VERNON ACTIVE LIVING CENTRE (ALC) INTEGRATED PROJECT DELIVERY (IPD) PROJECT

VALIDATION REPORT

APRIL 8, 2024

ACTIVE LIVING CENTRE

LAND ACKNOWLEDGMENT

The Active Living Centre Integrated Project Delivery (IPD) Team comprised of the City of Vernon, Colliers Project Leaders, Group2 Architecture Interior Design Ltd., Clark Builders, Read Jones Christoffersen Consulting Engineers, the AME Consulting Group Ltd., WSP, Stantec Consulting, Collins Steel Ltd., Chapman Mechanical Ltd., AltaPro Electric Ltd./Westcana Electric Inc., and Master Pools Alberta Ltd acknowledges our presence on the traditional, ancestral, and unceded tm̓xʷúlaʔxʷ (land) of the Syilx / Okanagan people who have resided here since time immemorial.

tm̓xʷúlaʔxʷ means the land and everything that lives and interacts on it. It is an all-encompassing word that expresses the intersectionality of land and nature.

We recognize, honour, and respect the Syilx / Okanagan lands upon which we live, work, and play.

Aerial view of the Vernon Recreation Centre complex | Image Courtesy: Museum and Archives of Vernon – No. 5736

Nick's Aces Basketball Club with trophy | Image Courtesy: Museum and Archives of Vernon – No. 25596

THE MUSEUM & ARCHIVES OF VERNON (MAV) RECOGNITION AND APPRECIATION

The IPD Team would like to thank the MAV for providing access to publication resolution historic photography of the Greater Vernon Region, as well as guidance on how to appropriately credit the use of these images.

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Example: Image Courtesy: Museum and Archives of Vernon – No. 1234.

PURPOSE OF VALIDATION

This Validation report outlines the commitment of the IPD Team to the ALC Project Objectives that are comprised of the Base Program, Target Cost, Milestone schedule, and the other Project Objectives agreed to by the parties.

Vernon soccer team, champions of the Interior B.C. soccer tournament 1899-1900 | Image Courtesy: Museum and Archives of Vernon – No. 3510

Swimming competition in lake at Kin Beach | Image Courtesy: Museum and Archives of Vernon – No. 31385

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Document Wayfinding with Conditions of Satisfaction (CoS) and IPD Team Contribution Icons

Within the Validation report, examples and references to certain key topics or themes are identified using iconography that the IPD team has developed. This wayfinding method uses visual symbols to represent two subsets of key information found repeatedly throughout the document:

- CoS are identified with the icons in the scorecard to the right to exemplify how these CoS are to be incorporated in the design and achieved.
- IPD team contributions are identified with the following icons to demonstrate the value of IPD as an enhanced contracting form in action:

These illustrations serve to augment the report by enhancing readability and guide navigation through the document towards topics of interest. By incorporating both sets of icons strategically, the Validation report is continually grounded in the CoS and IPD behaviors. Through this visual device, the Validation report becomes more intuitive, engaging, and efficient in conveying information and the overall user experience, essentially enhancing the overall comprehension of the document.

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- Competition and sport
- Water sport and play
- Dry / Fitness
- Fun and WOW!
- Creating community

ACCESSIBILITY AND INCLUSION

- RHFAC
- Meaningful access - beyond the Building Code
- Aging-In-Place
- Fun & Active for All Ages & Abilities

RESILIENCY

- Net Zero Ready
- Sustainability
- Energy efficiency
- Aquatics
- Future-Proofed
- Operations and Maintenance

ENHANCED OPERATIONS

- Staffing, system, and operational obligations
- Code and standard operational requirements met for any associated authorities

SYILX CULTURAL ENGAGEMENT

- Place and people
- Welcome and open
- Authentic; not token
- Authentic story
- Language and meaning
- Direct involvement

Vernon Senior Secondary School referee watching the volleyball action | Image Courtesy: Museum and Archives of Vernon – No. 30421

GLOSSARY

Actual Cost
The sum of the total cost of the work actually incurred by the project participants in connection with the performance of all phases of the project. Does not include owner expenses, such as fees for permit, inspection, or equipment. Depending on the contract form used, actual cost may be direct costs plus overhead or may be direct cost plus overhead plus profit also called Incentive Compensation Layer (ICL).

Allowable Cost
The owner's absolute maximum project cost, based on the project business case, which is the subject of the validation study. The allowable cost includes all elements defined in the Integrated Project Delivery Agreement (i.e., direct costs, overhead, and profit (ICL)).

Base Program
The goal established by the project team as the target for the elements that are essential to include in the design and delivery efforts, typically determined at the completion of the validation process.

Base Target Cost (BTC)
The estimated cost determined at the end of Validation which includes the overhead, project contingency and the escalation threshold.

Base Target Cost has a meaning synonymous with the Validation phase, and a distinct meaning from Final Target Cost which is to be subsequently established after Validation.

Big Room
A space where all interest holders in the team can come together through physical and/or virtual co-location and work collaboratively, typically with visual documentation posted. Shared space can stimulate and support communication and dialogue, resulting in greater efficiency and work product that is updated in real time, as well as less reworking and revising. Big Room setup, duration, and usage varies.

Building Information Model(ing) (BIM)
The product (model) and process (modeling) of generating and managing building data during the lifecycle of a building. BIM uses three-dimensional building modeling software. BIM includes building geometry, spatial relationships, geographic information, and quantities and properties of building components.

Blended Rate
An average hourly rate that can be used for financial tracking when precise amounts are not needed. Typically used for trade partners when a range of hourly rates based on person-hours can be averaged to project costs. Can also be used in situations when design partners may not wish to highlight differences in salaries for personnel who share the same job title. Averaging multiple people at the same title creates one rate that can be openly shared without revealing sensitive information.

Choosing by Advantages (CBA)
A structured decision-making system that compares the advantages of alternatives based on objective facts and transparently evaluated subjective preferences.

Conditions of Satisfaction (CoS)
An explicit description by an owner and/or other members of the Integrated Project Delivery (IPD) team, stating all requirements that must be satisfied to deem the outcomes as successful. CoS is distinct from a project charter, which typically focuses on team-behavioral goals.

Cost Model(ing)
A cost model is a method or framework for determining the total value invested to deliver a product or service. The scope and detail of the process can vary depending on the situation, but the goal of all cost modelling is to find an accurate way to assess value input for comparison against value output.

Dashboard
Visual management system to track data and metrics important to the team, which highlights whether the project is on track and also prompts actions.

Huddle
Huddle (or "daily huddle") is a very short daily stand-up meeting that addresses the day's work. Huddles are a part of scrum but are also frequently used in lean construction. (See also Scrum.)

Incentive Compensation Layer (ICL)
The team's collective, at-risk profit. The ICL can increase or decrease based on the project outcome and/or incorporation of Added Value Incentive Items (AVII). An adjusted ICL is the ICL after adjustment based on project outcome.

IPD Agreement or Integrated Form of Agreement (IFoA)
In this Report we use IPD Agreement to reference the multiparty or poly-party agreement that includes the owner, design professionals, and builders as signatories to the same construction contract which is a custom agreement by the law firm Hanson Bridgett. An IPD Agreement is synonymous with IFoA. An IFoA or IPD Agreement may be a multiparty (three-party agreement) or a poly-party agreement that can have more than three parties. (See also Multiparty Agreement and Poly-party Agreement.)

Integrated Project Delivery (IPD)
IPD is a contractual-based approach, which creates an environment that enhances collaboration, innovation, and value. IPD is characterized by early involvement of IPD team members, shared risk and reward based on project outcome, joint project management, liability reduction among IPD team members, and joint validation of project goals.

IPD Team
The IPD team is made up of the participants who have placed their profit at risk and have the opportunity for increased profitability, based on project outcome. Under a multiparty agreement, IPD team members who are not signatory to the multiparty agreement are engaged through appropriate subcontracts or sub-consulting agreements that reflect the terms of the multiparty IPD agreement. Sometimes called the risk/reward team, parties, or the ICP participants.

Last Planner System (LPS)
The collaborative, commitment-based planning system that integrates pull planning, make-ready look-ahead planning with constraint analysis, weekly work planning based on reliable promises, and learning based upon analysis of PPC and reasons for variance.

LEAN
A culture based on a set of principles focused on creating more value for the customer through elimination of waste, streamlined processes, and continuous improvement.

Likert Scale
A common means of psychological measurement used to gauge a person's opinions, values, and/or attitude along a range of responses. The range of responses usually consists of five to seven possible answers—for example, ranging from strongly disagree to strongly agree—with a number value corresponding to each response.

Logs/Registers
This family of tools includes constraint logs and risk and opportunity registers. These have multiple functions. They are used to track and mitigate risks and issues. The development and consistent usage of them builds team consensus and can drive accountability.

MEP
Mechanical, electrical, and plumbing systems. These are often inclusive of fire protection and data cabling as well.

Milestone
An item on a master schedule that defines the end or beginning of a phase or a contractually required event.

Non-Signatory
A company that is participating in the project that is not part of the IPD team. That is, they are not included in the IPD agreement with the shared risk/reward and other terms.

On-Boarding
The deliberately planned process for bringing new players onto the team. In IPD, there is a need to on-board and align the initial team and to have a process for on-boarding new players added later to the team.

Overhead
The amount, which may be expressed as a percentage applied to costs or a fixed amount, to compensate a firm for items such as rent, executive salaries, and other non-project-specific costs.

Owner Controlled Insurance Program (OCIP)
An OCIP is an insurance program in which the owner obtains a policy to cover loss and liability during the project, reducing the coverages provided by other parties, such as the construction manager/general contractor and trade partners. An OCIP program has requirements for safety management, reporting, and the like, which must be incorporated into the IPD team's plan.

Percent Plan Complete (PPC)
A basic measure of how well the planning system is working, calculated as the number of commitments completed by the time stated divided by the total number of commitments made for the

time stated. It measures the percentage of assignments that are 100% completed as planned.

Plan-Do-Check-Act (PDCA; also sometimes Plan-Do-Check-Adjust)

A four-step process intended to support continuous improvement in a product or process: plan, do, check, act. This is conceived of as a repeating and never-ending cycle, which creates a feedback loop for teams to assess their ability to achieve and improve outcomes.

Plus/Delta

Performed at the end of an activity, such as a meeting or a decision process. This review is used to evaluate the activity. Two questions are asked and discussed. Plus: what produced value during the session? Delta: what could we change to improve the process or outcome?

Poly-Party Agreement

An IFoA that has more than three parties and generally includes, as parties, all members of the IPD team. The distinction between a multiparty (three party) and poly-party agreement is relevant to contract structure, governance, and insurance.

Programmatic

Describing the nature of something happening or executed according to a program, schedule, or method. In architecture, the use of the term programmatic is often utilized to relate to the functional program and intended purposes of a space, room, or location within a project.

Project Charter

See also Conditions of Satisfaction.

Project Implementation Team (PIT)

PITs are nimble, multidisciplinary groups of project participants assigned by the PMT to conduct deep dives into specific project needs (e.g., building envelope, mechanical systems). PITs typically have an initial mission, a time frame in order to perform their work and report back, and the authority to incorporate the right people to perform the work. These are sometimes called clusters or cluster groups. PITs can include all members of the team—PMT, signatories, non-signatories, owners, architects, contractor, trades, and suppliers. Common PITs include structure, mechanical, electrical, envelope, etc. The specific number of PITs needed will be determined by the team. (See also Project Management Team.)

Project Management Team (PMT)

A team composed of representatives from each IPD contract party, with membership as defined by the specific IPD contract and subsequently others as jointly agreed by the parties. The PMT is charged to act in a collaborative manner to provide project management leadership during the design and construction process in a concerted effort to achieve the project's objectives. The PMT is the project's administrative workhorse, making the tough decisions and monitoring financials. Sometimes called the core group or core team. Interfaces with the SMT and PIT. (See also Senior Management Team and Project Implementation Team.)

Project Objective

Includes all Owner requirements, goals, and limitations, and is comprised of the Base Program, Added Value Incentives Items, and Implementation Documents, and includes the (base) Target Cost, Final Target Cost, and Contract Time. The Project Objective establishes all requirements for measuring the Project's success.

Project Team

The totality of all firms participating in the project, regardless of their status in the risk/reward structure. For the purposes of this guide, the firms participating in risk/reward make up the IPD team. There may be firms working on the project that are not part of the risk/reward structure. These are referenced as non-signatory or the project team. The totality of all the individuals on the team is referenced as project participants. (See also IPD Team and Non-Signatory Agreement).

Pull

A method of advancing work when the next-in-line partner is ready to use it. A request from the partner signals that the work is needed and is pulled from the performer. In the pull method, work is released when the other members of the team are ready to use it.

Push

The opposite of pull. During push, an order is made from a central authority based on a schedule and advancing work based on a central schedule. Releasing materials, information, or directives possibly according to a plan but independent from whether or not the downstream process is ready to process them.

Request for Information (RFI)

A formal question asked by one party of the contract to another party. Typically, a request from the contractor to the designer.

Request for Proposals (RFP)

Owner's call for teams to submit proposals. In IPD this often includes how the team is going to handle collaboration and integration.

Request for Qualifications (RFQ)

Typically includes relevant previous work, key personnel, and approach to work. In IPD this often includes demonstrations of lean and IPD experience.

Risk Register

A project contingency of risks and opportunities that is developed collaboratively and managed continuously by the team. A risk register is a documented tool used to identify, assess, prioritise, and manage risks that could potentially impact the successful completion of a project. It typically includes a list of potential risks, their likeliness of occurrence, their potential impact on the project, and the strategies or actions to mitigate or respond to these risks.

Risk/Reward

A collectively agreed upon amount or percentage of final cost that will be distributed among the members of the IPD team (sometimes called risk/reward pool or ICL or profit pool) if project goals are met.

Scrum

Scrum is a term borrowed from agile project management, often used in software development, referring to a process involving small teams engaging in short, repeatable, sustainable "sprints," the outcome of which is a chunk of delivered value.

Senior Management Team (SMT)

A team composed of representatives from each IPD team member, typically the project executive of the firm. The SMT always handles dispute resolution and backs up the PMT as required. In many cases they also conduct contract negotiations and resolve questions of scope change, but this can alternatively be done by the PMT. The SMT is composed of one C-level executive from every party who signs the IPD agreement.

Target Value Design/Delivery (TVD)

A disciplined approach to design/delivery that requires project values, cost, schedule, and constructability to be basic components of the design criteria and uses cost targets to drive innovation in designing a project to provide optimum value to an owner. TVD uses constructability and cost information from the owner and IPD team before design decisions are made to allow the design to progress within the Base Target Cost, Final Target Cost, and schedule.

Trade Partners

Trade partners are the IPD team members (signatories to the IFoA) who are the specialty contractors engaged to put the construction work in place. Trade partners typically include mechanical contractor, electrical contractor, structural steel contractor, and the like. Not to be confused with trade contractors, subcontractors, and trades, which are ambiguous terms that do not imply membership on the IPD team.

Validation

Validation phase is the first phase of the Project following onboarding of the IPD team where the Parties document the Project Objectives and establish the Target Cost and the Added Value Incentive Items.

Virtual Design and Construction (VDC)

The use of BIM and other tools to optimize and coordinate design, virtually rehearse, and manage construction, and/or operations.

Visual Management

Placing tools, parts, plans, schedules, measures, and performance indicators in plain view for transparency, allowing the system to be understood at a glance by everyone involved and actions taken locally in support of system objectives.

Weekly Work Plan (WWP)

The commitment-level step of LPS, identifying the promised task completions agreed on by the project team. The WWP is used to determine the success of the planning effort and to determine what factors limit performance and is the basis of measuring PPC.

ACTIVE LIVING CENTRE

VALC IPD TEAM

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Doug Ross
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VDM Consulting

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VALIDATION COMMITMENT

April 8, 2024

City of Vernon
3400 30th Street
Vernon, BC V1T 5E6

RE: Vernon Active Living Centre (ALC)

Dear City of Vernon Mayor and City Council,

This letterhead and the enclosed Validation report dated April 3, 2024 serve as your design/construction team's commitment with respect to the design and construction of the Vernon ALC Project.

More specifically, the IPD Team commits to designing, constructing, and delivering this project to you:

1. in accordance to the Base Program outlined herein;
2. for a final Actual Cost not exceeding the Base Target Cost of $121,030,909 described herein; and
3. to strive for the goal of reaching substantial completion and opening in the fall of 2026.

Respectfully submitted,

your Vernon ALC IPD Team

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1 SUMMARY FOR COUNCIL / EXECUTIVE SUMMARY

Polson Park pool swimming lessons for kids | Image Courtesy: Museum and Archives of Vernon – No. 23060

1 SUMMARY FOR COUNCIL/EXECUTIVE SUMMARY

1.1 Background and Progress on the Project

On October 15th, 2022, citizens of Vernon voted approximately 61 percent in favour of borrowing $121 million for the development of the Active Living Centre (ALC). On December 12th, 2022, Vernon City Council approved the use of the Integrated Project Delivery (IPD) model for the ALC project. The initial IPD team members were selected in May of 2023 and the first members of the IPD team began the Pre-Validation phase by touring other recreation facilities across British Columbia and Alberta, including the Lower Mainland, Edmonton, Red Deer, Calgary, and Prince George to learn from best practices, observe current emerging trends in recreation centre design, and collect ideas for the functional program. The remaining members of the IPD team were engaged in September 2023 which triggered the start of the Validation phase.

Since September 2023, the IPD team has worked to develop the ALC conceptual design and establish the construction timeline and project budget. The IPD model merges the facility owner, architect, general contractor, and other major partners early in the development process to create efficiencies in design, production, construction, and budgeting. The collaborative Validation phase concluded in March 2024 after approximately 6 months, with all parties coming to an agreement on the fundamental delivery expectations contained in this report. These expectations include agreement on the target budget management as a shared Risk/Reward process—which means that if the IPD team exceeds the agreed upon Base Target Cost for the project, they will contractually lose (a portion of) their profits as a collective. This alignment process is connected to the agreed upon City of Vernon Base Program and project design basis assumptions and agreed project Conditions of Satisfaction (CoS) for the project. The Project Objectives were developed based on the owner's requirements, goals, and constraints. Overall, this report highlights the team's utilization of LEAN methods and principles and outlines the project's design narratives, target costs, and time commitments for design and construction of the ALC.

On April 8th, 2024, the IPD team will provide Council with a virtual walk through of the facility along with this Validation report that includes a more refined design, confirms the construction schedule and confirms the Base Target Cost.

