



City of Richmond

Report to Committee

To: Parks, Recreation and Cultural Services Committee
Date: April 5, 2017

From: Mike Redpath
Senior Manager, Parks
File: 06-2345-20-GCIT1/Vol 01

Re: Garden City Lands April 2017 Update

Staff Recommendation

1. That the staff report titled "Garden City Lands April 2017 Update," dated April 5, 2017, from the Senior Manager, Parks, be received for information; and
2. That a copy of the staff report titled "Garden City Lands April 2017 Update," dated April 5, 2017, from the Senior Manager, Parks, be forwarded to Kwantlen Polytechnic University, stakeholder groups and be posted on the City's website.

Mike Redpath
Senior Manager, Parks
(604-247-4942)

Att. 3

REPORT CONCURRENCE	
CONCURRENCE OF GENERAL MANAGER 	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS:
APPROVED BY CAO 	

Staff Report

Origin

In July 2016, Council was provided a staff report titled “Garden City Lands Park Development Plan,” dated June 30, 2016, detailing future construction and development of the Garden City Lands. The purpose of this report is to provide information on the ongoing implementation of the Garden City Lands Park Development Plan (Attachment 1) and recent construction associated with the first phase of the Garden City Lands.

This report supports Council’s 2014-2018 Term Goal 2: A Vibrant, Active and Connected City:

Continue the development and implementation of an excellent and accessible system of programs, services, and public spaces that reflect Richmond’s demographics, rich heritage, diverse needs, and unique opportunities, and that facilitate active, caring, and connected communities.

2.3. Outstanding places, programs and services that support active living, wellness and a sense of belonging.

Findings of Fact

The City-owned Garden City Lands are approximately 55.2 hectares (136.5 acres), located on the eastern edge of Richmond City Centre. The Garden City Lands is one of Richmond’s newest parks and has a unique combination of agricultural and ecological functions resulting in what will be a singular park in Metro Vancouver. While the Garden City Lands is designated a city-wide park, because it is inherently embedded in a high-density neighbourhood, it will serve as an important recreational destination to the local community. Several existing and planned greenway and pedestrian connections will also make this park a destination for many visitors city-wide and throughout Metro Vancouver.

In 2014, Council approved the Garden City Lands Legacy Landscape Plan as a framework for the future detailed planning and development of the Garden City Lands. In July, 2016, the Garden City Water and Ecological Resource Management Strategy and the Garden City Lands Park Development Plan were presented to Council.

The Water and Ecological Resource Management Strategy provides a number of ecological and hydrological management considerations to guide the implementation of the Park Development Plan. The Park Development Plan is a synthesis of the Legacy Landscape Plan, the science-based recommendations from the Water and Ecological Resource Management Strategy and feedback from Richmond residents. The Park Development Plan provides the subject-matter expert analysis and direction for the implementation and construction methodology of the Garden City Lands project.

Project Update

Implementation of the first phases of the Park Development Plan has entailed the preparation of detailed designs and development of construction drawings and specifications. These first phases include site survey layout of the proposed works, procurement of specified materials, applications for approval to the Agricultural Land Commission and actual on-site construction.

In December 2015, Council awarded a consulting contract for professional services for landscape architecture, engineering and bog ecology to assist staff in developing an implementation and construction strategy. Staff take under consideration the consultant team's recommendations to develop the appropriate construction methodology for the particular conditions of the site and types of features being constructed. All work is conforming with applicable best management practices for this type of construction and follows all applicable Agricultural Land Commission and City Bylaw policies and regulations. The City policies and regulations include traffic management, construction noise management, soil deposition, placement of silt fencing and hours of work. In addition to these municipal regulations, all imported soil materials are tested prior to placement on site once approvals are in place.

Staff have reported to Council and Committees and to date, Council has approved the following milestones for this project:

- June 9, 2014: Garden City Lands Legacy Landscape Plan: Report to Council adopted on consent;
- February 10, 2015: Five Year Financial Plan: Approval of the \$2.1M capital submission for construction of perimeter trails;
- June 8, 2015: Kwantlen Polytechnic University Sustainable Agriculture Research and Education Farm: Report to Closed Council;
- December 14, 2015: Award of RFP 5540P for Design and Construction Services: Report to Closed Council;
- December 14, 2015: Five Year Financial Plan: Approval of the \$3.1M capital submission for construction of water management infrastructure; and
- December 12, 2016: Five Year Financial Plan: Approval of the \$1.2M capital submission for continuation of construction of water management infrastructure and improvements to enable agricultural uses.

Park Development Plan Implementation

The work commenced in the summer of 2016 and will continue through 2017. Work completed in 2016 includes approximately 100 metres of the seepage barrier and approximately 1,680 metres of the central berm (dike) and sections of farm service roads.

These initial phases of construction will lay the sub-surface infrastructural foundation for the future park which can only be done at the beginning of a project. The phasing and sequencing of this initial phase of work is complicated by the saturated site conditions. Work is limited within most of the site for all but several months in the summer, leaving only the edges, adjacent to

roadways, accessible for construction throughout the year. Construction is currently occurring along this less saturated perimeter zone.

Planned activities for the 2017 season include:

- Perimeter pedestrian and bicycle trails (underway since March, 2017);
- Completion of the seepage barrier along the central dike and along Westminster Highway;
- Installation of site infrastructure (drainage ditches, storm sewer connections and weir structures, and preparation for electrical and water connections);
- Placement of soil for the initial phase of farm development (subject to approval by the Agricultural Land Commission);
- Hydroseeding of exposed peat soils along trails;
- Fall/winter tree planting along the perimeter;
- Community engagement;
- Partnering with Kwantlen Polytechnic University on the Research and Education Farm;
- Agricultural Land Commission approvals; and
- Hosting the City's Harvest Fair proposed for the Garden City Lands in September.

See Attachment 2 for a summary of the planned construction and project related activities anticipated to be completed in 2017.

