connected on the cafeteria level to the Purdy Pavilion by underground tunnel. This circulation route is commonly used as it protects site users from inclement weather as they travel between buildings.

Circulation Issues
Circulation issues are cited by Purdy residents as one of their main concerns. Grades cause problems for Purdy residents in wheelchairs who report difficulty using the sidewalk that connects Koerner and Purdy Pavilions to the sidewalk running parallel to Wesbrook Mall. This poor connection prevents Purdy's residents from venturing from the hospital to the village. Instead, they wait until for visitors to come so that they can be taken out to shop. Hospital Lane is too steep for wheelchair users and is risky for less-able pedestrians as autos cross the sidewalk to access parking. Another hazard exists on site; pavers in the sidewalk leading to the Koerner Pavilion are heaving, creating an uneven surface.
Street crossings in the hospital precinct are generally well marked and have curb cuts making travel safe for wheelchair users. There are notable exceptions, however. The crossing at the intersection of Hospital Lane and Health Sciences Mall is missing curb cuts on the north side of the intersection and markings are not consistent. The crossing immediately west from the Purdy Pavilion is missing a curb cut on the south east corner of the intersection. To the south of the Acute Care Hospital parking lot, the main pedestrian walk is crossed by a road. This intersection has no signage at all, making crossing risky. Perhaps the least safe crossing on site is the crosswalk over Wesbrook Mall. This pedestrian crossing has curb cuts, is well marked, and has an overhead flashing signal. Despite these precautions, the crossing is still hazardous. The flashing signal lasts only 15 seconds. This is not adequate time for an able-bodied person to cross the street, let alone someone in a wheelchair. A second push-button is located mid-intersection, but cannot be reached before the signal stops flashing, and does not ease residents' fears about this crosswalk.

Figure 2.8 Precinct Poor Street Crossings

[Diagram showing hospital precinct with marked crossings and plant material]

Plant Material
Plant material on site is mature and consists mainly of large beds of shrubs and trees. Trees line auto routes and are distributed throughout open spaces. Recently renovated foundation plantings of azaleas and rhododendrons in the pedestrian mall create a pleasant atmosphere, although the view to Purdy Pavilion is obscured by large shrubs in places. Planters are distributed throughout the site and are various states of repair.
Site Furnishings

Many people live, work and study in the hospital precinct, and many more pass through the site on their commute to work and classes. Benches and garbage receptacles are available as amenities for site users. Benches are wooden and become unpleasantly wet and mossy in wet weather. The benches located in front of Koerner Pavilion are protected from weather, but are located in a smoking area making them unattractive to many potential users.

Wildlife

Wildlife on site includes birds, squirrels and raccoons. Considering the site's proximity to Pacific Spirit Park, it is likely that many species of birds could be attracted here by adding wildlife-supporting plantings.

2.5 An Introduction to the Hospital Pavilions

Detwiller Pavilion

Detwiller Pavilion is a psychiatric hospital offering extended care and outpatient services. It was built in 1968, and has seen a steady erosion of its usable green space. A once active rooftop rose garden was the victim of budget cuts, and large greenspace to the immediate south which was used for sports and
passive recreation was recently paved. It seems that when campus greenspace is lost to development, there is no requirement to make up the loss on another part of the site.

A partially-covered courtyard garden exists on the ground level of the hospital, but is falling into disrepair due to inadequate maintenance. This courtyard could be refurbished and serve as the smoking area for the hospital, a necessary function as a disproportionate percentage of psychiatric patients smoke. The shaded part of the site would be especially useful to patients on medication that make them sensitive to light (interview with hospital staff, Feb 3, 2006).

Other issues of concern on site include circulation and poor entry experience. A path connecting the pedestrian mall to the east entrance of Life Science Building passes through Detwiller site. This connection needs to be addressed as it is currently hard to find, and lacking experientially. Recent concerns about safety led to the "limbing-up" of Detwiller Pavilion's hedge, resulting in an unsightly street image. Space immediately in front of the building's main entry has been set aside for an entry courtyard, but is not meeting its potential.

**Figure 2.11 Entry to Detwiller Pavilion**

![Source: Author's Photo](image)

**Purdy Pavilion**

The Purdy Pavilion is home to an extended care residence and houses pathology, laboratory medicine, positron emission tomography (PET), radiology, and school of nursing departments. The building was designed by Paul Smith Architects and was erected in 1977. It is named after Dr. Harry Purdy in honour of his service as first chairman of the GVRHD and professor at UBC. This 205 bed facility offers extended residential and transitional care and serves as a training facility for health care students.

There is new interest in the development of useable outdoor spaces on site. There are two garden spaces under consideration at the Purdy Pavilion; one is the existing garden on the south side of the building and the other is a recently available space on the east side of the building. The building is a walk-out, with steep grades on sides of building and uneven grades on the eastern side of the building.
The population of the Purdy Pavilion is mainly elderly and frail. Interviews with Purdy occupational therapy staff suggest that 90 percent or more of residents are in wheelchairs, 80 percent suffer from dementia, and 20 percent have Parkinson's disease. Clearly any design for garden space at the Purdy Pavilion will need to address the special needs of the residents.

**Figure 2.12 Purdy Pavilion Entrance**

Source: Author's Photo

**Koerner Pavilion**

The Koerner Pavilion is home to an acute and sub-acute care hospital with anaesthesia, urgent care, ambulance, pathology and laboratory medicine, PET, radiology, rehabilitation science, school of nursing, student health service, and surgery departments.

The hospital opened in 1980 and is named after Walter C. Koerner who donated to the project along with the Greater Vancouver Hospital District. As previously mentioned, this building is home to a popular cafeteria which services all three pavilions and draws customers from across campus. An underground tunnel connects Koerner and Purdy Pavilions, and exits on this level to connect to a sidewalk leading to the indoor mall at the Instructional Resources Centre (IRC). This connection is functional, but could be better. The outdoor path between Koerner and IRC has difficult grades, poor signage for accessible doors and is weak experientially.

The east side of the Koerner Pavilion from door to street is taken up almost entirely with parking and circulation infrastructure, including ambulance emergency access. The result may be functional, but is experientially weak. The hospital lacks a strong street presence, and feels as though it has its back to the street.

**2.6 An Introduction to the New Garden Space**

A site on the eastern side of the Purdy Pavilion has recently become available for re-development. When an MRI was removed from this location in 2005 the administration at the hospital approached Campus and Community Planning for assistance in creating a patient garden on this 1200 square meter site.
Mature trees, ready access to the building and a connection to the existing pedestrian mall are assets. A group of three mature pine trees form a grove in the south eastern corner of the garden. Liabilities include the existing 12.5 foot by 60 foot reinforced concrete MRI pad, steep grades on the garden's southern edge, and the looming presence of and unceasing noise from the Life Sciences Centre to the south. As this site will need to be wheelchair accessible, grades will be crucial. A Purdy Pavilion occupational therapist has mentioned that grades above 1 percent are very difficult for residents, a figure well below the 5 percent grade typically considered the maximum accessible grade.

Figure 2.13 New Garden Space

![New Garden Space](source: Author's Photos)

2.7 An Introduction to the Existing Garden Space

The existing garden space is located on the southern face of the Purdy Pavilion. It is on the lowest level of the hospital, one level below the new garden space.

Figure 2.14 Existing Garden Space

![Existing Garden Space](source: Author's Photo)

Hospital staff, visitors and residents enjoy resting outside, tinkering in the garden and socializing in this space. Group events, such as ice cream socials, are held here in the summer.
Maintenance falls mainly upon two volunteers, and is a thorny issue. A large retaining wall defines the southern border of the garden, and is up for renovation (cyclical maintenance) by UBC Plant Operations. The Life Science Building to the south looms over the site. Trees are currently being added by Plant Operations along the top of this slope to screen views of this building from the Purdy Pavilion.

2.8 Analysis

Taking site conditions into consideration, site suitability and constraints can be identified. Several factors combine to make this site suitable for use as a restorative landscape; the need for such a landscape in the hospital precinct, the interest among stakeholders to create a restorative landscape, and the suitability of the site for such a purpose. Constraints arising from the site’s physical attributes can be more easily overcome than issues of funding and long-term maintenance. While maintenance and funding may ideally be out of the purview of the designer, they are very real obstacles to projects’ successful implementation. Proposals to mitigate these constraints are also given.

The need for a restorative landscape in the hospital precinct is manifested in several ways. Hospitals are places uniquely focused on health and well-being, making a restorative landscape a natural fit. The land surrounding the hospital is used by staff, students, visitors and patients. Visitors and patients are typically suffering from reduced physical ability and negative stress, more so than in the general population, and would greatly benefit from the improved cognitive and physical function provided to users of restorative landscapes. When one considers that this type of landscape experience is currently unavailable within the precinct, the need for this genre of space is further highlighted.

Residents living in the Purdy Pavilion make up a significant portion of potential site users. This population has specific requirements for their physical environments. As discussed in chapter one, failure to meet these requirements can result in spaces that are neither safe nor comfortable for this population. The existing outdoor environment is not designed to meet these needs, resulting in spaces that are inappropriate for resident use. Although Patient Park is intended for use by residents, it is not designed to meet their unique needs. Current plans to renovate Patient Park will leave it even less suitable. By increasing the number of entrances to the park and increasing traffic through the site it will be rendered unusable by dementia patients who require boundaries to prevent potentially dangerous wandering. Perhaps worse than providing poor outdoor spaces is missing the opportunity provide this important user group with restorative outdoor environments which would benefit their health.

Adding to the suitability of this site is the interest among stakeholders to implement a restorative landscape. Purdy administration, staff, patients and family council members have demonstrated a commitment to improving the existing greenspace adjacent to the Pavilion, and adding to it to create spaces that support residents’ needs. Administrators are aware of the benefits that restorative landscapes provide and are eager to include restorative spaces as part of the hospital’s outdoor environment. Purdy’s occupational therapists incorporate horticultural therapy as part of their practice, a program that could be expanded with additional suitable gardening space. Both UBC’s Campus and
Community Planning department and Plant Operations staff have expressed support for alteration of the existing hospital landscape to provide a restorative landscape for the hospital precinct. University policy underscores the importance of providing rich environments to the campus community. The will exists for such a project.

Many of the physical characteristics of the site make it suitable for such a use. The Vancouver area enjoys mild temperatures making covered outdoor spaces hospitable throughout the year. The hospital precinct is not yet completely built out, and has retained open areas that could be adapted to deliver restorative programs. Green space is available immediately adjacent to the hospital pavilions, and in the case of the Purdy Pavilion in an amount that creates the possibility for a significant garden space. This currently un-used site at the Purdy Pavilion is in a secluded spot between buildings providing some protection from wind and sun, an important asset when designing for older populations. Mature trees on site could be incorporated in shaded seating areas, and to assist in attracting songbirds to the space. The garden space also benefits from direct and easy ground level access to the hospital, making it more likely that any new garden would be well used by staff, residents and family members.

Some the site's physical attributes must be mitigated. Although not common, steep grades can be found within the hospital precinct, specifically on the eastern end of the existing pedestrian breezeway and at the southern edge of the new garden space. Re-grading, installation of retaining walls and taking up grades in planted landscape areas could bring these grades within ADA standards. Generally, sidewalks and street crossings are in good condition, but in noted cases repair and replacement should take place. Auto and pedestrian circulation are often at odds within the precinct. Much of the precinct has been given over to ground level parking reducing space available for greenspace, or new buildings. Delineation between car and pedestrian space is sometimes hazy, most notably at the western end of the pedestrian breezeway. Distinct and separate auto and pedestrian routes should be implemented. Focusing on the Purdy Pavilion, the existing garden space's southern exposure makes it too hot and sunny for comfortable use in the summer. The introduction of permanent shade structures and shade trees would help remedy this situation. Both the new and existing garden spaces feel the looming presence of the adjacent Life Science Building. The noise from this building could be masked by introducing a babbling water feature, or fabric elements that rustle in the breeze. Visual screening of the buildings is also necessary and could take many forms including planting both on and off site, or introducing fences or trellises. Alternatively, the garden space could be designed with an inward focus to draw the eye away from the adjacent building. This could be accomplished by placing focal elements in the centre of the garden rather than at the edges.