1.2 Project Scope Summary

Throughout Validation, the IPD team developed the Base Program and functional program for this project and is excited with the resulting design as it fosters an inclusive, fun experience for all users, optimally masses and orients the building on the site, while ensuring good operability, security, and maintenance elements. The IPD team is confident in the eventual achievement of being Net Zero Ready and attaining Rick Hansen Foundation Accessibility Certification™ (RHFAC) Gold level certification.

The project Base Program comprises a community recreation facility with aquatic, dryland, and community amenity spaces. At approximately 12,600 sq.m. (135,600 sq.ft.), the new state-of-the-art multipurpose community facility will be roughly 900 sq. m. (9,600 sq.ft.) larger than originally proposed. The Base Program elements include an aquatic centre with an eight lane 50-meter pool with a moveable bulkhead and two diving boards, leisure pool with zero depth beach entry and spray features, major waterslide, tot slide, lazy river, family hot tub, warm water three lane 25-meter teaching pool, sauna, steam room, and adult hot tub. The facility also includes a fitness centre, double gymnasium with multiple sports courts, a synthetic walking/running track with four lanes, and eight dedicated multipurpose activity and program rooms.

1.3 Project Enhancements

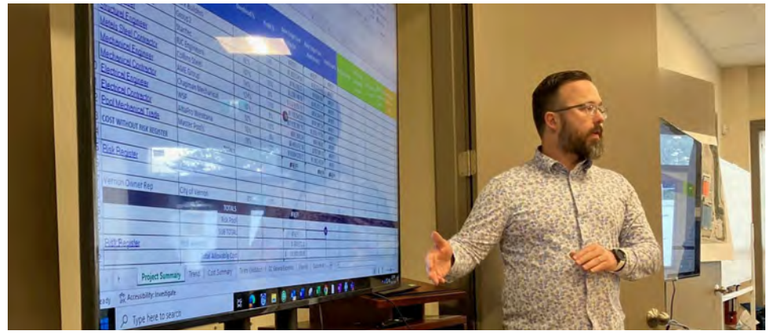
Throughout the referendum process, the City of Vernon Mayor and Council learned that the community wanted a fun, family-friendly facility designed for individuals of all ages and abilities. On February 26th, 2024, Mayor and Council approved the conceptual design of the new ALC that included a renewed emphasis on user experience. Upon approval, Mayor and Council made the decision to invest up to an additional $15 million for a facility that includes a major waterslide, WOW WaveBall™, NINJACROSS™ course, additional interactive spray features, cold plunge pool as well as increasing the length and width of the walking/running track to be 185 meters with four lanes instead of three.

The additional $15 million investment ensures that the IPD team will include the enhancements listed above, while also incorporating Syilx culture into the building design. It also contributes to costs associated with making the new facility Net Zero Ready and RHFAC Gold Certified, while also covering unforeseen cost escalations experienced in the past two years.

With the inclusion of these enhancements into the Base Program, the IPD team has been able to achieve a design that meets the everyday recreational needs of a growing community. Moreover, the facility has been designed to accommodate the community's projected growth and to host events including provincial swim meets and tournaments for a variety of sports with features such as permanent raised spectator seating over the 50m pool, portable bleachers that can be deployed on the pool deck and/or in the double gymnasium, and multipurpose space to accommodate athletes, coaches, and officials.

1.4 Project Cost Model (Budget) Summary

This Validation Report outlines the commitment of the IPD team to the ALC Project Objectives that are comprised of the Base Program, Base Target Cost, Milestone schedule, and the other Project Objectives agreed to by the parties. The original ALC budget was developed in 2019 from a combination of a feasibility study, conceptual estimating and two separate quantity surveys. In 2023, the functional program for the ALC was further defined after considering public engagement, council objectives and a wide range of user groups. The ALC total Allowable Cost is $135,941,009. As illustrated in



the ALC Total Project Cost Summary table below, the IPD Team's Base Target Cost includes all Validation costs incurred to date, all remaining design and construction execution costs, as well as a risk-informed project contingency.

In IPD contracts, the team manages cost projections, actual costs, and project risks jointly and collaboratively. The Base Target Cost, actual project costs, and scope after Validation is managed collaboratively by the IPD partners within the Base Target Cost. As the IPD Team executes the project and reduces risk, partners receive their profits at pre-specified achievement events - only if the team is on budget and on schedule. The IPD model allows the team to be fluid and manage scopes of work, cost, and risk while optimizing "the whole" (project).

Vernon Active Living Centre (ALC) Total Project Cost Summary	
Direct Cost	$116,065,399
Project Contingency + Escalation Threshold	$ 4,965,510
Base Target Cost	$121,030,909
ICL (Profit-at-Risk Pool)	$ 9,836,994
IPD Team Project Cost (Base Target Cost + ICL)	$130,867,903
Escalation & Warranty Allowance	$ 542,107
City of Vernon Owner Costs	$ 4,531,000
Total Project Allowable Cost	$135,941,009

1.5 Project Schedule Summary

The IPD Team initiated Validation in September 2023, and completed Validation after six months, in March 2024. Site preparations are anticipated this spring (2024) with construction beginning this summer (2024). With the completion of many major design tasks, site preparations and construction will begin and will be ongoing concurrently while detailed design is carried out and completed. Procurement of long-lead and high-risk material and equipment will also begin in 2024 to mitigate the effects of unknown escalation risks on the Base Target Cost. Following the successful completion of all construction and commissioning activities, the ALC is anticipated to be open in Fall 2026.

2 PROJECT OVERVIEW

Street volleyball during Vernon Winter Carnival | Image Courtesy: Museum and Archives of Vernon – No. 21586

2 PROJECT OVERVIEW

In September 2023, the City of Vernon, together with their IPD partners, commenced the Validation phase of the ALC project, ultimately further advancing the City of Vernon's strategy to meet the current and future recreational needs of the growing Vernon community. The development of the new ALC is in alignment with the ***Greater Vernon Recreation Master Plan 2018-2033***—which identified a need for additional recreation capacity to better serve greater Vernon residents—and which made the following recommendations:

- Enhance the quality and quantity of indoor aquatics facilities
- Increase the quantity of community (non-school) gymnasiums
- Enhance the quality and quantity of dedicated programming spaces
- Enhance the quality and quantity of fitness and walking spaces

Initial Validation activities were largely informed by the subsequent work of FaulknerBrowns Architects who were retained by the City of Vernon in 2019 to lead the ***Greater Vernon Active Living Centre Feasibility Study***, which defined the following project goal:

> *'To find an indoor facility mix that meets the current and future needs of a growing community and has the opportunity to attract new residents and visitors to the Greater Vernon Area.'*

The ***Greater Vernon Active Living Centre Feasibility Study*** proposed the following as the program for a new ALC:

- 50m x 8 lane pool with movable bulkhead
- Springboards (1m + 3m)
- Steam and sauna
- 2 x hot tubs
- On-deck viewing
- 25m x 3 lane warm-up pool
- Leisure pool with tot slide
- Pool support (change/storage/spectator seating)
- Double gymnasium
- 150m x 3 lane walking/Jogging track
- Gym support (change/storage/movable bleachers)
- 80 station fitness centre
- 8 multipurpose studios
- Lobby/administration/lease space
- Service spaces

Throughout the Validation phase, the IPD team worked to define the Project Objectives, Base Program, Base Target Cost, Milestone schedule, and the profit/risk pool as contemplated in the IPD Agreement (Hanson Bridgett Contract). This Validation report considers risks and opportunities, as well as Added Value Incentive Items (AVII) along with the Last Responsible Moments (LRM) that these AVII can be incorporated into the project. This Validation report is silent on some items that are fundamentally addressed in detail as 'Exhibits' in the IPD contract. Importantly, this Validation report confirms the consensus of the parties that there is a reasonable probability the project can be completed successfully and meet the targets established by the Project Management Team (PMT).

Upon the approval of this Validation report, the project proceeds to the next project phase: the Detailed Design and Procurement phase. The development and confirmation of the risk pool in the Validation report is crucial to the shared Risk/Reward structure of any IPD project. The risk pool for the ALC identifies the profit to be shared by members of the design/construction team, as well as what profit remains at risk subject to achievement of agreed upon Project Objectives—such as actual project costs coming in at or below the Base Target Cost.

Leisure pool conceptual rendering

3 PROJECT HISTORY

Nick's Aces basketball team | Image Courtesy: Museum and Archives of Vernon – No. 26315

3 PROJECT HISTORY

The vision for the current ALC project grew out of a process that started in 2018 when the City of Vernon undertook the development of the *Greater Vernon Recreation Master Plan 2018-2033*. The feedback and engagement generated through this Master Plan laid the foundation for the potential need and support for the ALC in the community.

Greater Vernon Recreation Master Plan 2018-2033

The goal of this project was to help guide Greater Vernon Recreation Services in the provision of recreation space and opportunities well into the future. Between January and July 2018, the process actively engaged the public in a variety of formats:

- 1 elected officials workshop
- 3 community open houses
- 1 direct mail household survey
- Online and student surveys
- 54 user group interviews and surveys
- Pop-up engagements

The outcome of these activities directly influenced the needs assessment and the subsequent recommendations to explore a new recreational facility that would become the ALC. It also began the early definition of the activities and spaces that the centre may support, including:

- Indoor aquatics
- Indoor walking/running track
- Fitness space
- Community gymnasium(s)
- Programming spaces

Greater Vernon Active Living Centre Feasibility Study

Following the outcome of the *Greater Vernon Recreation Master Plan 2018-2033* a feasibility study was launched to better define the ALC. The goal of this study was to find an indoor facility mix that meets the current and future needs of a growing community and had the opportunity to attract new residents and visitors to the Greater Vernon area. Public engagement began in October of 2019 and continued through April of 2020. The engagement was expansive and included a variety of formats:

- 1 elected officials workshop
- 1 direct mail household survey
- 1 open house
- 3 online surveys
- 6 focus groups
- 21 user groups
- Pop-up engagements

The information gathered became pivotal in defining what the community's priorities were for the facility, and supported further development as the responses were statistically valid within a margin of error of +/-4.3%. The key takeaways that guided the next steps were:

1. Aquatics Priorities
   - » 50m pool
   - » Secondary 3- or 4- lane pool
   - » Leisure pool for all age groups
2. Dry Facility Priorities
   - » Walking/running track
   - » Fitness centre
   - » Multipurpose rooms
   - » Gymnasium(s)
3. Only 31% of respondents supported having two aquatics facilities in Vernon. Additionally, one location at the former Kin Race Track lands was supported by 66% of the respondents from the engagement process.

The *Greater Vernon Active Living Centre Feasibility Study* developed a few options that were reviewed. The preferred option was selected as it:

- Closely aligned with the *Greater Vernon Recreation Master Plan 2018-2033*
- Aligned with public engagement results
- Accessible to the Greater Vernon population:
  - » Was accessible to all users regardless of age, ability, or circumstance
  - » Was accessible by walking, biking, vehicle
- Responded to current community demand
- Had capacity for projected population growth/demographics shift
- Maintained existing recreation programs and services
- Aligned with observed trends and leading practices
- Met the everyday recreation needs of the community
- Was affordable to build
- Was affordable to operate
- Benefitted the local economy
- Was able to host events

The preferred option for the Vernon Active Living Centre included the programs listed provided in the aforementioned Section 2 Project Overview. (page 5). This preferred option was believed to meet the needs of the community for a variety of reasons including:

1. It met the recreation master plan needs assessment for high and medium high priority needs.
   - » A high priority to "enhance the quality and quantity of indoor aquatic facilities" in the short term (0-5 years).
   - » A mid-high priority needs for "non-school based gymnasium spaces, enhance the quality and quantity of dedicated programming space, fitness and indoor walking spaces" in the medium term (6-10) years.
2. It met the current community needs and the expected population growth in the area.
   - » Population of Vernon 44,519 (2022 Census) grew 11%
   - » Greater Vernon population 63,475 (2022 Census)
   - » North Okanagan population 91,610 (2022 Census) grew 9%
   - » Only indoor pool between Salmon Arm & Kelowna (109 kms)
3. It met the growing demand for children's swimming lessons as over 600 children were on waiting lists for swim lessons.

Key project approval steps and milestones

The project was purposefully moved through a series of steps to secure public and Council support for the ALC within the community.

On October 15th, 2022 a successful referendum was held with 61% of voters saying YES to borrowing up to $121 million.

On December 12th, 2022 full support was received when Vernon City Council voted unanimously to use the IPD model for the ALC and adopted seven objectives for the project:

1. Achieve the goal of the *Greater Vernon Active Living Centre Feasibility Study*, "to find an indoor facility mix that meets the current and future needs of a growing community and has the opportunity to attract new residents and visitors to the Greater Vernon area".
2. The facility is accessible, inclusive, fun, family oriented and designed for participants of all ages and abilities and includes all facility features as proposed in the *Greater Vernon Active Living Centre Feasibility Study* and provided to the public during the referendum communication campaign.
3. The design of the ALC reflects the Syilx culture.

4. The facility be Net Zero Ready.
5. The facility meets or exceeds RHFAC Gold Certification.
6. The budget is not exceeded.
7. The projected facility opening date is no later than September 2026.

On June 13th, 2022 Vernon City Council endorsed the concept plan for the proposed Kin Race Track Athletic Park that included the ALC.

On August 12th, 2023 Vernon City Council received a report from staff that the proposed Kin Race Track Athletic Park would need to wait until the design of the ALC is more advanced.

Having identified IPD as the contracting framework (see figures to the right) for the ALC project, the City of Vernon moved to select and onboard the IPD team that would participate in the shared management, Risk/Reward of the project.

In late May 2023, Group2 Architecture Interior Design Ltd. was selected to provide architect services for the project.

Between June 5th-7th, City of Vernon project managers, recreation staff and representatives from Group2 visited six recreation facilities on the Lower Mainland looking for inspiration and to take away lessons learned from the facility staff.

On June 12th, the City of Vernon announced that Clark Builders had been selected to provide general contractor services for the project.

Between mid-June and mid-September of 2023, interviews were conducted and additional partners WSP Engineering (WSP), AltaPro Electric Ltd./ Westcana Electric Inc. (AltaPro/Westcana), RJC Engineers (RJC), Collins Steel (Collins), AME Consulting Group (AME), Chapman Mechanical (Chapman), Stantec Consulting (Stantec) and Master Pools Alberta Ltd. (Master Pools) were selected and onboarded.

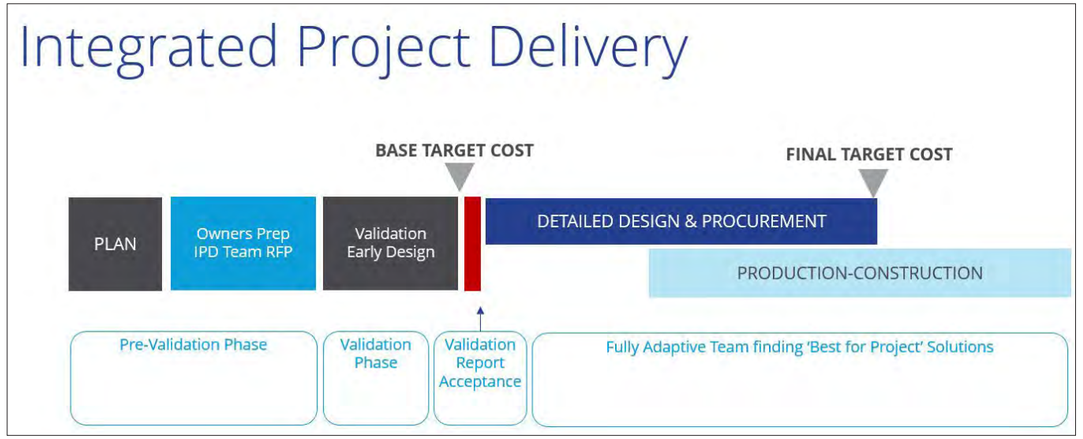
Between September 11th-15th, project managers, recreation staff, representatives from Group2, Clark Builders, and Master Pools visited nine recreation facilities in Edmonton, Red Deer and Calgary looking for additional inspiration and to take away lessons learned from the facility staff.

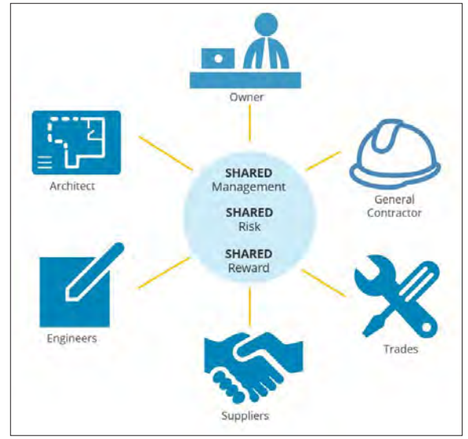
On September 25th the Validation phase began on the project.

On September 25th & 26th, project managers, representatives from Group2, Clark Builders, and Master Pools hosted open house and group public engagement sessions.

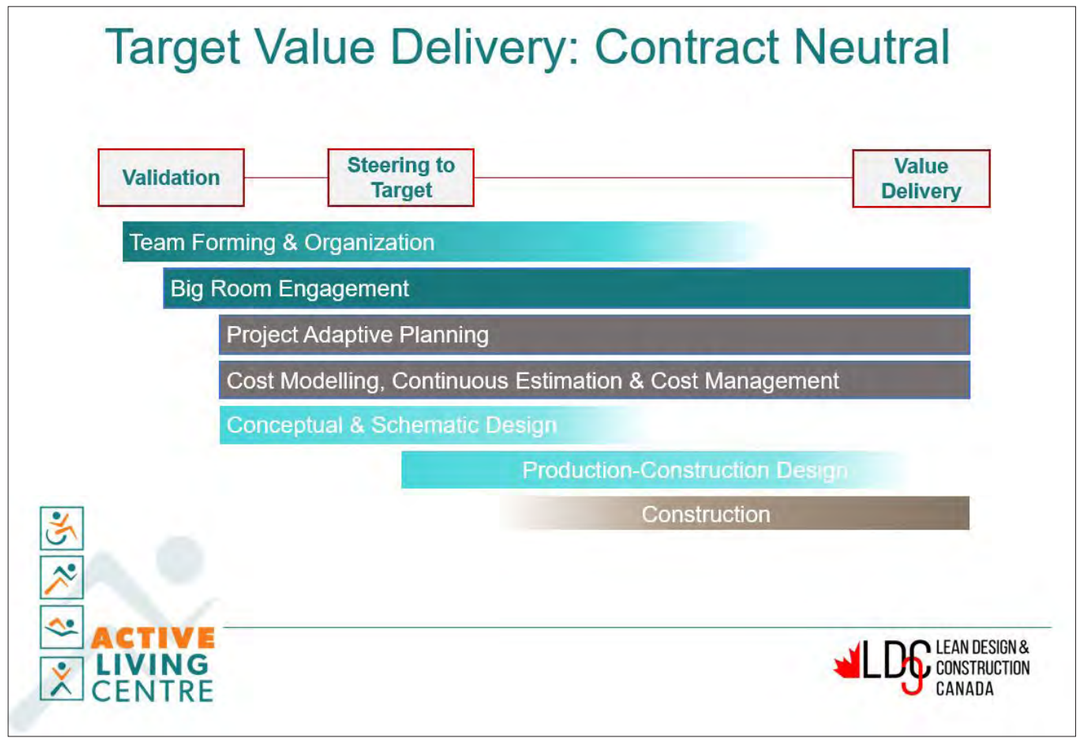
Between September and October 2023, the IPD Team undertook Project Definition and Benchmarking.