Perimeter Pedestrian and Bicycle Trails

In March, construction began on the network of twinned trails which will ultimately form a 2.9 kilometre multi-modal recreational experience, accommodating pedestrians on a 2.5 metre wide path and cyclists on a 3.5 metre wide path. The trails will form a complete loop around the site and will be the park's primary interface with the surrounding community and roadways. They will also serve as the physical connections to existing and future greenways which includes the future greenway along May Drive (north of Alderbridge) and Lansdowne Linear Park to the west. The City has received approval from the Agricultural Land Commission to build the perimeter trails. Additionally, a City Soil Deposit Permit has been issued for this scope of work.

Both trails are bi-directional and the surface will be suitable for all pedestrians as well as wheeled devices, including mobility aids. The path is constructed of several grades of gravels and crushed stone laid over geotextile fabrics set on the existing ground (Attachment 3). This method of construction achieves a stable, permeable and durable path. Existing soils excavated to establish path design grades are stockpiled on-site for later reuse. Invasive plant material and excavated debris are being appropriately disposed of.

The phased construction is dictated by the water levels on the site. Construction along the edges of the site, that is, along the adjacent roadways, is not affected by the currently saturated soils within the site. In mid-March, construction began along No. 4 Road. Construction along Alderbridge Way will then begin followed by work along Garden City Road with anticipated completion by mid-summer. The frontage along Westminster Highway will begin when the

water table subsides enough to permit the effective installation of storm water infrastructure and the clay seepage barrier (see below for more information).

As each phase is completed and the site is secured to ensure the public's safety, staff will consider opening the trails for limited public use, that is, access will be restricted to the trails only. Openings will be subject to ensuring the public's safety during on-going construction. Public access to the site will remain substantially restricted to designated areas because the site is a conservation area and/or a construction zone. Wayfinding signage and safety barriers will be placed to ensure the public is well informed and their safety maintained. Openings will be announced to the public thru the City's web site and on-site signage and social media.

Seepage Barrier

As per hydrologist and engineering consultant recommendations, a clay seepage barrier is being installed along two edges of the bog. The purpose of the barrier is twofold:

1. Retain water in the bog to maintain high water levels throughout the season; and
2. Prevent infiltration of water from the farm into the bog area.

Healthy bogs require a high water, high acidity and low nutrients levels. As per the project's consulting engineer's recommendation, imported clay material is placed to a depth of approximately 1 metre below grade, that is, from the surface to the underlying, impermeable clay and silt layer. The existing peat is excavated, stockpiled on-site for later re-use. The imported clay will be placed along the entire eastern frontage of the dike and along the northern edge of the soon-to-be built perimeter path along Westminster Highway. As the clay barrier is installed, the previously excavated temporarily stockpiled peat is placed over the newly installed seepage barrier and re-graded to create a smooth transition from the raised edge of the path down to the adjacent bog surface. This sloped area will be initially hydroseeded with native grasses to prevent the establishment of invasive weeds. In later phases, it will be planted with native shrubs and plant material.

The clay material is sourced from Metro Vancouver development sites. All imported clay material brought on site is tested to confirm they are free of significant debris, containments and physical composition prior to delivery to site. Staff will monitor the water levels, chemical profile and acidity of the water in the bog for the next three years after the barrier's installation.

Infrastructure Support System

Municipal infrastructure will be installed simultaneously with the installation of the trails and seepage barrier. A majority of these improvements are located underground and will not be visible at the surface once installed. Planned improvements include drainage ditches and swales, drain pipes, storm sewer and water connections to the City's network, weir structures to regulate water levels in the bog and electrical supply (installed in coordination with BC Hydro). These items are being installed at this time to minimize excavating previously installed site improvements at some future date.

Soil Placement for the Initial Phase of Farm Development

In February 2017, the City of Richmond submitted an application to the Agricultural Land Commission to place fill at the Garden City Lands. This fill will establish the initial 2 hectare (5 acre) area of the Kwantlen Polytechnic University (KPU) Sustainable Agriculture Research and Education Farm. The Agricultural Land Commission's approval is expected in April.

Approximately 800 dump trucks of fill are required to establish the initial phase of the ultimate 8 hectare (20 acre) research and education farm. KPU staff have provided the City a soil specification indicating the soil type and composition they require. The soil required needs to meet strict environmental guidelines for soil suitable for agricultural purposes. A comprehensive soil testing protocol will include:

1. Chain of custody documentation identifying the source;
2. Soil sample testing by certified laboratories; and
3. Assessment of soil structure, composition and level of contamination.

Soil will come from a number of sources, possibly including the City's Sidaway soil dump and development sites throughout Metro Vancouver. Fill placement will not proceed until Agricultural Land Commission approval and a City of Richmond Soil Deposit Permit are received and the site is dry enough (expected to be mid-to-late summer though subject to weather). Soils not suitable for agricultural purposes will not be placed in areas designated for food production.

City staff will be managing the soil placement operation which may include the use of heavy equipment such as bulldozers to place soil manufactured by an on-site industrial soil shredder (to mix soil provided to meet KPU's specifications). Dump trucks accessing the site will be routed along existing farm service roads and the dike trail.

Hydroseeding

Commencing this spring, exposed portions of previously disturbed soil are and will be hydroseeded with native grass seeds (Attachment 3). Hydroseeding is a highly efficient method of applying grass seed. It involves a truck applying a water based mixture of mulch and seeds over a large area with a water cannon. The mixture of seed, mulch and other additives has been specially formulated in coordination with a bog ecologist to ensure the seeds used are native and the chemical composition of the slurry is appropriate for use in bogs. To date, a 1.2 hectare area has been hydroseeded.

Fall and Winter Tree Planting

Beginning this fall, City of Richmond staff will commence tree planting on site. Native trees will be planted next to the pedestrian and cycling trails along the entire perimeter of the Garden City Lands. Once completed, this phase of work will see over 1,300 trees planted, comprised of predominantly native conifer and deciduous trees and selected cultivated fruit bearing trees slated for the proposed orchard on the Rise (northwestern corner of the site, along Alderbridge

Way at Garden City Road). If tree planting cannot be completed over the 2017/2018 winter season, tree planting will resume in fall, 2018.