Plant operations currently performs some maintenance of the existing garden space while the remainder of maintenance is done by a hospital volunteer who reports having difficulty keeping up with the work load. Planning for any additional garden space at the Purdy Pavilion must address long-term maintenance from the outset to avoid unduly stretching the resources of Plant Operations or volunteers.
The design must include elements that reduce the maintenance burden. Irrigation should be used in all planted areas until plant material is established and continued in areas that require high water use such as planters, and perennial beds. The plant palette should consist mainly of trees, shrubs and evergreen groundcovers. Perennials that require higher levels of maintenance should be used sparingly and strategically located at places where people will come in close contact with them to maximize their effect. While it would be ideal to have resources in place for professional maintenance, either from Plant Operations or through a position funded by the hospital, this seems unlikely. Any new garden space would probably require recruiting more volunteers to help with maintenance. In addition to canvassing family members, the hospital could consider securing student volunteers from faculties with an interest in restorative or therapeutic spaces such as nursing, horticulture or landscape architecture. A partnership with existing volunteer groups on campus, such as UBC Botanical Garden's Friends of the Garden (FOGs), or Student Friends of the Garden (SOGs) could also be discussed.

Funds are a perennial problem when it comes to implementing a project. Several things can be done by a designer to help with this difficult task. The distillation of stakeholders' ideas into a clear plan is essential. A clear graphic presentation of the projects' goals lets funders understand what their money will be used for. Funding-raising can also be assisted by including elements and materials that allow funders to easily see where their money is going. For example, bricks that make up a wall can be 'bought' by individual donors while concrete walls do not offer this opportunity. Garden structures can be named after benefactors, and trees can be tagged with individuals' names letting funders see the results of their donation.

In balancing this site is suitable for use as a restorative landscape. Physical constraints can be easily overcome, the proposed use is appropriate and there is interest in seeing such a project progress. The real issue is not that the site is suitable for use as a restorative landscape, but whether such a site can be afforded and maintained.
3 Design Principles and Guidelines

3.1 Design Principles

As site users move through the hospital precinct they encounter a series of distinct spaces each with its own set of functions and user groups. Imagine a trip from the main parking lot through the pedestrian breezeway toward the therapeutic garden at the Purdy Pavilion; it is a journey that sees an increasingly specific set of users and a correspondingly specific set of intended uses requiring increasingly stringent design requirements. Specific design principles have been developed at three scales; those that apply to the entire precinct, those that apply to the new residents' garden, and finally those for the existing therapeutic garden. These design principles are meant to be understood as being nested and cumulative.

Figure 3.1 Design Principles

As illustrated in the above diagram, all of the spaces that make up the hospital precinct are intended to have a restorative quality. As previously mentioned, restorative experiences provide relief of the effects of mental fatigue, a condition that arises from over exercising one's capacity for directed attention (Kaplan & Kaplan, 1998). As this is a nested model all of the spaces that fall within the precinct, including the residents' and therapeutic gardens, should meet the principles relating to the precinct.

As design principles are meant to be cumulative, the principles that apply to the residents' garden are a new layer of criteria added to the principles applying to the precinct. This is appropriate as the residents'
The therapeutic garden will provide a place for horticulture therapy to take place. Horticultural therapy takes advantage of the restorative qualities of plants by incorporating gardening as part of a patient's therapy program. As the therapeutic garden falls within the circle representing the residents' garden in the above diagram, the principles that apply to the residents' garden will also apply to the therapeutic garden. This move acknowledges that the same population will be using the therapeutic garden as the residents' garden. The difference is that the therapeutic garden has an additional set of design principles that enable this space to meet therapy program needs, making it the most stringently designed space considered in this project.

The new garden will be designed as a restorative space, to offer an intensely restorative experience to Purdy residents, staff and visitors. Strategies implemented in this garden will maximize the Kaplans' criteria (Kaplan & Kaplan, 1998). The new residents' garden will also address the unique needs of Purdy's residents. The therapeutic garden must meet the criteria that apply to the precinct and the residents' garden. As this garden will be used to deliver therapy to patients it has specific needs beyond what is necessary in the residents' garden and must meet a more detailed and specific set of criteria that apply only to this space. Design details must consider site users' physical abilities and meet therapy program needs.

### 3.2 Design Guidelines

Guidelines relating to the principles above have been developed to ensure that the precinct meets its goals. These relate to the principles and are therefore also understood to be cumulative.

#### Table 3.1 Design Guidelines

<table>
<thead>
<tr>
<th>Scale</th>
<th>Principle</th>
<th>Guideline</th>
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</table>
| Precinct       | Provide a restorative experience to all site users | Follow Kaplans' guidelines by providing fascination, extent, a sense of being away, near nature and compatibility  
Ensure new buildings create positive outdoor space  
Meet ADA guidelines  
Support way-finding  
Design for social interaction |
| Residents' Garden | Meet Purdy residents' specific needs | Address loss of sensory acuity, reduced physical ability and needs of patients with dementia  
Maximize on restorative effect  
Create places for gathering  
Make a strong indoor-outdoor connection  
Include elements requested by residents, families and staff  
Consider maintenance requirements |
| Therapeutic Garden | Support therapeutic programs | Allow for a flexible use of space  
Support horticultural activity  
Maximize accessible planting space  
Plan for extensive use of space |
3.3 Principles and Guidelines for the Precinct

The precinct is to provide a restorative experience to all site users. This principle is singularly appropriate to a hospital precinct, delivering to site users restorative experiences that benefit their health and leave them feeling renewed.

Follow Kaplans' Guidelines

As discussed in the literature review section of this paper, restorative landscapes can be created by introducing elements that provide fascination, extent, a sense of being away, near nature and compatibility (Kaplan & Kaplan, 1998). Design for the precinct should take advantages of opportunities for engaging non-directed attention by introducing natural elements that stimulate the senses. Connections should be made to the extensive landscape employing strategies such as use of local materials and providing views to off-site landmarks. The precinct should be distinct from its surrounding environment in enough measure to provide the visitor with a sense of being away. Compatibility is especially important in the precinct, and care must be taken to ensure that the landscape enables people to do what they want to do there effortlessly. All of the guidelines for the precinct touch on compatibility to some degree, underscoring its importance.

Ensure New Buildings Create Positive Outdoor Space

The demand for healthcare facilities continues to grow, and it seems likely that new buildings will be added to the precinct over time. It is prudent to think now about the effect these buildings may have on the precinct. Their placement and form will go a long way to creating compatibility and extent on site. Without careful consideration, confusing circulation, blocked views, erosion of public outdoor space and uncomfortable environments next to looming buildings can be the result. Indeed, all of these negative consequences can be said to have been the result when new Life Sciences Centre was erected; circulation on the west side of Detwiller was impeded, green space to the south was lost without compensation, views from Purdy were blocked, and the large scale of the Life Sciences Centre continues to oppress the existing therapeutic garden.

New buildings added to the precinct should have footprints that create what Christopher Alexander refers to as positive outdoor space. He explains that

"outdoor spaces which are merely “left over” between buildings will, in general, not be used. There are two fundamentally different kinds of outdoor space: negative space and positive space. Outdoor space is negative when it is shapeless, the residue left behind when buildings – which are generally viewed as positive – are placed on the land. An outdoor space is positive when its shape is as important as the shapes of the buildings which surround it" (Alexander, 1977, p.518).

Positive outdoor spaces can be created, Alexander tells us, by ensuring that they offer a degree of enclosure.

Meet ADA Guidelines

The hospital precinct is used by many people who are ill or have reduced physical ability. Taking this into consideration, it is even more critical here than in other settings that landscape be universally accessible.
Universal design involves the creation of environments that can be used by all people, regardless of disability, without the need for segregation or stigmatization. The Americans with Disabilities Act (ADA) sets forth guidelines that are commonly used as the standard which must be met to ensure universal accessibility.

**Support Way-finding**
Many people using the landscape are visitors or patients on short stays and need assistance finding their way around the precinct. Simple circulation routes should be employed and these could be reinforced with special paving treatments that mark circulation routes to destinations within precinct. Destinations should be visible from a distance and signage directing people to these destinations should be at eyelevel and easy to read. The ability to give and receive intelligible directions should be supported through the use of memorable place-markers at decision points.

**Design for Social Interaction**
All site users benefit from landscapes that support social interaction. Although designing outdoor spaces for social activity does not ensure that people will interact, failure to design for social activity ensures that interaction will not take place (Gehl, 1996). To encourage social interaction, the design should provide social spaces inside buildings with complementary outdoor social spaces. An example would be the addition of an outdoor patio connected to the existing indoor cafeteria at the Koerner Pavilion. All outdoor spaces should support many uses and focus on pedestrian use. The precinct should offer a variety of places to sit and these should allow for various sizes of groups to congregate. Frequent rest stops with comfortable street furniture and fine detailing should be provided. Seating should be sited where people like to sit; with their backs protected and views to pedestrian circulation. Microclimates should be considered when locating rest stops to ensure protection from the elements and maximize physical comfort. Even paving and adequate lighting will help make the precinct safe for site users.

### 3.4 Principles and Guidelines for the Residents’ Garden
The new residents’ garden at the Purdy Pavilion must meet the design principles for the precinct in addition to those specific to this new space. The garden will be used exclusively by Purdy residents, visitors and staff. As discussed in chapter one, Purdy’s residents have special needs that must be addressed. Table 3.2 details design guidelines that address these needs.

**Table 3.2 Guidelines That Address Purdy Resident’s Needs**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Design Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of Sensory Acuity</td>
<td>• Place elements that reveal the sound of the wind such as wind chimes or fabric banners along circulation routes</td>
</tr>
<tr>
<td></td>
<td>• Include water features that babble conspicuously</td>
</tr>
<tr>
<td></td>
<td>• Places bird baths and feeders near seating</td>
</tr>
<tr>
<td>Hearing</td>
<td>• Provide adequate lighting along pathways and inside structures</td>
</tr>
<tr>
<td></td>
<td>• Ensure circulation routes are obstacle free</td>
</tr>
<tr>
<td></td>
<td>• Place design elements where they can be easily seen - below eye level</td>
</tr>
<tr>
<td></td>
<td>• Provide transition zones between light and dark spaces</td>
</tr>
<tr>
<td></td>
<td>• Eliminate materials that create glare, especially on the ground plane</td>
</tr>
<tr>
<td>Condition</td>
<td>Design Guideline</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Scent</strong></td>
<td>- Provide plants with pleasant scents in proximity to rest stops</td>
</tr>
<tr>
<td><strong>Touch</strong></td>
<td>- Place materials with interesting textures within easy reach</td>
</tr>
<tr>
<td>- Ensure water features are interactive</td>
<td></td>
</tr>
<tr>
<td><strong>Reduced Physical Ability</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Loss of Strength</strong></td>
<td>- Slopes not to exceed 5%</td>
</tr>
<tr>
<td>- Ensure physical comfort by providing shelter from the elements and heated seating areas</td>
<td></td>
</tr>
<tr>
<td><strong>Loss of Stamina</strong></td>
<td>- Provide frequent rest stops, at least every 200m</td>
</tr>
<tr>
<td><strong>Loss of Agility</strong></td>
<td>- Create a seamless transition from indoors to outdoors; no doorsills</td>
</tr>
<tr>
<td>- Place interactive elements within 6m of circulation of rest areas</td>
<td></td>
</tr>
<tr>
<td><strong>Dementia Population</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Perceptual Ability Effected</strong></td>
<td>- Support way-finding with geometric spaces and simple circulation</td>
</tr>
<tr>
<td>- Avoid stark contrasts between light and dark, especially on the ground plane</td>
<td></td>
</tr>
<tr>
<td>- Employ warm mid-range colours and avoid monochromatic colour schemes</td>
<td></td>
</tr>
<tr>
<td><strong>Homelike Atmosphere Preferred</strong></td>
<td>- Introduce familiar objects and plant material</td>
</tr>
<tr>
<td>- Design spaces to have a residential scale</td>
<td></td>
</tr>
<tr>
<td><strong>Safe Environment</strong></td>
<td>- Ensure spaces are secure but not jail-like</td>
</tr>
<tr>
<td>- Use only non-toxic plant material</td>
<td></td>
</tr>
</tbody>
</table>

**Maximize on Restorative Effect**

Programs for this garden relate to the space’s restorative qualities and restorative elements will be used to maximum effect here. The garden will provide near nature and feature natural elements, increasing its restorative value. Residents will be able to use this garden as a place of respite; for taking walks, for socialization and for bird watching. Nest boxes, birdbaths and plants that supply food to birds should be included in this space to support this use. The separate spaces that make up the garden should each be furnished with a focal element that provides an opportunity for fascination. These could include water features, bird baths or outdoor fireplaces.