Between September 2023 and April 2024 the IPD team completed Validation undertaking the design and system development incorporating Set Based Design and Target Value Delivery Approaches (see figure on the right) to achieve the Validation objective.





IPD contracting ecosystem



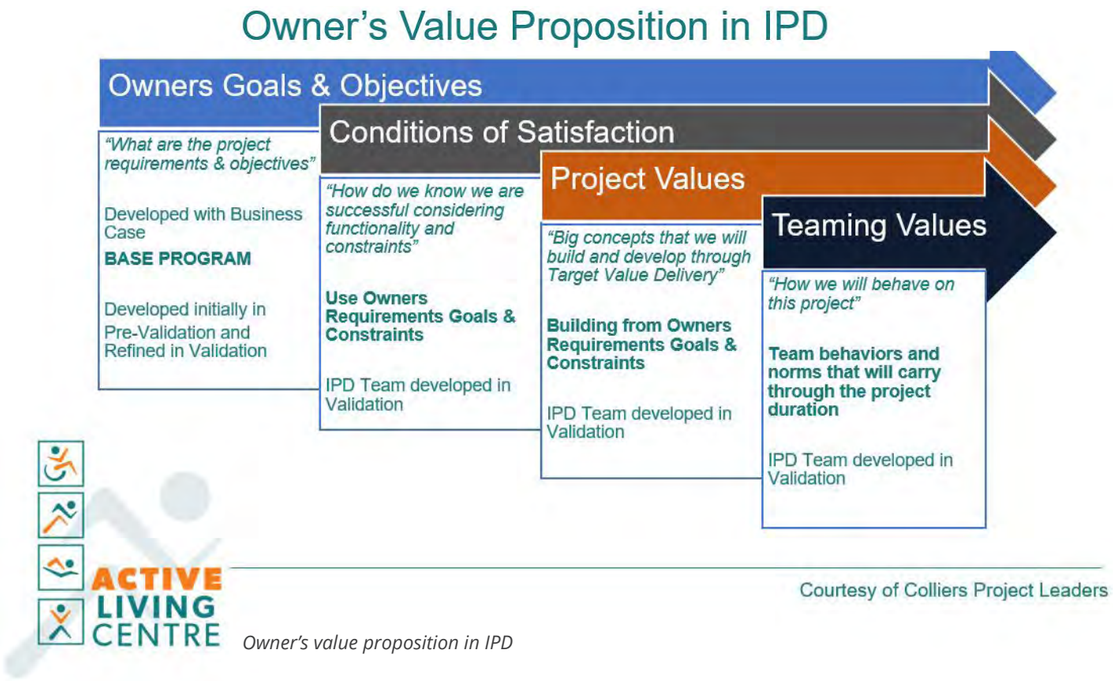
Target Value Delivery process

4 PROJECT TEAM CHARTER

Lacrosse team | Image Courtesy: Museum and Archives of Vernon – No. 1304

4 PROJECT TEAM CHARTER

Creating alignment within the IPD team and process with the Owner's goals and Project Objectives is foundational to a successful collaboration. There is a collection of artifacts that were developed during Validation to effectively articulate how this unfolded, which is encapsulated as a Project Charter and also referred to as the Owner's Value Proposition in IPD (see figure below). Each of these elements provides a layer of clarity for the IPD team to function in the best interest of the project and in alignment with the Owner's intentions.



Owner's value proposition in IPD

4.1 Owner's Goals and Project Objectives

The following Owner's goals and Project Objectives were approved by the City of Vernon Council following the successful referendum on October 15th, 2022 for the ALC:

- Achieve the goal of the *Greater Vernon Active Living Centre Feasibility Study*, "to find an indoor facility mix that meets the current and future needs of a growing community and has the opportunity to attract new residents and visitors to the Greater Vernon area".
- The facility is accessible, inclusive, fun, family oriented and designed for participants of all ages and abilities and includes all facility features as proposed in the *Greater Vernon Active Living Centre Feasibility Study* and provided to the public during the referendum communication campaign.
- The design of the ALC reflects the Syilx culture.
- The facility to be net-zero ready.
- The facility meets or exceeds RHFAC Gold Certification.
- Budget not exceeded.
- Projected facility opening date by September 2026.

The IPD team has honoured, quantified, and refined these goals and Project Objectives from the beginning, embedding them in the ALC project during Validation activities.

4.2 Conditions of Satisfaction (CoS)

The IPD team generated Conditions of Satisfaction (CoS) to align with the Owner's goals and Project Objectives while being informed by the Project Values. Initial development of the CoS occurred early in the Validation process, and was refined in collaboration with the Base Program, Base Target Cost, and executional plan development. The CoS form the definition of success for the project completion or handoff and are central in the project execution. Additionally, the CoS articulate what the building does and how it is to perform in order to meet the functional requirements. The CoS is referred to as functioning like a Score Card to measure the success of the Team's efforts and output.

The CoS include project constraints – boundaries and limitations that the IPD team must operate within. Together, the CoS and constraints represent the overarching commitment that the IPD team will deliver on, which summarizes at the macro level the Base Program and detailed project assumptions.

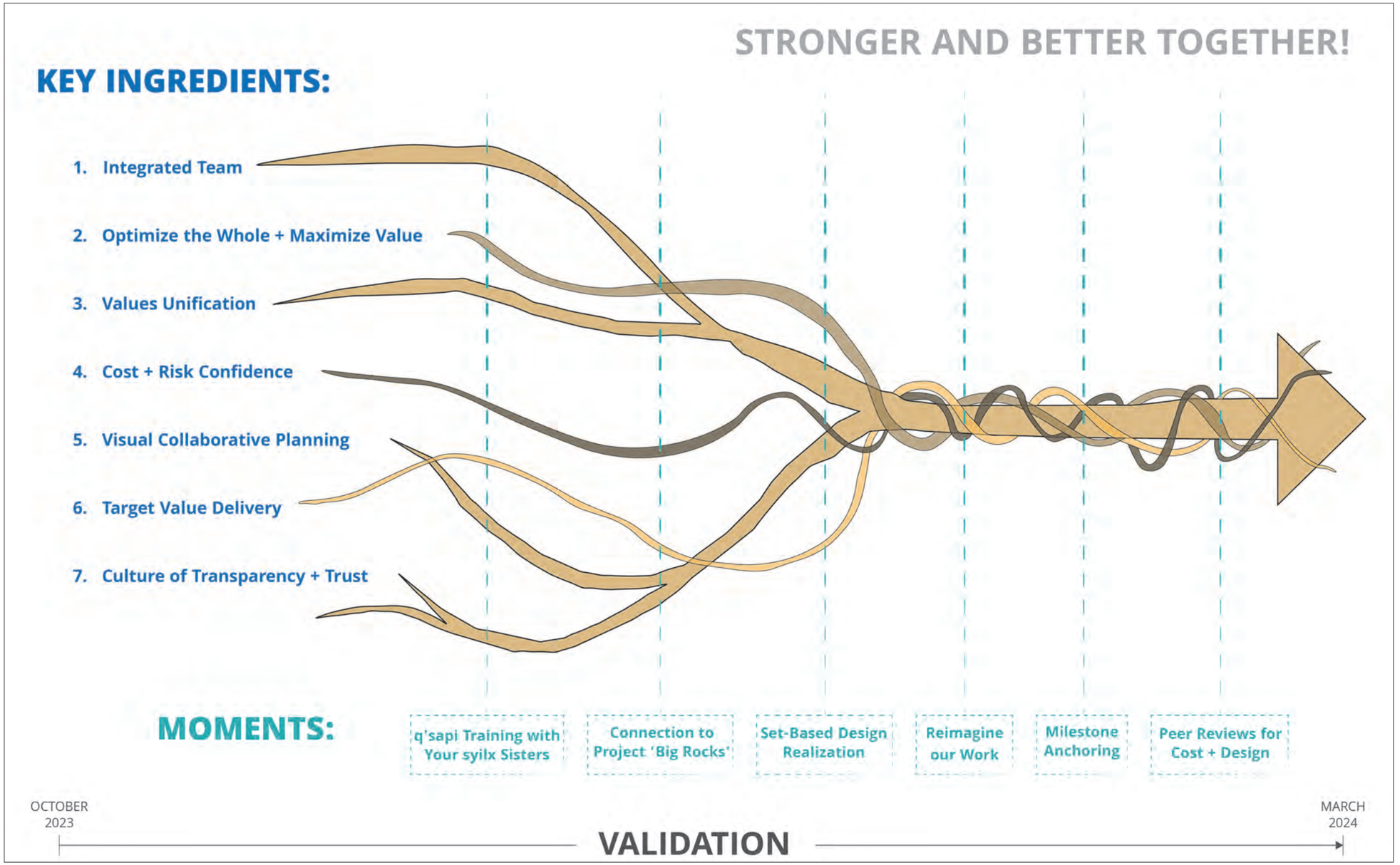
4.3 Key Performance Indicators

As contemplated in the IPD Agreement (refer to Exhibit B-4), key performance indicators (KPI) have been developed for the ALC project that will allow the partners of the agreement to be very responsive with recovery actions if necessary.

CONDITIONS OF SATISFACTION FOR THE ALC PROJECT		
This IPD Team is committed to deliver on these Conditions of Satisfaction (CoS) which reflect the base functionality of this building (also detailed in baseline program).		
1	**Active Living & Community**	• Aquatic needs include the requested pools and the supporting pool amenities • Recreational activity and fitness needs include gymnasiums, walking/running track, work-out stations plus multi-purpose, programming spaces and associated support areas • Other community engagement and interactive needs include multipurpose and social spaces • Provincial Level hosting capable for both Aquatics and Gymnasium facility use
2	**Accessibility & Inclusion**	• Designed and built to achieve RHFAC Gold Certification
3	**Resiliency**	• Facility built to support 'Net Zero Carbon Ready' aspirations from City of Vernon • Supporting the strategic plan advancement for responsible and sustainable asset management
4	**Enhanced Operations**	• In alignment to meet requirements including supporting staffing, system, and operational obligations • Ensures all code and standard operational requirements are met for any associated authorities
5	**Meaningful Syilx Engagement**	• The City of Vernon hopes to meaningfully engage with the Okanagan Indian Band (OKIB) during the project in order to reflect the Syilx culture in the facility
This IPD Team is committed to deliver the CoS within the following constraints:		
ALC Operational September 2026		• Ready for the City of Vernon's ALC Team Operational Commissioning
Facility is Designed & Constructed within Budget		• Managing to the IPD Team Target Budget of $131,665,324.00 (Base Target Cost + ICL Layer) • Ensures that all elements of function, quality, execution, and cost are balanced throughout the adaptive IPD process
Safety		• The ALC project is committed to a workplace where everyone is safe and treated with curtesy, dignity, and respect. Safety is the highest priority for both the project and the City of Vernon.

ALC Conditions of Satisfaction

IPD Innovations



ALC IPD Team innovations during Validation

Validation in IPD has a very specific and critical contractual purpose. This phase is focused on total alignment of a delivery team, including the owner and all non-owner IPD partners. Validation is successful when there is a plan that satisfies the owners' goals, Project Objectives, and requirements for the project while also establishing a baseline agreement on budget and schedule expectations.

IPD and LEAN in general have typical 'Key Ingredients' that when combined create a high-performance delivery team that can maximize value for the owner. The Vernon ALC team specifically capitalized on several critical events or moments that enabled deeper integration of these Key Ingredients in support of the project value proposition. These 'Moments' are distinct for this project and are part of the success story of this team's validation journey.

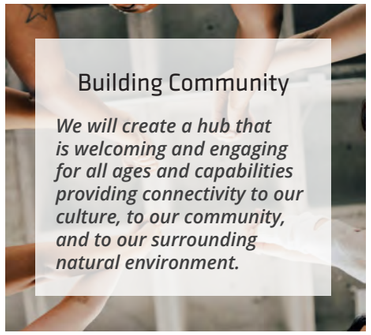
4.4 Project Values

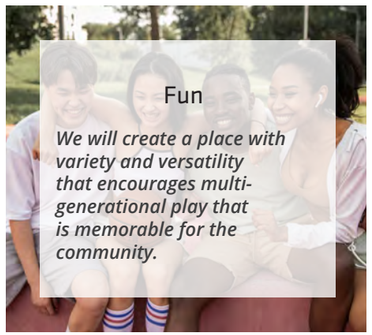
Project Values were collaboratively established by the IPD team during the onboarding workshops in November 2023. These build on the Owner's goals, Project Objectives, constraints, and the CoS, and are used to gauge the IPD team's 'commitment' to the project during regular intervals. The IPD team co-created the following Project Values that were further internalized as part of the Owner's Value Proposition in IPD. Project Values are the big ideas and fundamental beliefs that are important to create focus for the IPD team to work together to achieve the Owner's goals and Project Objectives. These Project Values inform the design, building and goal setting of the team and are used in the decision-making processes during Validation and as the IPD team moves forward. These values are aspirational in nature and aim to inspire the team to continue to advance value integration throughout the project.

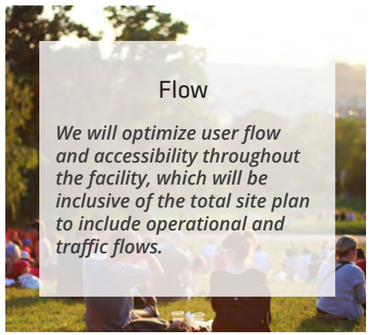
Project Values are connected to, but distinctly different than:

- **'Conditions of Satisfaction'** – These capture what successful completion of the project looks like considering building functionality and constraints. This is what the IPD team will be designing towards and is part of what is addressed by the team with Owner alignment for a successful Validation. These form the **commitment** and ties to what was requested at a minimum from the team.
- **'Teaming Values'** – These capture how the IPD team will behave on this project. This is what we will use in team health checks to guide continuous improvement awareness throughout the project together. This is about keeping the IPD team on track together, holding each other accountable to these behaviours.

The Vernon ALC Project Values are as follows:

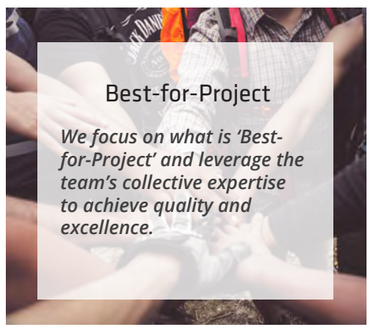


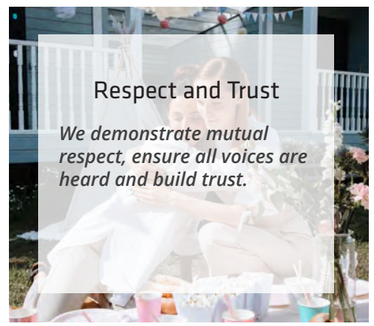


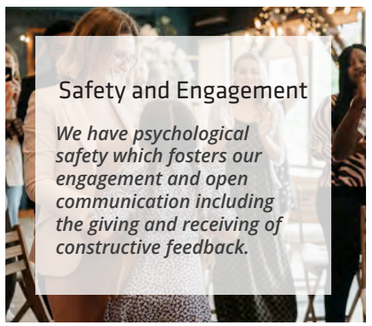


4.5 Teaming Values

Teaming Values are a specific set of beliefs that the team agrees to abide by throughout the project. These are behaviour related and are used in team health checks to ensure that this relational contract and model is operating in an optimal way. This is especially important since an IPD team functions as a joint project management and decision-making body throughout the project. These values are affirmed, scored, and discussed bi-weekly by the IPD team to foster a spirit of continuous improvement. The Vernon ALC project's Teaming Values are as follows:







Team Values capture how the IPD team will behave on the ALC project. This is what the IPD team uses in team health checks to guide continuous improvement awareness throughout the project together. This is about keeping the IPD team on track together, holding each other accountable to these behaviours.

4.6 Team Health Checks

IPD teams are successful when the Project Values and Teaming Values are developed as a collective group and remain visible throughout the project. The IPD team built a set of six Teaming Values to guide behaviour. To foster visibility and to encourage the team to remain aligned with Teaming Values, the IPD team has used Likert scale style "health check" surveys (see figures to the right) during Big Room meetings. These are composed of three sections—a score given to each Team Value statement, a word cloud used to indicate how team members are feeling, and an open-ended page for the submission of anonymous questions or comments. When completed, the survey results are displayed in real time and visible to the entire IPD team. The visibility of the Teaming Values results in real-time feedback, providing the team with the following benefits:

- Critical reflection on one's personal feelings towards each Teaming Value while completing the survey
- Instant feedback as average score, and scoring "spread" from the team
- Possibility for immediate feedback in the form of discussion, recognition, or quiet reflection
- Creating space for real-time conversations about what is going well and what can benefit from change
- Reflection on other team members' submitted scores, emotion description, and/or questions/comments
- Capture of each session score for reflection against previous weeks – allowing trend identification

Digital team health check example of team values statements

Emotions

Add a Comment: e.g. What's bothering you? What can we do better?

Risk register

Cost is a concern but we are on it .

Keep a positive attitude regarding getting approvals from governing authorities.

What do we need to Validate?

Cost

Focus on finalizing coordination items

money

Scope of project may be bigger than the budget

We need to filter the market risk out of the cost (make it transparent)

Target value delivery

Find the "way to yes " versus why we cannot . Optimism gets great things done!

Another breakout quiet room would be nice to take calls

Being over budget is bothering me but at the same time am confident we can work together to bring it in.