Community Engagement and Stakeholder Involvement

In May 2015, staff provided Council a proposed Garden City Lands communications strategy. In this strategy updates to Committee and Council, outreach via social media, project website, on-site signage, stakeholder engagement and public events. The following provides a synopsis of staff's project related community engagement efforts to date.

The Garden City Lands web page (<http://www.richmond.ca/parks/about/design-construction/gardencitylands.htm>) is regularly updated to provide the public information on activities planned for 2017. Aerial perspectives and a drone, fly-over video of the site from this past winter are also posted. The webpage will be updated with new images portraying the steady transformation of the Garden City Lands.

Previously available materials such as links to the Garden City Lands Legacy Landscape Plan, Council, Committee and consultant reports and studies are available on the website at: <http://www.richmond.ca/parks/about/design-construction/gardencitylands/archive.htm>.

Ongoing updates and information will be provided to the public via the project's web page, <http://www.letstalkrichmond.ca/lets-talk-richmond>, and with updated on-site signage, currently located at key locations at Garden City Lands. Two signs have been installed on site since February 2017.

With the completion of the perimeter trail and initial work on the KPU farm area anticipated to begin in 2017, the Garden City Lands will be ready for program development in 2018. Additional staff resources will be included as part of the 2018 capital submission in order to advance programming at Garden City Lands.

There are many key stakeholders who have been engaged in early program visioning for the site, and who will be engaged in programming the site moving forward. These stakeholders include:

- KPU Department of Sustainable Agriculture and Food Systems;
- Richmond Food Security Society;
- Richmond Nature Park Society;
- Richmond Fitness and Wellness Association;
- Garden City Lands Conservation Society;
- City Centre Community Centre; and
- School District 38.

Early program opportunities at the site include:

- Site interpretation, including signage plan;
- Community gardening and learn to garden programs;
- Workshops and seminars related to food production (ie: fruit tree pruning, etc.);

- Fitness and wellness programs (walking clubs, tai chi, yoga, etc.);
- Nature-based education programs with a focus on bog conservation and agro-ecology (ie: guided walks and tours, school programs);
- Special events, including the Richmond Harvest Festival; and
- The establishment of a stewardship group under the Partners for Beautification Program that would create opportunities for volunteer involvement at many levels.

As the park infrastructure continues to develop, programming will expand and grow along with it. Engagement with key stakeholders is as an important step in the process to develop a vibrant and active public space. Their involvement will give the park the grassroots support and momentum to make the Garden City Lands an engaging place in the City. A copy of this report will be provided to these key stakeholders to give them an update on the project's progress.

As portions of the perimeter trails are deemed safe for public use, staff will publicly announce, via on-site signage, the City's web site and social media, that the trails are available for recreational use. Staff see these limited openings as opportunities to introduce the public to using the Garden City Lands as recreational destination in their own community.

To date, Council and Committees have considered 10 formal reports as progress reports and/or requests for approval at key project milestones. In addition to the aforementioned reports, the Parks, Recreation and Cultural Services Committee has a standing agenda item to have staff provide the Committee monthly verbal progress reports and have been provided memos providing additional information. Since January 2016, 13 verbal reports have been provided to the Committee. The minutes from these meetings are posted on the City's website.

The Harvest Festival

The Harvest Festival, part of the Richmond's Canada 150 celebrations, is planned to occur at the Garden City Lands, just off Garden City Road near Lansdowne, on Saturday, September 30, 2017. The Harvest Festival will be a first annual event celebrating the City's agricultural heritage featuring a farmers market, farming equipment, farm animals, live busking entertainment, food trucks and agricultural displays. The event is expected to attract an estimated 10,000 people. The Harvest Festival attendees will learn about agriculture and its importance to the City's past, present and future. The event will also help in establishing the park as recreational and educational destination in Richmond's City Center area. This event is subject to ALC approval.

The Proposed Kwantlen Polytechnic University Farm

The City of Richmond is working with KPU to plan a future Sustainable Agriculture Research and Education Farm. Soil placed by the City will establish the first phase of this farm. When the farm is fully implemented, it will be managed by KPU as part of the University's Sustainable Agriculture program.

A number of improvements will be installed on the site as the soil is placed. Water services will be provided off of both Alderbridge Way and Garden City Road for irrigation purposes. A drainage system will be designed by the project's engineering consultants and installed by City staff. While some of the farm's drainage will be diverted to ditches and ponds (construction

slated for future phases), the City will provide the farm with a storm water connection to the City's system. These infrastructural components will be installed in phases as the farm evolves and their requirements increase accordingly.

KPU is planning to place mobile and lightweight agriculture-grade greenhouse structures called 'hoop houses' to increase agricultural production on the site and extend the growing season for certain crops. KPU would also like to place two re-purposed shipping containers to provide secure, on-site equipment storage space for the farmers. The City will work with KPU to appropriately locate these structures and create a strong graphic identity to profile KPU's involvement at the Garden City Lands and mitigate graffiti vandalism. City staff will work with the appropriate City departments to gain any required permits and approvals for the above noted site improvements.

Staff will provide KPU a copy of this report and ongoing updates as the Park Development Plan is implemented.

Agricultural Land Commission

In January 2017, City staff presented the Garden City Lands Park Development Plan to Agricultural Land Commission staff and discussed the proposed Phase 1 scope of work within the Park Development Plan to determine what applications the City would be required to make to the Agricultural Land Commission to gain approval to proceed. Since that presentation to Agricultural Land Commission, the City of Richmond has submitted three applications to the Agricultural Land Commission for review and approval by the Board, they are:

- Transportation, Utility, or Recreational Trail Uses within the ALR (for permission to build the perimeter trails);
- Application to Place Fill and/or Remove Soil (for permission to place fill to create the KPU Farm); and
- Non-Farm Use Application (for permission to hold the inaugural annual Harvest Festival).

