

MINUTES OF THE REGULAR MEETING OF COUNCIL, HELD IN THE COUNCIL CHAMBER AND ELECTRONICALLY (HYBRID) FROM CITY HALL, 141 WEST 14TH STREET, NORTH VANCOUVER, BC, ON **MONDAY, MARCH 7, 2022**

REPORT

12. Harry Jerome Community Recreation Centre and Silver Harbour Seniors' Centre Authority to Award Foundation Works – File: 02-0800-30-0028/1

Report: Senior Project Manager, Strategic Initiatives, February 23, 2022

Moved by Councillor Girard, seconded by Councillor McIlroy

PURSUANT to the report of the Senior Project Manager, Strategic Initiatives, dated February 23, 2022, entitled "Harry Jerome Community Recreation Centre and Silver Harbour Seniors' Centre Authority to Award Foundation Works":

THAT staff be authorized to award construction and associated contracts related to Foundation Works for the Harry Jerome Community Recreation Centre and Silver Harbour Seniors' Centre projects, pursuant to Council approval of \$17,000,000 early appropriation from the Civic Amenity Reserve Fund;

AND THAT should any of the amount remain unexpended as at December 31, 2025, the unexpended balance shall be returned to the credit of the Civic Amenity Reserve Fund.

CARRIED UNANIMOUSLY



 Department Manager	 Director	 CAO
---	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
STRATEGIC & CORPORATE SERVICES DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Dianna Foldi, Sr. Project Manager, Strategic Initiatives

Subject: HJCRC and SILVER HARBOUR SENIORS' CENTRE
AUTHORITY TO AWARD FOUNDATION WORKS

Date: February 23, 2022 File No: 02-0800-30-0028/1

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Sr. Project Manager, dated Feb 23, 2022, entitled "HJCRC and Silver Harbour – Award of Foundation Works":

THAT staff be authorized to award construction and associated contracts related to Foundation Works for HJCRC and Silver Harbour Seniors' Centre (SH) projects, pursuant to Council approval of \$17,000,000 early appropriation from the Civic Amenity Reserve Fund;

AND THAT should any of the above amounts remain unexpended as at December 31, 2025, the unexpended balances shall be returned to the credit of the respective fund.

ATTACHMENTS

1. Council Report – February 18, 2022 - HJCRC and SH Projects
Commencement of On-Site Works – (CityDocs 2150291)

PURPOSE

The purpose of this report is to request authorization to award construction and associated contracts related to Foundation Works for the HJCRC and SH projects.

BACKGROUND

On Feb 28, 2022, Council was presented with an update on the pre-construction planning for the HJCRC and Silver Harbour (SH) projects including costs, schedule, and next steps (Attachment 1) and staff were authorized to proceed with tender of Foundation Works.

The recommendations in this report will allow the project team to proceed with award of the Foundation works upon tender closing, cost of which is included in the 2022-2031 Capital Plan for HJCRC and Silver Harbour.

DISCUSSION

The advancement of Foundation Works tendering and award of contracts ahead of the full construction tender will shorten the overall project schedule, maintain construction sequencing following Site Preparation and Excavation and reduce the impact of construction cost escalation.

The Foundation Works scope will be tendered to pre-qualified trades, in tandem with the full construction tender scope in early March 2022 and is anticipated to begin in May 2022. The full construction tender scope will only be awarded following Council approval upon receipt of the Municipal Finance Authority (MFA) loan in June 2022.

By awarding the Foundations Works scope in advance of the full construction contract, the project will be able to maintain site efficiency, through uninterrupted construction sequencing and seamless transition and/or overlap between Site Prep and Excavation to Foundation Works

FINANCIAL IMPLICATIONS

A provision of \$160,496,052 for HJCRC and \$20,357,359 for SH has been included in the 2022-2031 Capital Plan to allow for the tendering, site servicing and construction works. The funding provision is based on the October 2021 - Class B estimate that informs the overall HJCRC and SH combined target project budget of \$205 million presented to Council on February 28, 2022.

Approval of the \$17,000,000 early appropriation ensures that funding for HJCRC and SH Foundation works are available to allow contracts to be awarded and the project to advance as proposed to Council on February 28th. The \$17,000,000 is split 85% (\$14,450,000) and 15% (\$2,550,000) respectively, between the two projects.

Currently, CNV has secured 40% of the funding needed for the full HJCRC and SH capital program. Funds appropriated to date for the HJCRC and SH capital program, as well as the additional \$17,000,000 of funds recommended for early appropriation, are less than the funding secured to date.

INTER-DEPARTMENTAL IMPLICATIONS

This report has been developed in consultation with Finance.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

After serving the community of North Vancouver for more than 55 years, the existing centre, built in 1966 is quickly approaching the end of its useful life. The new Harry Jerome Community Recreation centre embraces the City's vision of *A Healthy City for All* by creating a welcoming, vibrant, and social heart of the community. Future generations of North Shore residents will enjoy the rejuvenation of this important amenity. This state of the art facility will help our citizens maintain or improve health and wellness within our community, and inspire residents to be active and connected throughout their lives.

RESPECTFULLY SUBMITTED:



Dianna Foldi
Sr. Project Manager, Strategic Initiatives



 Department Manager	 Director	 CAO
---	---	--

The Corporation of **THE CITY OF NORTH VANCOUVER**
STRATEGIC & CORPORATE SERVICES DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Mike Friesen, Manager, Strategic Initiatives

Subject: HARRY JEROME COMMUNITY RECREATION CENTRE AND SILVER HARBOUR PROJECTS – COMMENCEMENT OF ON-SITE WORKS

Date: February 18, 2022 File No: 02-0800-30-0028/1

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Manager, Strategic Initiatives, dated February 18, 2022, entitled “Harry Jerome Community Recreation Centre and Silver Harbour Projects – Commencement of On-Site Works”:

THAT staff initiate construction of the Harry Jerome Community Recreation Centre and Silver Harbour projects;

THAT staff award necessary contracts to undertake Site Preparation and Excavation;

THAT staff proceed with tender for Foundation Works and return to Council for appropriation and authority to award necessary contracts to undertake Foundation works;

THAT staff tender remaining scope of works to prequalified trades;

AND THAT staff report back with recommendations for appropriation and awarding of tender contracts.

ATTACHMENTS

1. Harry Jerome Community Recreation Centre – Project Approval Oct 18, 2021 (CityDocs [#2110555](#))
2. Presentation – HJCRC and SH Projects Update (CityDocs [#2148147](#))
3. Timeline – HJCRC and SH Schedule (CityDocs [#2150590](#))

SUMMARY

The Harry Jerome Community Recreation Centre (HJCRC) capital program is the largest capital revitalization program ever undertaken by the City of North Vancouver. After significant consultation, engagement, design, and refinement the City is now ready to build what will be the vibrant and social heart of our Central Lonsdale community and major amenities for North Shore residents to enjoy for decades to come.

The following report provides an update to Council on the pre-construction planning for the HJCRC and Silver Harbour (SH) projects including costs, schedule, and next steps.

The report recommends proceeding with the commencement of the projects' construction: the Site Preparation and Excavation and Foundation works. The Site Preparation and Excavation works have been recently tendered and the submitted bids fall within the appropriated budgets for HJCRC and SH as reported to Council in October 2021. The recommendations in this report will also enable the project team to proceed with tendering the Foundation works; award of this work will take place only following approval of an appropriation from the 2022-2031 Capital Plan.

Staff will report back with final costs received through tendering, and contract awards will be made following Council approval upon receipt of the Municipal Finance Authority (MFA) loan in June 2022.

BACKGROUND

On October 18, 2021, Council was presented with a project update (Attachment 1: Harry Jerome Community Recreation Centre – Project Approval Oct 18, 2021) and resolved:

THAT staff be authorized to advance the construction tender for the "Site Preparation and Excavation" scope of work for the Harry Jerome Community Recreation Centre project with contract award to be held until full project funding is in place;

THAT the funding reallocation be approved for the purposes of advancing the Harry Jerome Community Recreation Centre site power modifications, as follows:

NVRCC Fibre Net Connect HJ&CT (Project 40346)	\$35,000
---	----------

2019 NVRCC Equipment (Project 40372)	\$30,000
NVRCC Buildings 2018 (Project 45272)	\$155,026
NVRCC John Braithwaite Rec Centre (Project 45285)	\$37,101
NVRCC Facility Access Control (Project 45290)	\$60,000
2020 NVRCC – HJ Major Repairs (Project 45313)	\$21,045
Total:	\$338,172

AND THAT staff report back with a Class A estimate to seek approval to advance the full Harry Jerome Community Recreation Centre project to construction, inclusive of Silver Harbour Seniors' Activity Centre, with project funding in place.

Since that time, the project team has undertaken the objectives identified in the report. The next steps from the October report were addressed as follows:

Construction Documentation Phase

Design drawings and specifications have been completed to the 90% mark to allow for a Class A estimate (+/- 5%). A phased building permit application has been submitted with the first phase being the request for a building permit to proceed with Site Preparation and Excavation works should Council provide direction to proceed. A full building permit review process is currently underway.

Advanced Underground Utility Upgrades – East 23rd Street

In order to streamline the overall construction schedule and reduce cost escalation risk, the City initiated Advanced Underground Utility Upgrades on East 23rd Street, intended to service the future HJCRC / SH project and Harry Jerome Neighbourhood Lands (HJNL) south of East 23rd Street. Work includes the replacement of the water main, sanitary and storm sewers and will be completed on time and under budget.

Site Preparation and Excavation (Enabling Works)

As per Council direction, staff issued an invitation to tender for the Site Preparation and Excavation scope of works which includes removal of existing infrastructure including the demolition of the 23rd Street pedestrian bridge, bulk excavation of the site, and other works to prepare the site for building foundation.

Upon Council approval of the recommendations in this report, the City will award and enter into a contract with the selected firm for this scope of work.

Centennial Theatre Temporary Power & Electrical Improvements

The Centennial Theatre temporary power & electrical improvements project was carried out to ensure continual operations of the Theatre during construction, and to couple the work with temporary site power for new HJCRC construction site. The project is close to completion and is projected to be delivered ahead of schedule and under budget. Due to close communication between the project team and NVRC, the project is being delivered with no anticipated interruptions to the theatre's programming. The scope of

work includes future-proofing the theatre's electrical room equipment to conform to current building code and for easy connectivity once the permanent feed from the new HJCRC connects to Centennial Theatre.

DISCUSSION

Design Completion

The HJCRC design team has been completing the documents required for the building permit application, the Class A estimate, and a final design review by the project team. The program and design are unchanged since Council direction on October 18th, 2021. The Prime Consultant, HCMA, along with their sub-consultants, are in the process of final detail design and coordination to respond to building permit and health permit submission requirements, to incorporate final feedback from the building operator and other key stakeholders as well as to prepare costs saving measures to implement as needed.

Class "A" Cost Estimate

The project budget for HJCRC as reported to Council in October 2021 was \$181,696,000 and SH at \$23,437,000. The two projects together total \$205,133,000. The project costs were derived from two Class B estimates obtained in September 2021 at the 50% complete construction documentation phase; one from a professional quantity surveyor and one from the Construction Manager engaged for pre-construction services. At this stage the Class B estimate can vary +/- 10% from tender results.

Similar to the Class B estimate presented to Council in October 2021, two Class A cost estimates have been obtained at the 90% complete construction documentation phase.

The Class A estimates were reviewed for completeness and compared against each other, all material differences have been resolved to develop a revised projected cost for the project. The combined Class 'A' estimate for this project is now \$210,781,319 (Table 1 – Comparison of Class 'B' and Class 'A' Cost Estimates). The Class A estimate is 2% higher than the Class B estimate; this increase is well within the +/- 10% variance of a Class B estimate, and is not surprising considering the construction industry has seen significant cost increases in materials and labour as well as volatility in general. The final cost of the HJCRC and SH projects will be better understood when the City receives tenders in June 2022. Over the coming months the project team will investigate value engineering options, before making a final recommendation for the project budget and a request for appropriation in June 2022.

Table 1 – Comparison of Class ‘B’ and Class ‘A’ Cost Estimates

	Class B (+/-10%) October 2021	Class A (+/- 5%) Feb 2022
	HJCRC + Silver Harbour	HJCRC + Silver Harbour
Area	207,088 sf	209,067 sf
Building Construction	\$ 130,613,347	\$ 152,544,476
Onsite Works	\$ 14,770,332	\$ 13,591,700
Offsite Works (including BC Hydro)	\$ 6,331,100	\$ 7,413,950
Soft Costs (Consultants, Staff)	\$ 14,521,410	\$ 15,397,616
Permits and DCC's + Cityworks	\$ 3,171,383	\$ 2,000,904
Furniture, Fixtures and Equipment	\$ 2,881,600	\$ 2,915,464
Contingencies and Escalation	\$ 32,758,762	\$ 16,917,208
COMBINED HJCRC+SH TOTAL	\$ 205,047,934	\$ 210,781,319

Contingencies and Risk Mitigation

In order to protect the HJCRC project from unknown or emerging costs, a number of financial risk mitigation measures are in place. In order to ensure the project has the flexibility to meet challenges, contingencies are included in the project budget. The contingencies for this project have been established using industry best practices for comparable projects. There are four types of contingency: Design Contingency, which accounts for design details identified in the final stages of the construction documents, Soft Cost Contingency, which ensures that funding is available to address unanticipated professional services, Construction Contingency, which accounts for items that are uncovered during the construction phase of a project, and Escalation Contingency, which addresses changing market conditions during a construction project. In addition, a project specific risk register has been developed and will be monitored throughout the life of the project. The risk register covers schedule, quality, and scope change risks.

NVRC Operations

The existing HJCRC – including Memorial Gym and Mickey McDougall facilities – will remain open during the construction period. Although the buildings are at end of life, NVRC staff will proactively address maintenance concerns and practice responsible issue management. Construction of the new HJCRC – primarily through reduction of available parking – will impact the operations and programming of the community recreation centre, Centennial Theatre and existing SH facility.

With the construction site for the new community and recreation centre occupying the existing facility's parking lot beginning in mid-March, parking has emerged as a significant challenge to the smooth operations of the existing HJCRC and Centennial

Theatre. NVRC staff will endeavor to avoid the simultaneous scheduling of high participation events at both facilities to minimize congestion and parking challenges.

The average observed utilization of HJCRC parking is 50% (of the total 344 spaces in all lots); maximum demand during high attendance events can reach 85% utilization. To address parking demand during construction, staff have created an interim parking strategy that will support vehicle access to the facilities. As of mid-March, staff have arranged a temporary lease of 40 parking spaces at North Shore Alliance Church. In June, the City is expecting to utilize a portion of the former lawn bowling site – currently in use by Darwin Construction for construction staging – as a temporary parking lot during HJCRC construction to provide an estimated 40 parking spaces. When combined with existing parking resources on the current HJCRC/Memorial site, staff are expecting a maximum of 156 parking spaces available for users of the facilities.

In addition to the provision of parking spaces, communication of the expected challenges as well as identification of alternative transportation options (transit and cycling infrastructure) will be provided to patrons.

Flicka Gymnastics Club

With the continued operations of the existing HJCRC, Flicka Gymnastics Club will continue operating in their leased space within HJCRC until the closure of the facility. This will provide more time for Flicka to prepare its transition plan and fundraise for improvements while allowing NVRC to continue to provide programs out of the Mickey McDougall facility. Although some small improvements have been undertaken, the majority of construction at Mickey McDougall will be deferred until 2025.

Schedule

March – June 2022

The next active phase of the project is the Site Preparation and Excavation, followed by the Foundation works. These works will start in March and May respectively. Staff will return to Council on March 7th for early appropriation of funds to support the Foundation Works in advance of contract execution. While these works are underway, the project team will proceed with tendering the construction phase of the HJCRC and SH projects; this entails approximately 50 separate tenders.

June – July 2022

In June 2022, it is anticipated that the MFA financing will be finalized. Staff will return to Council with final construction costs, and will seek approval to appropriate funding and award the remaining construction contracts.

Concurrently, the project team and City have created an inter-departmental working group in order to ensure there is a forum for review and direct communication between the project team and City review staff. As a part of the building permit review process, the working group is currently collaborating to ensure City regulations and requirements are achieved while ensuring that the project is able to progress in an efficient manner and not incur costs due to delay. Additionally, the working group will ensure that there is a group of staff who are regularly reviewing the project as it progresses and who can

identify for the project team any potential concerns. The HJCRC and SH Schedule (Attachment 3 – HJCRC and SH Schedule) provides a high-level graphic representation of the project schedule; more granular breakdown of upcoming milestones will be presented in the “Next Steps” section.

Tree Replacement Strategy

In order to meet the City’s program needs – both for the community recreation facility and SH, as well as the significant off-site requirements integrated into the project – a significant proportion of the site’s trees will need to be removed and replaced. The building and underground footprint, re-grading of the site slope, site access points, and new active transportation infrastructure require the implementation of a robust tree replacement strategy,

Of the site’s existing ninety-nine trees, thirteen will be retained and eighty-six are required to be removed to facilitate construction. The landscape plan for the project will include 209 new trees to be planted throughout the site and the surrounding streetscape.