Cost escalation

Anonymous feedback example

5 PROGRAM OVERVIEW - BASE PROGRAM AND DESIGN SUMMARY

Vernon Senior High School boys' Basketball | Image Courtesy: Museum and Archives of Vernon – No. 23194

5 PROGRAM OVERVIEW - BASE PROGRAM AND DESIGN SUMMARY

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Support leisure activities
- ✓ Ability to host competitions
- ✓ Enhanced sports experience
- ✓ Sport education & training

ACCESSIBILITY AND INCLUSION

- ✓ Meaningful universal access
- ✓ Universally accessible staff areas
- ✓ Better community spaces
- ✓ Programs for all ages and abilities

RESILIENCY

- ✓ Future-proofed
- ✓ Smart connections

ENHANCED OPERATIONS

- ✓ Public/private entry points
- ✓ Efficient operations

SYILX CULTURAL ENGAGEMENT

- ✓ Equitable (Vernon local fares) entrance and user fees
- ✓ Inclusive facility programming

ACTIVE LIVING & COMMUNITY

The one moveable bulkhead can be used to separate the pool for different uses simultaneously, increasing programming versatility. Other natatorium spaces such as the club storage room, timing room, and multipurpose rooms provide the ability to host large scale aquatic competition, educational, and leisure events such as coach's meetings, National Lifeguard Society training, team events, and private parties (birthdays, celebrations, etc.). Program space for the 50m pool accommodates the use of temporary bleachers and seating for athletes, coaches, and officials at competitions. The inclusion of team changerooms into the functional program provides space for the local swim club, out-of-town swim clubs, dryland sports teams, etc.

Programming area in the double gymnasium provides suitable safe play space and the ability to host a variety of events and competitions with flexible spectator seating. Gym supervisor offices allow staff or volunteers to oversee day-to-day gymnasium activities and events. Fixed bleachers were removed from functional program and replaced with increased space for storing tilt-and-roll bleachers.

The community living room and the public street provide significant open, accessible gathering spaces for the public users to enjoy outside of paid access areas. The Level 2 fitness area will allow the City of Vernon Recreation Services to expand the programs and services they currently offer to the public with new equipment, increased space, and new opportunities. The Level 2 multipurpose rooms located adjacent to the fitness and aquatic viewing areas contain sprung hardwood floors and provide the ability to offer classes such as dance, yoga, etc. for registered participants. In addition to providing new programming space, all the multipurpose rooms on Level 1 and Level 2 can also be made available for public rentals.

ACCESSIBILITY & INCLUSION

Universal washrooms are featured prominently in the program, and additional space has been allocated for universal changerooms. Additionally, larger, accessible changerooms further increase the diversity of users who the facility can serve. The program includes areas for two elevators: one that provides access to all open public areas (Level 2, multipurpose rooms, and aquatic viewing areas), and another that accesses payment restricted areas (Level 2 fitness area, running track, etc.). The addition of a fourth lane on the walking/running track improves safety and functionality, as it better accommodates users of varying speeds and mobility levels.

RESILIENCY

To ensure that the City of Vernon will have future flexibility in terms of programming and facility usage, spaces including multipurpose rooms, offices, fitness areas, storage rooms, etc. are sized to accommodate future growth. Mechanical rooms are located to maximize maintenance accessibility and flexibility in the future (ex. a Level 0 access hatch, stacked telecom/ electrical rooms, stacked/open mechanical rooms, etc.).

HOW IPD ALLOWED US TO ADD VALUE

The cross-pollination of ideas integral to the IPD process encouraged feedback from consultants and trades regarding their program requirements, optimizing the program and highlighting efficiencies. Early facility tours generated input from all IPD partners (including trades, general contractor, building operators, etc.). The City of Vernon's increased involvement in Big Rooms provided ongoing insights on what was best for the project, rapid answers and solutions, crucial information, clear guidance, and key operational insights. The Owner's active and consistent healthy challenge of the status quo helped foster healthy tension necessary to innovate and refine the project in accordance with the Project Objectives.

ENHANCED OPERATIONS

With efficient operations in mind, and armed with lessons from visiting existing facilities, staff program areas are laid out in close proximity to the natatorium, and front-of-house programs. Dedicated entrances for staff and sports teams are provided to separate staff and private circulation routes from the public. By combining the mechanical and electrical rooms, the IPD team strategically optimized the space dedicated to equipment and building operation systems.

SYILX CULTURAL ENGAGEMENT

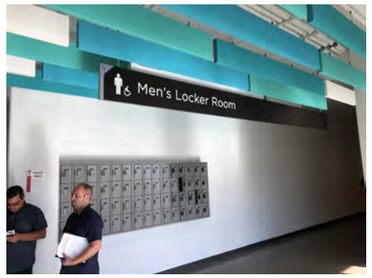
During the Detailed Design phase, the IPD team plans to engage with the Okanagan Indian Band to find ways for Syilx culture to be meaningfully reflected in the design of the ALC. The City of Vernon has and will continue to take steps to reduce barriers to participation for the people of the Okanagan Indian Band. As of January 1st, 2024, members of the Okanagan Indian Band were provided with access to recreation equal to the citizens of the City of Vernon. Additionally, the City of Vernon Recreation Services plans to suggest programming opportunities for Okanagan Indian Band youth, akin to the City of Edmonton's Nîkânîw Indigenous Youth Leadership Program—Nîkânîw means "one who leads the way" in Cree. The Nîkânîw Program combines the cultural teachings and guidance of Indigenous Elders and Leaders with an aquatic pre-employment program for Indigenous youth, and includes instruction of water safety education, first aid, CPR, and leadership skills. These program areas complement each other, teaching a respect for Mother Earth, and especially for the element of water.

BASE PROGRAM AND DESIGN KEY DRIVERS

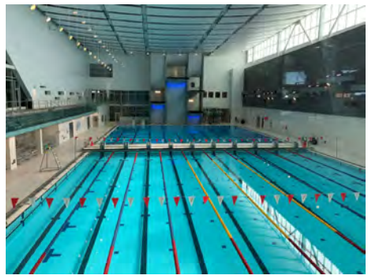
The initial draft of the functional program was developed during the Pre-Validation phase and was determined from the areas shown within the schematic drawings in the *Greater Vernon Active Living Centre Feasibility Study*. During Pre-Validation, the IPD team, including the Owner group, design team, general contractor, and trade partners, participated in facility tours of similar recreation facilities; the first in the Lower Mainland, British Columbia, the second in Central and Southern Alberta, and a third in Prince George.

The information collected from touring the sixteen community recreation facilities (see images from tours below and on the right) provided invaluable data for the Project Team to help re-evaluate the Pre-Validation functional program and identify gaps and redundancies in the programming area list.

Clareview Community Centre, AB

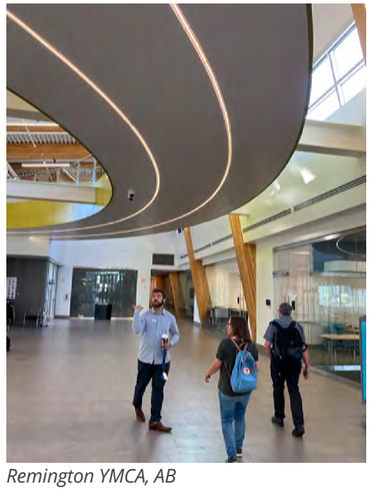


Brookfield YMCA, AB

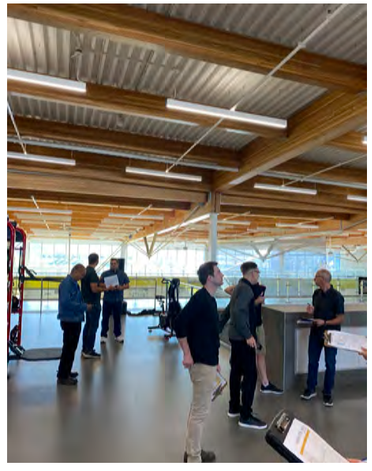


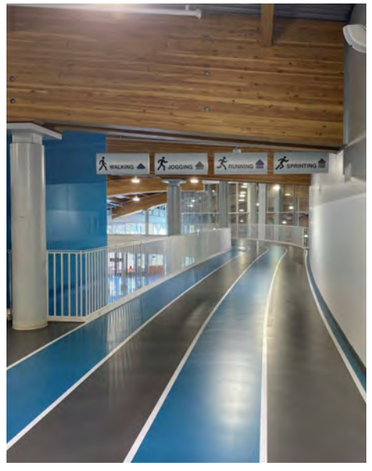
Grandview Heights Aquatic Centre, BC

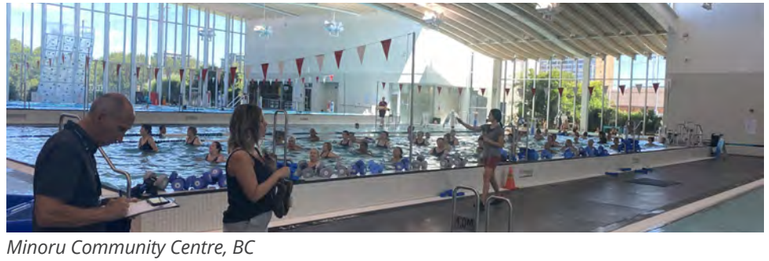
Shane Homes YMCA, AB



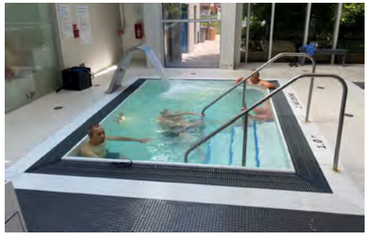
Remington YMCA, AB



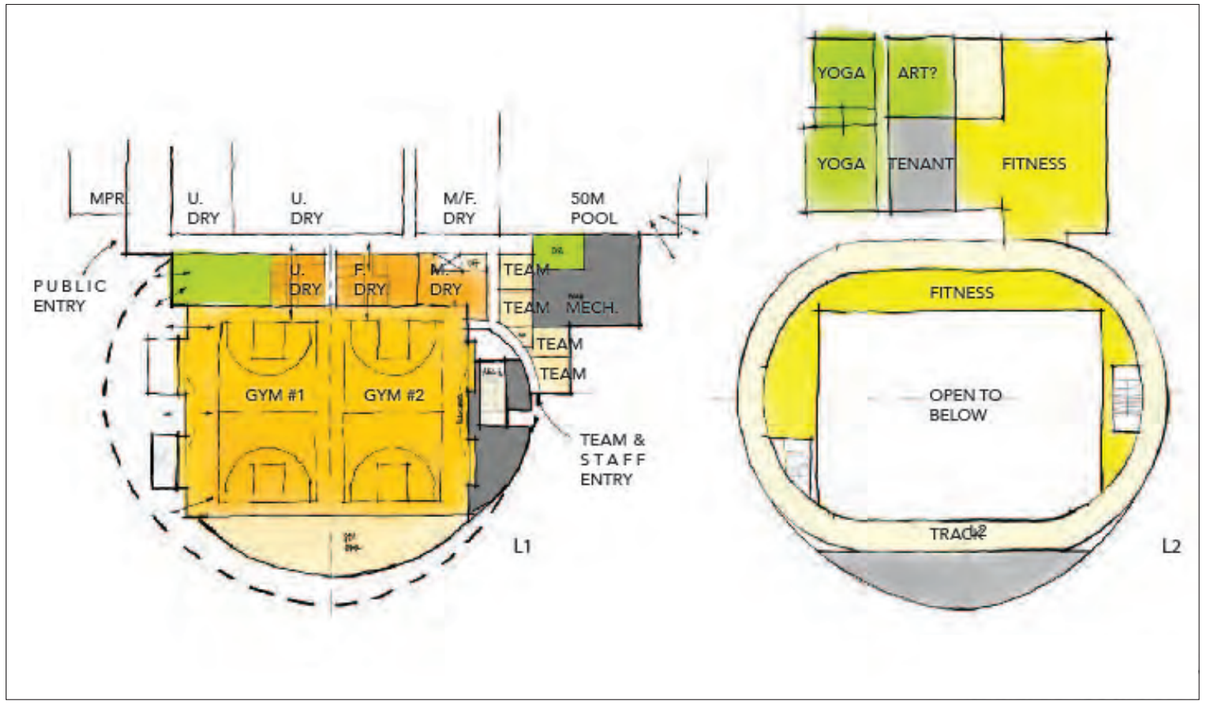




Minoru Community Centre, BC

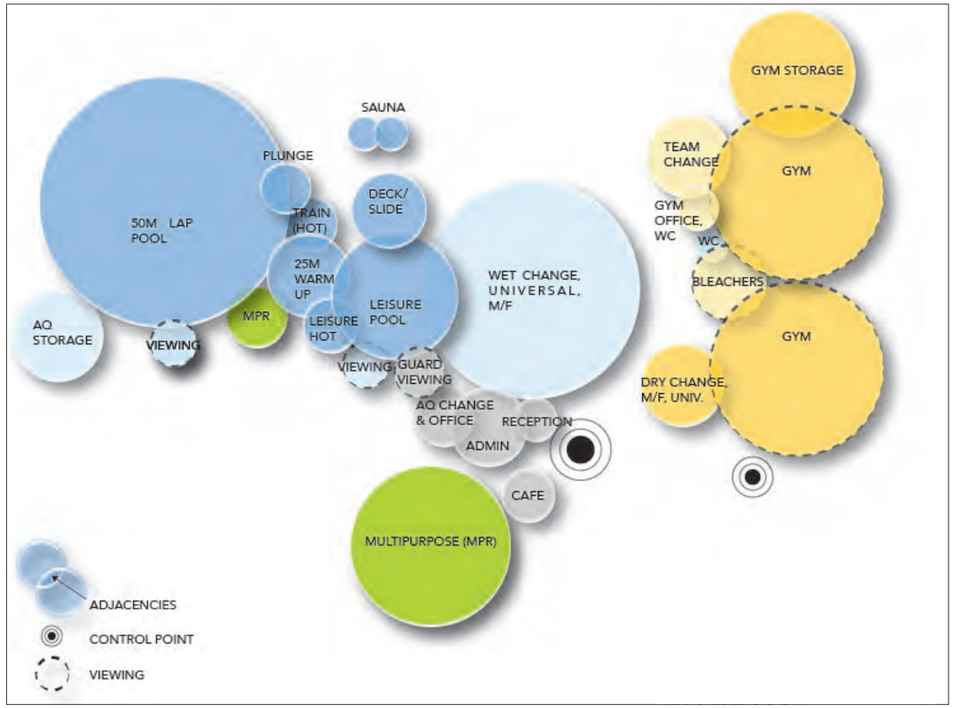


Delbrook Community Recreation Centre, BC

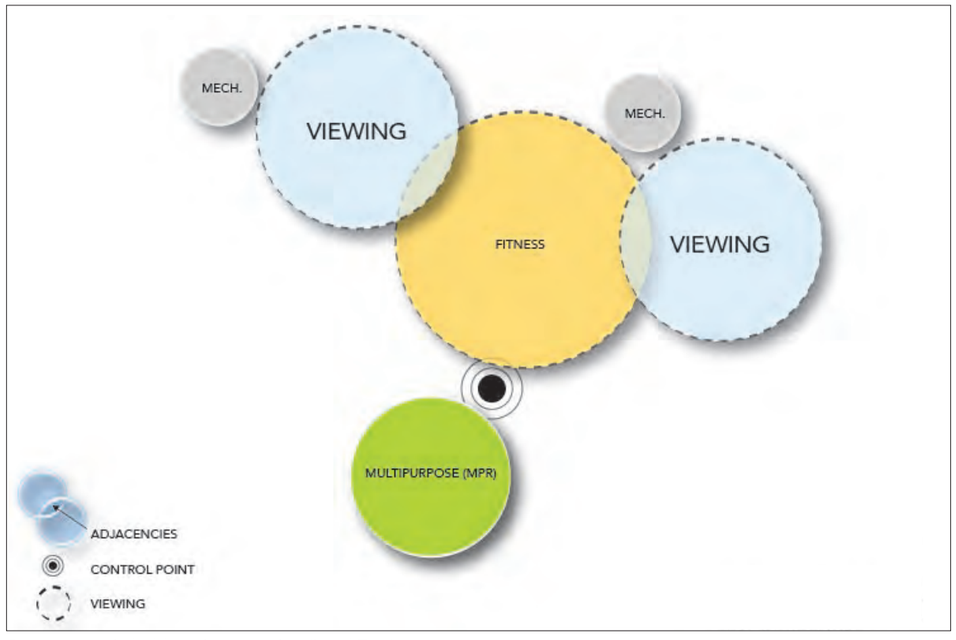


Program development

During the early stages of Validation, the functional program was iteratively developed in collaboration with the City of Vernon, design team, and trade partners to strategically satisfy the City of Vernon's requirements to develop an accessible, inclusive facility that promotes active living and a strong sense of community. Programmatic bubble diagramming (see figures above and to the right) was utilized as an effective tool to help visualize key program adjacencies, user flow, and access points.



Programmatic bubble diagramming (Level One)



Programmatic bubble diagramming (Level Two)

Upon the identification of major adjacencies determined as part of the programmatic bubble diagramming exercise, the IPD team participated in a program massing exercise in which areas outlined in the functional program were printed on to-scale paper masses (see figures on the right). The IPD team broke out into three separate working groups and were tasked with iteratively exploring various floor plan layouts in relation to the site. The most well received floor plan massing options developed by the team were further analyzed by the Project Team using Choosing by Advantages (CBA) style decision-making, which ultimately narrowed down the plan options to one. This plan option was then utilized by the project design team as a starting point for the development of the building layout.

Throughout the ongoing development of the floor plans, the functional program was tested and enhanced to suit the specific needs of the City of Vernon and address the CoS included as part of the Base Program. Some of the major programmatic changes that occurred throughout the Validation phase include:

- The double gymnasium increased in area to accommodate various sports including badminton, pickleball, volleyball, and basketball (both with full court and half court configurations) with clear accessible floor space, safe play space and bleacher space.
- The 50m pool increased in overall width to accommodate two additional lane ropes at the outside lanes (lane one and lane eight) to provide an improved competitive environment for swimmers through the reduction of wave action against the walls of the pool, providing the competitors with the same experience as their fellow competitors in lanes two through seven.
- The leisure pool increased in area to accommodate additional spray features, an enhanced lazy river, and the WOW WaveBall™ wave generating feature.
- A child-minding multipurpose room and child play space were added to the program to increase dedicated programmatic area for youth.
- The pool deck increased in area to accommodate a major waterslide, increased clear widths for enhanced accessibility, an on-deck bleacher area to achieve minimum seating requirements for athletes at provincial level competitions, and increased area to allow for the physical separation of the 25m x 3 lane teaching pool and leisure pool. Note: The *Greater Vernon Active Living Centre Feasibility Study* assumed a larger combined leisure and 25m x 3 lane teaching pool. These pools were separated based on best practices identified during Pre-Validation facility tours to avoid having to shut down both pools should the need arise due to contamination.
- A flexible community living room and public street were added to the program to expand the space available for the public to access and enjoy without having to pay.
- All wet and dry changerooms were revised to be entirely non-gendered, rather than a combination of non-gendered, female, and male.
- The length of the walking/running track was increased, and a fourth lane was added to the originally proposed three lane track to serve as an accessible lane accommodating persons with limited mobility.
- A dedicated therapeutic sensory room was added to the program, with preferred adjacencies to the child-minding space and public street.