To date, the City of Richmond has received permission for the construction of the perimeter recreational trails. Construction of these trails is currently proceeding on site. As a condition of approval and as per Agricultural Land Commission policy, the City is required to install an agricultural fence around the Garden City Lands adjacent to this publicly accessible path; staff is proceeding with implementing this required site improvement. Approvals for the placement of fill for the initial 2 hectare (5 acre) phase of the KPU farm is expected in mid-to-late April and in May or June for the Harvest Festival.

Agricultural Land Commission staff have advised the City that it would be preferable to make a single application for the remaining improvements identified in the Park Development Plan requiring Agricultural Land Commission approval. Further detail will be required in order to accurately describe the scope of elements such as the Community Hub and Farm Centre, washroom facilities and other park elements prior to an application being submitted to the

Agricultural Land Commission. Staff will begin a more detailed design and programming study later in 2017 in order to make a Non-farm Use Application in the future.

Budget Update

In 2014, 2015, and 2016, Council approved capital projects to fund the phased implementation of the Park Development Plan for a total of \$6.4M. To date expenditures are \$1.7M. It is anticipated that the remaining amount (\$4.2M) will be spent by the end of the year, weather permitting and \$.5M in early 2018, again weather permitting.

Next Steps

Staff will be preparing capital budget submissions as part of the 2018 budget process. Requests for additional funding of park elements identified in the Park Development Plan will be submitted for Council's consideration, particularly planning for the Community Hub and Farm Centre. Planning and programming of this facility needs to be started prior to formal design and construction begins. In support of this major park element, staff will be exploring potential grant and partnership opportunities as well as approval for siting and construction from the Agricultural Land Commission.

Planned construction activities for the remainder of the 2017 construction season at Garden City Lands will be focused on completing the landscape works associated around the perimeter trails, further implementation of the Kwantlen Polytechnic Farm and implementation of a signage and wayfinding strategy.

As work proceeds, staff will continue with public outreach and engagement efforts. Staff will also provide Council another project update in fall 2017 reviewing progress on construction to date as well as a summary of project related issues such as the City's partnership with Kwantlen Polytechnic University and the Agricultural Land Commission.

Financial Impact

None.

Conclusion

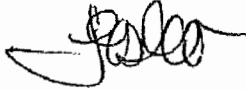
Steady progress has been made toward implementation of the Garden City Lands Park Development Plan, with construction well underway. The work is proceeding according to all applicable regulations, best practices and the recommendations of a range of expertise specific to this site and the unique combination of uses being developed for it.

Throughout the planning and design process, Council and the public have expressed their support for this unique park in the City Centre area. As a result of the comprehensive planning and design that has occurred in the last five years, there is broad public interest and support to use the Garden City Lands for both agriculture and recreation. The completion of the perimeter trail around the Garden City Lands will provide the community an accessible 2.9 kilometre path, welcoming City residents and visitors to Richmond to the Garden City Lands.

April 5, 2017

- 11 -

Staff are confident that the planned 2017 construction season work program is achievable within the parameters of currently available funding. Successful completion of the initial phases will bring to reality the City's vision as set out in the Garden City Lands Park Development Plan.



Jamie Esko
Manager, Parks Planning & Design
(604-233-3341)



Alex Kurnicki
Research Planner II
(604-276-4099)

- Att. 1: 2016 Garden City Lands Park Development Plan
- 2: Summary of Activities Planned for 2017
- 3: Spring 2017 – Construction Activity Site Photos



LEGEND

THE AGRICULTURAL LANDS

- 1 Multi-Functional Building and Parking
- 2 Rainwater Storage for Agricultural Irrigation
- 3 Farm Drainage Ditch
- 4 Agricultural Event Field
- 5 Agricultural Fields
- 6 Orchard
- 7 Demonstration Orchard
- 8 Community Gardens
- 9 Hedgerows & Beetle Banks
- 10 Sliding High Tunnels
- 11 Farm Fields
- 12 Soil Amendment Trials

THE BOG

- 13 Bog Conservation Area
- 14 The Fen
- 15 Boardwalk with Rest Points

THE RISE

- 16 Meadow / Informal Recreation
- 17 Children's Play

THE NODES

- 18 Garden City Lands Main Entrance
- 19 Entry Nodes
- 20 Entry Alley
- 21 Viewing Platform
- 22 Crosswalk
- 23 Parking Lot with Accessible Stalls
- 24 Parallel Parking with Accessible Stalls

THE DYKE

- 25 Multi-use Path with Farm Access

THE PERIMETER TRAILS

- 26 Native Forest Plantings
- 27 Street Trees
- 28 Perimeter Trails - Separated Paths
- 29 Rain Garden

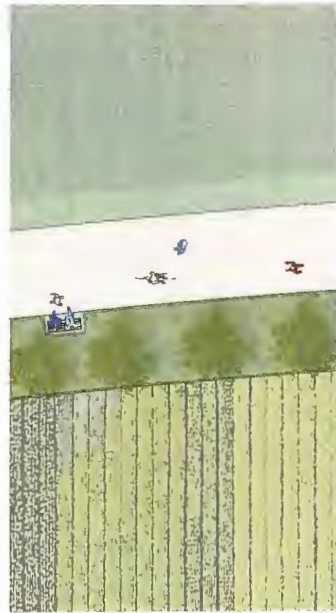
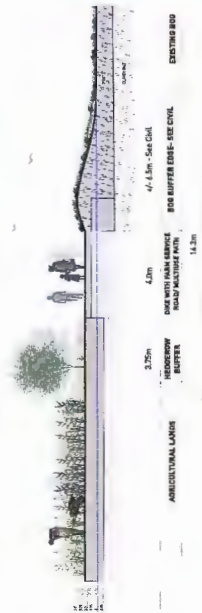


PRCS - 75

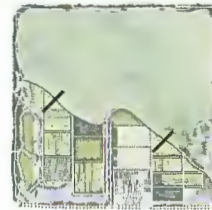
GARDEN CITY LANDS Park Development Plan

THE CENTRAL DYKE

The Central Dyke serves as a structure that will separate the flow of water between the bog and the agricultural fields. On one side, the water levels must be kept high for the health of the bog while on the other, the agricultural fields require good drainage. The dike top will have a broad pedestrian trail that will bring people into the centre of the park and afford views across The Lands from a slightly elevated perspective.