**Create Places for Gathering**

Patient recreation programs could be held in the garden and a gathering space for ten to fifteen people should be included. Concerts and other special events could also be hosted in the garden. The garden should be designed so that part of the space can be easily closed off to allow special events to happen without closing the garden completely.

The new garden should provide places for Purdy residents to visit with family and friends. Small seating areas with facing benches should be provided for this purpose. These should meet precinct principles pertaining to seating spaces. In addition, covered seating should be provided for inclement weather and this should be equipped with heaters to ensure year-round use. Seating structures should be secured and the seating surface itself should be level and placed at a height of 19 inches. Armrests should be designed to be easily grasped. Concrete pads measuring 1 meter by 1 meter should be available beside permanent seating structures to allow those in wheelchairs to join those in chairs or benches.

**Make a Strong Indoor-Outdoor Connection**

The interior of the building should hold cues that encourage residents to use the adjacent outdoor space. This is especially important for dementia patients who may otherwise forget that the space is available to
them. Circulation routes from hospital wards to the garden could be marked with coloured tile flooring, or a continuous stencilled vine on the wall that leads to the garden. Flower arrangements from the garden could be placed on residents' dining tables or nursing stations. Sachets or bowls of potpourri made from garden flowers could be placed in residents' rooms to remind them that the garden is near. A wall mural depicting a garden scene could also be employed as a cue to venture outdoors. Signage inside building could be used to direct families and visitors to the garden, and list events being hosted in the garden.

Include Elements Requested by Residents, Families and Staff
Questionnaire results (see Appendix B) show strong interest in increased outdoor social space with a variety of seating options. Natural elements such as shade trees, flowers and water also were high in preference. It is fortuitous that these elements also help create the restorative quality desired for this garden, making it doubly important that they be included.

Maintenance Requirements
Maintenance staff must be able to access the garden, but the access point should not detract from the garden's restorative quality. To reduce maintenance, the garden should be on an automatic irrigation system. Plantings should be designed to be low-maintenance. Lawn areas should be edged with pavers to eliminate the need for edging. Trees selected should have light leaf litter and be under-planted with open-formed groundcovers that allow leaves to fall through reducing the need for raking. Labour-intensive ornamental planting beds should be limited to a few select areas.

3.5 Principles and Guidelines for the Therapeutic Garden
Allow for a Flexible use of Space
The therapeutic garden space will be designed to meet the demands of the precinct, the residents' garden, and in addition support therapy programs. The garden should be designed to be flexible and support various programs as interests of residents and staff will vary over time and programs will come and go as interests change. A functional and aesthetically delightful design framework should be established and changeable elements introduced. These could include moveable planters, raised beds, hanging baskets or planted pots. When introducing structures to the garden, resident's ranges of mobility should be considered to maximize opportunities for tactile contact with plant material.

Support Horticultural Activity
This space will support residents' horticultural activities. All associated garden amenities should be on hand. Compost bins, trash receptacles and storage for gardening equipment should be nearby, but not obvious. The garden should be equipped with an automatic irrigation system that includes drip irrigation for hanging baskets. A hose for resident use should also be available in a location in proximity to the area that will be watered. The hose bib must be designed so that it can be easily used by residents. Hanging baskets should be on pulleys so that they can be lowered for maintenance. Adaptive tools should be available to allow those with physical disabilities to participate horticultural programs.
Maximize Accessible Planting Space
The existing retaining wall should be fitted with a new wheelchair accessible front. This should be 60 centimetres in height to allow a wheelchair to fit underneath its lip. The front 60 centimetres of this planter should be made available for use by the residents. The existing greenhouse creates marvellous opportunities for all-season horticultural activity. The benches could be adjusted to heights appropriate for wheelchair users, and adaptive tools could be made available and programs that take advantage of this structure could be implemented.

Plan for Extensive Use of Space
Several popular activities currently take place in the therapeutic garden; ice cream socials, family visits and horticultural therapy programs are common. It is hoped that as the space is improved, programming will be increased, creating an extensive use of the garden. Table 3.3 lists horticultural projects that could be appropriately included as part of a hospital’s occupational therapy program. This listing of projects is included for consideration for adoption at the Purdy Pavilion.

Table 3.3 Horticulture Therapy Projects

<table>
<thead>
<tr>
<th>Indoor Activities</th>
<th>Outdoor Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Growing orchids</td>
<td>• Butterfly gardening</td>
</tr>
<tr>
<td>• Making fresh holiday arrangements</td>
<td>• Weeding, watering, pruning</td>
</tr>
<tr>
<td>• Repotting older plants</td>
<td>• Herbs</td>
</tr>
<tr>
<td>• Growing African violets</td>
<td>• Birdseed plants</td>
</tr>
<tr>
<td>• Terrariums</td>
<td>• Composting</td>
</tr>
<tr>
<td>• Planting bulbs for indoor bloom</td>
<td>• Annual cuttings</td>
</tr>
<tr>
<td>• Windowsill herbs</td>
<td>• Craft and Nature-related programs</td>
</tr>
<tr>
<td>• Ordering seeds for the summer garden</td>
<td>• Sachets</td>
</tr>
<tr>
<td>• Kitchen gardening</td>
<td>• Flower pressing</td>
</tr>
<tr>
<td>• Planting seed for the summer garden</td>
<td>• Dried flower arrangements</td>
</tr>
<tr>
<td>• Desert dish gardens</td>
<td>• Flower arranging</td>
</tr>
<tr>
<td>• Cooking with herbs</td>
<td>• Craft and Nature-related programs</td>
</tr>
<tr>
<td>• Learning to take cuttings</td>
<td>• Edible flowers</td>
</tr>
<tr>
<td></td>
<td>• Flower pressing</td>
</tr>
<tr>
<td></td>
<td>• Flower drying</td>
</tr>
<tr>
<td></td>
<td>• Bookmarks</td>
</tr>
<tr>
<td></td>
<td>• Make pine cone feeders</td>
</tr>
<tr>
<td></td>
<td>• Build birdhouses</td>
</tr>
<tr>
<td></td>
<td>• Make potpourri</td>
</tr>
<tr>
<td></td>
<td>• Flower gardening</td>
</tr>
<tr>
<td></td>
<td>• Make a garden salad</td>
</tr>
<tr>
<td></td>
<td>• Flower drying</td>
</tr>
<tr>
<td></td>
<td>• Bookmarks</td>
</tr>
</tbody>
</table>

Source: Simons & Strauss, 1999, p. 358
As the design principles are understood to be cumulative and nested the guidelines that apply to the precinct and residents' garden also apply to this space including guidelines concerning the creation of a strong link between indoor and outdoor spaces and sensitivity to maintenance needs. There are items worth adding in these areas that are unique to the therapeutic garden.

The existing therapeutic garden space has an opportunity for a strong linkage with the adjacent hospital garden room. Currently, the existing door sill creates a barrier that keeps some residents from travelling from the indoor garden room to the outdoor therapeutic garden, a situation that could be easily remedied. Portable garden elements should be included outdoors to allow gardening activities to be brought indoors when weather is poor. Recreational activities that occur indoors should be allowed to spill out into the garden space. This could be facilitated by including permanent overhead structure outdoors to provide protection from sun and rain. Outdoor lighting and heating in the garden would encourage night use.

Existing plantings on the slope behind the retaining wall are hard to access and currently pose maintenance problems. When the existing retaining wall is repaired or replaced, an opportunity will exist to renovate the planting in the area disturbed during construction. This part of the slope should be replanted with an assortment of shrubs and trees which provide wildlife habitat, all-season interest and require little maintenance.
4 Design Proposal

4.1 A Design for the Precinct

Design work at the precinct scale takes several forms; a suggested plan for new building footprints, a pedestrian walking route modeled after the Wellness Walkways project and a redesign of the pedestrian breezeway that runs between the hospital pavilions. Each will be discussed in turn. A matrix is provided at the end of this section that links design moves to the principles and guidelines established for the project.

Proposed New Building Footprints

As previously discussed, new buildings will have a large effect on the success of the precinct in the future. Their addition should be calculated to create positive outdoor space using Alexander’s technique of creating a series of outdoor spaces that have a sense of enclosure or bounded-ness (Alexander, 1977). Figure 4.1 shows how this may be achieved through the addition of three buildings to the precinct.

The two northernmost buildings would be located on existing parking lots, and it is suggested that parking be relocated underground. Auto-circulation routes have been re-routed to allow this to happen without interrupting ambulance access to the hospital. A third building is shown as an extension to Detwiller Pavilion creating an enclosed entry space that the building currently lacks. In this plan, care has been taken to preserve views to Wesbrook Mall and its major crosswalk, helping with way-finding on site. Direct pedestrian routes through the site would not be negatively affected by the addition of these buildings, and useable green space would not be lost.

Proposed Walking Route

Residents report frustration at being unable to get the places they want to go. To remedy this, popular local destinations should be connected by a walking route modeled after the Wellness Walkways. Such a route would increase opportunities for residents to exercise outdoors, and make connections with the larger community. Appendix 1 lists Wellness Walkways design guidelines for reference. As shown in figure 4.2, a universally accessible walking route that connects University Village in the northeast to Starbucks in the TEF building in the southwest by way of Regent Park and the hospital pavilions on the way is suggested. Street crossings in the precinct including those along the walking route should be fitted with perpendicular curb ramps as these are safest for wheelchair users. The walking route should have rest stops placed along it at 100 meter intervals. These should be sited in areas with comfortable microclimates and include benches and litter receptacles. Decorative paving and plantings are proposed in rest areas to increase amenity and opportunities for near nature.
Figure 4.2 Proposed Walking Route

Scale 1: 5000
Proposed Pedestrian Breezeway Modifications

Figure 4.3 shows suggested modifications to the breezeway connecting the hospital pavilions. Looking at the breezeway from west to east, several improvements are proposed.

- It is suggested that pedestrian and auto circulation be separated by a row of trees at the western end of the breezeway.
- Car-oriented infrastructure would improved by adding angle parking and an auto-turnaround with drop off zone for the Handi-Dart bus.
- An entry arch to match the existing arbour us planned just inside the western edge of the breezeway, creating a sense of enclosure for the site and assisting way-finding.
- Also to assist way-finding, large signs or eye-catchers are proposed for the entries to both Purdy and Koerner Pavilions and at the eastern edge of the breezeway creating landmarks at decision points.
- A sunken staff garden is proposed for the northern face of the Purdy Pavilion to offer a place for social activity and respite for hospital workers. This currently un-useable portion of the landscape could be accessed through a new hallway and door to be installed in an existing mechanical room on the bottom floor of the Purdy Pavilion.
- Travelling east, the existing path should re-graded to meet ADA standards as residents report that existing grades make this slope dangerous for wheelchair users.
- The plan shows a rest stop near the eastern edge of the breezeway, the first of several that would line the new walking route.
- The existing ineffective pedestrian crossing at Wesbrook Mall should be remedied through the introduction of a new crossing signal fitted with an infra-red sensor that keeps the light from turning green until all pedestrian traffic has cleared the intersection.