Functional Program massing exercises

6 ARCHITECTURAL DESIGN AND DESCRIPTION

Russ Postill and Dave Morris holding model of Priest Valley Gymnasium/Arena at Recreation Centre | Image Courtesy: Museum and Archives of Vernon – No. 8794

6 ARCHITECTURAL DESIGN AND DESCRIPTION

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Multi-sport facility
- ✓ Multiple spectator viewing opportunities
- ✓ Family-focused
- ✓ Competition ready
- ✓ Open & adaptable multipurpose rooms
- ✓ Community living room
- ✓ Visual connectivity of spaces

ACCESSIBILITY AND INCLUSION

- ✓ RHFAC Gold Certification target
- ✓ Safe & welcoming
- ✓ Open public access and intuitive wayfinding
- ✓ Inclusive of all ages and abilities
- ✓ Non-gendered changerooms and washrooms
- ✓ Inclusive staff changerooms
- ✓ Amenities accessible to all users

RESILIENCY

- ✓ Future-proofed
- ✓ Sustainable building materials
- ✓ Durable products and finishes
- ✓ Energy efficient building envelope
- ✓ Optimized natural lighting
- ✓ Efficient floor plan

ENHANCED OPERATIONS

- ✓ Logical staff clusters
- ✓ Strategic staff sightlines
- ✓ Logical operation locations
- ✓ Centralized service / support spaces

SYILX CULTURAL ENGAGEMENT

- ✓ Planned OKIB engagement sessions during design

ACTIVE LIVING & COMMUNITY

The architectural approach to the design of the ALC aims to achieve a fun, community-oriented facility that perfectly balances fun leisure activities with competition and sports development all while offering programs that are accessible and intriguing to all users regardless of age, ability, and circumstance.

The two main public entrances of the building are connected by a large open public street that links all of the facility's major leisure, sport, fitness, and community spaces together. On Level 1 the public street opens up dramatically to a large community living room that provides views toward the natatorium and is supported by a café and various multipurpose rooms to serve as a gathering spot for all community members. The design intent of the community living room is to be a space for all users that is inviting, free to use and acts as an independent programmatic destination within the facility. During the Pre-Validation facility tours, the community living room was identified as a key program element and is intended to serve as the heart of the building.

On Level 2, the overlapping of leisure, sport and community spaces continues through the main public circulation corridor. This corridor extends upstairs from the community living room and runs past the fitness centre and multipurpose activity rooms, providing excellent views down into the natatorium below. This corridor sufficient clear space to accommodate soft seating for users to enjoy and look down towards the leisure pool, lazy river, 25m teaching pool, waterslide, and family hot tub. At the end of this circulation route is the main spectator viewing area, which is referred to as the spectator bridge. The spectator bridge is open to the natatorium air and has optimal views down to both the 50m competition pool and leisure pools.

Flexibility in usage and the ability to accommodate and support as many activities as possible has been another key architectural driver. The major programmatic spaces in the ALC, including the natatorium, gymnasium, and multipurpose activity rooms, are designed to maximize flexibility and can accommodate a plethora of sports and activities separately and simultaneously at any given time. The double gymnasium includes a clear ceiling height that is optimal for volleyball and includes four ceiling mounted retractable basketball hoops and three retractable curtains that can section the space into four separately programmable areas. Game lines and safe play areas within the gymnasium area designed to accommodate various spectator seating configurations with the usage of tilt-and-roll bleachers. Other flexible architectural elements include the 50m pool moveable bulkhead, the moveable wall in the leisure pool off-deck multipurpose room, team changerooms that can serve the natatorium and/or the double gymnasium, and multiple entrances into the multipurpose rooms on Level 2, allowing flexible access for both City of Vernon programming and public rentals.

Finishes used in the ALC will be bright and welcoming, fostering a sense of belonging, familiarity, and energy. The IPD team will develop these ideas further during the Detailed Design phase, which may include explorations of colour, texture, and natural material to create a fun and engaging, yet long lasting and timeless feel. Finishes also provide a great opportunity to incorporate references to Syilx culture and the local community. It is also highly important that finishes are durable and appropriate to support the facility's intended uses. Examples of key functional considerations include but are not limited to humidity and moisture resistance, slip resistance, impact resistance, glare mitigation, acoustic performance, and sports and fitness performance. These critical considerations will continue to guide the team's decision-making through Detailed Design and beyond.

ACCESSIBILITY & INCLUSION

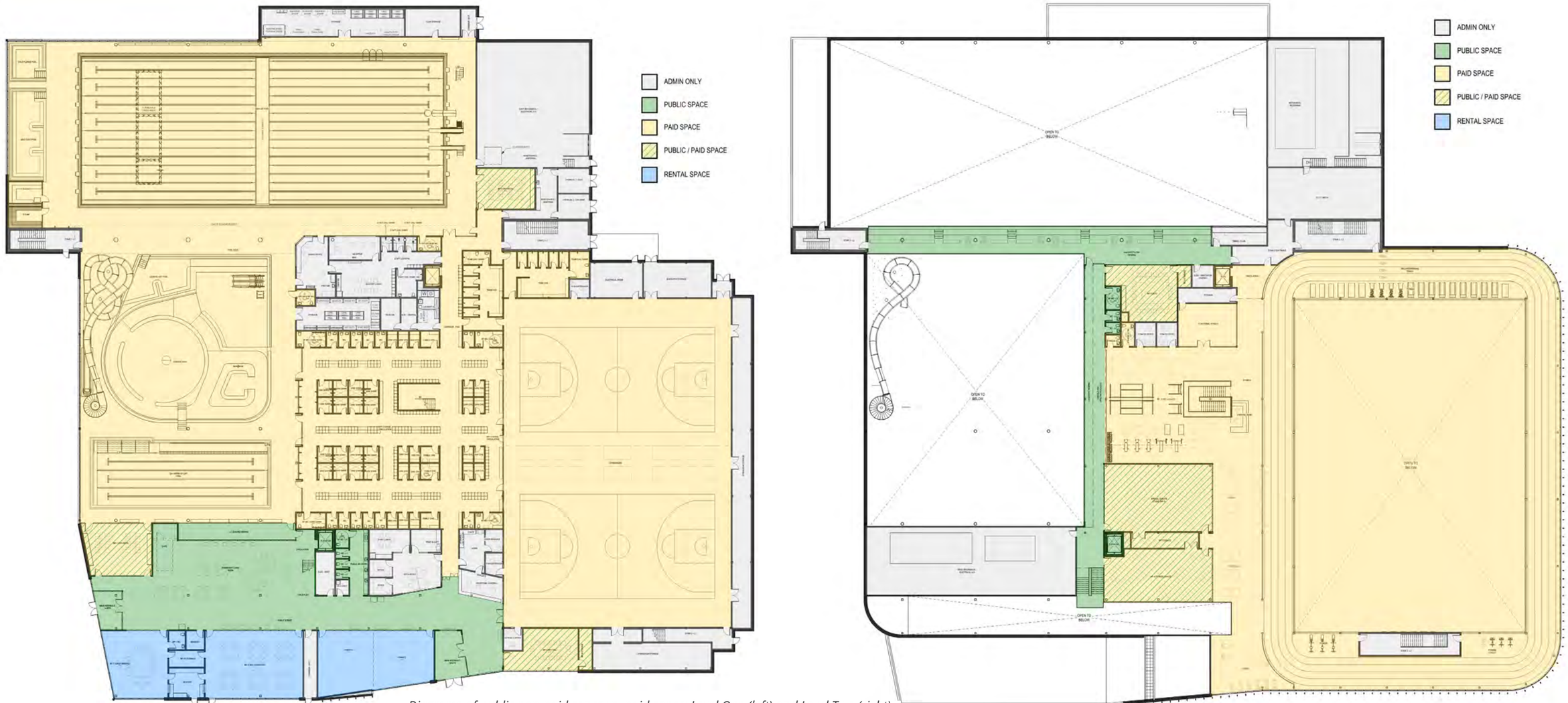
The ALC is designed to be a safe, inclusive facility for all users and staff regardless of age, ability, or circumstance. Achieving meaningful accessibility has been a key design focus in all areas of the facility, guided by the RHFAC requirements for full Gold Certification. RHFAC Gold Certification is the highest achievable rating as part of the RHFAC program and is attainable by complying with all mandatory Gold Certification requirements and meeting a post-occupancy rating score of at least 80%. RHFAC Gold Certification serves as an opportunity for the City of Vernon to showcase a commitment to inclusion and accessibility, and ultimately attract more diverse user groups and staff members.

During the Validation phase, the RHFAC Rating Survey v3.0 was utilized in conjunction with CSA B651-23 as a basis of design to ensure compliance with the requirements for RHFAC Gold Certification. Inclusive design elements achieved during the Validation phase include:

- Twelve accessible public parking stalls within +/- 32m of public barrier free entrances.
- Twelve public limited mobility parking stalls within +/- 40m of public barrier free entrances.
- Two barrier free public entrances with automatic doors.
- Two accessible staff parking stalls within +/- 15m of a barrier free staff entrance.
- 1800mm clear width corridors throughout all public and paid corridors as well as changeroom corridors.
- No gender-specific changerooms or washrooms within the entire facility.
- Four universal family change stalls located in the universal changeroom.
- Two universal barrier free changerooms with adult change tables, toilets and showers located in the universal changeroom.
- Eighteen universal change stalls located in the universal changeroom.
- Twelve universal washrooms located in the universal changeroom.
- Two gender inclusive universal team changerooms.
- A zero-entry ramp into the leisure pool.

- Ramps entering the family hot tub and 25m teaching pool.
- A stationary Poolpod Platform Pool Lift into the 50m pool and a portable lift that can accommodate entry into all pools for increased flexibility.
- Raised edges at the cold plunge pool and adult hot pool for easy transferring out of a pool wheelchair. Six designated accessible seating locations at the spectator viewing bridge that provide the ability for companion seating and or transferring into / out of a wheeled mobility device.
- One barrier free universal washroom located in the Level 2 fitness area.
- Two public barrier free washrooms located on each floor.
- Areas of refuge that can accommodate up to two wheeled mobility devices located in all Level 2 exit stairs
- Two elevators. Note: As a facility that is largely divided into publicly accessed areas—areas accessible without paying—and pay-to-play areas—areas that require payment or membership to access—one of the key challenges to overcome was providing equal Level 2 access to both public and paying users. This necessitated the inclusion of two separate elevators so that users with limited mobility who are unable to use stairs do not have to leave the paid zone to utilize the elevator.

During the Detailed Design phase, the IPD team will continue to design to the RHFAC Gold Certification requirements for materials and finishes, AV and electrical, signage and wayfinding, millwork, and furniture based off of the recently updated RHFAC Rating Survey v4.0.



Diagrams of public non-paid zones vs. paid zones: Level One (left) and Level Two (right)

RESILIENCY

As discussed in Section 5, floor plan optimization throughout the Validation phase resulted in spatial efficiencies between circulation space and program areas. In many instances, inefficiently used space was reduced or eliminated from the plans without reducing program area or sacrificing beneficial adjacencies. In addition, the IPD team coordinated across disciplines to future-proof the ALC wherever possible, resulting in primary allowances made to the building design today in order to easily and efficiently replace fitness equipment or mechanical systems well into the future. Multipurpose rooms, offices, fitness areas, and storage rooms are sized to accommodate future growth to ensure that the City of Vernon will have future programming flexibility and space to grow into. Synergies of adjacent program areas provide the City of Vernon with easily accessible mechanical rooms to maintain and service the ALC throughout its lifespan, including a Level 0 access hatch, stacked telecom/electrical rooms, and stacked, open-concept mechanical rooms.

Throughout the design of the ALC, natural lighting is optimized wherever possible, extending through high-impact, visitor-centred open spaces into staff areas, meeting and multipurpose rooms, and tenant spaces. Daylighting as much floor area as possible prioritizes the health and wellness of all building users, welcomes them with views into key program areas as they enter the building, and simultaneously curates views out to the surrounding landscape for those recreating or spectating inside. Early on during the Validation phase, natural lighting into the natatorium drove the siting of the pools in relation to the site and other major programs. The natatorium has almost exclusively north oriented glazing to maximize the amount of natural light while reducing glare caused from direct sunlight. On Level 2, skylights are strategically curated to bring natural light into centrally located program spaces that do not have direct access to an exterior wall—including the public circulation corridor leading from the community living room to the spectator viewing bridge, the centrally located fitness area, and above the spectator viewing bridge. Natural light has also been harnessed in the public street to help create a 'light well' and further drive natural lighting into the core of the building. A band of continuous glazing wraps around the south and west exterior walls of the walking/running track, helping to curate views out towards Turtle Mountain and bring second story natural lighting into the double gymnasium.

Sustainable materials such as the prominent mass timber structure in the natatorium, and wood fins along the running track towards Old Kamloops Road and 43rd Avenue highlight the project's commitment to resilience and a sense of place. Preliminary interior material selections for the ALC are durable, long lasting, easy to clean and maintain, appropriate for high levels of traffic, and highly specialized to suit multiple uses/activities.

The thermal transmittance, thermal bridging control, and air leakage characteristics of the building envelope are informed by the energy model (including a sensitivity analysis), wherein the overall building demonstrates conformance with the energy efficiency requirements of NECB 2020 and supports energy efficiency targets developed by the Net Zero Ready Project Implementation Team (PIT).

HOW IPD ALLOWED US TO ADD VALUE

In-person collaboration in the Big Room setting allowed for multi-disciplinary solutions to complex areas of the building's design, in addition to real-time input from the City of Vernon, operations staff, and end-users. While the building layout evolved greatly through the Validation phase, Target Value Delivery and the IPD framework allowed the Project Team to realize design efficiencies and innovative solutions through continuous micro adjustments as opposed to the large volumes of unnecessary rework typical to traditional delivery methods. The IPD model allowed the Project Team to add value to the ALC in the following instances, among others:

- Stacking of mechanical spaces over multiple levels
- Improving building placement on the site from what was initially proposed in the *Greater Vernon Active Living Centre Feasibility Study*
- Optimizing back of house staff areas (right-sizing, key adjacencies, sightlines, etc.)
- Highlighting structural systems as unique design elements relevant to the program spaces they serve

ENHANCED OPERATIONS

The functional program requirements and key adjacencies influenced by learnings from the Pre-Validation facility tours drove primary areas of the floor plan. A separate parking area and entry point for staff provides efficient access to back-of-house programming (shipping and receiving, janitorial hub, and service spaces), and direct access to the natatorium for aquatics staff. Rather than a single staff administration area, the floor plan of the facility highlights multiple locations of staff working clusters. As a large-scale facility with hundreds of users at any given time, the two main public entrances located at each end of the public street have been designed to be within the sightlines of the reception/control desk situated next to the double gymnasium. Moreover, the design of the reception/control desk affords staff the ability to be within proximity to senior recreation programming staff should any general or security requirements arise. Aquatic staff are strategically separated from building administration staff and are situated directly in the center of the natatorium between the 50m and leisure pools, providing critical access and continuous visibility to all aquatic areas.

Carefully considered event planning for largescale competitions in the natatorium and gymnasiums directly informed spatial requirements for tilt-and-roll bleacher seating and storage needs. Bleacher storage is centrally located between both the pools and gymnasiums, allowing for streamlined set-up and take-down and reduced travel distances for operations staff.

North-facing glazing in the natatorium minimizes glare on water surfaces, enhances sightlines for lifeguards, and reduces mechanical cooling loads while providing views out to the surrounding landscape. Providing for and right-sizing support areas such as the timing/club storage room overlooking the 50m pool allows for easy and efficient hosting of swim meets and other aquatic competitions.

Separate wet and dry change areas improve the flow of visitors and streamline cleaning routines, while centrally located housekeeping rooms reduce travel distances and equipment requirements of janitorial staff. Vestibules at main points of entry are designed to mitigate cold winter air infiltration on front desk staff and users of the community living room and public street. Elevators have been sized and specified to accommodate the eventual replacement of large and heavy fitness equipment located on Level 2.

SYILX CULTURAL ENGAGEMENT

All members from the architectural team participated in the q'sapi training provided by the Syilx Sisters in December 2023, which provided key insights into the Syilx cultural framework. In addition to the q'sapi training, three members from the architectural team participated in the January 2024 Okanagan Indian Band Cultural Safety training alongside key City of Vernon staff and other select IPD team members. During the Detailed Design phase the IPD team plans to directly engage with the Okanagan Indian Band to find meaningful ways for Syilx culture to be reflected in the architectural design of the ALC. This may include, but is not limited to finishes, features and/or integrated signage that references the Syilx language and culture in an accessible, genuine way.