Recognizing the importance trees to the City and the importance of the expansion of the tree canopy, the project will contribute \$40,000 to the City’s tree planting program. Over the last three years, the tree planting program has contributed 4000 trees to City public spaces. This contribution is in recognition that a proposed Tree Bylaw is in process but not yet in effect; the proposed \$40,000 contribution has not yet been reflected in the project cost estimate but will be included in the revised budget for Council’s consideration in June. In addition, staff are seeking opportunities for the reutilization of suitable trees following removal.

Communications Strategy

In collaboration with the project team, the City’s communication department has prepared a comprehensive communications strategy to ensure information is delivered in a timely, efficient, and digestible manner to key stakeholders. The communication strategy presents a multi-phased and multi-channel approach to providing updates on the project with materials to include direct mailouts, print materials, newspaper advertising and earned media coverage, social media and online outreach, e-newsletters, on-site signage, transit shelter ads, video updates, staff outreach and facility advertising. Key messages in the immediate future include:

- Updates concerning construction impacts;
- The existing HJCRC and Centennial Theatre remain open and operational during construction; and
- Informing and generating excitement concerning social, cultural, and physical programs that will be a part of the new facility in 2025.

In addition to the above, Council will be provided with regular updates through the construction phase in order to stay informed of progress and next steps on site, as well as risk and budget summaries. To ensure transparency these updates will also be posted to the HJCRC project website for consumption by the public.

Silver Harbour

SH staff and representatives have been engaged and consulted through the design process of their facility and are pleased with the progress and outcomes.

City staff have continued negotiations with SH for the offer to lease and form of lease for the new facility and transfer of the existing SH site to the City. The offer to lease and lease are being refined and business terms – regarding operations and maintenance responsibilities – are being finalized and are expected to be concluded shortly.

Public Art

The Public Art Process for HJCRC and SH projects is underway and is anticipated to be completed within the next few months.

Next Steps

The project is transitioning from planning to construction. Maintaining the current schedule will ensure that further cost escalation is limited. The project team is working to ensure the coordination of all elements of the project result in issuance of a full building permit on September 1st and the subsequent construction of the full facility. The following milestones represent six months of the critical path needed to achieve this goal:

- Late February – Completion of early civil works to eliminate possibility of conflicts and delays with Site Preparation and Excavation;
- February 28th – Council grants approval to proceed to Site Preparation and Excavation and to tender Foundation Works;
- Between March 1st and March 22nd – Progress design to 100%
- March 7th – Funding Appropriation to proceed with award of Foundation Works and associated contracts;
- March 14th:
 - Excavation building permit is issued;
 - Site north of 23rd closed to the public, excluding Centennial Theatre;
 - Full excavation able to begin once site preparation is complete;
- March 22nd – Invitation to tender packages are issued to prequalified trades;
- June 1st – Pouring of foundation begins;
- June 7th – MFA loan secured;
- June 13th – Staff return to Council seeking final project appropriation and approval to award Construction tenders for remaining scope;
- September 1st – Issuance of above grade building permit and commencement of construction of the facilities.

FINANCIAL IMPLICATIONS

The Financial Strategy for the HJCRC project has been approved by Council, and 40% of Program funding has been secured to date. A \$117 million loan application has been submitted to the Ministry of Municipal Affairs & Housing and the Inspector of Municipalities and that loan is anticipated to be in place in time to award the Construction tenders for the remaining scope.

INTER-DEPARTMENTAL IMPLICATIONS

Project coordination and input has been undertaken with every City department, LEC and staff from the North Vancouver Recreation and Culture Commission. This report has been developed in consultation with Finance and NVRC and reviewed by Planning and Development, Engineering, Parks & Environment, Legal, Clerks, and Community & Partner Engagement.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

After serving the community of North Vancouver for more than 55 years, the existing centre, built in 1966 is quickly approaching the end of its useful life. The new Harry Jerome Community Recreation centre embraces the City's vision of *A Healthy City for All* by creating a welcoming, vibrant, and social heart of the community. Future generations of North Shore residents will enjoy the rejuvenation of this important amenity. This state of the art facility will help our citizens maintain or improve health and wellness within our community, and inspire residents to be active and connected throughout their lives.

RESPECTFULLY SUBMITTED:



Mike Friesen
Manager, Strategic Initiatives

**MINUTES OF THE REGULAR MEETING OF COUNCIL, HELD ELECTRONICALLY
FROM CITY HALL, 141 WEST 14TH STREET, NORTH VANCOUVER, BC, ON
MONDAY, OCTOBER 18, 2021**

REPORTS

14. Harry Jerome Community Recreation Centre – Project Update and Next Steps
– File: 02-0800-30-0028/1

Report: Deputy Director, Strategic and Corporate Services, October 12, 2021

Moved by Councillor McIlroy, seconded by Councillor Hu

PURSUANT to the report of the Deputy Director, Strategic and Corporate Services, dated October 12, 2021, entitled “Harry Jerome Community Recreation Centre – Project Update and Next Steps”:

THAT staff be authorized to advance the construction tender for the “Site Preparation and Excavation” scope of work for the Harry Jerome Community Recreation Centre project with contract award to be held until full project funding is in place;

THAT the funding reallocation be approved for the purposes of advancing the Harry Jerome Community Recreation Centre site power modifications, as follows:

NVRCC Fibre Net Connect HJ&CT (Project 40346)	\$35,000
2019 NVRCC Equipment (Project 40372)	\$30,000
NVRCC Buildings 2018 (Project 45272)	\$155,026
NVRCC John Braithwaite Rec Centre (Project 45285)	\$37,101
NVRCC Facility Access Control (Project 45290)	\$60,000
2020 NVRCC – HJ Major Repairs (Project 45313)	\$21,045
Total:	\$338,172

AND THAT staff report back with a Class A estimate to seek approval to advance the full Harry Jerome Community Recreation Centre project to construction, inclusive of Silver Harbour Seniors’ Activity Centre, with project funding in place.

CARRIED UNANIMOUSLY

Moved by Councillor Back, seconded by Councillor Bell

THAT the meeting continue past 10:30 pm.

CARRIED UNANIMOUSLY



— Department Manager	— Director	<i>M</i> CAO
----------------------------	---------------	-----------------

The Corporation of **THE CITY OF NORTH VANCOUVER**
STRATEGIC & CORPORATE SERVICES DEPARTMENT

REPORT

To: Mayor Linda Buchanan and Members of Council

From: Heather Reinhold, Deputy Director, Strategic & Corporate Services

Subject: HARRY JEROME COMMUNITY RECREATION CENTRE – PROJECT
UPDATE & NEXT STEPS

Date: October 12, 2021 File No: 02-0800-30-0028/1

The following is a suggested recommendation only. Refer to Council Minutes for adopted resolution.

RECOMMENDATION

PURSUANT to the report of the Deputy Director, dated October 12, 2021, entitled “Harry Jerome Community Recreation Centre – Project Update & Next Steps”:

THAT staff be authorized to advance the construction tender for the “Site Preparation and Excavation” scope of work for the Harry Jerome Community Recreation Centre project with contract award to be held until full project funding is in place;

THAT the funding reallocation as outlined in the report below be approved for the purposes of advancing the HJCRC site power modifications;

AND THAT staff report back with a Class A estimate to seek approval to advance the full Harry Jerome Community Recreation Centre project to construction, inclusive of Silver Harbour Seniors’ Activity Centre, with project funding in place.

ATTACHMENTS

1. HJCRC Design Development Report March 2021 (CityDocs #2036460)
2. Construction Management Scope of Services (CityDocs #2103597)

SUMMARY

The purpose of this report is to provide Council with updates on program, project management, schedule and costs for both the Harry Jerome Community Recreation Centre (HJCRC) and Silver Harbour Senior's Activity Centre (SH) projects. A revised project estimate has been received and within the budget reported to Council in April 2021. The project schedule is also on time and this report provides updates on efforts over the last 6 months.

Funding is requested as part of 2021 Revised Capital Plan process to advance the Site Preparation and Excavation tendering process in order to reduce the overall project schedule, mitigate the impact of construction cost escalation and minimize overall contractor general conditions cost. The contract award of this tender will be executed once full project funding is secured.

Staff will report back to Council in late February 2022 in order to seek approval for full project tendering and construction, once a final Class A Estimate and project funding are confirmed.

BACKGROUND

In April 2021, Council directed:

That staff be directed to proceed to the pre-construction phase of the Harry Jerome Community Recreation Centre (HJCRC) project including completion of the following:

- Construction documents
- Class A estimate
- Site Servicing Plan
- Construction sequencing plan

THAT staff report back with a Class A estimate and seek approval to proceed with tendering of the Harry Jerome Community Recreation Centre construction contract;

AND THAT staff be authorized to consolidate the two land parcels that make up the Harry Jerome Community Recreation Centre lands (Parcel ID Numbers 009-034-811 and 009-034-862)

DISCUSSION

Since April, the project has continued to advance on a number of fronts. Through spring and summer, the project team have continued to work with NVRC and external stakeholders (including the aquatics and arena groups) to implement program requirements at the detailed design level. Program room data sheets were developed through this process which will be referenced through the current contract document

development stage. A separate report from North Vancouver Recreation & Culture will discuss the Interim Service Plan that will be in place during HJCRC construction.

As this is the largest project undertaken by the City, a multi-disciplinary, highly skilled and experienced team is now in place to support the project until completion. With the recent addition of an experienced Construction Management firm and Commissioning Authority the project is well-positioned to ensure that design, Construction Documentation and project delivery will result in a superior facility. External project management has been in place since March of this year providing strong organizational structure, governance and advice and have assisted in program development and review. The Project Management team provides briefing to the Executive Steering Committee on a regular basis to ensure the project remains on schedule and on budget.

Program

HJCRC

The new HJCRC is intended to serve all residents through a variety of services, to connect people and to improve the health and wellness of individuals and families. As the new centre will be a people-oriented gathering place, the Centre will be designed to the highest accessibility standards. The Centre will draw residents of all ages and abilities to explore, create, play, exercise, train, learn, relax, rehabilitate and connect.

The HJCRC design embodies the principles of equity, social inclusion, wellness, security, adaptability, environmental responsibility and fiscal responsibility. These principles are woven throughout the building design and construction, surrounding landscape and planned operation and service provision.

The premise for the design is to provide for an inclusive environment throughout the facility – both indoors and outdoors – where one can experience a range of activities and opportunities. The building and landscape spaces are flexible, allowing for adaptation to changing needs and enhancing the collective and individual experience. The new HJCRC will include a diverse indoor and outdoor program, and includes an Aquatics Centre, Arena, multipurpose spaces, Gymnasium, Fitness, Youth and Preschool spaces, Community kitchen, Art Space, Atrium & Inner Courtyard, and an extensive outdoor program.

Silver Harbour Senior's Activity Centre

A significant project milestone was met in July when the membership of Silver Harbour Seniors Activity Centre (SH) voted in favour of relocating to the southeast corner of the new HJCRC site. A Memorandum of Understanding has been signed, and detailed discussions are ongoing to finalize an Offer to Lease and complete the design of the future SH facility. The new SH will be 20,680 square feet over two stories, and will include parking, a wood working studio, art studios, a pottery studio, a commercial kitchen, a billiards room, multi-purpose rooms, administration areas, a thrift store and a dining room and is projected to cost approximately \$23.4M. Upon relocation of the SH operation, the existing SH site will revert to the City of North Vancouver.

The two facilities (HJCRC and SH) are connected through exterior plaza and an interior connections in the parkade level. These connections will help to ensure there is continued integration between the two facilities and their programming.

Arena

Since the previous Council update, multiple meetings with the project team and arena stakeholders (including Wolfpack, skating, hockey and lacrosse users) have taken place to address concerns including the identification of space for a flexible coaches' room, dressing room adjustments, and seasonal storage and branding opportunities.

Aquatics

Discussion with aquatics stakeholder groups have shaped resolution to design options. Numerous in-depth conversations have been held to resolve concerns; consequently, the current design reflects as many needs as possible while still maintaining community and accessibility requirements. The design has been adjusted to better accommodate to the extensive program while supporting competitions in a north-south orientation. The current design of the pool meets competitive standards, and changes to the design of the pool at this stage – such as a widening of the deck between the accessible ramp or a change in the orientation of the competition lanes – would have significant impact to both project cost and schedule. At present, the design considers a 5m diving platform. The project team anticipates developing the diving platform as a part of the overall project and discussions with the aquatics groups concerning fundraising for the facility are ongoing.

Public Art Process

The Public Art Plan for the Harry Jerome Community Recreation Centre has been prepared. It incorporates the overall vision for the new centre and defines themes and location options. The themes are:

- 1) celebrating Harry Jerome the athlete, his accomplishments and his perseverance;
- 2) honouring the Coast Salish lands; and,
- 3) acknowledging the natural beauty of the north shore.

The call for proposals is underway, and notes Council's resolution of May 10, 2021 that staff work with the Squamish Nation for the Naming and Recognition of the HJCRC Arena to honour the rich and proud history of the sport of lacrosse of the Squamish Nation. A panel, comprised of a member of the Public Art Advisory Committee, local residents, and the Project staff, will select the successful artists.

Sustainability Initiative-Zero Carbon Building

One of the key goals of this project is to demonstrate leadership in building sustainable facilities. This goal aligns with the City's climate action targets to achieve net zero emissions by 2050. A new program administered by the Canada Green Building Council (CaGBC) provides third-party verification of the carbon impacts of buildings for both Design and Performance with the goal of ensuring future operations as zero emission buildings. This project has chosen to pursue Design certification rather than Performance due to its energy source. The necessary monitoring and metering systems will be

incorporated to allow for a Performance certification in the future. By meeting carbon, energy, impact and innovation compliance categories of compliance this facility will meet the Zero Carbon Building v2 Standard and be one of the first of its kind at this scale to do so.

The benefits of improving the building performance and reducing the carbon footprint are substantial. By reducing overall energy consumption and greenhouse gas emissions, the enhanced building envelope will improve thermal comfort for the occupants, increase the envelope durability, and improve the building's climate resilience in the face of extreme conditions over the long term.

Accessibility

Throughout the contract documents stage, particular attention is being paid on high accessibility standards. The design team is on track to meet the Rick Hansen Foundation target of Gold Certification. This certification ensures that a broad range of accessibility features are being incorporated at all of the different scales of the project, from large scale decisions around parking space allocation and pool ramp design, to small scale details such as visual contrast and door hardware. The design approach is not only focused on accommodating persons with physical disabilities, but is also focused on embracing all modes of universal access by designing unique spaces for all. The project team continues to meet with the Advisory Committee for Disability Issues (ACDI) to ensure this project meets this committee's objectives as well. A design update will be provided to the ACDI at an upcoming meeting later in October with the opportunity to obtain further feedback on proposed accessibility design.

Project Status Update

While HJCRC and SH have separate scopes and project budgets, it is the intention of the project team to deliver both projects at the same time using the same consulting team, construction delivery method and trade contractors, and for this reason these projects are being presented together.

Construction Documentation Phase – 0-50%

On September 6, the consultant team delivered a 50% completed Construction Documentation (50% CD) package to the City, NVRC and our two independent cost organizations for design review and Class A estimate. This work has been completed and findings are contained in this report. The 50% CD package consists of all consulting disciplines detailed plans (over 400 drawings) and detailed specifications that will form the main part of the 45-50 tender packages that will be issued to industry through a competitive bidding process with the assistance of the Construction Manager.

The Silver Harbour Seniors' Activities Centre component of the project had a slightly varied timeline due to the need to obtain membership approval, but the project team has confidence that by the 90% CD package both projects will be at the same level of detail.

Engagement of Construction Manager

Smith Brothers Wilson (SBW) was engaged through a competitive process and is now the City's Construction Manager for preconstruction services. The general scope of these services includes detailed review of drawings & specifications, identification of risk and mitigations, value engineering recommendations, development of site construction plan, a comprehensive construction and procurement schedule, and provision of cost estimates. A more complete list of the scope of the Construction Manager is contained in Attachment 2.

Updated Cost Estimates

The budget for HJCRC has been set at \$181,696,000 and SH at \$23,437,000.

As part of the Construction Documentation phase, updating costing is completed at the milestones of 50% and 90% completion. With the recent completion of the 50% package, two Class B estimates were obtained. These were carried out independently by a Quantity Surveyor as well as by the Construction Manager engaged for pre-construction services.

The two estimates vary from each other by 0.4% with the average slightly over the budget target. Based on the level of detail at the 50% development of Construction Drawings, and the consistency of the two estimates, the probability of the project meeting this target is very high. Therefore, the project team's assessment of the results is that the project can remain within the previously identified budget.

The construction contingency remains at 5% or \$7.9M, soft cost contingency at 2% or 409k and design contingency was reduced from 5% to 2% (as the design has advanced to 50% CD and will be removed at time of tender). The escalation rate previously carried was 9.7% or \$15.8M. Based on updated costs estimates, which are embedded with present day quotes, escalation rate can be assessed at 9.5%. The total value of project contingency is \$27.3M. As the project approached the tender stage, there becomes more certainty regarding actual costs and adjustments to escalation rates and contingency will be made and reported to Council in late February.

Risk Mitigation

The Project team has developed a risk register that address the following types of risks: scope, schedule, safety, budget, escalation, site loss, quality, and communication.