Not directly on the breezeway but immediately adjacent, a rooftop garden for residents and staff at the Detwiller Pavilion is also proposed. When the new Life Sciences Centre was built Detwiller staff and residents lost frequently used recreational greenspace to the new building’s parking lot. When speaking with staff at Detwiller, there was interest in gaining back some of this lost space through the creation of a roof-top garden.
Figure 4.3 Proposed Pedestrian Breezeway Modifications

Scale 1:1000
4.2 A Design for the Residents’ Garden

As previously stated, this space must meet the precinct guidelines, that is offer a restorative experience, but must also meet the residents’ unique needs relating to their age and infirmity. Expanded guidelines were outlined in section 3.4 of this paper and included strategies to address loss of sensory acuity, reduced physical ability, and effects of dementia.

Figure 4.4 shows a plan for the residents’ garden to be created in the new garden space. The plan for the residents’ garden is made up of three zones; the songbird garden, the winter retreat and the patio garden. Wildlife viewing is an extremely powerful device in engaging fascination, a characteristic of restorative experience, and is something that the residents requested. For these reasons it has been given prominence in this plan through the inclusion of a songbird garden. The winter retreat is nearest the main entrance to the building and features a heated shelter for use in winter and in inclement weather. The patio garden is the active heart of the design offering space for events and celebrations. Each space follows a simple, geometric form and contains a memorable landmark. These landmarks are meant to act as local focal points and to assist way-finding, but also serve as a series of eye-catchers that draw you through the garden. All of the zones are connected by a clear, simple looped circulation scheme that meets ADA standards for accessibility.

The Songbird Garden

This section of the garden maximizes wildlife viewing opportunities, especially bird watching. The main structural element in this part of the garden is a decorative fountain with shelves set at depths that make them perfect for bird bathing. Detail drawings for the fountain are found in Figure 4.5. The fountain’s boundary wall is set below eye-level for easy viewing ensuring that the fountain will serve as a not only a birdbath, but also as a focal and restorative element engaging soft fascination by offering views to water and wildlife. Nest boxes for species observed on site are included as a decorative element and to provide homes for these avian species. See Figure 4.6 for detail drawings. Plant material in this part of the garden has been selected for its aesthetic value and for its ability to provide vertical stratification or foliage layers at varying heights from canopy to shrub layer to ground cover. Plants used in this part of the garden provide needed shelter and food. Species with fruit that persists through the winter have been included to provide nourishment throughout the year. Trees have been introduced along the western face of Detwiller Pavilion to bring down the scale of this neighbouring building, and create a visual connection between the residents’ garden and its surroundings.

Benches placed in niches are provided for seating and have been designed with dimensions that make them comfortable for seniors to use. Seats are to be set at nineteen inches above the ground, a height that makes them easy to get back up out of. Armrests are placed twelve inches above the seat, a height that makes them useful for leverage when standing up. Bench backs are tall and straight to provide support. Seating is located in microclimates that offer dappled shade, views to nearby blooms, and proximity to scented plants. Figure 4.7 shows bench and chair details.
Figure 4.4 Proposed Residents' Garden Plan

Scale 1:250
3 bubblers jets
polished concrete fountain
base houses pump
1" deep shelves for birds to bathe
centre bathing to max. viewing
coloured brick cap and facing
concrete wall keyed into base
lights recessed, rebar reinforced
aggregate base

Figure 4.5 Birdbath Fountain Details
pivot nail

1 cm (0.5") thick metal plate, with holes to receive screws connecting nest box to plate

6 cm (2.5") diameter metal pole, welded to plate, discourage raccoons
could also leave the pole out and mount with screws to fence

Nest Box for Wrens and Chickadees

0.1 m (4")

1 cm (0.5") thick metal plate, with holes to receive screws

6 cm (2.5") diameter metal pole, welded to plate, discourage raccoons
could also leave the pole out and mount with screws to fence

Nesting Shelf for Swallows

0.2 m (8")

1 cm (0.5") thick metal plate, with holes to receive screws

6 cm (2.5") diameter metal pole, welded to plate, discourage raccoons

Nesting Shelf for Robins

0.23 m (9")

3/4 " pine

wood screws, galvanized nail, wood glue
doubleheaded galvanized nail, door lock

hole 29mm (1.1/8")
to accommodate wrens and chickadees
exclude house sparrows and starlings

shelf 0.2 m (8")
to accommodate robins

shelf 0.1 m (4")
to accommodate barn swallows
exclude robins

Nesting Shelf for Robins

0.23 m (9")

3/4 " pine

wood screws, galvanized nail, wood glue

Figure 4.6 Nestbox Details
Figure 4.8 Gate and Fence Details
Figure 4.9 Songbird Garden Section
The entire garden space is surrounded by a fence that varies in height as required to screen undesirable off-site views. The fence height ranges from six feet at the songbird garden to six feet with an additional two and a half feet of trellis on top at the southern edge of the garden where grades drop off. A gate in the fence is required to meet fire code and to provide access to maintenance workers, and is located at the northernmost edge of the garden. The gate has been designed to be visually seamless from the inside to discourage Alzheimer’s patients from exhibiting escape behaviour. Figure 4.8 shows gate and fence details. A moveable seat has been placed directly in front of the gate to further the illusion. An illustrative section, shown as section D on the residents’ garden plan, is included in figure 4.9 to give a sense of the character of the songbird garden.

The Winter Retreat
This part of the garden features a covered, heated structure which provides an outdoor recreational space protected from the elements. The winter retreat is intended to be usable throughout Vancouver’s rainy winter season. The structure shown is modelled after a design by the Home Planners Group, (Home Planners, 2001) and has been adapted to suit this site. It is located near the doors which connect the garden to the building’s interior. The path leading from the building to the structure is covered by an existing canopy which would remain, making the structure easily accessible in inclement weather. The main circulation passes through the front of the structure providing a place for site users to pause and decide which part of the garden to visit. Seating is located in the structure so visitors can rest and watch people come and go. An existing vent is also housed in the structure; it is suggested that it be given a decorative housing.

This part of the garden employs a palette of plant material with winter interest. Planting combinations have been carefully considered to include fragrant winter blooming plants with complementary textures and forms.
The Patio Garden

The patio garden is located in the southern half of the site and enjoys a sunny aspect. It has been planned as the active centre of the residents’ garden, providing space for larger groups to congregate. This section of the garden can easily be physically separated from the rest of the garden by placing a barrier at the rose arbour dividing the garden into two spaces for special events. Access would be through the secondary building entry behind the summer gazebo.

An arched rose arbor creates the threshold between the winter garden and the patio garden. It is intended that yellow climbing roses, a popular resident plant request, be trained up the arbor. Seating opportunities are provided beneath its shade providing respite from the sun and a delightful sensory experience when the roses are in bloom. Design details are included in figure 4.11.

From the rose arbour the sound of babbling water would be heard drawing site users deeper into the patio garden. The sound comes from a formal fountain which is continuous with a garden wall bounding the space. The fountain basin is set at a height and depth that allows wheelchair users to interact with the water, increasing opportunities for sensory delight. The sound of water provided by the fountain is meant to both increase the restorative qualities of the space and to screen the noise coming from the nearby Life Sciences Centre. See figure 4.12 for details.
Figure 4.11 Rose Arbor Detail

- 6X6 laminated arch
  - 2X2 laminite rail attached
- 6X6 rough cedar beam
  - notched to receive 6X6 posts
- 6X6 rough cedar post
- lattice, powder coated 1" square metal tubing
- gravel
- pea gravel
Figure 4.13 Garden Wall Details

coloured brick cap stone
bench seat, 4" thick wood slats
coloured brick wall, supports bench
coloured brick planter

Figure 4.14 Accessible Picnic Table Details

armless bench, cedar
picnic table, cedar
keyhole for wheelchair

armless bench, cedar
table top, 2" cedar slats
table legs, 4" zinc post
Figure 4.15 Summer Gazebo Details
Figure 4.16 Patio Garden Section

Figure 4.17 Patio Garden Section
The garden wall performs several functions; it creates visual and physical enclosure to the space which is important for Alzheimer's patients, and serves as a retaining wall levelling grades to make the site wheelchair accessible. Included in the garden wall are planters set at sitting height providing site users with easy physical access to plant material. The wall is constructed of brick in warm, mid-range colours most easily seen by the elderly. The face of the wall is broken at intervals by benches set into the wall which meet the standards for seating previously discussed. These are paired with pads for wheelchair users and have been sited to allow the option of sitting in either sun or shade. Figure 4.13 illustrates the garden wall in detail.

Accessible picnic tables are included in this plan for their home-like quality, to create an opportunity for taking meals outdoors, and for visiting with family members. Figure 4.14 details the tables. These have been adapted from a design by Joanne Woy (Woy, 1997) and are suited for groups of three or four people. A grove of mimosa trees, another resident plant request, provides light shade over these tables and a showy display of blooms in summer. The picnic area is set amid scented lilies and roses which put on a beautiful show in summer months. A trellis frames the area and is meant to be planted with hummingbird vine (Campsis X tagliabuana), creating another wildlife viewing opportunity as birds come to feed on the nectar provided by the vine's blooms.

A section of lawn fills the centre of the patio garden space and is included for its strong association with residential backyards. A specimen tree, a honey locust (Robinia pseudoacacia 'Frisia') is set in the lawn, providing shade and a focal point.

A gazebo is included to provide respite from the summer sun and to support outdoor group activities. Details for the gazebo can be found in Figure 4.15. The gazebo also serves to improve way-finding within the residents' garden. Sections taken through the residents' garden are included in Figures 4.16 – 4.18 (sections A, B and C on the residents' garden plan), to give a sense of experience this design offers to site users.

**Planting Plan**

The planting plans in this project include both plants in the garden spaces and those planned in adjacent spaces. This is necessary because nearby trees are needed to provide screening and create views off-site, increasing the garden's psychological extent.

In the residents' garden planting plan (figures 4.19-4.22), maintenance considerations are reflected in a palette that consists mainly of small trees, shrubs and evergreen groundcovers. Perennials and vines which require more care have been strategically placed where they will create the most impact, along circulation routes and framing seating areas. All plants specified are non-toxic and bloom in warm, midrange colours. This plan retains existing mature pine trees to help give the garden instant effect.
Figure 4.20 Residents' Garden Planting Plan Part 2
<table>
<thead>
<tr>
<th>TYPE</th>
<th>QTY</th>
<th>CODE</th>
<th>BOTANIC NAME</th>
<th>COMMON NAME</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>1</td>
<td>AC</td>
<td>Acer circinatum</td>
<td>vine maple</td>
<td>multi-stem</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>AJ</td>
<td>Albizia julibrissin</td>
<td>silk tree</td>
<td></td>
</tr>
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<td></td>
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<td>CA</td>
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<td></td>
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<td>Liquidambar styraciflua</td>
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<tr>
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<td>MS</td>
<td>Magnolia stellata</td>
<td>star magnolia</td>
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<tr>
<td></td>
<td>3</td>
<td>PN</td>
<td>Pinus nigra</td>
<td>Austrian pine</td>
<td>to be located east of garden site</td>
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<tr>
<td></td>
<td>3</td>
<td>PO</td>
<td>Picea omorika</td>
<td>Serbian spruce</td>
<td>to be located east and south of garden site</td>
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<tr>
<td></td>
<td>3</td>
<td>PS</td>
<td>Pinus sylvestris</td>
<td>Scots pine</td>
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<tr>
<td></td>
<td>1</td>
<td>RP</td>
<td>Robinia pseudoacacia 'Frisia'</td>
<td>black locust</td>
<td>specimen</td>
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<tr>
<td></td>
<td>1</td>
<td>TC</td>
<td>Tilia cordata</td>
<td>littleleaf linden</td>
<td>existing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Shrub</td>
<td>3</td>
<td>Ac</td>
<td>Amelanchier canadensis</td>
<td>serviceberry</td>
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<td></td>
<td>15</td>
<td>Au</td>
<td>Arbutus unedo 'Elfin King'</td>
<td>strawberry tree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>36</td>
<td>Auu</td>
<td>Arctostaphylos uva-ursi</td>
<td>kinnikinnick</td>
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<td></td>
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<td>Buxus sempervirens</td>
<td>boxwood</td>
<td>hedge</td>
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<tr>
<td></td>
<td>12</td>
<td>Cc</td>
<td>Cistus X corbariensis</td>
<td>rock rose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Cs</td>
<td>Corylopsis spicata</td>
<td>winter hazel</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Ct</td>
<td>Choisyta ternata</td>
<td>Mexican orange blossom</td>
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<tr>
<td></td>
<td>2</td>
<td>Ge</td>
<td>Garrya elliptica 'Evie'</td>
<td>garrya</td>
<td>male</td>
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<tr>
<td></td>
<td>128</td>
<td>Gs</td>
<td>Gaultheria shallon</td>
<td>salal</td>
<td>75cm oc</td>
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<tr>
<td></td>
<td>4</td>
<td>Hi</td>
<td>Hamamelis X intermedia</td>
<td>witch hazel</td>
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<tr>
<td></td>
<td>21</td>
<td>Ma</td>
<td>Mahonia aquifolium</td>
<td>Oregon grape</td>
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<tr>
<td></td>
<td>12</td>
<td>Md</td>
<td>Microbiota decussata</td>
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<td></td>
<td>19</td>
<td>Oh</td>
<td>Osmanthus heterophyllus 'Kembu'</td>
<td>osmanthus</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>Pm</td>
<td>Philadelphus 'Lemonel'</td>
<td>mock orange</td>
<td></td>
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<tr>
<td></td>
<td>18</td>
<td>Rf</td>
<td>Rhododendron 'Fragrantissimum'</td>
<td>rhododendron</td>
<td>on arbor</td>
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<td></td>
<td>8</td>
<td>Rg</td>
<td>Rosa 'Golden Showers'</td>
<td>climbing rose</td>
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<td></td>
<td>9</td>
<td>Rgl</td>
<td>Rhododendron 'Glory of Littleworth'</td>
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<tr>
<td></td>
<td>15</td>
<td>Rh</td>
<td>Rhododendron 'Hino-crimson'</td>
<td>rhododendron</td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>Rs</td>
<td>Rosa 'Snow Carpet'</td>
<td>groundcover rose</td>
<td></td>
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<tr>
<td></td>
<td>23</td>
<td>Vp</td>
<td>Vaccinium parvifolium</td>
<td>red huckleberry</td>
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**Perennial**