7 SITE PLAN AND CIVIL SYSTEM DESCRIPTION

Kin Race Track from southeast | Image Courtesy: Museum and Archives of Vernon – No. 21691

7 SITE PLAN AND CIVIL SYSTEM DESCRIPTION

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Outdoor plaza
- ✓ Accommodate future multi-use pathway
- ✓ Electric Vehicle (EV) charging stations
- ✓ Future Development compatible

ACCESSIBILITY AND INCLUSION

- ✓ Highly accessible, pedestrian-oriented site
- ✓ Proximity to public transit
- ✓ No retaining walls
- ✓ Gentle slopes
- ✓ Accessible staff parking
- ✓ Limited mobility parking
- ✓ Intuitive accessible parking locations

RESILIENCY

- ✓ Optimized site utilities
- ✓ Landscaping prioritizes shading & drainage
- ✓ Minimal hardscaping
- ✓ Building elevation coordinated with floodplain

ENHANCED OPERATIONS

- ✓ Grouped utilities
- ✓ Optimized spans & rights-of-way
- ✓ Optimized site grading
- ✓ Permanent dewatering eliminated
- ✓ Dedicated staff entrance & parking

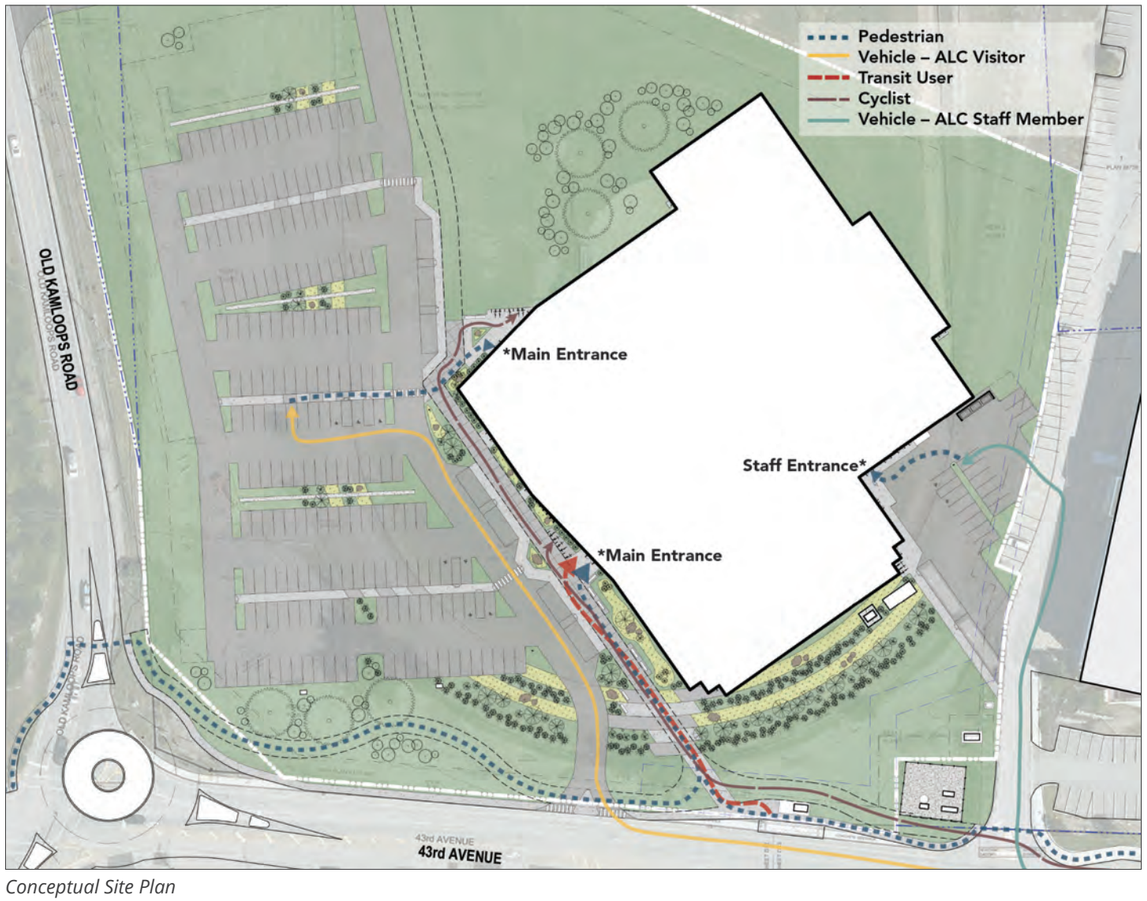
SYILX CULTURAL ENGAGEMENT

- ✓ Opportunity to feature symbolic plant species

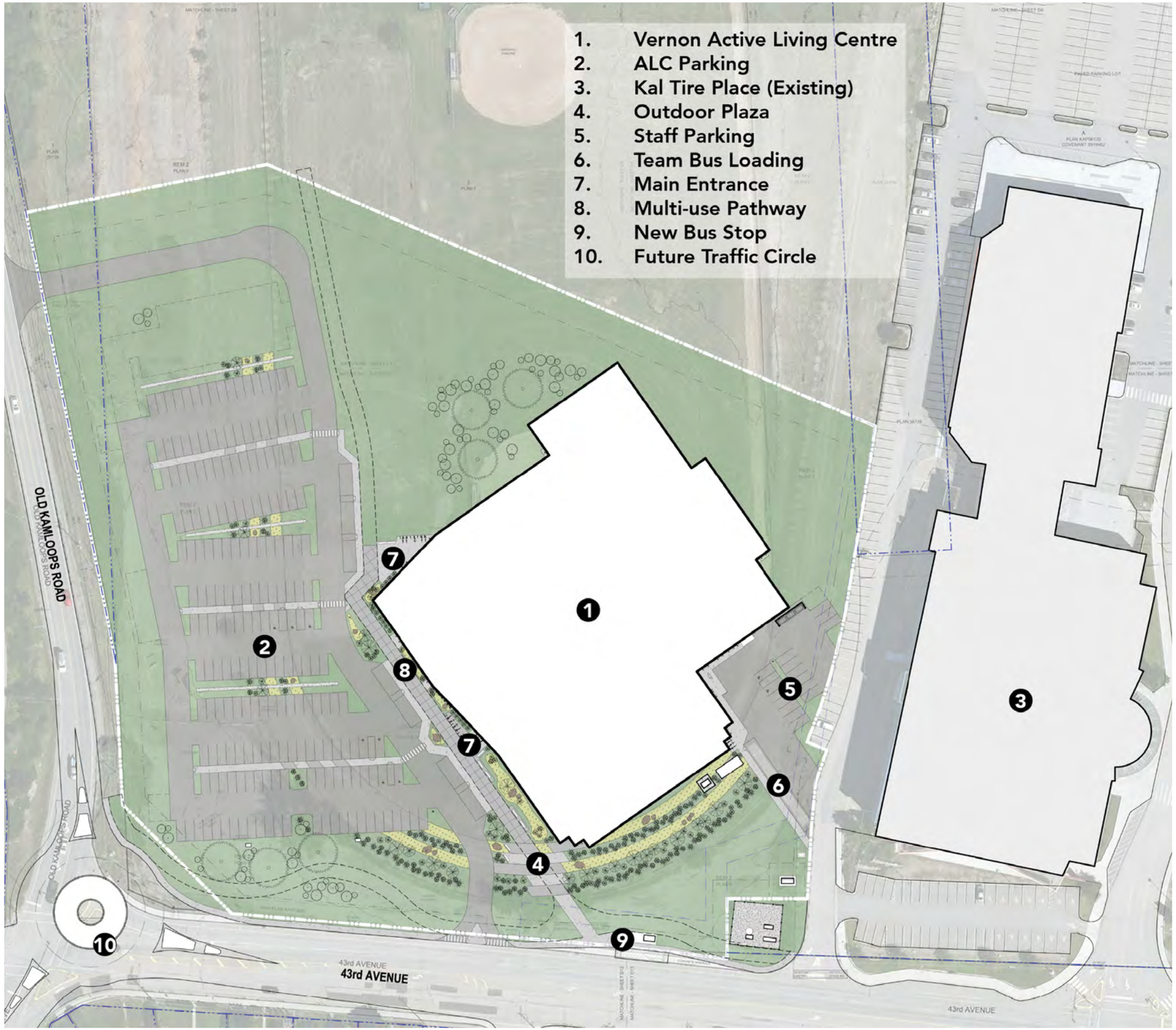
ACTIVE LIVING AND COMMUNITY

The Project Team and the City of Vernon identified the benefits related to a multi-use pathway early on in the Validation phase. These include the separation of visitors from motor vehicle traffic and forging connections for pedestrians and cyclists to the ALC and beyond to the potential future development of the Kin Race Track Athletic Park. The site plan highlights the multi-use pathway's prominence in the ALC's outdoor plaza, which includes ample bike parking adjacent to primary points of entry, various seating options, pedestrian-level lighting, views into the building, convenient passenger drop-off zones, and varied landscaping that honours the site's historic use as a race track. Parking targets have been optimized through both the Institute of Transportation Engineers (ITE) calculations and current user numbers ultimately considering the shared use of parking between complementary users of the facility. The IPD team recognizes the City of Vernon Zoning Bylaw #5000 will be updated in a forthcoming amendment which reduces the required number of stalls for a facility of this size.

The parking provided is in accordance with the IPD Team's understanding of this bylaw amendment. The IPD Team understands the future intent to develop the north end of the existing Kin Race Track site with outdoor amenities that complement the ALC. To enhance connectivity with future development to the north, as well as connectivity within the ALC site, two site access points have been designed: one at 43rd Avenue, and one at Old Kamloops Road. These two proposed access points allow traffic to flow efficiently through the site which is critical for emergency vehicles. Consideration has been made for the increase in traffic flows that will come with the future four-lane upgrades desired on Old Kamloops Road—which is anticipated to eventually connect to Highway 97 to the north in the future. When the Kin Race Track Athletic Park is fully developed, the ALC access lane has been designed to extend north to provide easy access to those future amenities.



Conceptual Site Plan



Site Plan

PARKING SUMMARY	Minimum Requirements			ALC Provided
	New City of Vernon Zoning Bylaw – June 30, 2024	Institute of Transportation Engineers (ITE)	RHFAC Gold Certification	
Standard spaces	178	201	-	185
Accessible spaces	4	4	5-10	7
Limited Mobility spaces	Not required	-	10-20	12
Electric Vehicle (EV) Charging spaces	Not required	-	-	22 *Includes 1 Accessible EV Charging space
Staff spaces	Not required	-	-	14
Accessible Staff spaces	Not required	-	Included above	2
Accessible Loading (Pick-up / Drop-off)	Not required	-	Preferred but not required	7
Bicycle *Excluded from totals	Class I: 2 *Employee/long term parking	-	-	3
	Class II: 10 (5 per public building entrance) *Visitor/short term parking	-	-	16
TOTAL	**182**	**205**	**-**	**227**

Parking Summary Table

ACCESSIBILITY AND INCLUSION

A key driver of the site design for the ALC was ensuring a high degree of accessibility to all users. Strategic placement on the site enabled the IPD team to eliminate the need for any retaining walls. Instead, gentle slopes across the plaza meet or exceed accessibility standards (no slopes in pedestrian routes exceed 5%), eliminating the need for stair runs or long ramps and allowing users of all abilities maximum ease and safety when coming to or leaving from the ALC. As part of the site design, provisions for a future additional bus stop on 43rd Avenue have been made at the entry of the public plaza near the southern public building entrance and staff parking, improving access to the site and further encouraging the use of public transit. Travel distances to accessible parking spaces have been minimized, and a flexible, demand-based system for these designated parking stalls is being investigated by the IPD team. Additionally, limited mobility parking spaces are also provided near main entrances to the ALC in accordance with RHFAC Gold Certification best practices which provide designated parking stalls for persons with limited mobility, families with young children, expectant mothers, and elderly individuals. Short-term pick-up and drop-off zones are conveniently situated along the main drive aisle, and pedestrian paths of travel across the site are lit for both wayfinding and safety.

RESILIENCY

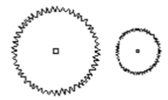
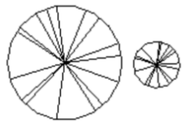
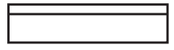
The IPD team recognizes the importance of having optimized utility sizing and servicing locations to ensure the demands of the ALC are met throughout the lifespan of the building. The team engaged with the Regional District of the North Okanagan (RDNO) to determine the existing water network capacity based on a maximum fire flow rate of 188 L/s. It was determined that a water service connection could be made for the ALC without triggering upgrades to the existing offsite watermain. The IPD team engaged with the City of Vernon and acquired Supervisory Control and Data Acquisition (SCADA) data and record drawings for the 43rd Avenue sanitary lift station to determine the lift station's capacity. By analyzing the design peak sanitary flow from the ALC with the existing peak hourly inflow, it was determined that the existing lift station would have capacity to accommodate the ALC without triggering pump or wet well upgrades. Stormwater management takes into account improvements for both the ALC development and the broader former Kin Race Track site, as well as considerations for offsite stormwater improvements. Moreover, there is a key focus on environmentally conscious water management practices including overland drainage and considerations to existing grasslands and wetlands. The stormwater management plan intends to maintain stormwater characteristics that emulate the pre-development natural watershed and safety convey upstream flows through the development area.

Landscaped boulevards in parking areas have been designed to collect and mitigate drainage on the site through the use of plantings. In outdoor areas, paving has been reduced wherever possible in favour of softscape that provides shade, collects runoff, and reduces radiant heat. Careful attention was paid to projected lifespans of all site-specific infrastructure. Longevity is prioritized in conjunction with preplanning for anticipated future improvements. Close design coordination of the site with the ALC has optimized the foundation heights of the facility, situating the main floor above the flood construction level.

ENHANCED OPERATIONS

Civil deep utilities and underground shallow utilities were closely coordinated across disciplines, allowing for efficient groupings that optimize utility spans and any associated rights-of-way or required setbacks. The southeast corner of the site was largely used for utility servicing alignments and infrastructure since this area is largely soft landscaping. Fortis Gas, Telus/Shaw, and BC Hydro are all serviced from existing utility infrastructure located on 43rd Avenue. With the existing sanitary lift station located at the southeast corner of the site, other utilities optimized this space including a BC Hydro Vista Switch, re-routed storm alignment, sanitary service, as well as water, gas and Telus and Shaw services that aim to utilize common trench during construction. Similarly, the site grading strategy realized efficiencies through reductions to the amount of required import material by selecting to work with existing grades versus raising the entire site, as well as maximizing the reuse of excavated materials where possible, while still providing necessary sloping for overland stormwater flow routes.

Landscaping & Site Elements

Legend	Item	Count	Area (m^2)
	**Trees – Coniferous** (Size varies)	83	-
	**Trees – Deciduous** (Size varies)	67	-
	**Shrubs**		
	Large (8')	65	-
	Medium (5.5')	74	-
	Small (2.5')	62	-
	**Grasses – Tall/Ornamental**	-	780
	**Boulders** (Size varies)	24	
	**Mowed Grass** (Sod/Turf/Seed)	-	17,840
	**Wood Benches – 96" length**	14	-
	**Asphalt** (Parking lots, drive aisles, etc.)	-	10,760
	**Plaza hard surfacing & Multi-use Pathway** (Concrete, pavers, etc.)	-	1,220
	**Sidewalk** (Concrete)	-	430

Landscaping and site elements summary

Excavated clays from the building excavation will be strategically reused to build up the proposed landscape areas around the building, as well as build up the proposed parking lot underneath the required structural fill. Given the high groundwater table at the site, structural design considerations played a critical role in determining the building's main floor elevation. If the main floor elevation was set higher and additional import fill was required, there would have been a need to design a suspended structural slab due to increased risk of settlement, and ultimately increasing the project cost.

Utility servicing also played a key role in determining how low the main floor elevation of the building could be. It was important to ensure a gravity sanitary service could be provided to the main floor of the building to avoid additional costs associated with pumping sanitary to the nearby lift station. Additionally, the IPD team made a concerted effort to avoid the implementation of permanent dewatering systems and associated ongoing operational costs, instead adapting the site and foundation designs to cohesively mitigate the high-water table independently.

SYILX CULTURAL ENGAGEMENT

Engagement with Syilx culture as it pertains to the ALC's site currently lies in future opportunities to feature specific planting and select species with symbolism, relevance, and history to traditional Syilx culture and ways of life. From engagement undertaken to date, the Project Team has learned about the significance of plants such as Siya (Saskatoon Berry) and Spitlem (Bitter Root), and these species' prominence as two of four chiefs within the Syilx cultural framework. Defining specifically how Syilx culture might be reflected in the site design of the ALC is something the Project Team looks forward to developing further through detailed design.

HOW IPD ALLOWED US TO ADD VALUE

The IPD framework allowed for early collaboration and decision making not only between architectural, structural, civil, and electrical consultants who were directly involved in the design of the site, but also geotechnical, environmental, and heavy equipment service experts. Early engagement with third party team members and collaboration with all relevant disciplines was another key value add with the IPD model as the coordination and scheduling of third party design members is typically a longer engagement process. This holistic and often in-person collaboration within the Big Room and on the physical site of the future ALC brought key decision makers together very early on in the design process, leading to the proactive implementation of multifaceted solutions often coupled with impactful cost savings that benefitted the entire IPD Team. Owner involvement is also a principal tenant of the IPD model, and responsiveness of the City of Vernon's project leaders, transportation and planning experts, and utilities and servicing teams has continually added value to the ALC project.

KEY DRIVERS

Close coordination with the City of Vernon from the outset of the project ensured alignment on several key initiatives impacting the ALC's broader site. These include:

- Consolidation of conflicting lot lines/property designations into a single new address for the ALC
- Existing utility capacities to accommodate the ALC
- Stormwater management requirements for the ALC development as well as consideration for the broader former Kin Race Track Athletic Park
- Potential future roundabout at the intersection of 43rd Avenue and Old Kamloops Road
- Future widening of Old Kamloops Road (upgrade from two to four lanes) and potential future connectivity to Highway 97
- Potential future development of the former Kin Race Track Athletic Park

Transparency and collaboration between the IPD team and the City of Vernon allowed coordination on each of these items to ensure that this future work is compatible with the current site design for the ALC. Close teamwork was also fostered with BC Hydro in the allocation for and design of electric vehicle (EV) charging stations within the ALC's parking areas. Ongoing collaboration through detailed design is set to explore the potential of delivering the EV charging stations early, enabling their use by future ALC users prior to the completion of construction.

8 BUILDING SYSTEMS

Swimming pool inside Recreation Centre | Image Courtesy: Museum and Archives of Vernon – No. 15092

8 BUILDING SYSTEMS

The various systems in the ALC building from the 'bones' of the hybrid structural system, to the 'heart and lungs' of the mechanical systems, to the 'arteries and capillaries' of the electrical distribution, and the 'soul' of the aquatics systems, were looked at holistically. Each relies on, impacts, or competes with each other in some way, and therefore the IPD team deliberately established multidisciplinary PITs with diverse representation to contribute to designing and costing the building systems in an optimized way.

8.1 Structural

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Integrated accessible running track
- ✓ Exposed natatorium roof structure shows BC mass timber and unobstructed views
- ✓ Building shape and form are adaptable with structural system

ACCESSIBILITY AND INCLUSION

- ✓ Main floor elevation was set to support accessible entrances for the public and staff
- ✓ Campus serves as welcoming hub for public/ recreational activities
- ✓ Public and private elevators for public spaces

RESILIENCY

- ✓ Roof structure ready for future solar arrays
- ✓ During disasters, this building serves as a community resource/gathering space
- ✓ Structural system can readily accommodate future modifications and expansions

ENHANCED OPERATIONS

- ✓ Provide future maintenance and accessible replacement of major mechanical elements
- ✓ Basement resists buoyancy loads to avoid permanent dewatering system (operation costs)

SYILX CULTURAL ENGAGEMENT

- ✓ Biophilic materials (wood)
- ✓ Planned engagement with OKIB during Detailed Design

ACCESSIBILITY

As a CoS, the ALC must be welcoming and accommodating to all users in the community. The ALC's main floor elevation was set to support accessible entrances for both the public and staff without the requirement of stairs or ramps. The ALC's superstructure will accommodate two public elevators and concrete ramps (located only within the natatorium) so that users can reach all areas of the facility. The structural steel scope is responsible for miscellaneous metals including handrails etc., and direct early involvement with the steel trade (IPD partner) allows for key RHFAC Rating Survey design requirements for Gold Certification.