Within this registry, a risk rating system is used where costs are applied to each event and compared against project contingencies. The risk register concludes that this project is meeting the budget for the following reasons:

1. Scope has been confirmed eliminating the risk for program additions;
2. Design development has advance providing certainty in costing;
3. Construction Manager engaged to reduce constructability and quality risks
4. Two firms are assessing market escalation;
5. Commissioning Authority has been engaged to reduce operational risk;
6. SH decision in place which reduces any further schedule risk; and,

7. A communication sub-committee has been established to assist in timely messaging to the community.

NVRC Interim Services at Centennial Theatre

The current HJ site is powered through one BC Hydro service that feeds Centennial Theatre located on the future Harry Jerome Community Recreation Centre. The planned demolition of HJ in early 2022 will result in Centennial Theatre without a power connection, triggering the need for a temporary power solution until the installation of the permanent power infrastructure late in construction of the new HJCRC. CNV's project team will manage this temporary power connection work, utilizing reallocated funding from NVRC capital projects as recommended in the Financial Implications section of this report.

Communications Plan

Regular updates on the HJCRC and SH projects will be provided to Council and the public going forward. With commencement of construction, Council will receive regular monthly reports, including progress to date, planned activities, project schedule, budget summary, and risks. To ensure transparency for the project, monthly reports will also be posted to an updated HJCRC project website for the public.

Next Steps

The HJCRC project is on schedule for construction to commence in March 2022. The project team is working to advance elements of the project ahead of the targeted drawing completion date (late February 2022) to reduce startup costs and hasten the schedule which in turn reduces cost and risk. As indicated in the schedule below, two tender packages are proposed to proceed prior to the February milestone: Offsite utility upgrades on 23rd Street and Site preparation; Clearing; Grubbing; and Excavation. These components are described in more detail below.

Advancing the two tenders will enable the project to mobilize works for the new HJCRC while the main construction tender packages are being bid on. This allows activity to begin onsite and lessen the traffic conflict between onsite work, underground utility work and the public.

Existing HJCRC Project Schedule													30-Sep			
Project Phases													2022	2023	2024	2025
Design and Tendering	Sept	Oct	Nov	Dec	Jan	Feb	March	April	May	June	July	Aug...				
Construction Documents	[Bar chart showing duration from Sept to Feb]															
Cost Estimate 50% CD Sept 6	★															
Building permit Application is made Nov. 30 & partial BP issued Jan 5				★	★											
Tendering Civil undergnd, clearing and grubbing, excavation	[Bar chart showing duration from Oct to Feb]															
Cost Estimate 90% CD					★											
Council Meeting- Approval to proceed to construction Feb. 28						★										
Construction	[Shaded bar chart area]															
Early Civil Works	[Bar chart showing duration from Oct to Feb]															
HJRC is closed Dec 31 building is empty on Jan 31				★												
Clearing and Grubbing, excavation	[Bar chart showing duration from Feb to July]															
Final BP issued July 1											★					
Tendering Main Building, negotiations and awards	[Bar chart showing duration from March to July]															
Main Building	[Bar chart showing duration from June to Dec]															
FF&E, Commissioning															★	
Occupancy															★	
Move-in															★	

Construction Documentation Phase

The Construction Document phase will continue to 90% completion at which time another costing review will take place and any further adjustments will be made to ensure the project remains on budget. Upon confirmation by the two cost estimating parties that the project is on target to meet the budgets, the drawings will be submitted for building permit and the remainder of the construction specifications and drawings will be completed.

Advanced Underground Utility Upgrades - East 23rd Street

The City and the neighbouring HJNL project have worked together to define the necessary underground utilities that need to be replaced because they are at the end of life or required upgrading to provide capacity for the development of the lands. The utility upgrades include replacement of the water main, as well as sanitary and storm sewers. This work is funded and being tendered, with construction anticipated to begin in late 2021. There will be subsequent utility work for BC Hydro, Street Lighting & Signaling, LEC and Shaw cable. It is planned that construction on East 23rd Street will occur in the future. This work is being completed in advance to strive for minimal impact to future on-site construction activities and road closures.

Site Preparation and Excavation Scope of Work

This phase of the project includes site preparation, clearing, demolition of existing infrastructure, removal of the parking lot and skateboard park and site construction preparation. The HJCRC construction program will begin with excavation of the west side of the site and progress to the east with concrete footings, foundation walls and underground utilities activities taking place as room on the site permits. Construction phasing will continue to maximize efficiency of the schedule to minimize the impact of onsite construction costs.

Commencement of Construction

Prior to commencement of full construction, the project team will finalize the Construction Documents and obtain two independent Class A estimates. At that time, Council will be provided a comprehensive update and a request for approval to proceed. The project will then be tendered, awarded and construction will commence.

FINANCIAL IMPLICATIONS

The budget for HJCRC remains at \$181,696,000 and SH at \$23,437,000.

2021 Revised Budget Request

Funding as noted below is being requested to enable advancement of the Site Preparation and Excavation tendering process to shorten the project schedule, as well as to reduce escalation and general conditions cost. The contract relating to this tender will not, however, be awarded until full project funding is in place.

Harry Jerome Community Recreation Centre	\$7,650,400
Silver Harbour Seniors Activity Center	\$380,000

Council approval will be sought in late February 2022 to advance full tendering and construction funding based on a Class A cost estimate.

Interim Service Plan – Reallocation of funding

As noted in this report, in order to maintain operations at Centennial Theatre, modifications must be made to ensure continued power for Centennial Theatre. This work will be conducted by the CNV project team, utilizing reallocated funding from completed or cancelled NVRCC capital projects as noted below. The recommended resolution included in this report will provide the authority required to transfer the funding to this new project.

Table 1: Funding to be transferred from:

NVRCC Fibre Net Connect HJ&CT (Project 40346)	\$35,000
2019 NVRCC Equipment (Project 40372)	\$30,000
NVRCC Buildings 2018 (Project 45272)	\$155,026
NVRCC John Braithwaite Rec Centre (Project 45285)	\$37,101
NVRCC Facility Access Control (Project 45290)	\$60,000
2020 NVRCC – HJ Major Repairs (Project 45313)	\$21,045
Total:	\$338,172

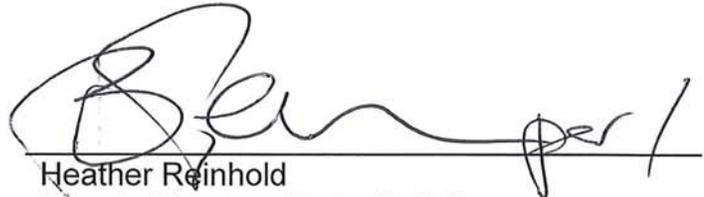
INTER-DEPARTMENTAL IMPLICATIONS

Project coordination and input has been undertaken with every City department, LEC and staff from the North Vancouver Recreation and Culture Commission. This report has been developed in consultation with Finance and NVRCC.

STRATEGIC PLAN, OCP OR POLICY IMPLICATIONS

The replacement of HJCRC will contribute to health and wellness opportunities within our community, inspiring residents to be active and connected to their community throughout their life.

RESPECTFULLY SUBMITTED:



Heather Reinhold
Deputy Director, Strategic & Corporate
Services



DISCOVER YOUR PATH
at the new
Harry Jerome
Community
Recreation
Centre
TO WELLNESS

HARRY JEROME COMMUNITY RECREATION CENTRE DESIGN DEVELOPMENT REPORT

Issued | March 2021



"This project will dramatically impact our community for the good. I fully support this project and can't wait for it to open!"

Community Member

Community & Stakeholder Engagement

Table of Contents

1.0	Executive Summary	5
1.0	Executive Summary	6
2.0	Project Background	9
2.1	Site Analysis	10
3.0	Design Response	19
3.1	The Vision	20
3.2	Form & Character	24
3.3	Spatial Layout	26
3.4	Materials	32
3.5	Concept Renders	34
3.6	Landscape Design	44
3.7	Sustainability	48
3.8	Cost Analysis	53
3.9	Project Schedule	54
4.0	Next Steps	57
4.0	Next Steps	58

PROJECT CONSULTANTS

ARCHITECTURAL



LANDSCAPE



STRUCTURAL



MECHANICAL



ELECTRICAL



CIVIL



ACOUSTIC



QUANTITY SURVEYOR



SKATE PLAZA



CODE



1.0 Executive Summary

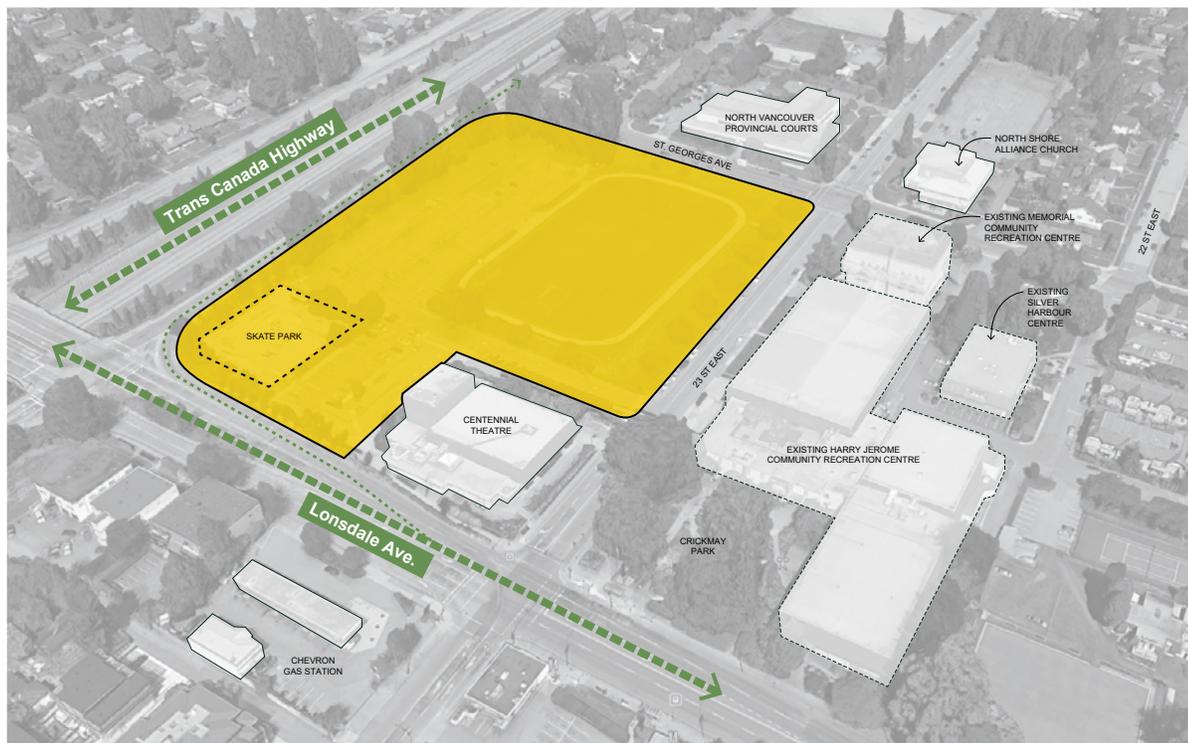
1.0 Executive Summary

The City of North Vancouver engaged HCMA Architecture + Design to revise the design for a new Harry Jerome Community Recreation Centre (“HJCRC”) which is intended to replace the City’s existing recreation facility. The new HJCRC will be constructed on the site located north of East 23rd Street between Lonsdale Avenue and St. Georges Avenue. The Centre is intended to be a focal point for the community; where residents and visitors of all ages and backgrounds come together to connect, experience, play, learn, socialize and celebrate.

In 2019, the City of North Vancouver underwent a community recreation needs assessment and developed a community recreation strategy entitled “A Healthy City for All – The Role of Community Recreation”. With this new prioritization framework in place, program components of the Harry Jerome Community Recreation Centre were reviewed and prioritized. In March 2020, Council endorsed a reduced project scope that aligned with the Needs Assessment.

This report documents the re-design process that was completed between April 2020 to March 2021 in response to the revised project scope. Biweekly project development team meetings that included the design consultant group and staff representatives from various departments within the City and NVRCC. Beyond this working group, stakeholder and advisory group engagement was employed to enhance the quality of the design solution. This engagement provided feedback that helped establish the character of the building as well as its relationship to adjacent open space and surrounding neighborhood. Careful consideration was given to re-plan the site and find design efficiencies for the endorsed reductions in project scope.





As part of the design process, the project vision statement and principles were revised to closer align to the city's updated values outlined in the recreation strategy. The vision, principles, goals and strategies continue to define the project brief and be used to guide decision making throughout the project.

THE VISION

"The Harry Jerome Community Recreation Centre will be a welcoming, vibrant, social heart of the community.

It will foster individual and collective wellness by providing opportunities to participate in a variety of organized and casual activities.

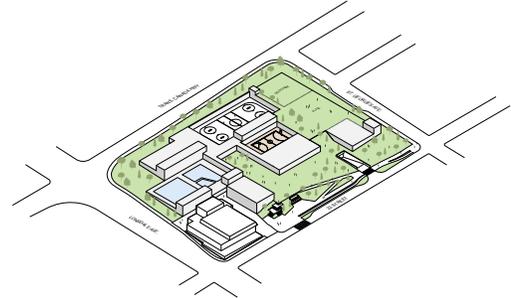
The centre will empower community members to enjoy healthy, active, and connected lives."

The selected site for the new HJCRC faced numerous constraints including a 10m grade change across the site, a large building program that fills most of the site, and limited options for vehicular site access. Following an extensive test-fit exercise, a building massing solution was agreed upon that had the greatest potential to achieve our project vision. This massing option was selected due to the following advantages:

- Integrated green space throughout building
- Create programmed outdoor spaces in south and east portions of the site
- Large animated daylight circulation space and opportunities for in-between spaces
- Views to green courtyards from programmed space
- Aquatics prominence on Lonsdale

A number of key design strategies were used to help the facility be a good neighbor and responsive to its context while creating a welcoming and vibrant heart for the community. The key strategy was in breaking apart the massive building footprint and allowing nature, light and casual activity to occur in the heart of the facility. This strategy also helped to:

- Break down massing to establish neighborhood scale on 23rd St.
- Establish key social spaces as anchors
- Maximize indoor – outdoor connections

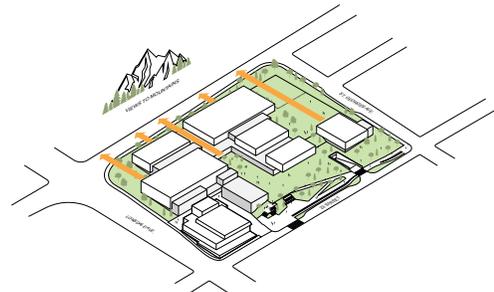


The building will also have a significant impact in the City's climate action plan as the existing Harry Jerome Recreation Centre is the largest contributor to the City's greenhouse gas emissions footprint. The new HJCRC design will reduce the carbon intensity of the project by approximately 81% compared to the existing facility and achieve a Total Energy Use Intensity 49% better than NECB 2015 baseline. Other sustainable efforts include maximizing heat recovery on-site through CO2 refrigeration, highly insulated building envelope, extensive natural daylight, innovative low energy pool filtration system and electric vehicle and bike charging.



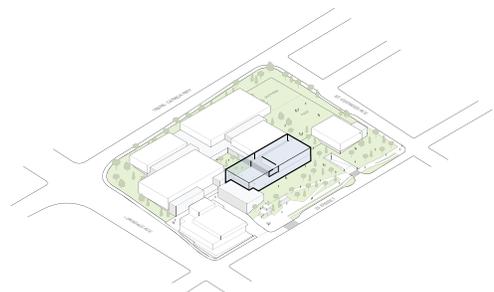
CAPITAL COSTING ANALYSIS

It is anticipated that the total project capital costs for the HJCRC will be approximately \$181.7 million based on a Class B cost estimate conducted in March 2021. The cost estimates have allowed for \$14.3million in contingencies and \$14.4 million in escalation. The project cost does not include the Silver Harbour Seniors' Activity Centre component which is yet to be confirmed – in progress.



NEXT STEPS

The next stage in this process would see the project through detailed design and into construction. We would recommend considering hiring a construction manager at this point if it is the preferred construction delivery method.