TYPICAL PLAN & SECTION SCALE 1:75



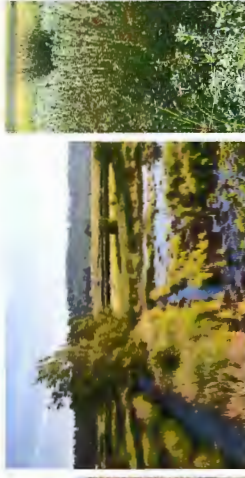
KEY PLAN

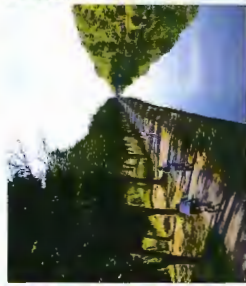
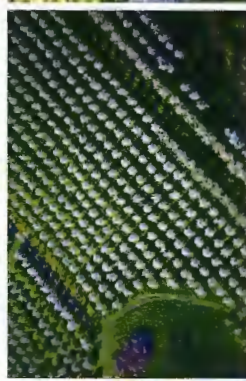
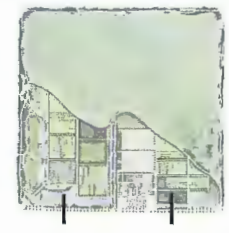
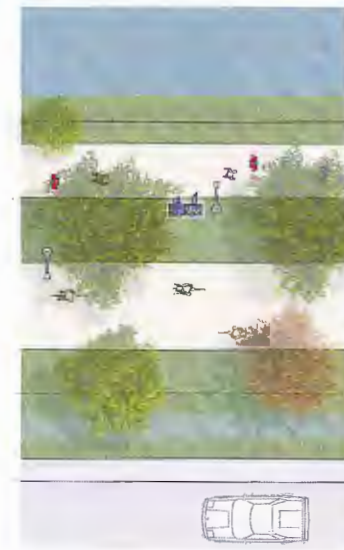
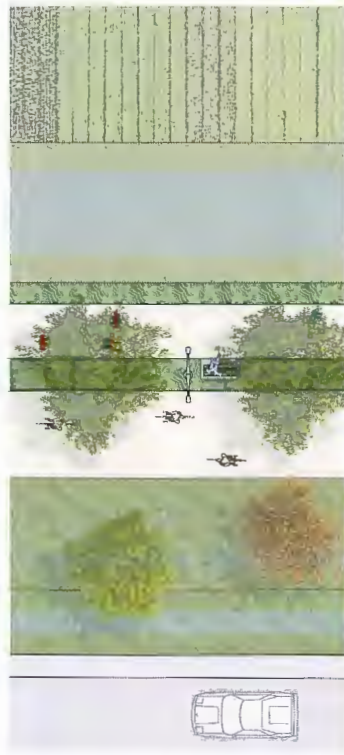
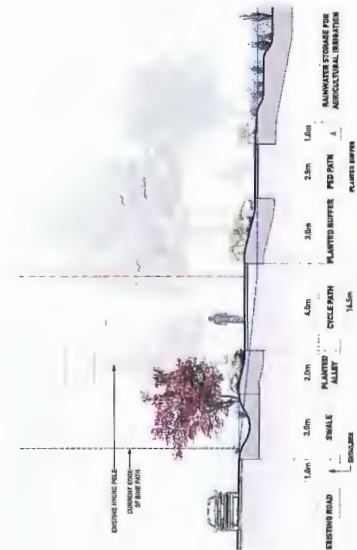


DESIGN INSPIRATION



PERSPECTIVE Looking South across bog and farm fields NTS





DESIGN INSPIRATION

GARDEN CITY LANDS Garden City Road

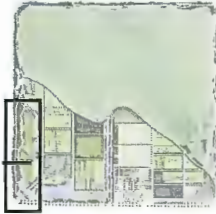


THE RISE on ALDERBRIDGE WAY

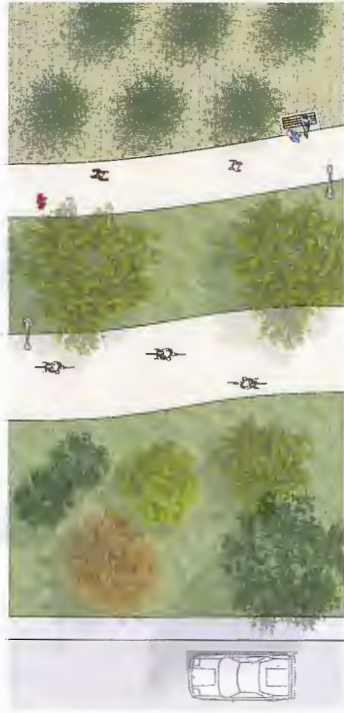
This is the area previously referred to as 'The Mound'. It is where a mix of fill material was placed decades ago and as a result, it is at a higher elevation than the rest of The Lands and provides views across the farm fields and bog. The Rise provides opportunities for informal recreation (e.g. picnicking, ball throwing, Frisbee tossing, kite flying) and children's play. It combines both the native trees, shrubs and wildflowers, as well as orchard trees.

THE PARK ENTRIES

The main entries into the park have been kept simple and modest in size, and have been designed to maintain the long views across The Lands. The entries are intended to provide opportunities for information signage and maps of the park, quick access to the park's trails as well as public art. The planting designs associated with the entries will reflect the environmental and agricultural mission for The Lands.