RESILIENCY

Recreation and community centres are important hubs that serve many roles for an area's residents, whether it's playing host to Provincial swim meets, fitness classes, providing key social services, or acting as a shelter during an extreme weather event. Given the range of uses these large public facilities exist to fulfill, a lot goes into their planning and design. The ALC is considered a 'High Importance' building based on its use and function as defined by the requirements of the National Building Code (NBC). From a structural perspective, the ALC will have more stringent requirements for seismic design given it can be an important gathering space in the case of a large earthquake. The roof structure will be designed to incorporate higher loads due to snow and rain (15% higher than a 'Normal' building). The superimposed dead load for the roof structure of the ALC also includes an allowance to support the anticipated loads for future photovoltaic installation.

The selected primary structural system—structural steel—can readily accommodate future modifications and expansions as the community grows so it is easily adaptable. The structural steel system (including select use of mass timber) compliments the building footprint and is not confined to a strict set of parameters or limits to its building shape, making it suitable for future adaptations. Additionally, structural steel and mass timber are desired building materials and can still be erected in varying outdoor temperatures, ultimately reducing site labor gained from quicker construction efficiencies. Moreover, structural steel and mass timber are relatively quiet to erect so as to limit construction noise during the construction period.

In building areas that are not exposed to views and utilize architectural dropped ceilings, the IPD team elected to integrate open webbed steel joists (OWSJ) to reduce overall material usage in the ALC and aid in reducing the overall carbon footprint.

The main floor elevation was set to be above the 200-year return flood mapping elevation referenced in "*City of Vernon: Detailed Flood Mapping, Risk Analysis, and Mitigation – Part 2 – B.X. Creek below Swan Lake and Vernon Creek below Kalamalka Lake"* prepared by Northwest Hydraulic Consultants for the City of Vernon. The concrete basement structure is designed for buoyancy loads resulting from the high-water table at the building site whereas hydrostatic relieve valves are incorporated into the design of the concrete pool basins (as required) to mitigate the need for a permanent de-watering system which would impact the buildings ongoing operating costs.

During the Validation phase, there was extensive structural and architectural collaboration to help maximize daylighting in the building by integrating natural roof steps and skylights within the building. The structure of the ALC will be designed to support future maintenance and accessible replacement of major mechanical components.

MASS TIMBER INTEGRATION

The use of wood as a prevalent material throughout the ALC brings vast benefits to the overall carbon footprint; especially in regards to the overall embodied carbon reduced. Additionally, the utilization of mass timber as building structure helps to achieve an efficient expressive architectural structure rather than one that is concealed with additional finishes. In areas that are exposed to view—such as the natatorium—the IPD team utilized mass timber king post trusses to expose the beauty of the natural wood and mimic the image of the butterfly swimming stroke and the "V for Vernon" in the king post structure. The mass timber in the ALC will be procured locally from BC and supports BC's Wood First Initiative—locally supporting BC's mature timber industry and some of the most advanced mass timber production facilities in the world. The exposed roof structure throughout the natatorium also supports flexibility in connecting the NINJACROSS™ system directly to mass timber while avoiding difficult connections or modifications needed if a dropped ceiling was incorporated.

The process for selecting mass timber as the primary structural system for roof framing in the natatorium was determined through the use of a Choosing by Advantages (CBA) assessment completed by the IPD team, which included key factors such as durability, aesthetics, operations and maintenance, erection, and schedule etc.

Community living room conceptual rendering

IPD MODEL

The IPD model provides synergies between partners during the design process as the structural design is directly informed by design and construction considerations from the building partners (i.e., steel, mechanical, aquatics trade partners etc.) and City of Vernon representatives. The decisions made can be based on a holistic system versus an individual project need. Direct coordination can occur with structural system types, depths, alongside mechanical duct runs and architectural ceiling heights to optimize a best-for-project approach. Construction sequencing/phasing can be directly discussed with all the building partners and impacts to the structural design can be integrated to erection efficiencies while designing with consideration in mind for the temporary and final building condition.

DESIGN PARAMETERS

The structural components of the ALC will be designed in accordance with the requirements of the BCBC 2024, which is based on the NBC 2020. The structural systems will be capable of sustaining the minimum loading requirements set out in NBC 2020, and the building is classified as the NBC Importance Category “High” based on its use.

FOUNDATIONS

The Draft Geotechnical Report prepared by F*PA Fletcher Paine Associates Ltd, File 6981 dated February 28, 2024,* recommends the new building be supported by cast-in-place concrete strip and pad footings.

A small concrete basement below the natatorium and adjacent to two sides of the 50m pool will accommodate pool and mechanical systems. The basement and pool basins will be constructed with reinforced cast in place concrete walls and slabs typically; the walls will be designed to resist lateral pressures acting on the wall from soil and hydrostatic water. Coordination between concrete pool wall/slab construction and pool piping will be closely coordinated during the construction phase. Waterstops will be placed in all concrete pool slab to wall and intermediate pool wall pour breaks.

MAIN FLOOR

The main floor level consists of three main program spaces; a natatorium, gymnasium, and the entrance/change room and public space. In the natatorium above the basements and surge tank, a cast-in-place (CIP) reinforced concrete suspended slab will form the pool deck. Surrounding the remaining pool walls a CIP reinforced structural slab on grade will be provided. In the gymnasium and changing room/public space the structure will be comprised of a reinforced concrete slab on grade.

The main floor elevation supports accessible entrances and exterior concrete aprons will be rigidly connected to perimeter walls at doorways to prevent issues related to slab settlement at doorways.

SUPERSTRUCTURE

The second floor structure will mainly be comprised of structural steel framing; structural steel reduces site labor when compared to CIP concrete and should improve the construction schedule. Structural steel is also a lighter structure than cast in place concrete, helping to reduce the overall footing sizes. The second-floor structure is comprised of composite metal deck complete with concrete topping spanning to W-beams and girders. This second-floor structure will support an integrated running track that will be accessible and supports the ability to interact and/or view different building areas such as the gymnasium, double height public spaces, natatorium, and fitness areas. Steel columns between the main floor and roof will be structural steel and support the second floor and roof structures.

The natatorium roof structure will consist of finished galvanized metal roof deck spanning to glulam purlins and glue-laminated timber beams/king post trusses which are supported by steel columns, with some localized concrete columns supporting the second floor viewing areas. The remaining building roof structure will consist of metal roof deck spanning to OWSJ and steel W-beams supported by steel columns of various sizes.

Additional secondary framing is required to support items such as glazing, guardrails, louvres, cladding, parapets, screens, etc.

Natatorium roof structure King Post truss section - preliminary

8.2 Mechanical

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Excellent water and indoor air quality
- ✓ Energy efficient systems
- ✓ Clean, temperature-controlled air for active areas

ACCESSIBILITY AND INCLUSION

- ✓ Extended stairwell for rooftop maintenance access
- ✓ Minimal equipment located on the roof
- ✓ Proper maintenance clearances for all equipment
- ✓ Removal path provided for all equipment
- ✓ Louvers sized for future equipment removal

RESILIENCY

- ✓ Thorough 'Best for project' analysis for all systems
- ✓ High level of heat recovery
- ✓ Set up for future upgrade and/or expansion
- ✓ Net Zero Ready

ENHANCED OPERATIONS

- ✓ Dedicated heat recovery chiller for simultaneous loads
- ✓ Air source heat pumps "top-up" heating or cooling
- ✓ Mechanical or passive dehumidification
- ✓ Natatorium exhaust systems improve IAQ
- ✓ Water efficiency
- ✓ Differential pressure to control odours and air contaminants

SYILX CULTURAL ENGAGEMENT

- ✓ Ground Disturbance and Chance Find Protocols for excavation and deep services work.
- ✓ Planned engagement with OKIB during Detailed Design

ACTIVE LIVING & COMMUNITY

The mechanical approach to the design of the ALC is centered around finding the correct balance between high-performance, a low carbon footprint, longevity, ease of servicing, adaptability/enhance ment in the future, equipment from manufacturers with known reputations for providing quality and comprehensive costs (capital, operating and maintenance). The "correct balance" is project specific as different municipalities and user groups will have different perspectives and priorities.

The mechanical systems have a significant, measurable impact on the occupants' experience at the ALC. They create and maintain the non-visual part of the environment in which people gather, exercise, celebrate and relax. The goal is that they can be implemented to achieve this without being visually or audibly intrusive.

Each major area of the facility has been provided with a dedicated central air handling unit (AHU) or heat recovery ventilator (HRV) that tempers the outside air ventilation to the space. Within each of these major spaces, four-pipe fan coil units (FCU) have been selected and laid out to provide zone temperature control based on expected loads. In the lobby, in-slab radiant heating and cooling has been designed to provide temperature control closer to the occupied zone in this double-height space.

Return and exhaust air from most spaces has been routed back to the central unit for heat recovery.

Working as part of the aquatics design group, we are designing a filtration and disinfection system that will provide a high level of water quality. Refer to Section 8.4 within this report for additional details.

In addition to fitting the facility with a high performance, low water consumption filtration plant, we have implemented three design features to help reduce and remove by-products of disinfection such as chloramines and trihalomethanes. The first is to install ultraviolet (UV) filters that use medium pressure UV light to oxidize these disinfection by-products, reducing their concentrations in the pool water. However, since the UV can only act on the water being circulated as it passes through the filtration system, additional systems are needed. Most of these by-products are dissolved in the pool water sitting in the pool tank. As the water is disturbed, either via users moving or operation of water features or jets, dissolved by-products are released into the air. Once released, they will tend to collect at the 6"-12" above the pool water surface and deck.

The first system added is a gas stripper. This equipment continuously aerates the pool water in a given pool's surge tank to promote release of these by-products in a more controlled way, where they can be exhausted directly to the outdoors.

The second system added is a trichloramine extraction system that works to remove the "trichloramine bubble" that forms at the deck level. Removing this bubble reduces the concentration of these contaminants that are available to be kicked up into the breathing zone where they can have adverse effects on the lungs and eyes of users and lifeguards.

By providing a natatorium with excellent water and air quality, athletic spaces with proper temperature control and a high-performance building mechanical system that maximizes heat recovery where it makes sense, the facility will truly promote active living.

ACCESSIBILITY & INCLUSION

The mechanical systems will support the universal changerooms and accessible washrooms provided in the ALC.

The IPD team is leveraging the knowledge of experienced trade partners, who will very likely be doing this future work, to ensure that equipment is laid out efficiently and in a manner that supports servicing as well as replacement. Examples of this include:

- Making the main mechanical room a double height space with access stairs and a mezzanine in lieu of two separate spaces with a separated staircase promotes ease of movement between major systems.
- Locating the entire central plant equipment in the same area of the building.
- Hatch at the main level for pool equipment removal and another at the second level directly above for removal of any equipment on the mezzanine level, to allow efficient movement of equipment from all spaces to the main floor for removal and replacement.
- Outdoor air louvers have been sized with consideration for future removal of equipment.
- Chemical rooms are located on the main level, with direct access from maintenance areas inside and from outside for delivery of new chemicals.
- Minimizing the amount of equipment located outside on the roof and locating this equipment in an air well in the center of the facility means minimal access to the roof is required for servicing. In addition, when access is required, there is no concern of a fall hazard. Lastly, access to the roof is provided by extending a staircase to the roof level, eliminating the loathed vertical ladder with fall cage and access hatch. This will simplify movement of parts and tools such as filters to the roof level.

RESILIENCY

The central plant selected for the building has a degree of inherent resiliency in that it consists of several stages of both heating and cooling. Major components of the central plant have been "right sized" to balance capital and operating costs along with space and infrastructure limits. Multiple stages of heating and cooling means there is a measure of redundancy built-in, and "right-sizing" equipment often means that the equipment is not being run close to or at the limit of its capabilities. This, along with regular maintenance, will often translate into longer lifespans between full replacement of components or equipment.

The first stage of heating and cooling is provided by heat recovery through the dedicated heat recovery chiller (DHRC).

The second stage of heating and cooling utilizes an air source heat pump (ASHP) located outside to the east of the building.

The third stage of heating for the facility is from high efficiency condensing gas boilers that will turn on when the air-source heat pump (ASHP) coefficient of performance drops off due to cold ambient air.

If the building cooling load is greater than the heating load, the DHRC will again recover as much heat as the building can use. Excess heat removed from the dehumidification and cooling process will be rejected to the ambient air through the ASHP. This is the second stage of cooling.

CBA exercises were completed for the selection of the central plant and the domestic hot water heating strategy, among others. This allowed the entire team to evaluate what system option is the best fit for the project when considering all parameters, including performance, efficiency, installation lead-time, ongoing maintenance, opportunity for expansion or upgrading, complexity, and finally cost. This exercise also removes the bias from any one entity and moves the decision to the whole IPD team.

After a comprehensive assessment of implementing Net Zero Ready standards at the ALC, the group concluded that, for the chosen central system, the current capital and ongoing operational expenses associated with an all-electric system (specifically, electric boilers) were prohibitive. It was also determined that the boiler plant should only be operational for part of the year to meet heating requirements efficiently.

In the future, should the cost landscape of the two options (an all electric system vs. a gas boiler backup system) change, the system is designed to allow for future conversion to an all-electric system, where the gas boilers would be replaced with electric equivalents. In addition, with the ASHP located outside on grade, future expansion of this plant component is feasible.

HOW IPD ALLOWED US TO ADD VALUE

The IPD process has allowed opinions that normally are separated and siloed on different sides of the design/construction process to be shared and discussed. The IPD team is able to get real-time feedback on current costs and are working to eliminate the gap that usually exists between those who design but don't install or maintain and those who install and maintain, but don't always participate in the design process. Having the City of Vernon's team fully engaged and integrated with the design and trade partners has been invaluable as the IPD team can get feedback and direction almost immediately, versus a more traditional delivery model where a project can spend large amounts of time and energy stuck in limbo while questions and answers move through bureaucracy and red tape. Even when the group has faced project difficulties, the IPD team has ultimately been guided by what's "best-for-project", which will lead to a successful project and enduring facility that the city and the team will be proud of for many years.

ENHANCED OPERATIONS

As mentioned above, the following items highlight enhanced strategies and characteristics of the mechanical systems for the ALC:

- The DHRC that provides simultaneous heating and cooling to the facility—meaning that heat is recovered from dehumidification and cooling processes and moved to the heating system for re-use should a heating demand exist. This recovered heat offsets new energy being consumed to provide this heating and cooling and greatly reduces the energy consumption of the facility.
- If the building's heating load exceeds the cooling load, the ASHP supplements the heating system after the DHRC has recovered available heat. The efficiency of the ASHP decreases as the ambient air temperature drops, requiring more electricity to extract heat from colder air. The IPD team's analysis determined the optimal plant size for this project based on ambient temperature and cost considerations. This equipment has a much higher coefficient of performance than other heating or cooling equipment, meaning that it consumes much less energy than other equipment to provide an equivalent output.
- To help offset fuel consumption while simultaneously improving the efficiency of the heat recovery equipment, domestic hot water will be preheated via a plate and frame heat exchanger connected to the low temperature hydronic loop prior to the heat pumps.
- The system can provide dehumidification from outside air whenever ambient temperature is optimal, which reduces energy consumption of the natatorium air handling units.
- Dedicated extraction systems, such as the gas stripper and trichloramine exhaust, to remove by-products of disinfection from the natatorium, improving indoor air quality.
- Differential pressure sensors between the natatorium, changeroom and lobby spaces and control sequences to modulate fan speeds in those zones, to mitigate transfer of odours and air contaminants.
- Occupancy controls will be provided to turn off ventilation to spaces that are not occupied. CO2 controls will allow the system to modulate ventilation based on actual CO2 levels in the spaces. Both measures reduce unnecessary over-ventilation and energy consumption of the facility.

SYILX CULTURAL ENGAGEMENT

The mechanical design will support the overall IPD team's plans for meaningful reflection of the Syilx culture in the facility. The IPD team understands the importance of water to the Syilx people and feel that systems that work with and move water efficiently, while providing a fun, engaging experience interacting with clean, high-quality water could help to further support this understanding.

KEY MECHANICAL DRIVERS

The overall goal of the mechanical design for the ALC is to be provide a safe, comfortable, well-ventilated experience for the user, while being as efficient with energy and costs as possible in supporting the overall team goals of providing a fun, community-oriented facility that is accessible and inviting to all.

Track and gym conceptual rendering

8.3 Electrical

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- ✓ Stimulate and develop talent
- ✓ Competitive yet functional
- ✓ Event hosting
- ✓ Modern score clock features

ACCESSIBILITY AND INCLUSION

- ✓ Access to the entire facility for all to enjoy
- ✓ Assisted listening system
- ✓ Public audio system
- ✓ Increased safety
  - » **Duress alarm**
  - » **Fire alarm**
  - » **Emergency Lighting**

RESILIENCY

- ✓ Lighting controls
- ✓ Net Zero Ready
- ✓ BC Hydro EV chargers
- ✓ Maintenance in mind
  - » **Lighting**
  - » **Power**
  - » **Data**

ENHANCED OPERATIONS

- ✓ Grounding and bonding
- ✓ Optimized user comfort
- ✓ Security systems
  - » **CCTV system**
  - » **Intrusion detection system**
- ✓ Door access control
- ✓ Maintenance and training

SYILX CULTURAL ENGAGEMENT

- ✓ Flow
- ✓ Connectivity
- ✓ Strength

ACTIVE LIVING & COMMUNITY

The aquatic spaces of the facility are designed to host provincial level competitions to ensure the ALC is a place for the community to showcase, host, and develop talent in the Greater Vernon Region. Direct lighting will be installed along the edges of the pools, ensuring maintenance access is maintained along with a distribution package to achieve Provincial light levels of 1,000 lux (100 fc) with the ability to dim the lighting during non-competitive use of the 50m pool. The 50m pool will house a non-permanent timing system such that starting blocks could be installed on the north, south or at the bulkhead locations complete with a scoreboard. A potential enhanced scoreboard is currently listed as an Added value Incentive Items, which would provide the ability to host movie screenings in the 50m pool. The lifeguard station has been situated such that visibility to pool amenities such as the cold plunge pool, hot tub, sauna, and steam room is maintained and for additional safety, kill switches for these amenities are placed in strategic locations, including a main pool control panel within the lifeguard station.