2.0 Project Background

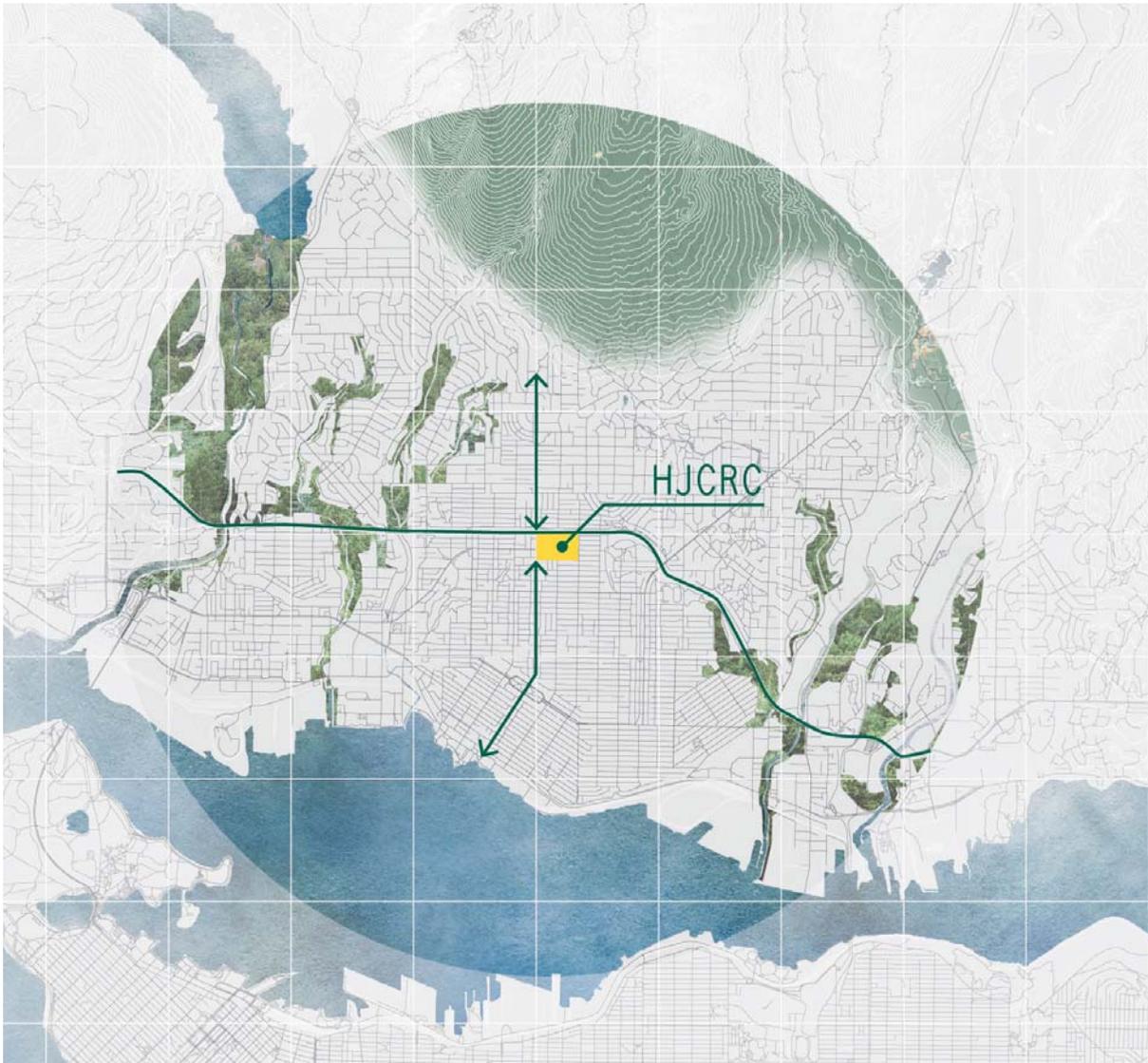
2.1 Site Analysis

2.1 Site Analysis

2.1.1 Regional Scale

The selected site for the project is located in North Vancouver near the Upper Levels Highway, north of 23rd Street E between Lonsdale Avenue and St. Georges Avenue. It is situated on a prominent corner of upper Lonsdale that acts as a gateway to the City. The site is uniquely located almost directly in the middle between North Vancouver's mountains and ocean. This defining location and context is well positioned to provide a meaningful and connected facility that bolsters a sense of place. The site also offers a key landmark to the city's proposed urban greenway that encircles the urban centre of the City (Green Necklace).



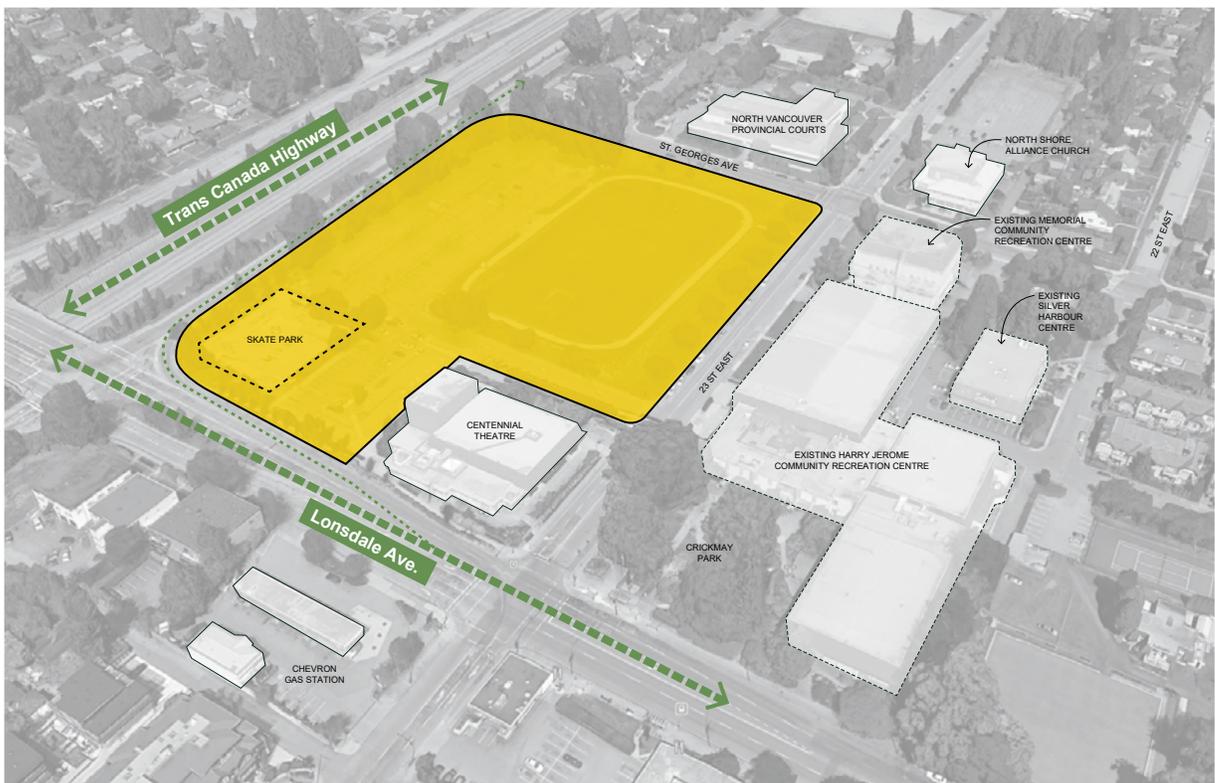


2.1.2 Site Scale

South of the site is the existing HJCRC, which is intended to be demolished and commercial and residential development to take its place. This future development is called the Harry Jerome Neighborhood Lands (HJNL) and includes an expansive new public park of approximately 1.0 ha that builds on the existing Crickmay park. The proposed development provides a mix of housing types, commercial space, and additional amenities.

Public transit to the site is frequent along Lonsdale Avenue with the nearest bus stop locations south of 23rd Street E on either side of Lonsdale Avenue. Vehicular site access is challenging with the proximity of the Upper Levels Highway to the north, a major arterial road to the west and two minor arterial roads on the south and east.

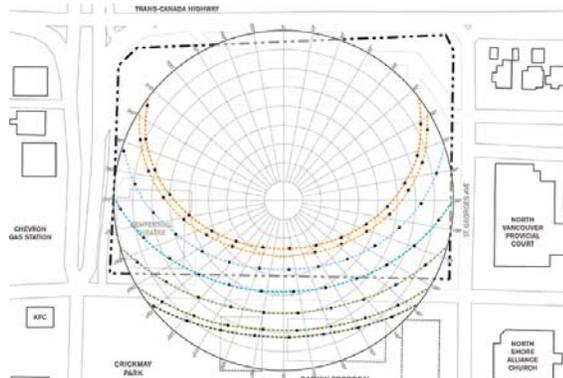
The project location shares a site with the Centennial Theatre and City Skate Park and therefore needs to function jointly with them. The skate park will be reconfigured and incorporated into the new community recreation centre design. The theatre will remain and should be welcomed and celebrated in the layout of the new HJCRC facility.



▲ Site context diagram

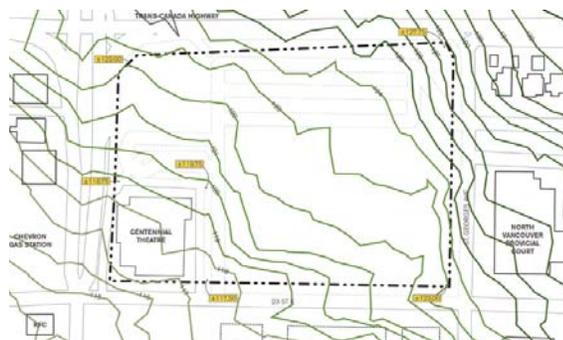
SUN ANALYSIS

This shows the orientation of the sun between sun rise and sun set throughout the year. In the winter the sun is as low as 35 degrees and in the summer as high as 72 degrees.



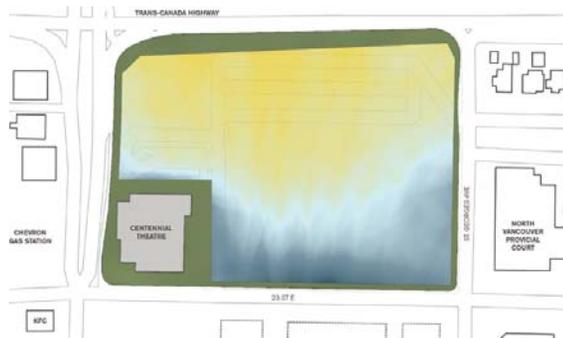
TOPOGRAPHY ANALYSIS

Site topography shows a 10m grade change from north-east to southwest. This site topography will impact the wind patterns as well as rainwater management.



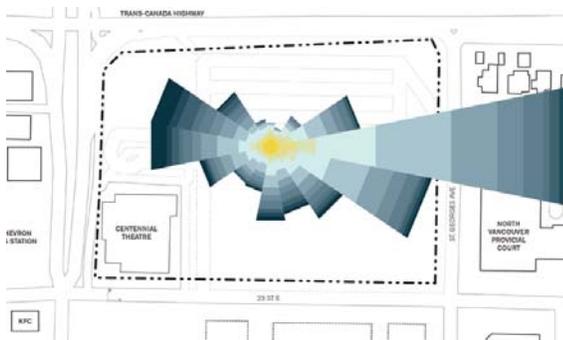
SHADOW ANALYSIS

Annual shading analysis shows how surrounding proposed buildings will impact the sun reaching our site at ground level. The northern part of the site remains in direct sun light continually while the southern part is shaded.



WIND ANALYSIS

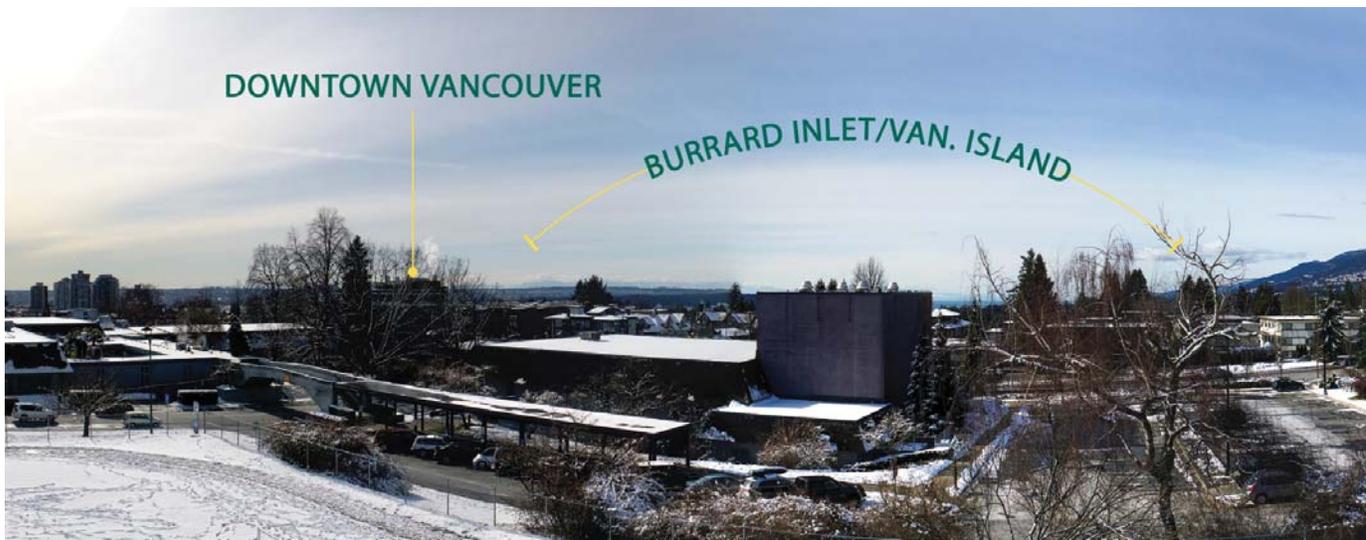
Annual wind analysis shows the prevailing winds coming from the east while occasionally a strong wind from the west will occur.

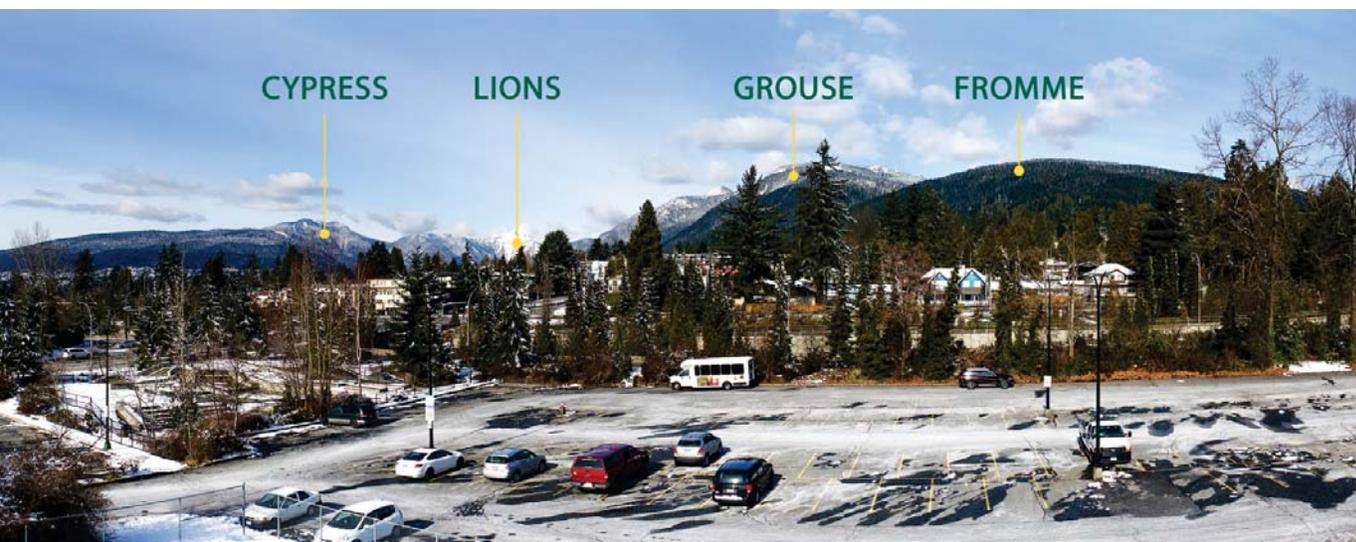
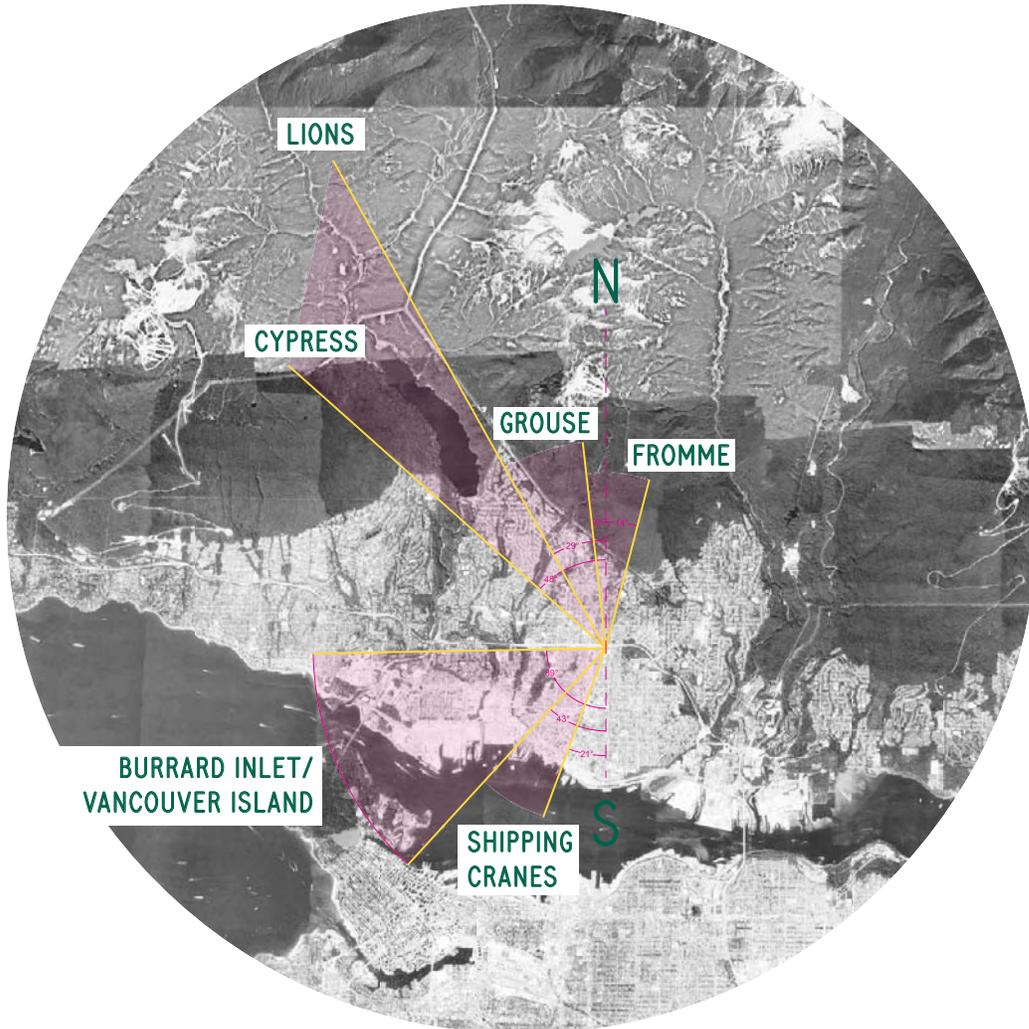


2.1.3 Views

Given the terrain of the North Shore, the project site offers views both towards the mountains and the ocean. Capitalizing on these views from our site will reinforce a sense of place and enhance wellness for visitors to the community recreation centre.