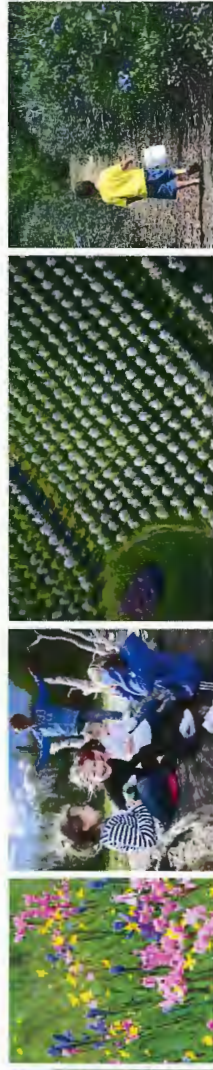
TYPICAL PLAN & SECTION SCALE 1:75



PERSPECTIVE View looking into site from entry node at Garden City Road and Alderbridge Way 1/75



PERSPECTIVE View from The Rise looking across farm fields and bog 1/75



DESIGN INSPIRATION

KEY PLAN





DESIGN INSPIRATION



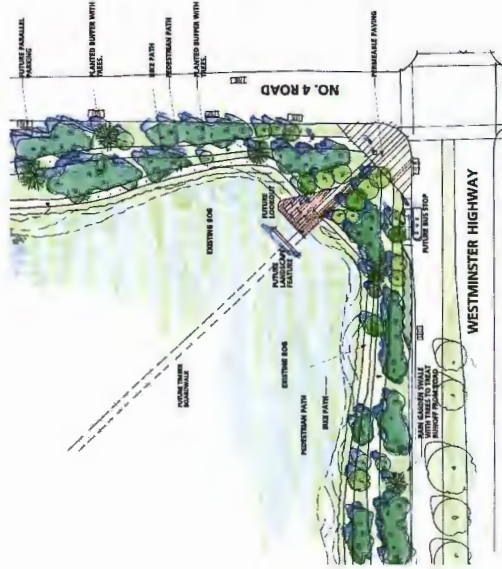
KEY PLAN

GARDEN CITY LANDS No.4 Road

CITY OF RICHMOND | PVL PARTNERSHIP



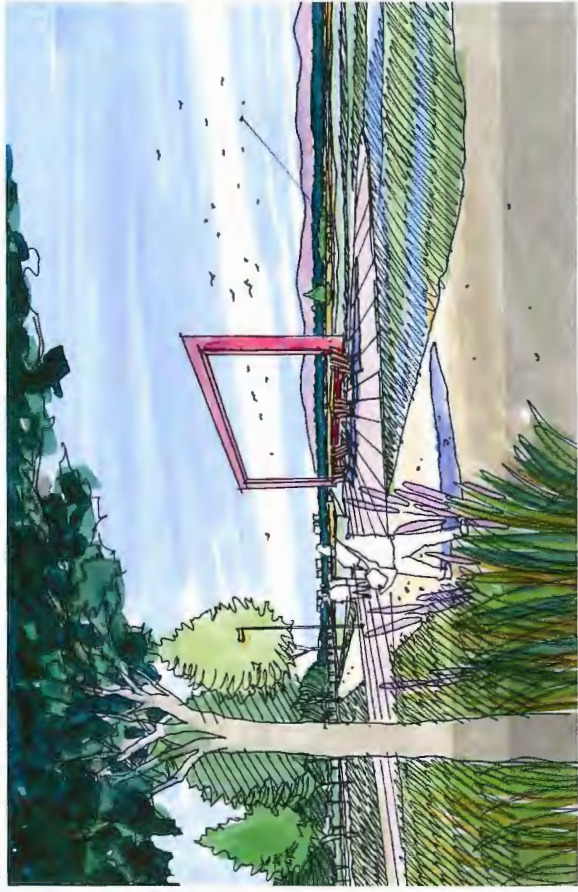
SITE PLAN - NORTH NODE SCALE 1:500



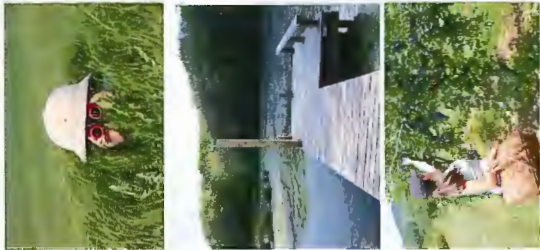
SITE PLAN - SOUTH NODE SCALE 1:500



TYPICAL PLAN & SECTION SCALE 1:75



PERSPECTIVE View from Alderbridge Way and No. 4 Road



PRCS 80

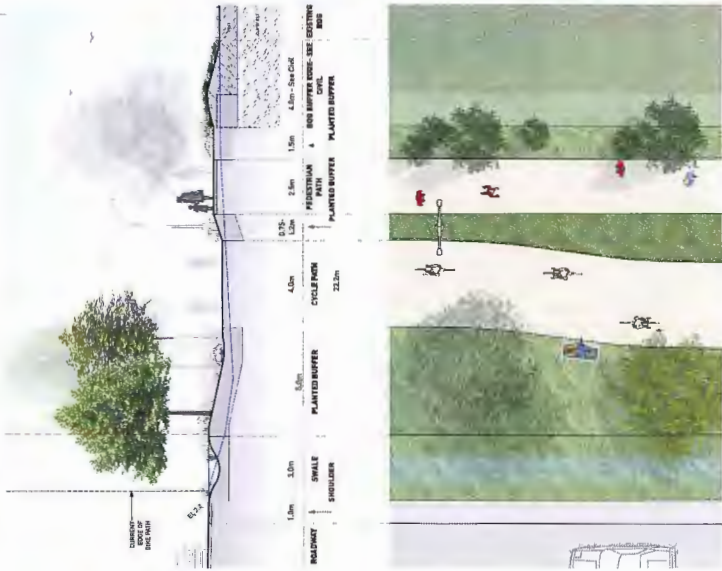
DESIGN INSPIRATION



KEY PLAN



SITE PLAN SCALE 1:500



TYPICAL PLAN & SECTION SCALE 1:25



PERSPECTIVE Entry node at Garden City Road and Westminister Hwy nrs

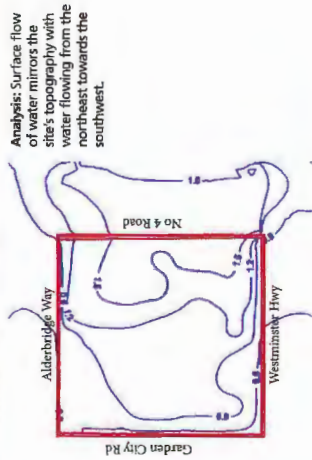
GARDEN CITY LANDS Westminister Highway



HYDROGEOLOGICAL ASSESSMENT

GROUNDWATER MODELING

Measured Water Levels - March 4, 2015



Analysis: Surface flow of water mirrors the site's topography with water flowing from the northeast towards the southwest.

Winter water table in the peat



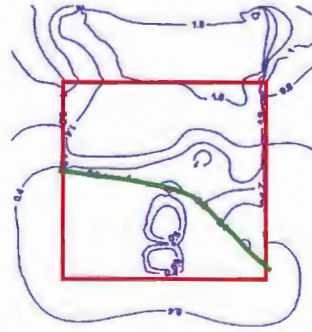
ANALYSIS: The winter water table is high in the east and lower in the west, reflecting the site's topography. Most water drains vertically downward through the peat towards the sand aquifer. There is a minor amount of water seeping from the peat into road base materials to the north (Alderbridge), south (Westminster) and possibly east (No 4 Road).

PURPOSE:

- Understand how the water is currently flowing across and through the site and if it can be controlled to maintain a water mound in the bog area, for bog conservation, while allowing drainage in the agricultural area for food production;
- Assess opportunities to incorporate landscape elements (e.g., perimeter trails) to maintain water levels in the peat by reducing seepage losses from the peat to perimeter ditches and utility trenches; and,
- Assess possibilities of pumping groundwater from the sand aquifer for farm irrigation and the potential impacts such pumping might have on the bog area.

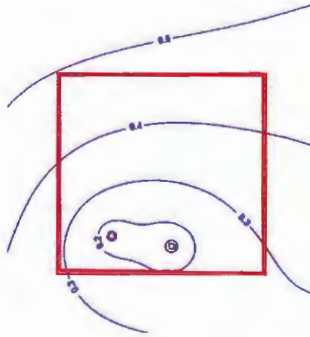
INVESTIGATION AND FINDINGS

INVESTIGATION: what might the impact be of adding barriers between bog and farming areas, and to the north and south between the bog and Alderbridge Way & Westminster?



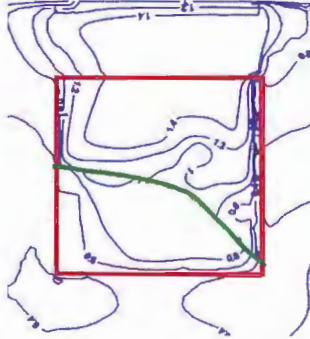
FINDING: no significant adverse effect on bog. Water currently seeping off-site towards road base materials will be kept within the peat layer longer.