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<th>COMMON NAME</th>
<th>COMMENTS</th>
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<td></td>
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<td>aa</td>
<td>Alstromeria aurea</td>
<td>Peruvian lily</td>
<td>30cm oc</td>
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<tr>
<td></td>
<td>65</td>
<td>ae</td>
<td>Asarum europaeum</td>
<td>European wild ginger</td>
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<tr>
<td></td>
<td>32</td>
<td>af</td>
<td>Aquilegia formosa</td>
<td>columbine</td>
<td></td>
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<tr>
<td></td>
<td>3</td>
<td>av</td>
<td>Adiantum venustum</td>
<td>Himalayan maidenhair fern</td>
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<tr>
<td></td>
<td>56</td>
<td>bs</td>
<td>Blechnum spicant</td>
<td>deer fern</td>
<td></td>
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<td></td>
<td>41</td>
<td>cl</td>
<td>Crocosmia 'Lucifer'</td>
<td>crocosmia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td>cs</td>
<td>Carex siderosticha 'Variegata'</td>
<td>sedge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>32</td>
<td>fg</td>
<td>Fuchsia 'Gartenmeister Bonstedt'</td>
<td>fuchsia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>ha</td>
<td>Helianthemum apenninum 'Fire Dragon'</td>
<td>rock rose</td>
<td></td>
</tr>
<tr>
<td></td>
<td>14</td>
<td>hb</td>
<td>Heuchera X brizoides 'Firefly'</td>
<td>evergreen coral bells</td>
<td></td>
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<tr>
<td></td>
<td>22</td>
<td>hn</td>
<td>Helleborus niger</td>
<td>lenten rose</td>
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<td></td>
<td>28</td>
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<td>Lilium pumilum</td>
<td>lily</td>
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<td>14</td>
<td>lt</td>
<td>Lilium testaceum</td>
<td>lily</td>
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<tr>
<td></td>
<td>22</td>
<td>ms</td>
<td>Matteucia struthiopetris</td>
<td>ostrich fern</td>
<td></td>
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<tr>
<td></td>
<td>40</td>
<td>oo</td>
<td>Oxalis oregana alba</td>
<td>wood sorrel</td>
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</tr>
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<td></td>
<td>86</td>
<td>pm</td>
<td>Polystichum munitum</td>
<td>Western sword fern</td>
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</tr>
<tr>
<td></td>
<td>2</td>
<td>ps</td>
<td>Phormium 'Sundowner'</td>
<td>phormium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>70</td>
<td>sg</td>
<td>Saxifraga X geum</td>
<td>evergreen saxifrage</td>
<td></td>
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<tr>
<td></td>
<td>36</td>
<td>tg</td>
<td>Trillium grandiflorum</td>
<td>great white trillium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>za</td>
<td>Zantedeschia aethiopica</td>
<td>calla lily</td>
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</tbody>
</table>

**Vine**

<table>
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<tr>
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<th>CODE</th>
<th>BOTANIC NAME</th>
<th>COMMON NAME</th>
<th>COMMENTS</th>
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<tr>
<td></td>
<td>1</td>
<td>ca</td>
<td>Clematis armandii</td>
<td>evergreen clematis</td>
<td>on fence</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>cc</td>
<td>Clematis chisanensis 'Lemon Bells'</td>
<td>clematis</td>
<td>on fence</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>ch</td>
<td>Clematis henryi</td>
<td>clematis</td>
<td>on trellis</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>ct</td>
<td>Campsis X tagliabuana 'Mme. Galen'</td>
<td>hummingbird vine</td>
<td>on trellis</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>lj</td>
<td>Lonicera japonica</td>
<td>evergreen honeysuckle</td>
<td>on fence</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>lm</td>
<td>Lonicera 'Mandarin'</td>
<td>honeysuckle</td>
<td>on fence</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>pt</td>
<td>Parthenocissus trixuspidata</td>
<td>Boston ivy</td>
<td>1 existing</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>sm</td>
<td>Symphoricarpos mollis</td>
<td>trailing snowberry</td>
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</table>

**Bulb**

<table>
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<tr>
<th>TYPE</th>
<th>QTY</th>
<th>CODE</th>
<th>BOTANIC NAME</th>
<th>COMMON NAME</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>100</td>
<td>c</td>
<td>Crocus vernus</td>
<td>crocus white</td>
<td>5cm oc</td>
</tr>
</tbody>
</table>

O existing, to remain
+ new

Figure 4.22 Residents' Garden Plant List
4.3 A Design for the Therapeutic Garden

The therapeutic garden space must meet the criteria for the precinct, the resident's garden and in addition it must support therapy programs. Discussion with occupational therapy staff at the Purdy Pavilion revealed a need for the therapy garden to be a flexible space, allowing for a variety of activities. As residents come and go and staff are posted in and out of the facility interests change and programs are modified to reflect new interests. The plan presented here aims to create a framework where many different activities and programs can take place. This is achieved by maximizing accessible planting space and providing accessible infrastructure to support gardening activities. The design separates the garden into 3 zones as noted in figure 4.23.

**Functional Space**

This part of the garden houses a compost centre and the re-located existing greenhouse. New patio space has been made available by relocating planters. Chairs, tables and new planted pots are recommended for this end of the garden.

**Therapy Space**

The majority of the new accessible gardening space is provided by a new retaining wall to replace the current wall which is in need of repair. The new wall features an accessible planting shelf on its front edge, and a focal watering station at its centre. The planting shelf is set at a height that allows wheelchair users to pull up underneath its front lip, and to a depth easily reached from a seated position. Its curved shape defines the therapy area of the garden while avoiding unusable right-angled corners. Curved ends also mean that the wall has no sharp corners to bump in to. Watering is currently difficult for residents as the hose bib is poorly located and difficult for many to manipulate. The new watering station has a large spigot making it easy for those with reduced range of motion to use. Is has been designed to have a homelike quality take a form reminiscent of a water pump, yet be decorative enough to capture one’s attention. Details of the retaining wall and watering station are provided in figure 4.24 – 4.25.

Additional accessible planting space is provided by modifying existing planters. Bases are fitted with new top ledges set at heights that allow wheelchairs to fit underneath.
Figure 4.23 Proposed Therapeutic Garden Plan
Figure 4.24 Retaining Wall Details

Figure 4.25 Watering Station Details
Finally, planting space could be gained through the addition of hanging baskets. It is suggested that these be on pulleys such as those used in nurseries, and be connected to a drip irrigation system to minimize maintenance requirements.

**Recreational Space**

The therapy garden is currently used for social events, a use that increased markedly when two shade tents were introduced in the summer of 2005. Unfortunately, the tents are not of high quality, and one has already fallen into disrepair. It is suggested that heftier shade structures be introduced, both a permanent pergola with canopy and an arbour. See figure 4.23 for locations of these structures. The permanent pergola is sited at the doors that join the garden and the building helping to blur the boundary between indoor and outdoor space. Its shade will offer residents a transition zone between indoor light levels and the bright sunshine outdoors. It is suggested that the pergola be fitted with a canvas canopy to match the existing window canopies on site.

**Figure 4.27 Pergola with Canopy**

Source: by Colin O'Byrne - Author's Photo
The easternmost edge of the therapeutic garden is commonly used for intimate gatherings, a use that would be complemented by the addition of an overhead structure that provides shade in the summer. An arbour is planned here, to be planted with summer blooming clematis vines increasing near nature. An illustrative section (labelled section A on the therapeutic garden plan) is found in figure 4.27.

**Figure 4.28 Therapeutic Garden Section**

*Planting Plan*

In addition to being non-toxic and low maintenance, plants used in the therapeutic garden have been selected to provide year-round interest. A palette of red and white has been used to match the building’s exterior. Off-site street trees are proposed along to the northern face of the Life Sciences Centre to screen its mass. A planting plan and plant list for this garden can be found in figures 4.29-4.30.
Figure 4.29 Therapeutic Garden Planting Plan Part 1
Figure 4.30 Therapeutic Garden Planting Plan Part 2
# Therapeutic Garden Plant List

<table>
<thead>
<tr>
<th>TYPE</th>
<th>QTY</th>
<th>CODE</th>
<th>BOTANIC NAME</th>
<th>COMMON NAME</th>
<th>COMMENTS</th>
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</thead>
<tbody>
<tr>
<td>Tree</td>
<td></td>
<td>2</td>
<td>AC Acer circinatum</td>
<td>vine maple</td>
<td>in planters</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>AK</td>
<td>Abies koreana</td>
<td>Korean fir</td>
<td>existing</td>
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<tr>
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<td>1</td>
<td>AJ</td>
<td>Acer japonicum var.</td>
<td>full-moon maple</td>
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<tr>
<td></td>
<td>1</td>
<td>AU</td>
<td>Arbutus unedo strawberry tree</td>
<td>multi-stem form</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>CE</td>
<td>Cornus 'Eddie's White Wonder'</td>
<td>dogwood</td>
<td>1 tree form, to 5 match existing</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>LS</td>
<td>Liquidambar styraciflua</td>
<td>liquidambar</td>
<td>to line south side of street south of garden</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>MS</td>
<td>Magnolia stellata</td>
<td>star magnolia</td>
<td>relocated existing</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>MV</td>
<td>Malus variety</td>
<td>apple</td>
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<td>TP</td>
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<tr>
<td>Shrub</td>
<td>7</td>
<td>Az</td>
<td>Azalea 'Persil'</td>
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<td></td>
<td>13</td>
<td>Bs</td>
<td>Buxus sempervirens</td>
<td>boxwood</td>
<td>not clipped</td>
</tr>
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<td></td>
<td>2</td>
<td>Ct</td>
<td>Choisya ternata</td>
<td>Mexican mock orange</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Cta</td>
<td>Choisya ternate 'Aztec Pearl'</td>
<td>Mexican mock orange</td>
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<td>Escallonia 'Red Elf'</td>
<td>red elf escallonia</td>
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<td>Japanese aralia</td>
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<td>Gp</td>
<td>Gaultheria procumbens</td>
<td>wintergreen</td>
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<td>Hp</td>
<td>Hebe pinguifolia</td>
<td>hebe</td>
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<td>Hi</td>
<td>Hamamelis X intermedia</td>
<td>witch hazel</td>
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<td>Oh</td>
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<td>osmanthus</td>
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<td>Rt</td>
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<td>rhododendron</td>
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<tr>
<td></td>
<td>5</td>
<td>Rv</td>
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<td>Perennial</td>
<td>12</td>
<td>cf</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>pb</td>
<td>Polystichum polyblepharum</td>
<td>Japanese tassel fern</td>
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</tr>
<tr>
<td></td>
<td>20</td>
<td>gm</td>
<td>Geranium macrorrhizum 'Album'</td>
<td>bigroot geranium</td>
<td>spaced 50cm o.c.</td>
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<tr>
<td></td>
<td>25</td>
<td>vm</td>
<td>Vinca minor 'Miss Jekyll'</td>
<td>periwinkle</td>
<td>spaced 60cm o.c. between shrubs</td>
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<td>Vine</td>
<td>3</td>
<td>cr</td>
<td>Clematis 'Rouge Cardinal'</td>
<td>clematis</td>
<td>blooms on current season's growth</td>
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<td></td>
<td>1</td>
<td>ws</td>
<td>Wisteria sinensis 'Alba' proper</td>
<td>white wisteria</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>annual vines on trellis</td>
<td></td>
<td>as requested by residents</td>
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Existing, to remain
Existing, to be moved to this location
New
4.4 Design Matrix

Design principles and guidelines were given in section 3.2 of this paper. The matrix below shows how the design presented meets guidelines by listing design strategies and elements employed that address each guideline.