Using drone imagery, we were able to establish actual views from each floor level of the proposed community recreation centre. These drone images informed key spatial planning decisions to capitalize on views from various points throughout the building and site.





2.1.4 Site Constraints

2.1.4.1 PROGRAM AREA AND VOLUME

With a large facility program area, and many programs requiring high ceiling heights (e.g.: aquatic centre, gymnasium, and arena), the available site area is nearly fully covered by building. Strategic location and stacking of large program components require exploration to create opportunities for outdoor activities and landscaping.

2.1.4.2 ENTRANCES + ACCESS

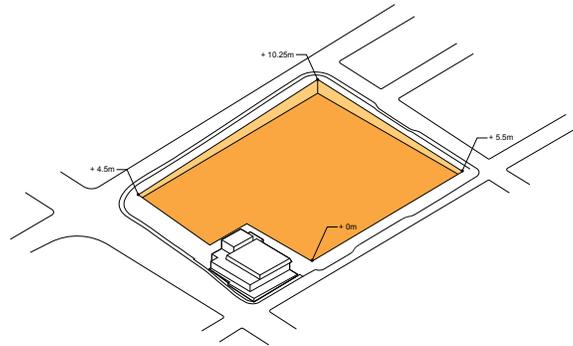
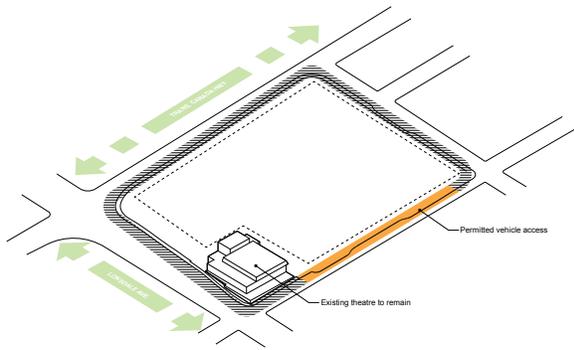
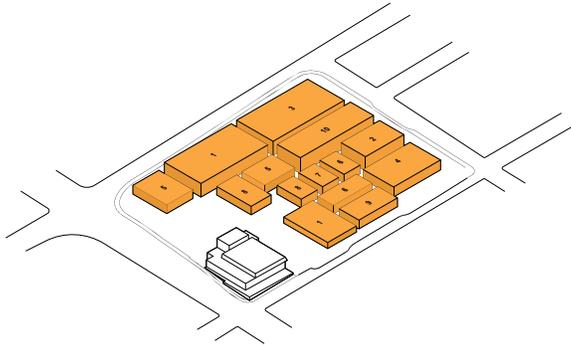
While the proximity to major transportation thoroughfares provides opportunities for multiple modes of transit, the adjacency to the Upper Levels Highway and Lonsdale Avenue restrict the direct access to the site from these busy roadways. Available area for vehicular access onto the site remain only along the south property line (23rd Street E), including a lay-by and pedestrian crossing.

2.1.4.3 SITE TOPOGRAPHY

Located on a slope midway between ocean and mountain, the site presents a greater than 10m grade change from south-west to north-east. With site access available from the south and east edges of the site, building entrance and floor levels must respond in relation to the adjacent grades. Program components with high ceiling requirements will require strategic location within the site to maintain an appropriate relationship with the scale of the surrounding neighbourhood.

2.1.4.4 LOT CONSOLIDATION & VARIANCES

The Centennial Theatre and Norseman Park lots are planned to be consolidated into one combined property that holds Centennial Theatre, Harry Jerome Community Recreation Centre and Silver Harbour Senior's Activity Centre. Concurrently, a rezoning application is underway for variances to lower staff secure bike parking requirements to reflect the number of facility staff; increase the allowable secure bikes per room; increase the allowable distance between short-term bike parking and the principle entrance; reduced setbacks on the north and west sides of the property; and increase the allowable lot coverage to accommodate the three facilities on one consolidated lot.



3.0 Design Response

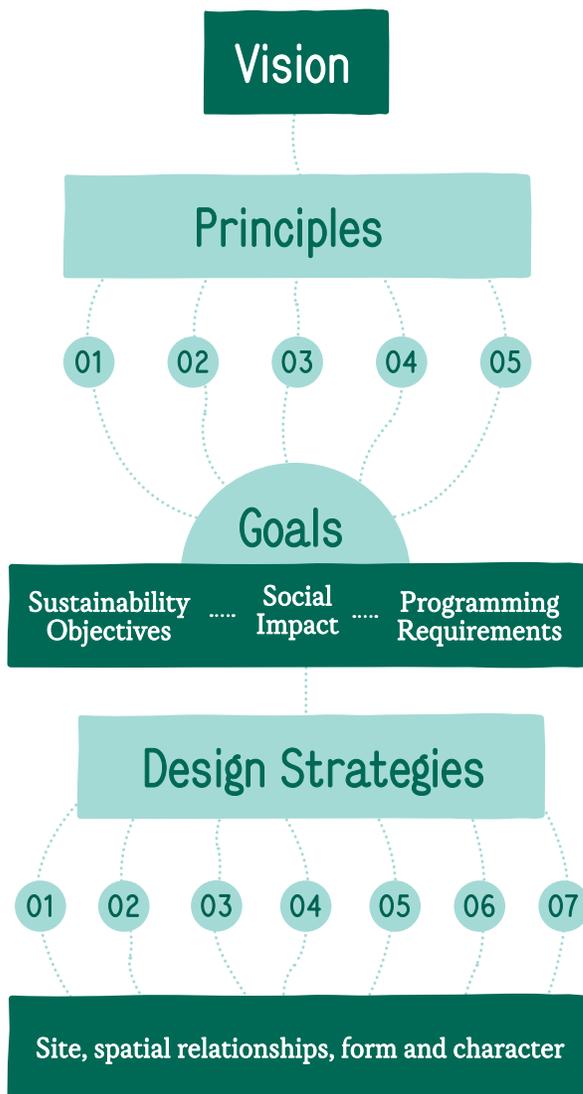
- 3.1 The Vision
- 3.2 Form & Character
- 3.3 Spatial Layout
- 3.4 Materials
- 3.5 Concept Renders
- 3.6 Landscape Design
- 3.7 Sustainability
- 3.8 Cost Analysis

3.1 The Vision

“The Harry Jerome Community Recreation Centre will be a welcoming, vibrant, social heart of the community.

It will foster individual and collective wellness by providing opportunities to participate in a variety of organized and casual activities.

The centre will empower community members to enjoy healthy, active, and connected lives.”



VISION STRUCTURE

The project vision was formulated through the exploration of three components: Social Impact, Environmental Sustainability, and Programming, including consideration of the project's financial parameters.

The purpose of the vision statement and development of principles and goals is to set the over arching project direction and intent, which can then be used to guide future decision making. Listed below are explanations of the terms we use in this section of the report:

- **Vision:** the role of the vision statement is to declare the HJCRC's purpose and aspirations. It informs the supporting principles, goals and strategies.
- **Principle:** a high level aspiration or value which can guide and inspire goals, strategies and actions across spectrum of policies, designs or actions.
- **Goal:** a general or specific desired outcome associated with principles
- **Design Strategy:** a container for a set of actions intended to fulfill stated goals

THE HARRY JEROME COMMUNITY RECREATION CENTRE WILL BE...

Equity

01 Accessible to all, with freedom and opportunity to participate in a variety of casual and structured activities.

Social Inclusion

02 An inclusive place that draws people together and fosters strong social connections between the diverse communities of North Vancouver.

Secure

03 A welcoming and safe environment that clearly communicates it's okay to be who you are, and promotes ease of use.

Adaptable

04 Responsive to evolving community needs which creatively shape a broad range of recreation and cultural activities.

Wellness

05 Supportive of individual and community wellness through physical, social, and creative pursuits. A connection to the natural environment is deeply valued in achieving this.

Environmental Sustainability

06 A global example of social and environmental sustainability and resilience.

Financially Responsible

07 Responsible to the City's financial outlook and economic conditions by designing within its boundaries.

Goals

How can we realize this vision? By working towards 4 key goals. These goals can be assigned with associated metrics that can later be used to measure success.



GOAL 1
Empower community members to enjoy healthy, active, and connect lives

The design of the new HJCRC will foster a vibrant sense of place and community that will continue to strengthen over time. Its design will attract and welcome people, and support positive individual and shared experiences.

Themes for assessment metrics:

Sense of place and belonging
Social and cultural life
Connectivity and imageability



GOAL 3
Provide for diverse users now and in the future

The new HJCRC will promote access and belonging for all. It will creatively respond to community needs as they evolve through adaptable and innovative design and governance.

Themes for assessment metrics:

Community resilience
Sense of place and belonging
Access, health, and safety



GOAL 2
Redefine perception of recreation to promote wellness in the community

The new HJCRC will embody the full spectrum of recreation by creating a variety of dynamic spaces that actively support expanding notions of physical, mental, and social wellness. It will promote progressive synergies between recreational, cultural, and intergenerational uses to support lifelong discovery and development. The sum will be greater than its parts.

Themes for assessment metrics:

Social and cultural life
Personal development and enjoyment
Access, health, and safety



GOAL 4
Support the city's climate action plan targets

The City's 2011 Corporate Climate Action Plan set a target of a 25% reduction below 2007 levels by 2020. As the existing HJCRC accounts for 27% of the City's overall corporate greenhouse gas emissions, there is an opportunity to demonstrate leadership and significantly reduce corporate GHG emissions. The redevelopment of HJCRC has long been a key component of the City's corporate Climate Action Plan.

Themes for assessment metrics:

Refer to the Sustainability Report in appendix 6.6.

Design Strategies

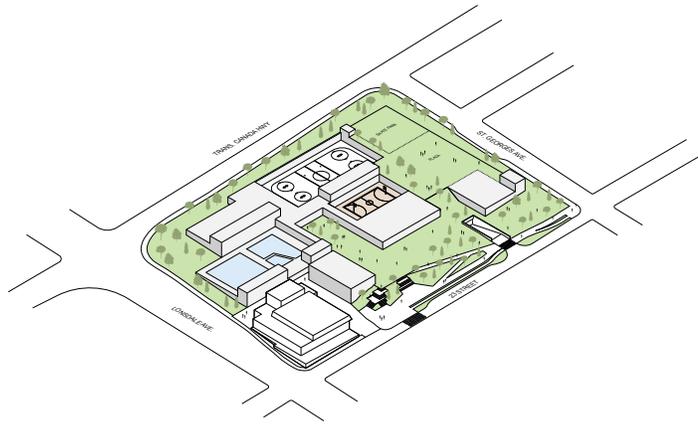
These goals will be achieved through a variety of strategies which will directly be used to guide the design.

- 01 Create a welcoming and animated arrival space.
- 02 Design in features for delight and celebration of community identity and unique setting.
- 03 Ensure access for all through safe arrival, variety of seating, legibility of space and circulation, and ease of use.
- 04 Strong visual and physical connections both within the facility and to the wider community.
- 05 Create spaces of a variety of scales and openness for user comfort.
- 06 Create flexible and adaptable spaces that promote a range of both specific and broad programming as well as informal, temporary, and formal uses.
- 07 Connect to and integrate outdoors (build on the unique North Vancouver identity and express through physical form).
- 08 Enhance and connect to urban fabric.
- 09 Use materials and technology that contribute to a positive experience for all.

3.2 Form & Character

3.2.1 Building Massing

A number of key design strategies were used to help the facility be a good neighbour and responsive to its context while creating a welcoming and vibrant heart for the community. The key strategy was in locating the multiple program components around a central courtyard to allow for nature, light, and casual activity to connect all users of the facility.



STEP 1

- Base massing is embedded into the site, accommodating a majority of the large program elements as an extension of the landscape
- Locate large program areas next to highway and larger blank walls next to steep slopes
- Locate smaller program areas next to residential zone of 23rd Street E

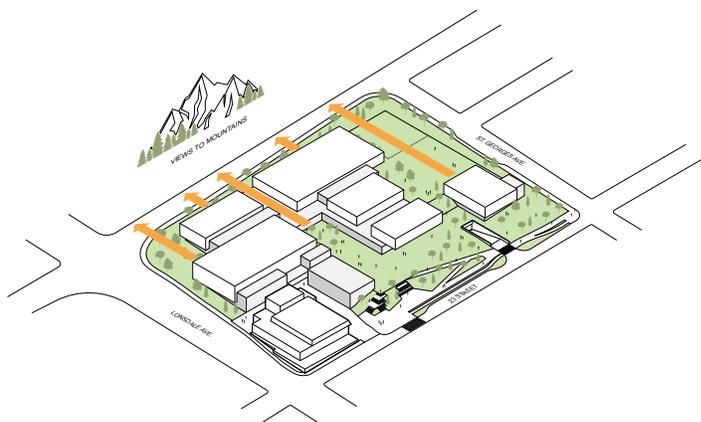


STEP 2

- Upper massing is broken to allow views, daylight, and natural ventilation
- Establish outdoor recreation zone facing St. Georges Ave
- Respect the existing and future connection points to Centennial Theatre (users and loading) efficiency

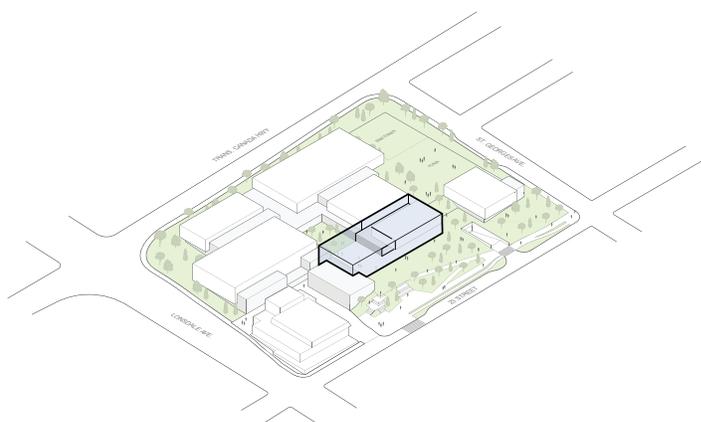
STEP 3

- Establish visual connections to mountains



STEP 4

- Maximize transparency and indoor/outdoor connection between civic plaza, atrium, and courtyard
- Establish civic plaza facing 23rd Street E with connections to the Green Necklace



3.3 Spatial Layout

3.3.1 Design Response

The intention is to create a new community hub that builds on the success of the existing community recreation centre by relocating, expanding, and upgrading the current amenities.

The community recreation centre's main entrance, landscaped plaza, and primary pedestrian site access is off 23rd Street E. The plaza also connects with the existing Centennial Theatre to create a new, shared public space.

As a result, the larger program components have been sited along the northern edge of the site next to the Highway and the smaller, more modular program components have been located to the south where a finer grain is required to respond to surrounding residential neighbourhood.

One level of vehicle parking is located below grade at Level -1. The parkade is accessed off 23rd Street E and has an internal connection up into the main lobby of the facility. The parking level also serves Centennial Theatre and provides an accessible and friendly route for patrons to walk to the entrance of the theatre.