INVESTIGATION: what are the impacts on the bog of pumping water from two wells in the farm area?



FINDING: pumping water from the sand aquifer for irrigation will not adversely impact the bog's hydrology. However, the pumped water will likely need to be treated prior to being used for irrigation.

INVESTIGATION: what might be the impact of adding a north-south barrier between bog and farming area?



FINDING: no significant adverse effect on bog. Further it is expected that some runoff to the west will be kept within the peat zone longer.

Percentage of Seepage Losses from Peat in Eastern Bog area during March through August

Pathway	Barrier	East	North	South	Vertically
%	0.0	0.6	0.4	0.1	98.6

PRELIMINARY CONCLUSIONS

- The bog depends exclusively on rainwater which is a nutrient poor and acidic source of water. Runoff from roads and farm fields is typically nutrient rich, contains minerals, and is the wrong pH and will adversely impact the bog.
- The vast majority of current seepage losses from the peat layer occur vertically downwards to the sand aquifer.
- Due to the dry summer in 2015 the peat layer dried out entirely by August.
- It should be possible to construct a dike/hydraulic barrier across the site to maintain a relatively high water table to the east, in support of the bog, while allowing the farm fields in the west to be drained to grow food.
- A small amount of water appears to be draining out of the peat layer into road base materials (Alderbridge, Westminster and possibly No 4, Rd) which is having a minor impact on the bog. This can be addressed by constructing hydraulic barriers in association with the perimeter trails to prevent the water from seeping horizontally towards these drains and keeping the water within the peat zone longer.
- Groundwater pumping from the sand aquifer for irrigation does not appear to significantly increase these losses. However, as it is likely that such a supply of water would require treatment. Further analysis is required to test the feasibility of using this water source.

SURVEY RESULTS

At the public open houses held in April, people were asked to consider options for the design of the elements to be constructed during the first phase of development of the Garden City Lands. A survey, available in both paper form and on the City's Let's Talk Richmond site, allowed people to select their preferred design solutions. The results have been compiled and are shown below. They have been used to guide the refinement of the design, as illustrated on the boards presented at this open house.

If you would like to comment on any of the information provided at this open house, please use one of the provided comment sheets or visit:

WWW.LETSTALKRICHMOND.CA.