Table 4.1 Design Matrix

<table>
<thead>
<tr>
<th>GUIDELINES FOR THE PRECINCT</th>
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</thead>
<tbody>
<tr>
<td>1. Follow Kaplans' guidelines by providing fascination, extent, a sense of being away, near nature and compatibility (Kaplan and Kaplan, 1998).</td>
</tr>
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<table>
<thead>
<tr>
<th>Strategies and Elements Employed to Meet this Guideline</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Increase greenspace within the precinct to increase near nature and opportunities for fascination.</td>
</tr>
<tr>
<td>This is achieved by adding to existing greenspace by adding a sunken staff garden and residents' garden at the Purdy Pavilion, and a rooftop garden at the Detwiller Pavilion.</td>
</tr>
<tr>
<td>b. Introduce natural elements and support wildlife on site to allow for fascination.</td>
</tr>
<tr>
<td>Fascination is activated by elements that attract our attention and hold it without requiring our focused attention (Kaplan and Kaplan, 1998). Deciduous trees with colourful blooms and leaves that rustle in the wind have been included for their ability to engage the senses. Colourful and aromatic perennial plantings have been included for the same reason. Water is a powerful tool in engaging fascination; for this reason the residents’ garden includes two water features placed where they can be easily viewed by garden visitors. Water also attracts wildlife, another powerful tool in inducing fascination. The wildlife garden in the residents’ garden maximizes on plant species that provide year round food and shelter for birds. Birdhouses for species observed on site have been included to encourage birds to nest here. A water feature with shelves set at depths best for bird bathing has been included to provide site users with opportunities to see birds splashing in the water. The patio garden includes trellis panel planted with hummingbird vine to attract this gregarious bird species.</td>
</tr>
<tr>
<td>c. Include plantings at seating areas to increase near nature and fascination.</td>
</tr>
<tr>
<td>At the precinct scale this is achieved by placing pedestrian rest stops along the proposed walking circuit that passes through the precinct. Rest stops are to feature plantings as part of their design. At the garden scale, every chair and bench is set amid plants with colourful, fragrant blooms. The residents’ garden takes adds to this idea by providing seating underneath an overhead trellis to be planted with climbing roses. In this case the seating area is completely surrounded by blooms, providing an excellent opportunity for fascination.</td>
</tr>
<tr>
<td>d. Maintain views off-site and provide new views to increase extent.</td>
</tr>
<tr>
<td>When considering the precinct scale, site lines cutting through the precinct were maintained through careful location of new proposed building footprints. Views to the neighbourhood beyond help site users make mental connections between the precinct and its surroundings, increasing the area's extent. Street trees placed northern edge of the Life Science Building suggest a connection to Health Sciences Mall to the west, suggesting a larger context for the site.</td>
</tr>
</tbody>
</table>
e. Make physical connections to destinations off-site.

The proposed walking route (modelled after Mooney and Luymes, 2000) physically connects the precinct with popular destinations nearby. As people use the route they will experience a real connection between these places, and form an associated mental map of the way in which these locations are connected.

f. Design spaces with enclosure to create a sense of being away.

The new building footprints proposed for the precinct create positive space by bounding the space between them. The enclosure one experiences between the buildings offers the experience of being in a distinct space creating a sense of being away. A similar strategy is employed in the residents’ and therapeutic gardens. Both spaces have strong edges that create both physical and visual boundaries. These edges have been designed to provide enclosure without being jail-like. The environment within these boundaries is different enough from what lies outside them to offer site users a sense of having been away from their usual surroundings (Kaplan and Kaplan, 1998).

g. Use regional materials to allow mental connections with the region, increasing extent.

Native plant material links us with the place we live allowing a mental connection to be made between the plant and its natural environment, increasing extent. Native plants are included in planting plans for both the residents’ and therapeutic garden space.

h. Create spaces that support desired uses to increase compatibility.

As previously discussed restorative landscapes are appropriate to hospital precincts and there is interest in their inclusion here. A questionnaire was used to accurately assess desired uses for the new and existing garden spaces at the Purdy Pavilion. The wishes of staff, families and residents have been incorporated in the designs presented here. Appendix B details questionnaire results. In addition, the unique needs of residents have also been considered. See table 3.2 for a complete discussion of these needs.

2. Ensure new buildings create positive outdoor space (Alexander, 1977).

**Strategies and Elements Employed to Meet this Guideline**

a. Design building footprints to frame outdoor spaces.

b. Avoid awkward spaces left over after buildings have been placed.

The thoughtless placement of a building can leave uncomfortable spaces behind. For example, the new Life Science Building was allowed to extend to the east in a way that blocks views and interrupts circulation flows. A few meters would have made the outdoor spaces around the building much more comfortable. The proposed new building footprints for the precinct preserve views and allow for simple circulation. Building edges serve to frame outdoor spaces allowing for comfortable outdoor environments (Alexander, 1977).


**Strategies and Elements Employed to Meet this Guideline**

a. Ensure all design elements comply with these regulations.

All paths in the precinct have been designed to have a maximum 5 percent slope in accordance with ADA guidelines. With the residents’ and therapeutic gardens path widths meet standards for two passing wheelchairs. Slopes are kept below 5% to ensure ease of use by this population. Wheelchair pads are included as a seating option and these match ADA guidelines. Plant material intended for residents to touch has been placed at heights and reaches that make is easily accessible (ADA, 1994).

**Strategies and Elements Employed to Meet this Guideline**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong></td>
<td>Place landmarks at decision points.</td>
</tr>
<tr>
<td></td>
<td>Eye-catchers and signs are planned at decision points in the precinct. An entry arch is proposed for the western entrance to the pedestrian breezeway and signs are proposed at building entrances. These will help way-finding by providing memorable points of reference. The garden spaces also employ landmarks. Each subspace within the residents' garden has a focal element; a water feature in the songbird garden, a covered seating structure in the winter retreat and a gazebo in the patio garden. The therapeutic garden space also features focal elements that aid way-finding; a greenhouse, a watering station and a covered seating structure.</td>
</tr>
<tr>
<td><strong>b.</strong></td>
<td>Employ simple circulation schemes.</td>
</tr>
<tr>
<td></td>
<td>Way-finding is made easier by simple circulation schemes. This design proposes two direct east-west connections through the precinct and simple a north-south connection midway through the site. Garden spaces also feature simple geometric circulation routes. This is especially important for dementia populations who can have difficulty understanding how to navigate space (Jones, 1996).</td>
</tr>
<tr>
<td><strong>c.</strong></td>
<td>Avoid dead-ends in circulation routes.</td>
</tr>
<tr>
<td></td>
<td>The design for the precinct avoids dead-ends in circulation. Confusing or annoying to the general population, dead-ends are especially difficult for those with dementia who may get stuck at the end of a path and not turn around to go back the way they came (Jones, 1996).</td>
</tr>
</tbody>
</table>

5. Design for social interaction (Gehl, 1996).

**Strategies and Elements Employed to Meet this Guideline**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong></td>
<td>Include outdoor spaces adjacent to indoor social spaces.</td>
</tr>
<tr>
<td></td>
<td>The addition of an outdoor patio to the existing cafeteria at the Koerner Pavilion would allow diners to spill outdoors, creating a more social atmosphere than currently exists in this space. In the same way, a more seamless connection between the existing therapeutic garden and the garden room adjacent to it would allow more residents to take their activities out of doors.</td>
</tr>
<tr>
<td><strong>b.</strong></td>
<td>Ensure outdoor areas are comfortable and high in amenity so that they will be used.</td>
</tr>
<tr>
<td></td>
<td>Jan Gehl's (1996) work on creating conditions for social interaction in outdoor spaces underlines the importance of creating comfortable outdoor spaces that are high in amenity to foster use. The walking route planned for the precinct would feature rest stops high in pedestrian amenity. In addition, garden spaces in the precinct would offer comfortable places to sit in both sun and shade and be able to accommodate groups of various sizes.</td>
</tr>
</tbody>
</table>

**GUIDELINES FOR THE RESIDENTS’ GARDEN**

1. Address loss of sensory acuity, reduced physical ability and needs of patients with dementia (Jones, 1996).

**Strategies and Elements Employed to Meet this Guideline**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a.</strong></td>
<td>Maximize on elements that engage the senses including plant material and water.</td>
</tr>
<tr>
<td></td>
<td>Age often results in reduced sensory acuity (Jones, 1996). This implies that design elements need to have bright colours, strong scents interesting textures to be fully appreciated by this population. For this reason, a plant palette with colourful blooms and heady aromas has been selected for both the residents' and therapeutic gardens. Plants with interesting textures have been placed within easy reach of those seated in wheelchairs. Two water features that allow site users to engage with the water are planned, one in the residents' garden, and one in the therapeutic garden.</td>
</tr>
</tbody>
</table>
b. Ensure lighting at appropriate levels, avoid glare.

Transitions between moderately and brightly lit spaces and can be uncomfortable for the general population but can cause more serious difficulty for those with dementia (Jones, 1996). For this reason transition areas between indoor and outdoor spaces have been included, allowing eyes time to adjust to new light levels when travelling between indoors and outdoors. Paving materials without glare have been specified – coloured concrete with a decorative band of pavers – to ensure easy use by residents.

c. Design spaces to be accessible; slopes not to exceed 5%, paths wide enough for two wheelchairs to pass.

Wheelchair users can have difficulty travelling on circulation routes with slopes greater than 5 percent. (ADA, 1994) For this reason grades are kept to a minimum within the precinct.

d. Provide frequent rest stops.

Site users include aged and inform populations making frequent rest stops important (Mooney and Luymes, 2000). High amenity pedestrian rest stops are planned along the walking route proposed for the precinct and are also featured in both the residents’ and therapeutic garden spaces.

e. Follow design guidelines for dementia patients; employ simple geometric schemes, avoid stark contrasts between light and dark, employ warm, mid-range colours, use familiar forms and materials, design for a residential scale, ensure spaces are secure but not jail-like, and use non-toxic materials (Jones, 1996).

As this space will be used predominantly by residents it is critical that it meet their needs as discussed previously in this paper. For this reason, guidelines for dementia patients have been adhered to when considering all elements of the garden including forms (simple and geometric), structures (homelike with residential scale), plant material (familiar and non-toxic), paving material (level and of a warm mid-range colour), seating (homelike and of appropriate dimensions), and fencing (secure but not jail-like).


a. Take every opportunity to employ the Kaplans’ criteria (Kaplan and Kaplan, 1998).