3.3.2 Plan Layout

3.3.2.1 BUILDING ORGANIZATION

The building is organized over 3 levels which include:

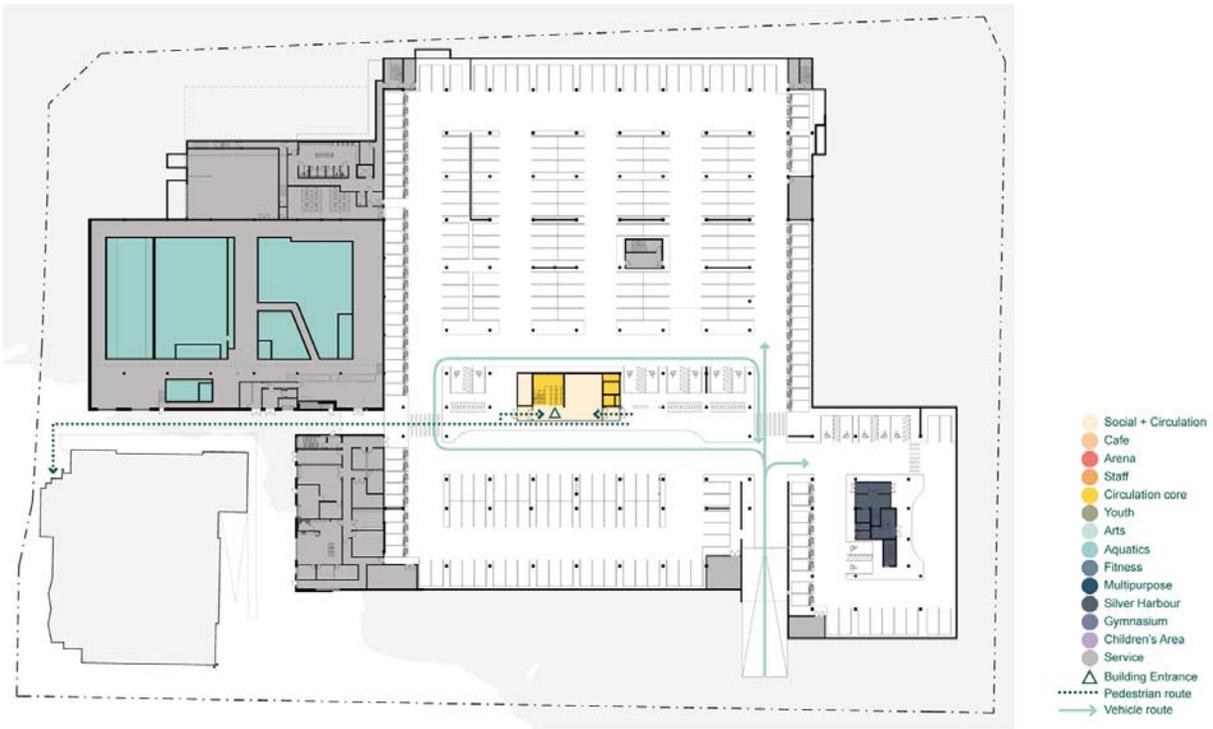
- Level -1: Below ground
- Level 1: Partially below ground
- Level 2: Above ground

The building program is organized across the levels as follows:

- Level -1: Parkade and Op's & Maintenance
- Level 1: Aquatics Centre, Arena, Gymnasium, Multi-Purpose Areas, Arts Studio, and Seniors' Centre
- Level 2: Fitness Centre, Multi-Purpose Areas, Staff, Children's Areas, Youth Centre, and Seniors' Centre

3.3.2.2 CENTRAL PLAZA, ATRIUM, AND INTERIOR COURTYARD

The plaza, atrium and interior courtyard, which represent the organizing structure for the building, sets out an intuitive wayfinding and orientation experience for HJCRC. The main atrium is the social heart of the centre, providing a welcoming reception area and opportunities for spontaneous and programmed activities and celebrations both indoor and outdoor. Whether you arrive by car, bike, foot or slide, you enter into the main atrium. The interior courtyard, connected to the main atrium, allows for views throughout the centre, connects users to a variety of activities, allows for fresh air and supports spontaneous informal activities.



▲ Level -1 Plan



▲ Level 1 Plan



▲ Level 2 Plan

3.3.2.3 CONTROL POINTS

The main reception desk is located in the atrium to directly observe the main entrance, atrium, and concession areas. Reception also has sight lines to the associated elevator and internal circulation bounding the courtyard that connects to the aquatic centre, skate shop, and gymnasium. The formal control point (controlling paid versus non-paid access) is situated further inwards of the building, adjacent to the aquatics change rooms, and is assisted by various control turnstiles throughout the building to allow as much public (non-paid) access to building areas as possible.

3.3.2.4 BUILDING ACCESS & USER CIRCULATION

The colour-coded plan illustrates the building layout and spatial relationships between the different program components. Open circulation has been consolidated into the casual programming zones which primarily surround the courtyard. Stairs and elevator cores are located in these zones to connect the building levels.

At Level 1, circulation is accessed from the landscaped plaza via the entrance atrium. The atrium connects to both the internal circulation and the Level -1 parkade where there is a dedicated drop off zone. North of the lobby is a circulation route that encompasses the courtyard, leading to Aquatics, Fitness, Arena, Gymnasium, Multi-purpose Areas, and Art Studio. Access to paid-only areas is restricted via a control desk or turnstiles.

At Level 2, a secondary entrance from the east connects into the Youth Centre, Children's Areas, and Multipurpose Areas. An open stair, slide, and elevator core connects to Level 1 to access the remainder of facility.

3.3.2.5 ORGANIZED AND CASUAL PROGRAMMING, OUTDOOR SPACE

The building plan has been organized into three zones which include: organized programming, casual programming, and outdoor space.

Organized programming consists of the components of the building area program which includes an aquatic centre, fitness centre, arena, gymnasium, seniors' centre, and rooms for various community programs.

The casual programming zones have been designed as an intermediate space between outdoor and indoor activity, and the concept of the space is deeply embedded in the project Vision and Principles (see subsection 3.1 The Vision). These zones provide circulation, informal social and recreation space, areas for spectator viewing, and facilitate active surveillance throughout the Recreation Centre.

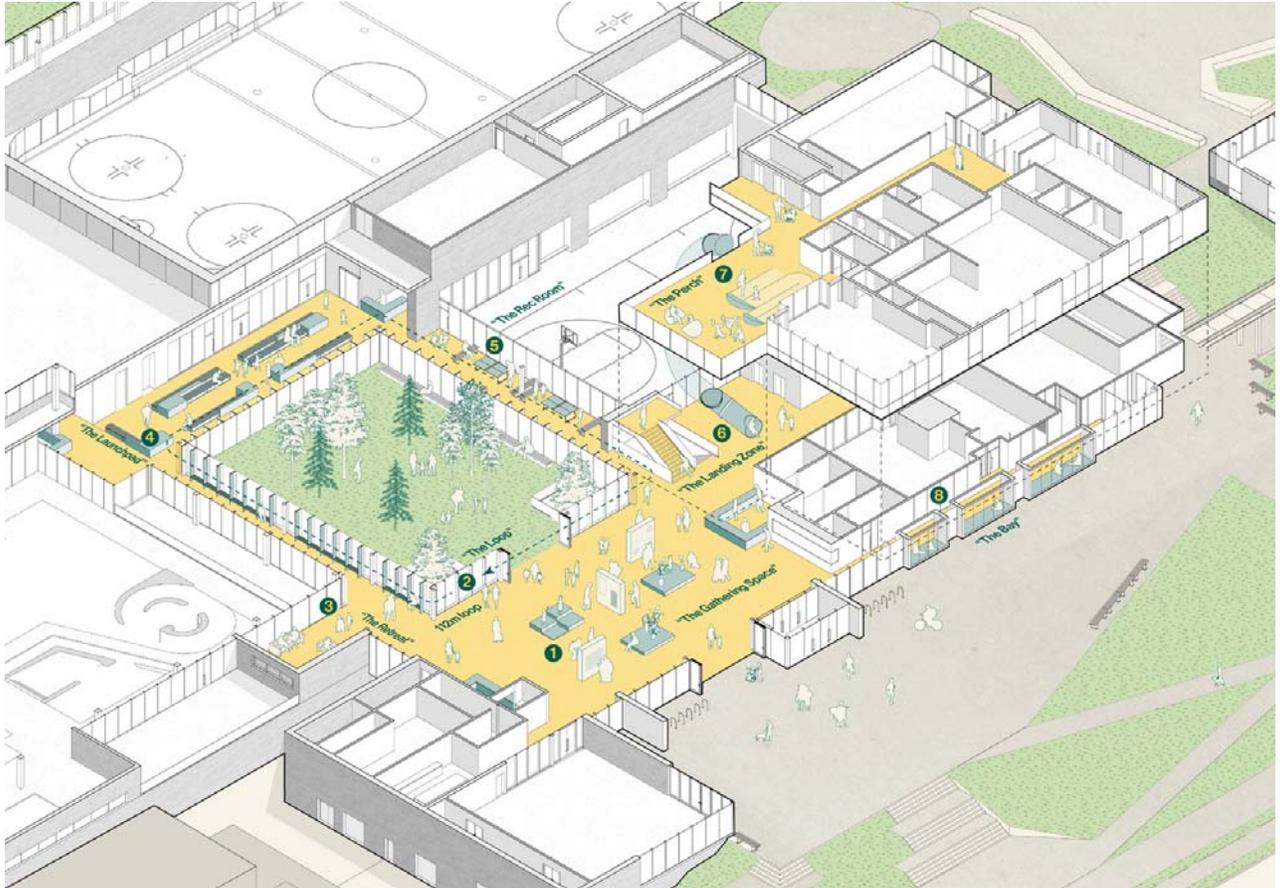
At the center of the site is the outdoor space which is accessible to all and forms the heart of the facility. The outdoor space connects and adds to the casual programming zones, defines the building mass, and brings natural daylight, nature, and views into the centre of the building.

3.3.2.6 LEVEL DIFFERENTIAL

Due to existing site levels, grade increases from the base of plaza steps to the property line at the north-east corner of the site along St. Georges Avenue and the Highway (refer to subsection 2.2.4 Site Constraints). This level differential allows access into the building multiple levels.

The level change between the SW and NE corners of the site is accommodated between the Recreation Centre and Seniors' Centre where grade is softened with planting and stepped paving. This change in level creates two entrances on two levels: a primary entrance off the plaza at 23rd Street E and a secondary entrance facing east towards St. Georges Avenue. Both entrances provide universal access to the building and outdoor in-between spaces. In addition, this level differential allows the parkade and service cores at Level -1 to be concealed underground.

Large, high ceiling program components are embedded into grade moving towards the north of the site. This helps to reduce the physical and visual impact of large program volumes and solid frontage.



▲ In-between/Social Spaces

- The Gathering Place – large scale space for community gathering and social events
- The Loop – 110m interior walking loop with resting benches around the courtyard
- The Retreat – multi-purpose space with quiet acoustic treatment providing sensory retreat
- The Launchpad – staging area for public skates and space for quieter study and reading
- The Rec Room – hang out area next to the Gymnasium with space for table tennis and foosball
- The Landing zone – touchdown space for the slide that connects the children’s programming on Level 2 with the ground floor
- The Perch – overlook with soft furniture for lounging, people watching and for kids to run around and blow off some steam
- The Bay – quiet window seats for resting, reading or chats with a friend

3.3.2.7 SITE ACCESS

The proximity of the site to the major transportation thoroughfares of the Upper Levels Highway and Lonsdale Avenue restricts direct access into the site (refer to subsection 2.2.4 Site Constraints).

The design of 23rd Street E (between Lonsdale and St. George's) enhances the pedestrian scale of the streetscape, integrate the Green Necklace, and facilitates both the single entrance to the HJCRC parkade and the shared loading with Centennial Theatre.

The Green Necklace has been integrated as a key feature, designed as separated pedestrian and cycling paths integrated with the signalized mid-block crossing. The mid-block crossing has been designed with consideration of pedestrian safety, vehicular queuing, intersection functionality as well as creating a clear and legible connection between the parkland to the south of 23rd Street E and the front entrance to the new HJCRC.

3.3.2.8 VIEWS

The building has been designed to maximize views towards outwards and in between program spaces. Externally, the arrangement and orientation of spatial volumes allow views towards mountains to the north and through the courtyard.

Internally, the casual programming zones and courtyard are highly glazed to maximize visual connections. At each level, these zones provide spectator or casual viewing into main program areas; allowing users to connect with the activity and function of the building.

3.3.2.9 OPERATIONS

The Operations and Management (O&M) facility is located at Level -1 in the SW corner (behind the theatre) and is accessed via a vehicular or pedestrian route off 23rd Street or from inside the parkade.

The O&M facility houses the loading dock, maintenance storage, garbage storage, workshop, and staff offices.

Adjacent to the O&M facility is pool mechanical and the parkade, with various service cores distributed throughout linking Levels 1 and 2. In addition to this, there is a dedicated refrigeration, mechanical, and electrical core for the Ice Arena on Level 1.

For significant repairs and replacement, access to service cores can be gained via the Level -1 parkade or from a restricted loading area off the highway on-ramp. This restricted loading area also serves as an exit route for the ice resurfacers.

3.3.2.10 CENTENNIAL THEATRE

Integration with the existing Centennial Theatre has been an integral part of the design process as it both neighbours the development site and shares car parking facilities with the Recreation Centre. At level 1, the theatre connects directly to the proposed plaza, providing shared outdoor space with the community facility. Directly off the plaza is a dedicated stair and elevator core that links to Level -1 of the shared parkade.

3.4 Materials

Materiality has been chosen in relation to the following parameters:

- Visual appearance
- Contextual appropriateness
- Durability & maintenance
- Cost efficiency

The building envelope consists of: Concrete block cladding, corrugated metal cladding, clear glazing, obscured glazing (whether 3D such as OkaTech or 2D frit), and wood structure & soffits.

Concrete block, as a natural and heavy element, is established as the cladding material for spaces submerged into the sloping landscape. These spaces are typically on lower floors, require less daylight, or encompass mechanical rooms. Concrete block is a durable and cost-efficient product with a texture suitable to its natural context.

Above the concrete base, cladding material transitions into crisp, rectangular forms of corrugated metal and vertical glazed curtain wall; volumes perched lightly and individually shifting off its base below. Curtain wall glass was used strategically throughout the facility to concentrate its use where most impactful to achieve the desired quality of light and transparency (overall glazing is 41%). More glass was used in gathering spaces with indoor-outdoor connections while reduced on the blank walls of large 2 storey components. Intentional use of obscured glazing further filters each programs' exposure to light and exterior views during the day, while reversing its expression as a glowing beacon of light during the night.

The atrium roof features an exposed wood structure with full-height curtain wall encompassing its space and adjacent casual programming zones below, maximizing visibility into social spaces to create visual connections between program areas. Additionally, the underside of cantilevered forms is clad with a wood soffit; this warmer material complementing the landscape design and links to a community characterized by its natural environment.



1



2



3



4



5



6

LEGEND

- 1 Concrete Block
- 4 Obscured Glass
- 2 Corrugated Metal
- 5 Wood
- 3 Glass
- 6 Nature



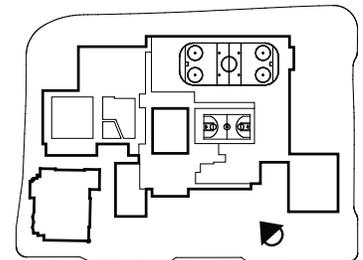


3.5 Concept Renders

The following concept renders show key views of the proposed HJCRC.

▲ Concept Render - Exterior view from 23rd Street E

Crossing 23rd Street E, you can see the dramatic roof cantilever hovering above. Multi-purpose rooms and offices peer down from the second level beside an atrium glowing with warmth, beckoning you inside. The landscaped entrance plaza feels lush and natural.



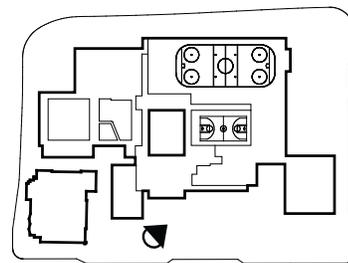
VIEW KEY





▲ Concept Render - Exterior view from within the plaza

The entrance plaza can be compared to a clearing in the trees – an open area that offers flexibility for a wide range of outdoor activities. You can see various groups gathering in the plaza, filtering through an open atrium, and the courtyard beyond. Multi-purpose rooms cantilever from the second floor.



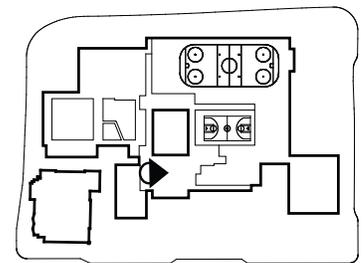
VIEW KEY





▲ Concept Render – Interior view from within the atrium

The social heart of the building invites interaction and play. A welcoming and flexible space that blurs the boundary of indoor and outdoor. To the left of the image, you see into the courtyard, which offers a lightwell connecting to the Level -1 parkade. Activities in the second floor multi-purpose room and mezzanine can be witnessed from below.



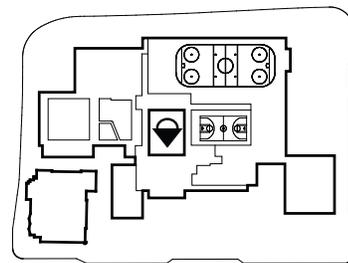
VIEW KEY





▲ Concept Render – Exterior view from within the courtyard

The atrium and surrounding circulation glows with warmth on a rainy day. The courtyard offers a natural reprieve from building functions and program – a connection back to nature.