1. Perimeter Pathways

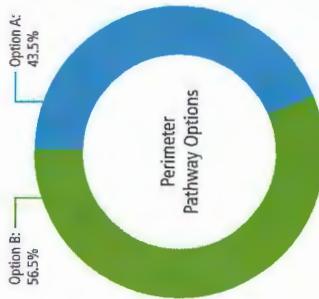
There are two options for perimeter pathways:

Option A: maintains existing bike lanes on streets that currently possess them (Garden City Road and Westminster Highway) and provides a 4-metre wide multi-use trail around the perimeter of the park.

Option B: proposes a dedicated off-street, two-way bike lane and a separate pedestrian pathway. This option results in a segregated pedestrian and cyclist network. However, the added width of these two separate pathways means trail development encroaches further into the park.

■ Option A: 43.5% prefer a single multi-use, 4m wide perimeter pathway and a dedicated bike lane as part of the road.

■ Option B: 56.5% prefer a dedicated 4m wide off-street bike lane and dedicated 3m wide perimeter pathway.



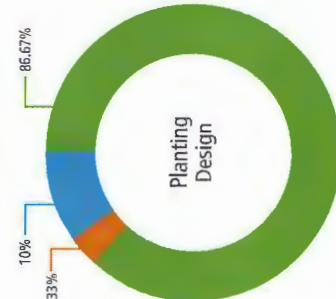
2. Planting Design

A combination of native trees and shrubs are proposed to be planted along the Alderbridge Way and No. 4 Road frontages to enhance the ecological performance of the Lands.

Along the Garden City Road and Westminister Highway frontages, rain gardens that include trees and wetland plants are proposed to replace the existing ditches and capture and treat stormwater off these roads. The Alderbridge Way and No. 4 Road do not have the curbs and catch basins typically found throughout the City.

Within the park, in open areas and along pathways, fruit bearing trees and pollinator plants are proposed to reinforce the agricultural and habitat values of the Lands.

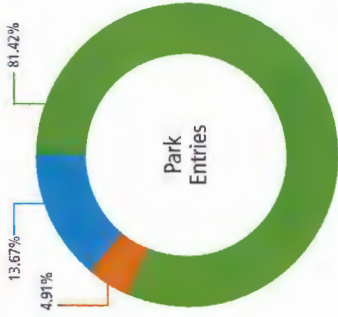
■ Yes
 ■ No opinion
 ■ No, I would prefer to see...



3. Park Entries

The four main entries into the park have been kept simple and modest in size, and have been designed to maintain the long views across the Lands. The entries could also provide opportunities for information signage and maps of the park, quick access to the park's trails as well as public art. The planning designs associated with the entries are proposed to reflect the environmental and agricultural mission for the Lands.

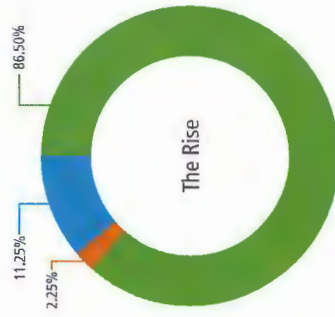
■ Yes
 ■ No opinion
 ■ No, I would prefer to see...



4. The Rise

This is the area previously referred to as 'The Mound.' It is where a mix of fill material was placed decades ago and as a result, it is at a higher elevation than the rest of the Lands and provides views across the farm fields and bog. The Rise provides opportunities for informal recreation (e.g. picnicking, ball throwing, kite flying) and children's play. It is proposed to combine native trees, shrubs and wildflowers with orchard trees.

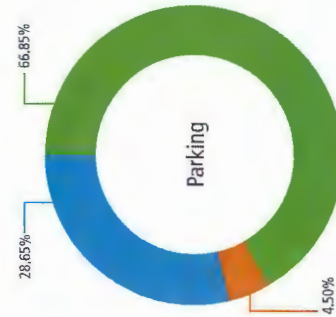
■ Yes
 ■ No opinion
 ■ No, I would prefer to see...



5. Parking

The Land's primary parking lot will be developed in concert with the development of the Community Hub and will support farming activities, farm and bog related events, and provide parking for the Lands' visitors. It is expected to be constructed of permeable materials and be modest in size (70-80 stalls) to minimize its impact on the Lands. A smaller parking lot is proposed for mid-point along the Alderbridge Way frontage, and the possibility of adding parallel parking spaces along the west side of No. 4 Road is being explored.

■ Yes
 ■ No opinion
 ■ No, I would prefer to see...



Summary of Activities Planned for 2017

JAN-FEB	<ul style="list-style-type: none"> • ALC approves perimeter trail construction • Application to place fill for first phase of KPU farm submitted to ALC • Consultant drawings finalized
MAR-APR	<ul style="list-style-type: none"> • Garden City Lands project web page updated • No. 4 & Alderbridge perimeter trails under construction • KPU farm, soil placement & infrastructure planning • Harvest Festival application to ALC submitted; approval for placement of fill expected
MAY-JUNE	<ul style="list-style-type: none"> • Construct Garden City Rd. perimeter trails • Plan soil placement operation at KPU farm • Commence service connections and utility work
JULY-AUG	<ul style="list-style-type: none"> • Install clay seepage barrier along edge of bog adjacent to dike and Westminster Hwy. • Construct perimeter trail and install storm sewer works along Westminster Hwy. and in the fen • Place soil & commence KPU farm related works
SEPT-OCT	<ul style="list-style-type: none"> • Harvest Festival: September 30th • Complete outstanding construction items & site clean up • Presentation to ALC of future phases • Plan next phase of works for 2018 construction season
NOV-DEC	<ul style="list-style-type: none"> • Community engagement with Garden City Lands stakeholders • Commence tree planting along perimeter trails • Community hub & farm centre facility planning process • Develop signage & wayfinding strategy



Above: Initial stages of perimeter path construction (geotextiles and crushed stone base layer) along No. 4 Road.



Above: Substantially complete portion of bicycle and pedestrian paths along No. 4 Road. Final top layer of fine gravel not yet installed.



Above: Hydroseeding equipment applying native grass seed mixture to exposed soil slopes along farm access road.



Above: Previously exposed soil after hydroseeding application.