The residents using this garden space would greatly benefit for exposure to a restorative environment. The design for this space offers fascination, extent, a sense of being away, compatibility and near nature as discussed in section 1 of this table.

3. Create places for gathering.

a. Provide a range of seating options.

To support a variety of uses and to provide comfortable seating in many weather conditions a range of seating options have been provided. These include wheelchair rest pads, benches, planter ledges and picnic tables placed in sun, shade and under cover.

4. Make a strong indoor-outdoor connection.

a. Make a seamless transition between inside and outside.

Questionnaire results highlight the difficulty that can arise from something as simple as a door sill. It is important that residents have easy access to the garden to ensure its use.
b. Provide overhead protection from rain to encourage use of outdoor spaces in inclement weather.

Living in Vancouver means wet weather during winter months. To ensure outdoor spaces can be used year round, overhead protection from rain must be provided.

5. Consider maintenance requirements.
   a. Use predominately low-maintenance plants, use perennials judiciously.

   Maintenance must be considered from the outset to ensure that any new garden space will be successful. Low maintenance plantings and irrigation will help reduce maintenance loads from the outset.

6. Include elements requested by residents, families and staff.
   a. Employ design elements and plant materials requested.

   Questionnaire results showed an interest in places to sit and visit with family members and room for small group gatherings. Activities popular with residents were light gardening and wildlife viewing.

GUIDELINES FOR THE THERAPEUTIC GARDEN

1. Allow for a flexible use of space.
   a. Provide a green framework and infrastructure that can support many activities.

   As interests change over time, programs change to reflect new interests. What is needed here is a space with a strong framework that allows for a variety of uses. This design places necessary infrastructure – compost, greenhouse and watering station – in a setting that provides a low maintenance backdrop for a variety of horticultural therapy activities.

2. Support horticultural activity
   a. Increase planting areas.

   The proposed new retaining wall with planting trough would greatly increase the amount of accessible planting space on site. Existing planters could be modified to be accessible to wheelchair users, providing additional planting space.

   b. Provide accessible garden infrastructure.

   In order for residents to participate in composting and watering, infrastructure for these uses must be designed to be accessible. The watering wall featured in this design for the therapeutic garden space is not only accessible, but also attractive and serves as a focal element as well as a practical one.

3. Plan for extensive use of space.
   a. Suggest horticultural therapy projects for inclusion in existing horticultural therapy program.

   Additional planting space creates the opportunity for expanded programming in the therapeutic garden. Suggested activities are listed in table 3.3 (Simons and Strauss, 1994).

   b. Design garden space to be a great place to be.

   In addition to being functional, the therapeutic garden has been designed to be an aesthetically delightful place to be. Rich plantings and comfortable seating are included to draw residents out of doors even if they are not participating in a horticultural therapy program.
4.5 Discussion

The design presented in this project shows how a given site can be adapted to provide a restorative experience to site users. The lessons learned in the course of this study do not only apply to this project, but can be applied to many other situations. Indeed, landscape architects are increasingly called upon to participate in such projects. Landscape Architecture magazine, a professional journal, commonly features projects at hospices, hospitals and care homes, and the American Society of Landscape Architects has a professional practice network for professionals working in therapeutic garden design.

As the Canadian population ages, the number of people that could benefit from access to an outdoor space such as the one proposed also increases. Landscape architects have an important role to play in providing appropriate designs for special populations among the elderly such as therapeutic gardens for hospital patients and outdoor spaces for Alzheimer's patients. In addition to spaces intended for special user groups, it is appropriate given the rising proportion of elderly in the population that all designs for the public realm consider their needs. Research shows that health benefits accrue to users of restorative environments; one hopes that in the future this kind of space is made more widely available to all citizens as a way of improving general health.

What is needed to push this agenda forward is more research showing the measurable effect that immersion in a restorative environment has on site users. Kaplan and Kaplan have started this work by expanding on Roger Ulrich's research with hospital patients. They have shown that outdoor environments can offer restorative experiences and have isolated the characteristics of restorative landscapes. Experiments measuring exact physiological changes experienced in outdoor restorative environments are persuasive to hospital administrators and government officials, and more need to be done. If a cost benefit could be established, one imagines a day when restorative spaces are commonly part of hospital and city plans.
Bibliography

ADA Standards for Accessible Design, Department of Justice. 1994.


Appendices

Appendix A: Wellness Walkways Recommendations

A. Circuits

A1 Create Circuits
Create a series of circuits of varying lengths, and with differing emphases, i.e. provision for heritage interpretation, provision for visually impaired people, and provision for people who have impaired mobility. Overlap the themes of circuits to create a hierarchy or circuits.

A2 Differentiate Between Circuits
Use difference in paving widths, textures and colour, and in plantings to define the Wellness Walkways circuits, distinguish between primary and secondary routes and distinguish them from each other and the surrounding neighbourhoods.

A3 Encourage Mobility
On circuits that are prioritized for people with mobility constraints, follow the gentlest grades and pass through those intersections that provide the easiest crossings for wheelchairs and make all new sidewalks accessible.

B. Sidewalks

B1 Wider (1.8m) Sidewalks
New sidewalks should be at least 1.8 metres wide to provide ample room for movement, recognizing that users include those in wheelchairs and walkers.

B2 Sawcut Control Joints
Control joints in new sidewalks should be sawcut rather than trowelled in order to improve evenness and smoothness for use by wheelchairs and walkers.

B3 Cracked/Heaved/Settled Sections
To provide a smooth sidewalk surface, any cracked, heaved, or settled sidewalk paving should be replaced where possible with new sidewalks.

B4 Street Tree Planting
Ensure adequate root zone preparation and carefully select tree species to reduce sidewalk heaving by tree roots.

B5 Special Sidewalk Treatments
Unique sidewalk designs should be considered for beautification areas. Consideration should be given to creating a smooth surface on the sidewalk along Main Street with a thin coating (10mm) of coloured asphalt paving over the existing concrete. A smooth travel path in the centre of the sidewalk should be distinguished from textured paving around street trees (to allow water penetration into the soil around the trees) and along the building face (to create a zone for sidewalk stalls, outdoor seating, etc.).

B6 Tactile Strips Along Sidewalks
Where appropriate, install tactile strips either on both edge of the sidewalk or on the inner edge to aid people using canes to stay on the path.

B7 Recessed Tactile Surfaces
Make sure that the texture of the tactile strips or other pavement markings result from recesses rather than a raised surface so they are not disruptive to those in wheelchairs.

C. Streets and Intersections
C1 Use Curved Street Alignments
Use curved street alignments and narrowed traffic lanes on busy local streets.

C2 Traffic Circles
Install traffic circles where appropriate to discourage non-local traffic cutting through the neighbourhood.

C3 6 Meter Corner Bulges
Provide corner bulges to create a narrower roadway at intersections.

C4 Seating Areas
Place rest areas along the busiest pedestrians routes, wherever people tend to congregate and at intersections. Use the wider boulevard strip between the sidewalk and the curb face, created by the corner bulges, for the creation of seating places, thus enhancing the comfort of the public streetscape.

C5 Aligned Sidewalks/Crosswalks
Replace all diagonal curb ramps with perpendicular curb ramps and align them directly with the sidewalks and crosswalks.

C6 Smooth Ramps
Make curb ramps flush with the street at the base. Make the base of these ramps well-drained to avoid puddling. In any future improvements in the study area, strive to make cross slopes 1.5% on sidewalks and 0% on curb ramps.

C7 Tactile Strips at Curb Ramps
To signal the user's arrival at intersections, consider providing markings, contrasting paving or tactile strips across the top and/or bottom of curb ramps.

C8 Textured Intersection Paving
Continue the tactile strip along sidewalk edges or other markings or contrasting paving across intersections to help the visually impaired navigate. At very least, make sure that painted crosswalk line markings are repainted frequently and not allowed to become dim through wear.

C9 Pedestrian/Cyclist-Actuated Traffic Signals
Make sure that there are pedestrian/cyclist-actuated traffic signals to connect the Wellness Walkways across busy streets. Consider the use of new technologies to ensure that the elderly and those in wheelchairs have sufficient time to cross the road.

D. Street Furnishings

D1 Consistency in Street Furniture
To assist all, but especially the visually impaired, the design of all street furniture and its placement must be consistent throughout the Wellness Walkways.

D2 Short Walks
Reduce walking distances by providing mid-block rest area. Ideally, provide either a place of interest or a place of rest every 40 – 50 metres.

D3 Universally Accessible Street Furniture
Design or adapt all street furniture to be universally accessible. Increase access to existing street furniture, such as by adding concrete pads beside benches to allow wheelchair users to sit next to people on the benches.

D4 Wheelchair Pads Beside Benches
At each bench, include a 1-metre square paving pad on at least one end, so that people in wheelchairs can sit alongside the benches and join more easily in conversation, or transfer onto the bench.

D5 Rest Areas
Create rest areas which combine simple benches with other amenities to create comfortable, universally accessible and attractive places. Vary seating arrangements to provide choices and social opportunity.

D6 Street Furniture Placement
Place all street furniture and rest areas such as benches, drinking fountains and tables off the major circulation and signal its position by a tactile strip or contrasting or textured paving.

D7 Heritage Style Furniture
In heritage-themed rest areas, use heritage lighting and street furniture.

D8 Shade Structures and Shelters
Rest areas should be designed to provide microclimatic protection in the form of shade structures, which may support vines and climbing plants as well, or shelters from the rain.

D9 Universal Drinking Fountains

D10 Accessible Tables

D11 Universally Accessible Bus Shelters
Provide universally accessible bus shelters with clear signage at bus stops serving the Wellness Walkways. Posts should have a distinct cross-sectional shape and reflective coloured bands. Signage should be safely at eye level and Braille panels should be used to extend signage messages to visually impaired people.

D12 Fountains and Pools
At special location near to hospital.

E Trees, Plants and Wildlife

E1 Increase Plantings
Retrofit the neighbourhood streets with additional plantings, including voluntary plantings on private lands, new street trees where lacking and additional plantings at special landscape areas, intersections, mid-block and corner rest areas. Decide on location, nature and type of plantings on public and private lands through public consultations and use volunteers in planting them.

E2 Reduce Glare
Plant street trees, particularly on circuits prioritized for the elderly and visually impaired, to reduce glare from the sidewalk surface and to provide shade.

E3 Planted Boulevards
Use the wider boulevard strip between the sidewalk and the curb face created by the corner bulges for additional plantings to enhance the attractiveness of the public streetscape.

E4 Maintain Open Sight Lines
When retrofitting the neighbourhood streets with additional plantings, ensure that open sight lines are maintained to provide views of traffic for public safety. Keep plantings in traffic circles low for maximum visibility.

E5 Distinctive Landscape Character
Design additional plantings so that distinctive landscape character zones are created within the Wellness Walkways circuits.
E6 Special Landscape Areas
Make the origins and destinations of each circuit's special landscape areas. These include the entrances to care facilities and local parks, as well as destination business or travel corridors. Design should increase access and provide a variety of seating that promotes socialization and viewing opportunities.

E7 Aromatic Plantings
Rest areas walkways should be designed to provide perennials, flowering shrubs and trees planted for aroma.

E8 Colour/Wildlife Plantings
Rest areas should be designed to provide perennials, flowering shrubs and trees planted for colour or to enhance the viewing of birds and butterflies. Provide new vines, shrubs and perennial plantings which attract hummingbirds and butterflies close to where people sit.

E9 Bird Feeders, Nesting Boxes and Bat Boxes
Rest areas should be designed to provide bat boxes and feeders and nesting boxes.

E10 Accessible Planting Areas and Garden Plots
Seating areas should have wheelchair accessible, raised planting beds.

F Lighting

F1 Increased Pedestrian-Scaled Lighting
Increase sense of safety by upgrading all street lighting where required.

F2 Upgrade Lighting
Use the most natural light spectrum, i.e. the 'whitest light', in all new lighting.

F3 Heritage Light Standards
Reinforce the heritage aspect of the Wellness Walkways circuits by providing any additional lighting with heritage light standards or heritage heads on existing light standards.