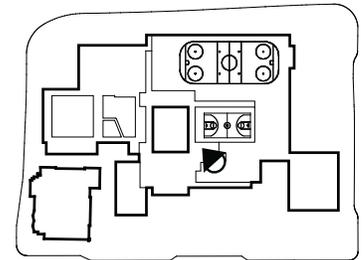
VIEW KEY





▲ Concept Render – Interior view from the Welcome Centre

A community is welcomed into the vibrant social heart of the building, with play structures dispersed throughout. A spiral slide sits adjacent to the main stair, allowing a playful way to connect from the second level. Gymnasium and courtyard activities can be seen beyond. The atrium to the left offers a cafe to enjoy a treat while providing views into the aquatic centre.



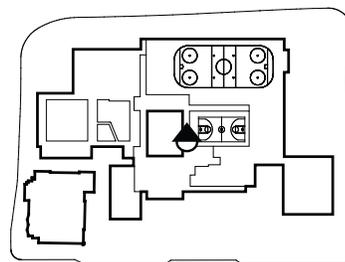
VIEW KEY





▲ Concept Render – Interior view adjacent to a corridor

A casual place to meet, play some games, or relax by yourself. You can see various activities from different program spaces such as the courtyard, arena, and gymnasium.



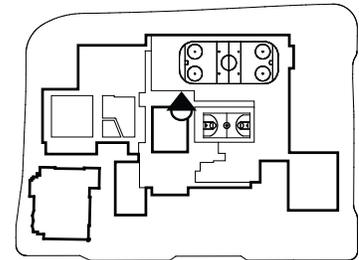
VIEW KEY





▲ Concept Render – Interior view from the skate change area

Soft daylight filters into the arena as you enjoy an afternoon on the ice. The adjacent multi-purpose room offers a gathering space with a fireplace to warm up. Spectators can watch from the adjacent seating area and beyond, tree tops and the North Shore mountain peaks can be seen.



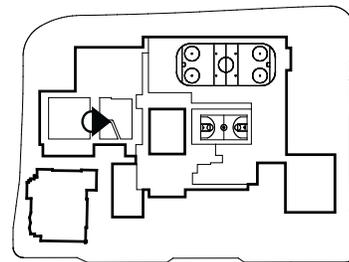
VIEW KEY





▲ Concept Render - Interior view from within the Aquatic Centre

The zero-entry leisure pool provides play space and leisure swimming for all ages (lap pool behind viewer). Framed views of the courtyard beyond are prominent from within the aquatic centre. A wellness area to the right expands to an exterior south-facing patio, and the fitness centre looks down from above on the left.



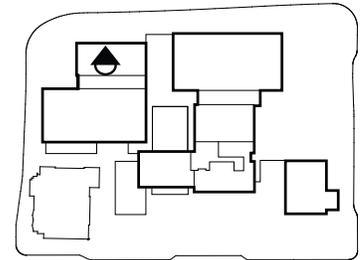
VIEW KEY





▲ Concept Render – Interior view from within the fitness centre

Surrounded by elevated views to the North Shore Mountains, multiple exercising options are offered on the second floor from studio classes to individual strength training. A covered outdoor fitness space is directly accessible from the fitness centre.



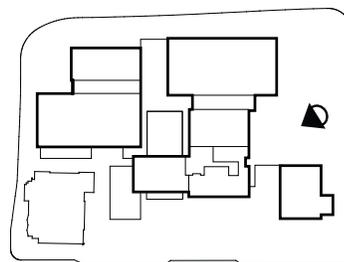
VIEW KEY





▲ Concept Render – Exterior view from active recreation zone

Vibrant and active play zones span across the outdoor program, providing casual activities and sports for all ages and abilities. Towards the left, a second level entrance connects from St. Georges Avenue via a walk adjacent to the Silver Harbour Seniors' Centre. Towards the right, concrete seating transitions into an outdoor skatepark.



VIEW KEY



3.6 Landscape Design

The open space design is driven by a diverse program of active and passive outdoor recreational spaces. It is inspired by the character of North Vancouver through the use of native and adaptive planting, and materials including wood and stone.

A large south-facing entry plaza provides a welcoming front porch for the community to gather, as well as a lawn for everyday activities, larger gatherings of up to two-thousand people, or a stroll before heading over to the Centennial Theatre. This space is directly connected to an interior atrium with views to a central courtyard that provides visitors to the building natural light, views of nature and a tranquil place to sit.

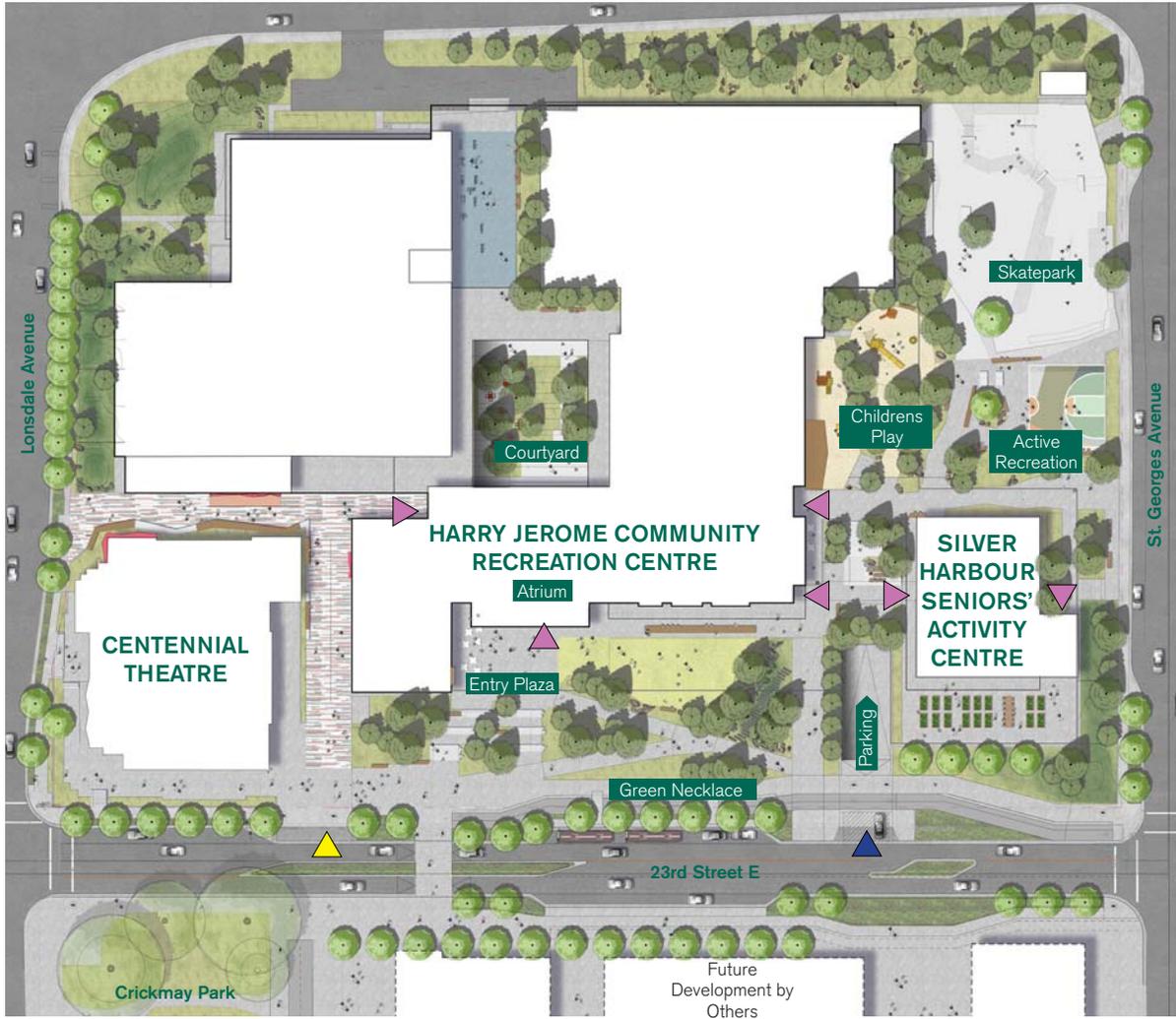
The North-East corner of the site supports an array of vibrant and diverse community functions fostering social interaction and an outdoor active lifestyle; it is a space where parents can meet while their children play, and where people of all ages can talk between basketball games or between rides through the skatepark.

Visitors to the Silver Harbour Seniors' Activity Centre can go outside for a chat or sit on the sunny south-facing social porch. Connections from the seniors centre to the recreation centre have been carefully thought out to provide direct access between the two facilities.

The design and programming of the community recreation center's open space creates an array of opportunities to foster strong social connections between members of North Vancouver's diverse community.



Upper Levels Highway on-ramp



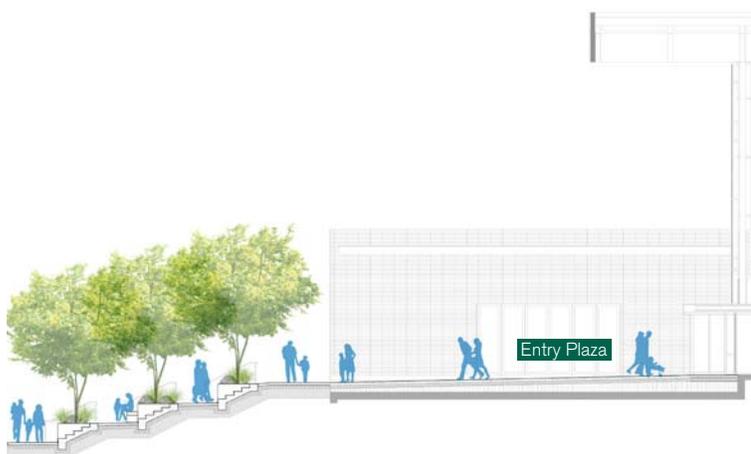
▲ Landscape Plan

- ▲ Building Entrances
- ▲ Parkade Vehicle Entrance
- ▲ Service Vehicle Access

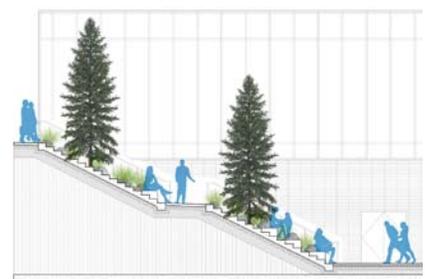




▲ Entry Plaza



▲ Section 1 - Stairs up to Entry Plaza



▲ Section 2 - Stairs to Active Recreation Zone

Upper Levels Highway on-ramp



▲ Active Recreation Zone

3.7 Sustainability

The City has adopted aggressive climate action targets to reduce greenhouse gas emissions and the existing Harry Jerome Recreation Centre is the largest contributor to the city's overall emissions footprint. As a result, climate responsive sustainable design is a priority within the project vision and principles.

In 2018, a set of performance targets and aspirational goals were proposed as part of the project Sustainability Design Vision Report to guide design direction and decision making for the HJCRC. While performance targets other than code requirements have not been formally adopted, current design does respond to a range of aspirations set out in the report, and others more recently articulated by the City.

ENERGY EFFICIENCY AND OPERATIONAL GREENHOUSE GAS EMISSIONS (GHGS)

The City of North Vancouver requires application of Step 1, of the BC Energy Step Code, which supports energy efficient design and good airtightness. The Step Code does not include performance targets for emissions. The existing recreation centre produces approximately 46 kg of CO₂e/m².y and accounts for 29%* of the City's corporate building greenhouse gas emissions. As such, the redevelopment of the Harry Jerome community center is identified as critical to meeting the City's GHG reduction targets of 80% below 2007 levels by 2040 and achieving net zero or 100% emissions reductions by 2050. To achieve this goal, the project would need to aggressively reduce emissions, estimated at a 93-95% reduction from the existing facility.

The Harry Jerome Community Recreation Centre has a highly complex building program, with a mixture of energy intensive uses such as pools and ice rinks. Despite these challenges, staff and design team pursued a design approach that reduces the carbon intensity

of the project by approximately 81% compared to the existing facility, according to the preliminary energy model.

The preliminary energy model report (dated March 10, 2021) estimates the following:

- Thermal energy demand (TEDI): 49.9 kWh/m².y
- Total Energy Use Intensity (TEUI): 377 kWh/m².y (49.5% better than NECB 2015)
- Green House Gas Intensity (GHGI): 8.5 kgCO₂e/m².y (81% reduction from the existing recreation center)

Note that the project is currently modelled to perform relatively well compared to the code minimum energy requirements, but efficiencies and emissions reductions that align with the demands of climate responsive design require further improvement.

The intensity of the aquatic and ice programs of the project necessitate emphasis on efficient mechanical systems to aggressively reduce energy demand and eliminate emissions. To accomplish this, a comprehensive heat recovery approach has been employed, whereby recovered heat from the arena CO₂ refrigeration system is transferred via chillers to end uses such as pool heating, domestic hot water generation, and space heating. This substantially reduces the amount of heat required from external sources. In addition, the heat recovery chiller plant produces that heat at very high efficiency and will operate at an efficiency 4 to 6 times better than a conventional system. These strategies contribute to substantial reduction in annual energy use from the building code requirements.

A summary of design strategies and energy conservation measures contributing to performance include:

Envelope	Highly insulated walls, roofs and floors
	Double glazing, argon filled, with low e-coating and reflectivity coating
	Airtightness test to be conducted per Energy step code requirement for quality control
Mechanical Systems	Heat recovery from natatorium exhaust and building relief/exhaust to ventilation air
	Inblue filtration system for the pool
	Water conserving plumbing fixtures including low flow sink faucets with metered sensors and high efficiency flush valve toilets with sensor activated flush
	Variable speed pumping for heating, cooling, brine systems and pool system pumps
	Dew point calculations for humidity control in natatorium
Refrigerants	CO2 refrigeration system for ice rink. CO2 systems have a Global Warming Potential (GWP) of 1, compared to a GWP of 1000-4000 for more traditional refrigerants.
Electrical Systems	Daylighting
	Efficient lighting fixtures (LED) with automated controls

OPPORTUNITIES

While project is reducing operational carbon emissions significantly, reducing emissions more than 90% compared to the existing facility is challenging given the district energy connection to the LEC, which uses a carbon intensive natural gas fuel source. As the LEC system is diversified in the future, HJCRC carbon intensity will improve. With the current reliance on natural gas, improving emissions depends upon further reducing energy demand. As design continues, this includes evaluating envelope efficiencies including the window-to-wall ratio, considering exterior shading to control interior heat gain, assessing thermal bridging, and setting a more ambitious air tightness target. Note that these strategies have co-benefits including improving indoor comfort.

Embodied carbon emissions are also a stated priority for the City. While no specific target for reduction is set, the design currently proposes use of some low carbon structural material in the form of mass timber as part of the roof system. Increasing the use of wood in the project, exploring low carbon concrete (high SCMs and/or Carbon Cure), and using low impact insulation are immediate opportunities to improve the embodied carbon performance. Setting a clear reduction goal relative to

a baseline is the best way to inform design accordingly. Several valid methods and tools to measure embodied carbon using Life Cycle Analysis (LCA) are available in the market to inform design progress.

Zero Carbon Building – Design (ZCB Design) certification is available through the Canada Green Building Council (CaGBC). The pursuit of this certification is part of the City's current evaluation of their overall GHG reduction strategies. ZCB certification has low energy requirements that do not account for building types that include pools or arenas. The CaGBC is currently reviewing their energy requirements for these types of buildings and the project team will continue to explore opportunities to achieve this certification as clarity on energy targets emerge.

At this stage of design development, a significant emphasis has been placed on building performance and climate responsive design relative to operational energy and carbon. The strategies to address sustainability and climate are in progress in other critical areas, summarized in the following table, including opportunities to further address performance as design progresses:

Category	Design Vision/Guidance	Current Progress	Opportunities
Location + Transportation	Minimize the need for automobile use and be a catalyst for non-auto mode transportation.	270 parking spaces shared between Centennial Theatre, HJCRC, and Silver Harbour.	Dedicate some parking to car-share use.
		45 secured and covered bike spaces rec, 8 Silver Harbour, 25% supplied with electrical outlets. 100 short term bike spaces mostly covered.	
		End of trip facilities and showers provided in rec and Silver Harbour.	
	Realize EV charging location.	13% (36/270) of parking stalls supplied with a Level 2 electric vehicle charging stations	
Water + Rainwater	Maximize water and rainwater re-use on site	Low flow fixtures	Consider water reuse strategies that target pool water, grey water and rainwater to the significant potable water consumption of the rec centre.
		Low irrigation demand planting, efficient irrigation with rain sensor and weather station.	Use a non-potable water source for irrigation.
		Rainwater currently managed with a detention tank at South portion of parking lot; some infiltration provided with rain gardens and small green roof area.	Consider additional Low Impact Development (LID) strategies to manage rainwater on site.
Landscape and Biodiversity	N/A	Parking is located underground.	
		Minimized hardscape	Set clear goals for hardscape and measure impact of emissivity.
		Green roof	Measure heat island and water management impact of green roof area, consider expanding green roof area.
		Reflective TOP roofing	Confirm SRI value of roof and evaluate hardscape SRI values.

		Use of native and adaptive vegetation.	Measure amount of native/ adaptive planting; measure biomass density index to understand climate management potential.
		Minimize uplighting on exterior	Adopt BUG rating
		Bird friendly design strategies applied.	Adopt a design standard for Bird Friendly Design (CSA, City of Vancouver, other).
Materials + Indoor Quality	Design for a 50 year life time, with durable and easily maintained/replaced products. The building shall commit to community health in its design, construction and operation	Glazing at the atrium and interior courtyard introduces daylight and views at the core of the building.	<p>Set an embodied carbon reduction target of at least 10% below a baseline to evaluate low impact material selection.</p> <p>Require low emitting materials per LEED to be applied on interior.</p> <p>Prioritize materials that report environmental impact through EPDs, or material ingredient reporting with HPDs or other third party verified transparency programs.</p> <p>Require air flushing or testing before occupancy (refer to LEED v4.1).</p>

SUMMARY

Building and site systems at HJCRC have the potential to be well integrated and offer exceptional co-benefits for long term, high performance, low carbon, and climate responsive design. Setting clear performance goals and establishing metrics will support decision-making accordingly and accountability within the design team and project stakeholder group. Considering third party verification programs offers both accountability, thresholds of performance, and established methods of measurement, that can result in better performance as well as public recognition.

Project performance across categories will benefit from the following as design is refined:

- A comprehensive envelope study to evaluate passive opportunities to control energy demand (thermal bridging, solar heat gain, shading and daylight).
- Evaluating opportunities to conserve and/or reuse potable water.
- Better address rainwater management with more low impact development strategies.
- Evaluate potential for the landscape to maximize carbon management and improve building performance and comfort by reducing heat island effect.
- Evaluating the embodied carbon of materials and setting a target for reduction.
- Setting a materials health and transparency benchmark to address emissions and health impacts.

Sustainability

```
graph TD; S[Sustainability] --- A[81% carbon intensity reduction from existing recreation centre]; S --- B[Electric car and bike charging]; S --- C[Maximized daylighting]; S --- D[Highly insulated building envelope]; S --- E[Heat recovery chiller plant 4-6 times more efficient than conventional systems (CO2 refrigeration)]; S --- F[Future consideration for Zero Carbon Building – Design]; S --- G[49% better total energy demand than NECB 2015 baseline]; S --- H[Integrated project commissioning of major building systems]; S --- I[Innovative low energy pool filtration system (InBlue)]; S --- J[ ]
```

81% carbon intensity reduction from existing recreation centre

Electric car and bike charging

Maximized daylighting

Highly insulated building envelope

Heat recovery chiller plant **4-6 times** more efficient than conventional systems (CO2 refrigeration)

Future consideration for Zero Carbon Building – Design

49% better total energy demand than NECB 2015 baseline

Integrated project commissioning of major building systems

Innovative low energy pool filtration system (InBlue)

3.8 Cost Analysis

A class B cost estimate was prepared based on the review of the re-design information provided for the new construction of the Harry Jerome Community Recreation Centre in North Vancouver, BC. The estimate was priced in Q1, March 2021 local unit rates and assumed a construction start date of June 2022. Class B construction cost estimates are typically +/- 10-15% in accuracy with many variables influencing the final construction price including the current uncertainty and volatility of the market. Supply chain issues currently being experienced may have unknown (short and long term) impacts on pricing levels and anticipated projected construction escalation.

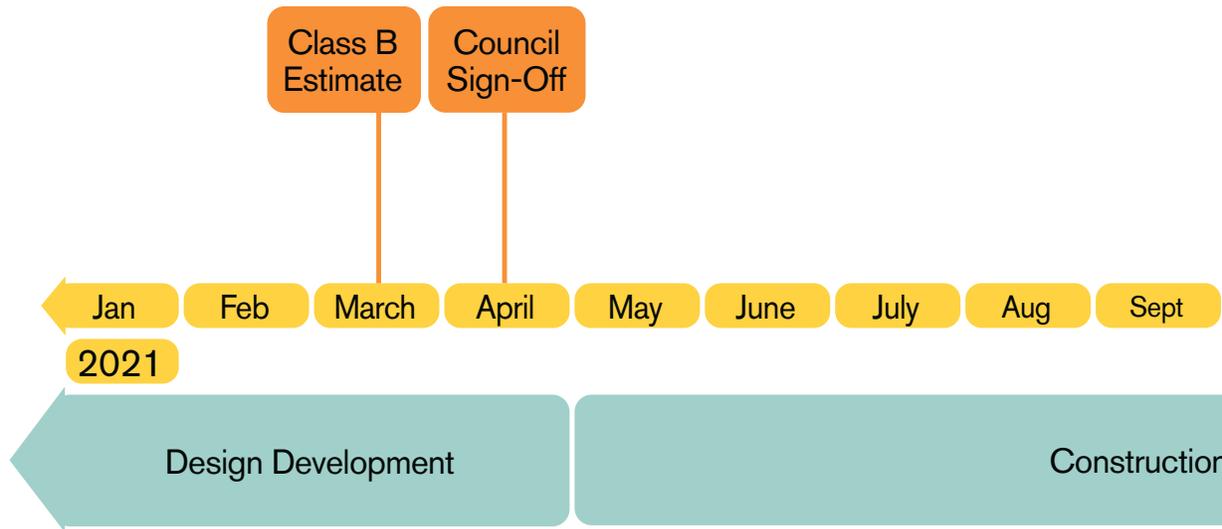
HJCRC Cost Summary

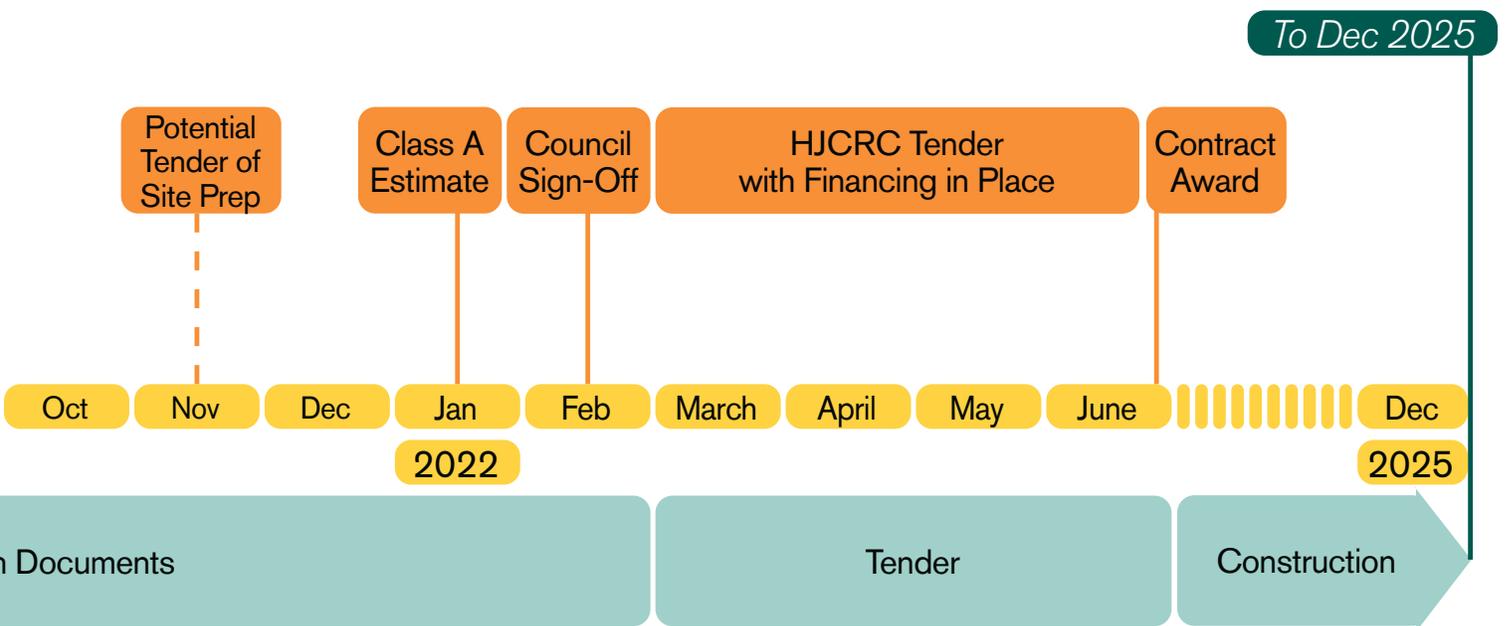
CLASS B ESTIMATE

\$153,006,000	Construction + Soft Costs
\$28,690,000	Contingencies + Escalation
<hr/>	
\$181,696,000	Total Project Cost

3.9 Project Schedule

The HJCRC project has completed the re-design phase and will continue into construction documents after council sign-off. The construction document phase will take 10 months and conclude with the next Council sign off in February 2022 and project tendering to occur shortly after. There is opportunity to tender the site prep work in advance which could occur in Nov 2021. The construction phase is scheduled to start in June 2022 and is anticipated to continue for 3 years, completing in 2025.





4.0 Next Steps

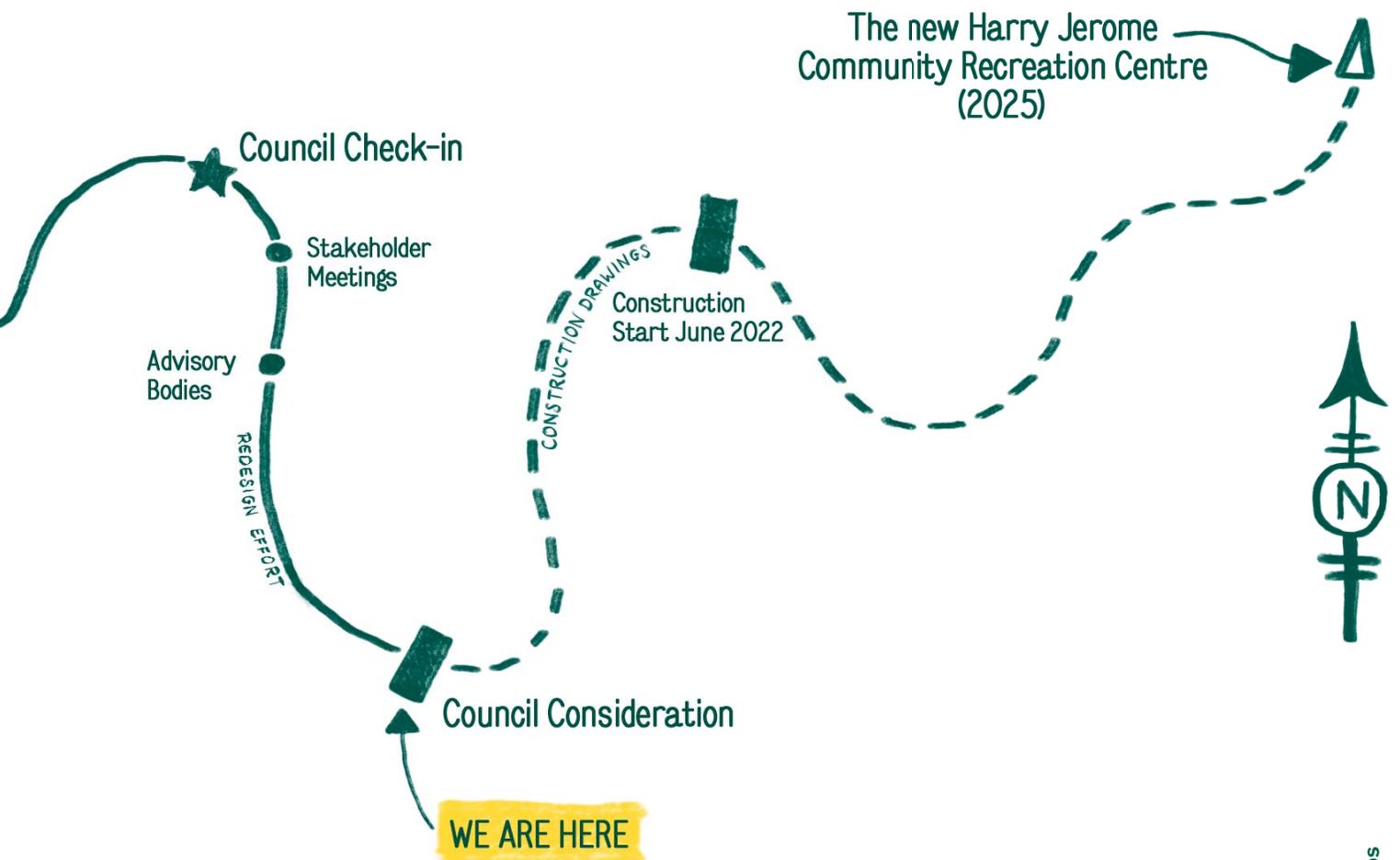
4.0 Next Steps

The next stage of this project is to proceed to is to proceed to detailed design and on to construction. We would advise the release of this design development report and continue into the next stage.

As part of the next stage, we would recommend the City of North Vancouver consider hiring a construction manager if it is the preferred construction delivery method.

The team should also consider further investigations into sustainability opportunities and continue to find collaborative ways to further reduce GHG emissions.







hcma

www.hcma.ca

Vancouver

400 - 675 West Hastings Street
Vancouver BC V6B 1N2 Canada

604.732.6620
vancouver@hcma.ca

Victoria

Suite 300, 569 Johnson Street
Victoria BC V8W 1M2 Canada

250.382.6650
victoria@hcma.ca

Edmonton

307-10110 104 St NW
Edmonton, T5J 1A7 Canada

780.306.4464
edmonton@hcma.ca

1. Undertake detailed reviews of the Drawings and Specifications from time to time and as they are developed to identify errors, omissions and co-ordination problems for the purpose of eliminating contractor and subcontractor claims for additional compensation and/or time during the course of construction based on allegations of errors or omissions in the design documents or a lack of co-ordination between the design documents;
2. Lead the development of a Division 1 Specification;
3. Identify Project risks and make written recommendations to the Owner to reduce or manage these risks;
4. Provide value engineering recommendations;
5. Undertake building information modelling; Enhance the Consultants BIM models and initiate clash detection reviews, including design-assist from selected mechanical/electrical trades;
6. Undertake a constructability review of the design and provide a written constructability report;
7. Develop and provide a construction site plan;
8. Liaise with utility companies and manage site preparation and the utility work including temporary power and water, preparatory to commencement of construction;
9. Produce a Class B Construction Estimate ascending to a Class A;
10. Prepare a comprehensive project schedule;
11. Identify qualified subcontractors and suppliers. Prequalify trades in accordance with City purchasing policy;
12. Manage minor construction work and administer contracts for Enabling Works.

Harry Jerome Community Recreation Centre and Silver Harbour Update

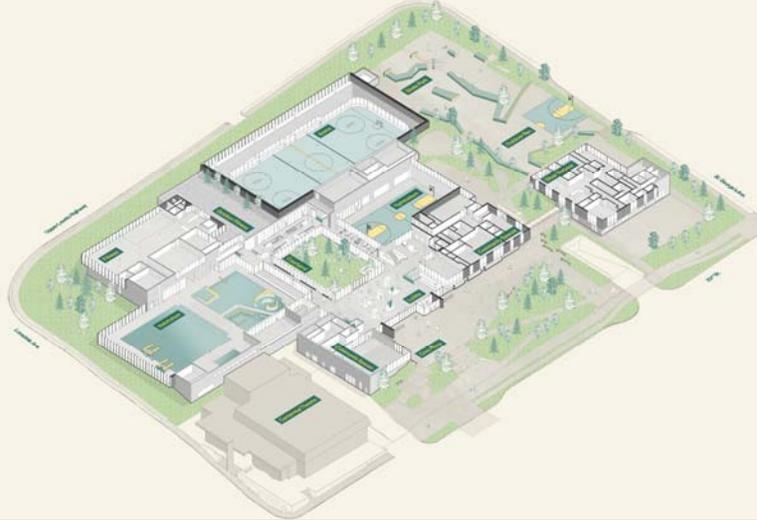
Presented February 28, 2022
Strategic & Corporate Services



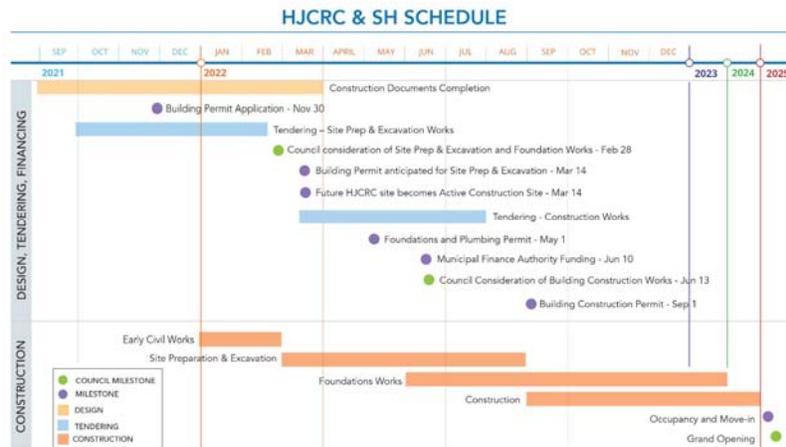
Overview



Floor Plans/Program



Schedule





Thank you.

city
of north
vancouver

HJCRC & SH SCHEDULE