F4 Rest Area Pedestrian Lighting
Ensure that rest areas are well lit with heritage style pedestrian scaled light standards.

F5 Intersection Lighting
Provide ample well-directed lighting at intersections.

F6 Street Trees
Prune street trees, as necessary, so that street lighting is able to reach the ground.

G Way-finding

G1 Pedestrian Directional Signs
Support way-finding by installing signposts at key points in the landscape, such as at intersections and rest areas. Give signs bold, clear lettering and arrows that point the direction to key destinations and landmarks. Make the lettering black on a white background and place it safely at eye level.

G2 Colour Coding
Make different routes and destinations visually distinct by means of colour coding.

G3 Colour Coded Tactile Strips
Consider reinforcing colour themes with coloured tactile strips along sidewalks.

G4 Colour Coded Plantings
Make different routes and destinations visually distinct by means of colour coded plantings. Further differentiate the circuits by using cool colours on north-south streets and warm colours on east-west streets.

G5 Reflective Banding on Poles
Distinguish different routes and reinforce colour themes, particularly at intersections with reflective bands on light standards and other poles.

G6 Distinctive Landmarks
Use distinctively designed special landscape areas, intersections, rest areas and heritage interpretation markers to serve as landmarks.

H Safety and Security

H1 Low Crime Circuits
Locate the Wellness Walkways circuits in areas of lowest crime.

H2 Defensible Space
Encourage natural surveillance on the street by designing the spaces along the street and in front of apartment buildings that give shade, shelter, amenity and convenience. Physically separate these spaces from the street by using low walls, hedges or plantings. Subdivide these apartment “front yards” into two areas; a semi-public area nearer the street and a semi-private area of amenity and use nearer the building.

H3 Public-Private “Blurring”
Make the entries of care facilities a merged public/private zone.

H4 Maintain Open Views
Implement Crime Prevention Through Environmental Design principles throughout the study area and maintain open views to ensure the safety of the user.

I Heritage and Interpretation

I1 Heritage Themes
Give rest area different and appropriate themes such as heritage. Link significant heritage locations together to create circuits with heritage themes.

I2 Heritage Style Street Furniture and Heritage Interpretation
Use heritage style street furniture and unified heritage interpretive markers to reinforce heritage rest areas, strengthen way-finding and establish distinctly different circuits and districts in the neighbourhood.
Appendix B: Purdy Questionnaire

Purdy Pavilion
Garden Questionnaire

Thank you for your time and effort in completing this questionnaire. The information will be used by Campus and Community Planning to develop a design for a future outdoor space between the Detwiller and Purdy Pavilions, and to plan renovations to existing gardens at the Purdy Pavilion.

Please complete and return to Ellen Courtney's office on Purdy 1 before July 25, 2005.

1. Would you like to participate in the following activities?

<table>
<thead>
<tr>
<th>Activity</th>
<th>YES</th>
<th>NO</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visiting with family and friends outside</td>
<td>17</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Small group gathering outside</td>
<td>17</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bird/animal watching</td>
<td>13</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Light gardening tasks</td>
<td>14</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

Other activities: ____________________________

2. Which features would you like to see in a future outdoor space?

<table>
<thead>
<tr>
<th>Feature</th>
<th>YES</th>
<th>NO</th>
<th>Blank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patio for group gathering</td>
<td>16</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Open lawn area for games</td>
<td>9</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Looped Pathway</td>
<td>12</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Screened porch</td>
<td>11</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Seating areas in sunshine</td>
<td>12</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Seating areas in shade</td>
<td>16</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Shade trees</td>
<td>16</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Fruit trees</td>
<td>13</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Flowers</td>
<td>16</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Container gardens</td>
<td>13</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Fountain/pond</td>
<td>16</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Other features: ____________________________

Written comments:
1. (family member)
   No smoking

2. (resident)
   They get birds now.
   Have bird feeders now.
   Enjoys just being in garden.
   Residents organize themselves in small groups to visit garden now.
   Enjoys walking.
   Screened porch would be useful to keep the bugs away.
   Prefers sitting in sun.
   Prefers strongly scented flowers.
   Finds container gardens very useful.
   Feels they have to have fountain or a pond.
   Would like to see chairs included.
Would like a Mimosa tree and violets.
Would like to see trees mentioned in German poetry, plants from Croatia, Southern France.
Would like trees with fragrant blooms.
Would like a Magnolia like the one at the Shaughnessy Hospital.

3. (resident)
Existing garden room not used much, there is a bump at the threshold that you can’t get over in a wheelchair.
Birds come to existing feeder.
Would like to attract hummingbirds and butterflies.
Would enjoy filling bird feeders.
There is a resident group (1st and 2nd floors) that do pots and vegetables in existing garden.
Croquet is impossible, all of the residents are in wheelchairs.
No-one uses the existing checker board painted on the pavement.
There are not enough staff members for planned activity programs.
Enjoys low-key sports that use balls and rackets.
Could use a horseshoe pit if there were staff/volunteers to help.
Open lawn games are not good for wheelchairs.
Include benches.
Screened porch not necessary, there are no bugs here.
Would like an umbrella tree.
Would like foxgloves, delphiniums, phlox, roses, peonies, hydrangeas, fuchsias.
Fountain would be alright if it could be maintained.
Include sculpture, perhaps busts of doctors that have worked at the hospital.
Include vegetables, fruit.
Include a place to eat fruit in the garden, or have an ice cream social.
Include spaces for families to visit.
Include white-barked trees in clumps.
Likes weeping willows.
Foyer on the main floor is not inviting, it’s too dark.
Re-upholster chairs to be brighter, replace rugs with hardwood flooring or lino.
There are lots of birds around, would be nice to have a feeder.
Residents would enjoy filling the feeder if they could reach it.
Existing walkway has weeds everywhere.
Enjoys sitting outside in space between Purdy and Acute Care Hospital.
Big pots in front of Acute Care Hospital are empty.
Back door to the hospital could be very nice if someone took an interest.
Garden sculptures, stone benches, statue of Saint that was a gardener (St. Fiacre) that need not be large, perhaps a small statue sitting on a pedestal.
Trellis with grapes.
New awnings for lower garden.
Old fashioned garden.
More plastic chairs.
Tables should be lower or have a variety of heights to suit different sizes of wheelchairs, furniture could be more permanent.
Automatic watering system, water spouts that residents could use.
Existing retaining wall is deteriorating, replace with concrete or stone.

4. (left with staff)
Water feature to include fish.

5. (family member)
“Looking at flowers, fresh air, strolling, flower fragrances and colours seem to almost rejuvenate my Mom”.
Fountain or pond at the entrance to the Purdy, reflective pool and small fountain.
Water features promote a feeling of tranquility and harmony with nature and self.
Providing some raised beds or containers enables people in chairs to get closer to plantings.

6. (resident)
   We have a patio for group gathering.
   Open area for games not needed – we are all in wheelchairs.
   A looped pathway would be fine if you are able to walk.
   Screened porch not necessary as they have two canopies.
   Would like another green space.
   Would like a garden that goes over your head – up walls and across ceiling.

7. (left with staff)
   Would like to see place for games included.

8. (resident)
   Already uses existing space for visiting with family and friends.
   Would like to grow roses.
   Would like a wheelchair accessible lawn.
   Would strongly support more fruit trees.
   Concerned that addition of pond or fountain would cause erosion on site.
   Likes palm trees, roses (especially yellow ones as his father grew yellow roses)
   His wife comes to visit every night and likes to go outside for fresh air, they go to the village
   together and find getting there difficult because of slope, makes it hard to navigate the street
   crossing. Crossing light is too short, and cars don’t stop at the crosswalk.
   Doesn’t like the idea of an overhead garden ‘not ready to go underground yet!”
   Terraces are a good idea.
   Likes to see flowers and smell them.
   He’s on the garden committee, says they have some funding. It all comes down to money
   Check out the entry to the existing garden – the threshold is hard to cross in a wheelchair, you
   can get out, nut not back in.

9. (resident)
   Family comes for BBQ.
   Patient Park has been closed a long time.
   Would like to have classes that teach patients how to plant.
   Need to get rid of smoking on site, this is an issue that needs resolution.
   Enjoys making blankets and knitting, would like to do light work in the garden, rake leaves.
   Likes the new canopies, would like to have 2 more at least.
   Patio for group gatherings already exists in lower garden.
   Would like a little section of lawn.
   Screened porch not necessary as there are no bugs here.
   Currently uses space between Purdy and Acute Care Hospital for sitting in shade.
   Already have 3 apple trees on site.
   Would especially enjoy roses.
   More flower pots.
   Would like to have a fountain to attract birds.
   Likes to sit in the breeze.
   Garden committee will be getting new tables in the fall, the ones they have are falling apart.
   Plastic lasts better than wood.
   Wants to help out in the garden, very appreciative.
   Would like to see a garden at every nursing home, improves the mind, need to have something to
   work on.
   Likes to go to the Village, but is scared to cross the street, cars don’t slow down even though the
   crossing light is on. He’s got a power chair, so the slope isn’t an issue.
   He also likes to travel around campus, and goes to old bus loop.
   Thinks that wheelchair uses should have special leeway ‘I didn’t ask to be in this chair’. He would
   travel the entire campus, but is prevented from doing so by poor road crossings.
The bus shelter in front of the hospital is not good for wheelchairs, poor hearing, not enclosed (no overhead protection).
Patient Park had a pool that residents could wade in, loved it. What happened to it?
He is willing to take me on a wheelchair tour around the buildings.

10. (left with staff)
   Space for BBQ's and activities.

11. (left with staff)
    No smoking.

12. (left with staff)
    Possible access to water make tea or water to drink.

13. (left with staff)
    New tables to go with new chairs and canopies.

14. (left with staff)
    How can wheelchairs be rolled over grass?
    The 2 gazebos/tents are a great addition.
    Want all smoking to cease in the outdoor area.

15. (left with staff)
    Not able to participate in light gardening tasks, but would like to watch others.
    Would like to watch others play lawn games.
    Would like a choice between sitting in sun or shade.
    Lots of flowers, please.
    A butterfly garden (special plants).
    No traffic, no noise cars or trucks.
    Quiet, no boom-boxes or canned music, but concerts would be nice.
    Tables.

16. (maintenance volunteer)
    Take into account that food scattered attracts rats – a hospital no-no.
    Every resident or visitor capable of doing so should remove dead flower heads.
    There is room on the SW side of the greenhouse for outdoor sports such as ball catch,
    wheelchair obstacle races, etc.
    Patio for group gathering of residents a good idea.
    Grass is hard to maintain, UBC gardeners will probably ignore.
    Proper whole window screens would be nice.
    Sunny seating already available throughout existing garden.
    Seating in shade already available throughout, including window areas.
    Shade trees, already growing Star magnolia, Apple trees.
    Top bank to be planted by UBC.
    Flowers, as many as can be maintained.
    Existing raised boxes badly planned for wheelchairs.
    Fountain – residents could tumble and drown, one trickling Japanese style fountain would sound nice.
    "Many ideas sound good until the time and human management is considered. For 4 years I
    have been requesting volunteer help, and so far only 3 students have kindly offered one hour per
    week each. I am truly grateful until I read a questionnaire such as this, practicality is nowhere to
    be found."
    The central area from hospital covered patio to wall where flag flies should, at all times, be for the
    use of residents, as should shade tents.

17. (resident)
One of the main uses of any new space would be to increase opportunities for visiting with family and friends outside. There are not many places to meet outside, the Patient Park is under construction, and even when it was open, there were smokers in there making it unpleasant. Would enjoy participating in light gardening tasks if he could find tools that let him do it. He is quadriplegic, but it able to feed himself, and seems quite able. Would like a place for picnics, to spend time with visitors outdoors. Used to do that at Patient Park, but can't get in there now. Would like a place to eat outdoors, like a café or restaurant patio. Screened porch not necessary, there are no bugs here. Prefers to sit in the shade, drink a Kokanee. Likes the idea of fruit trees, thinks that there was a plum at Patient Park. People like to be engaged in an activity, to be doing something. Loves flowers, (keeps a Christmas cactus in his room). Landscape around building should be nice for residents and visitors.