Multipurpose program rooms on Level 1 will be outfitted with electrical and data outlets for the purposes of hosting events, meetings, birthdays, etc., along with dimmable lights to enhance overall user experience. The Level 2 multipurpose rooms intended to be used for programs including dance, yoga, art, etc. are equipped with public address (PA) sound systems and dimmable lighting to optimize the user's experience. The fitness area will consist of a variety of energized and non-energized equipment, spaces for stretching, and dedicated spaces for strength training. At the walking/running track, clocks will provide users with the ability to beat their last pace times and improve/develop their skills. In addition to the walking/running track clocks, a synchronized clock system will be provided in the facility to ensure programs do not go over their allotted time.

The team has engaged BC Hydro to provide EV charging stations in the ALC's parking lot via a separate service to the site. These stalls, charger level type, and quantity are to be determined in coordination with BC Hydro during the Detailed Design phase. The required electrical infrastructure for these EV charging stations will be supplied, installed, and maintained by BC Hydro.

ACCESSIBILITY & INCLUSION

To ensure everyone can enjoy the ALC, the team is designing the facility to meet RHFAC Gold Certification—giving all users and athletes access to the entire facility through numerous automatic powered door operators, safe lighting levels, and other electrical enhancements. As part of the British Columbia Building Code 2024 and RHFAC Rating Survey requirements, the ALC will incorporate an Assisted Listening System with devices strategically installed in observation and customer interaction areas for the pleasure of the public, ultimately further enhancing the overall user experience. The facility will have a public address system incorporated throughout serving the natatorium, track and fitness space, gymnasium, change rooms, service rooms, and common areas. An all-call capability with paging microphone will be located at the front reception/control desk.

For the safety of the public, all barrier free washrooms will be equipped with a duress alarm system notifying front reception if a patron requires assistance. Emergency lighting will be provided throughout the facility via either remote heads power by battery packs or inverters to power lights such as in the natatorium area. Further safety is enhanced by providing a fire alarm system throughout the facility with the main entrance housing the main fire alarm cabinet and the secondary entrance housing a fire alarm annunciator panel. Fire alarm booster panels will be placed in electrical rooms to power horn/strobes within the facility. The elevator system will be designed with fire alarm smoke detectors at the top of each shaft and to meet Technical Safety British Columbia (TSBC) requirements.

RESILIENCY

While the ALC is not pursuing LEED status, various design strategies have been implemented as good practice—and where budget allows—to aid in reducing overall demands on the earth resources and operating costs while maintaining user comfort. The national energy code of Canada for buildings (NECB) has been implemented to prescribe minimum energy conservation requirements, such as implementation of vacancy sensors, occupancy sensors, manual switches and master controls located at the reception/control area, and natatorium master controls within the life guard office. LED interior 4000K light fixtures are slated to be installed throughout the facility to not only be welcoming and inviting but give the facility a long-lasting presence and lower maintenance costs. The LED exterior site luminaires are selected to limit light trespass into the night sky and neighbouring properties while also designed to turn off late in the evenings after operating hours for reduction in energy consumption.

The main incoming BC Hydro service will be provided to a new Vista Switch where incoming power will be run to a new substation within the property, adjacent to the facility. In looking to achieve Net Zero Ready, the IPD team has decided to ensure the substation electrical infrastructure is sized to handle future electric boilers with empty conduits being ran to the building so that minimal disruption to the site and facility are achieved when the time comes for the City of Vernon to pursue full Net Zero Ready for the ALC. The incoming Main Electrical Distribution Panel has also been sized to allow for future solar arrays to be installed on 75% of the roof capacity, roughly 865kW of future solar energy, can be inputted onto the system as currently designed. Within the facility, electrical panels are strategically placed so any future renovations can be accommodated with little disruptions to day-to-day activities. A centralized communication room consisting of four post floor mounted housing racks with spare capacity for future technologies which come forth after the facility becomes operational, can be easily absorbed, and implemented throughout the facility from one central location. A single wall mounted cabinet style rack will be provided in a remote storage room to ensure the 90m distance is not exceeded, as coordinated with City of Vernon IT representatives who joined the Big Room at strategic times during the Validation phase. The buildings electrical infrastructure will be installed with seismic restraints as required.

ENHANCED OPERATIONS

Some key takeaways for this facility operationally will feature:

- Bonding of all pool elements within 1.5m of the pool as per Canadian Electrical Code (CEC) with an additional testing point JB in the natatorium to test the integrity of the grounding system installed within the deck.
- Ground buses will be placed in all electrical rooms to ensure equipment and future equipment added can easily be bonded to ground.
- The facility will be Net Zero Ready by allowing for future electric boilers and solar array panels.
- When users leave a room, vacancy sensors will automatically turn lights off making the facility energy efficient during operation.
- When patrons are in a room, light levels will be inviting and where required by NECB, dimmers will be provided to give users flexibility in making the rooms as comfortable as they see fit.
- The electrical system, in conjunction with the mechanical and aquatic design teams, are to employ measures to assist in minimizing energy consumption through the use of variable frequency drives (VFDs) to maximize efficiency by operating equipment at their necessary speeds.
- An intrusion alarm system consisting of door contacts, motion detectors and glass break sensors will be provided ran back to security panels in the main IT room. A security keypad will be installed in the main vestibule, adjacent to the main entrance, as well as at the employee entrance.
- A card access system will consist of an intelligent system controller, door controllers, card readers, door position switches and interface with electronic door hardware. Access control will be deployed at all exterior entry doors to the building and at key interior locations to control entry into the facility to authorized personnel only. A turnstile swing gate between the main entrance and natatorium area with card reader access has been allotted for.
- A video surveillance system will be provided, including cameras for general surveillance and at entrances, exterior, key interior spaces.
- Prior to project completion, demonstration and training sessions will be provided for operations staff for all major equipment and/or systems.

SYILX CULTURAL ENGAGEMENT

During the q'sapi training provided by the Syilx Sisters in December 2023, it became apparent to the IPD team that water was integral to the Syilx people. To help complement the IPD team's vision for enhancing the Syilx culture in the facility, designing the lighting to match the building's flow, providing electrical infrastructure for connectivity making it a gathering space for all, and ensuring a resilient and strong electrical network will be key in helping to meaningfully integrate the Syilx culture into the ALC.

HOW IPD ALLOWED US TO ADD VALUE

The advantage of the IPD process is that not only are the design representatives in the room with the owner, but the construction partners are also just as much a part of the design of the facility as the design team. In addition, with the design team reviewing construction team's pricing, the team can provide checks and balances on the owner's behalf giving the owner best value for the project budget.

Having the City of Vernon team fully integrated as part of the IPD team, means the team can receive real time answers and decision making where on traditional projects, this process can take weeks if not months to get Owner's input. Having the City of Vernon team involved in every aspect of the project also influences the direction of the team and minimizes any re-work or assumptions by the design team, providing the owner with cost savings from a budget perspective. When the IPD team is faced with tough decisions, solutions are not left to one team member to determine; rather, all voices from the entire IPD team are taken into account before the team makes a final decision on determining what's best for project.

KEY ELECTRICAL DRIVERS

Achieved through the collaboration with key City of Vernon representatives, the ALC will provide an inviting environment for users and be a comforting and energy efficient facility with low maintenance costs. Furthermore, the ALC will be capable in attracting talent and diversity through the entire community-driven experience it will provide for many years.

8.4 Aquatics

Conditions of Satisfaction Scorecard

ACTIVE LIVING & COMMUNITY

- Fun and competition
- All ages
- Event hosting
- Spectator seating
- Wellness

ACCESSIBILITY AND INCLUSION

- Zero entry
- Accessible ramps
- Universal change rooms
- Multi-generational

RESILIENCY

- Simple, easy operations
- Chemical use reduction
- Long-term durability
- High performance coatings

ENHANCED OPERATIONS

- Low maintenance
- Decreased water usage
- Integrated BMS
- Optimized lifeguarding

SYILX CULTURAL ENGAGEMENT

- Nature themed spray features
- Natural materials
- Framed landscape views

ACTIVE LIVING & COMMUNITY

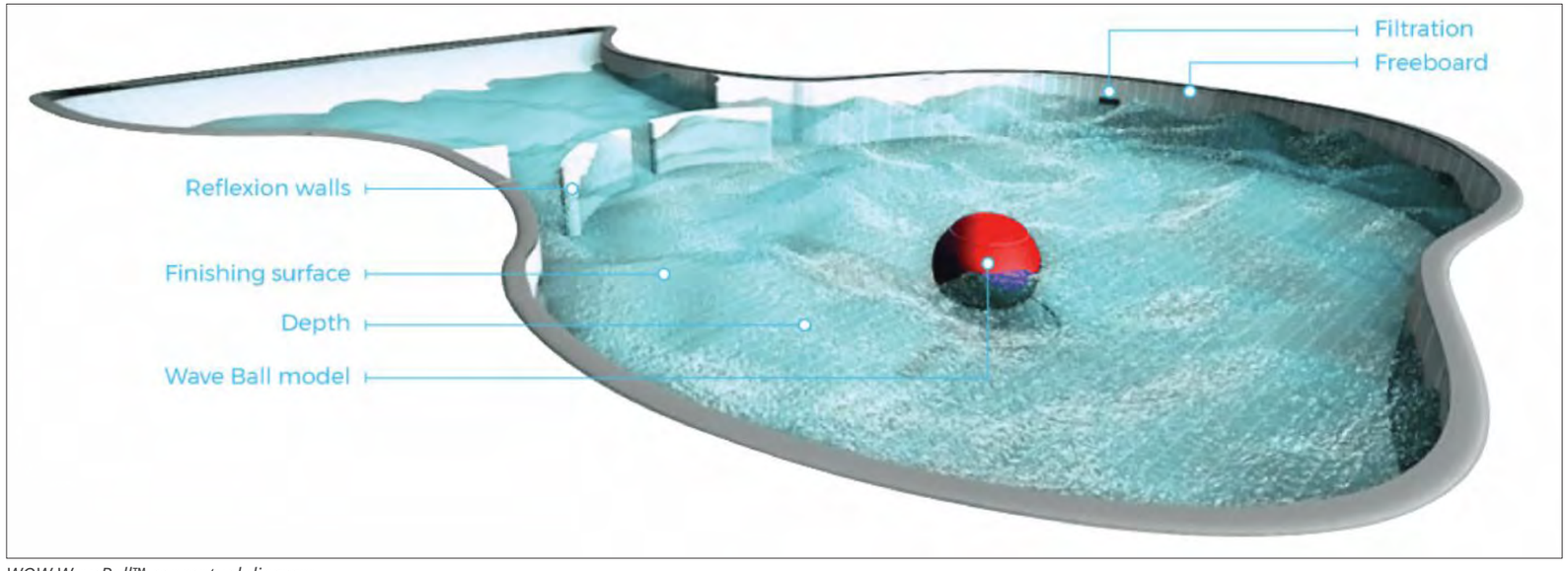
Specific goals identified for the project are to include 'innovative' pool programming features, not present in nearby aquatic facilities, and correspondingly to include 'Vernon-appropriate features' suitable to the current and projected-future town demographics. To meet these goals, pool types and interactive features have been selected that maximize pool usefulness in an effort to achieve utmost value and bather experience, without compromising quality or operability.

The 50m pool will feature eight lanes, and be dimensioned and outfitted to suit local, regional, and provincial competition standards. The pool will feature a 'negative edge' or continuous gutter skimming edge design, a moveable bulkhead, as well as a dedicated moveable timing system to provide flexibility of the pool itself to accommodate various functions simultaneously. Moreover, the pool will feature a shallow part in located the middle to allow a comfortable depth for children and helping hold aquarobics classes all while meeting the criteria for Swim BC and Swim CAN. The pool dimensions/ depths and overhead structure will also allow the installation of a suspended, retractable obstacle course (known as a 'NINJACROSS™' system). This programmability will concentrate active user groups (i.e., young adults) in the 50m pool, separate from the other pools. The 50m pool's deep end is informed by other aquatic sports – water polo, artistic swimming (synchro), and underwater hockey. The end of the 50m pool will feature 1m and 3m diving boards, and space for a future climbing wall.

The leisure pool will be of zero-depth entry beach style design increasing in depth, allowing ease of access and a variety of programming options across its depth cross-section. It will feature a 'negative edge' or continuous gutter skimming edge design along the main leisure area with a roll-out gutter along the length of the lazy river area. The zero-entry tot zone will feature a tot slide, and interactive spray features to natural themes such as plants, flowers, animals, and the earth. The deep end will feature a prominent lazy river of two speeds for recreational and therapeutic use. The pool dimensions and depths can support the inclusion of a WOW WaveBall™— a feature not currently found in any other pool facility elsewhere in the province or western Canada. A run-out waterslide will be adjacent to the leisure pool and accessed via circular stairs. The slide will be a combination of open and closed flume sections to provide as much fun and speed as possible.

A warm 25m training pool, located next to the leisure pool, will feature three lanes and supports swimming lessons, lane swimming and other aquatic programs while doubling as a warmup pool for larger swim meets. The 25m pool will feature a 'negative edge' or continuous gutter skimming edge design.

A family hot pool located adjacent to the leisure pool will be shaped to maximize bench space and feature a 'negative edge' or continuous gutter skimming edge design. It will feature numerous hydro-therapy jets as well as a standing area.



WOW WaveBall™ conceptual diagram

ACCESSIBILITY & INCLUSION

A 'Wellness Zone' located at the north end of the 50m pool features a cold plunge pool, adult hot pool, sauna, and steam room. Cold showers will be located near the hot tubs/cold plunge. Both the cold plunge pool and adult hot pool will incorporate a continuous gutter skimming edge design. In addition to the 'Wellness Zone', 25m training pool will provide additional therapeutic benefits for muscle recovery and relaxation; especially for persons with disabilities (i.e., mobility and muscle, etc.).

Entrances into each of the pools has been considered and designed to be as accessible as possible, ultimately meeting and exceeding the RHFAC Gold Certification requirements. Zero-entry ramps have been provided in addition to stairs at both the 25m training pool and family hot tub while the leisure pool contains a zero-depth beach entry. At the 'Wellness Zone' Raised walls into the cold plunge pool and adult hot tub are designed to accommodate transferring from wheelchairs. Automatic doors to both the sauna and steam rooms will provide improved accessibility for all users. At the 50m pool, a deck-mounted Pool Pod accessible lift will provide supported and/or independent access by those with limited mobility. Lastly, a moveable lift will provide additional access into/out any of the six pools.

Tactile tiles on pool deck will be considered as a product Detailed Design to further enhance access for persons with low vision or vision loss.

RESILIENCY

Natural lighting has been optimized wherever possible throughout the natatorium via primarily north oriented glazing to maximize the amount of light within the space while reducing glare caused from direct sunlight onto the water.

Mechanically, Pressure/Regenerative D-E Replacement filters have been selected for the ALC. This type of filter provides superior water filtration ability without the use of supplemental flocculants (+/- 2 microns), and single-pass turbidity reduction of four NTU or greater. This will allow for the ability to maintain a consistently high level of water quality even at the end of an operational day, such that a "night turndown" of the circulation rate can be executed at night. The filters also have a small footprint that has reduced mechanical room space and associated cost and will provide substantial water and energy savings as their backwash intervals are very long (two-three weeks) and use very little water to do so (approx. 400 USG only). The perlite media of the filters can also be evacuated by normal sanitary drainage systems.

ENHANCED OPERATIONS

The location of the lifeguard office is optimally located in the centre of the pool and provides unobstructed sightlines to all areas within the natatorium.

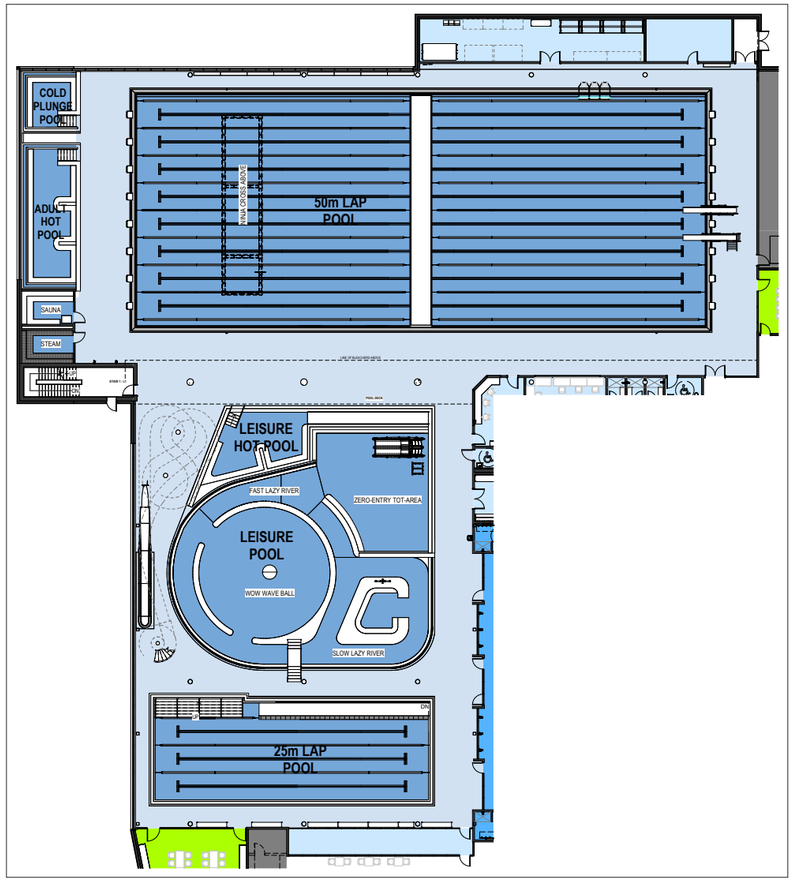
Along the pool deck, multipurpose rooms have been strategically located to support swim events, birthday parties, staff meetings, training events, etc., and provide multiple access points (via directly from the pool deck, or from public non-pool deck areas).

Adequate deck space along the 50m pool will provide athletes and judges the ability to be poolside comfortably.

Two storage spaces have been logically placed near the 50m and leisure pools to accommodate the flexible movement and storage of pool equipment over time.

Each pool will feature a separate and dedicated mechanical system with similar components and fundamentally similar principles of operation. The pool equipment will be housed in a basement mechanical space i.e. below water level (the exception being the chlorine and pH chemical rooms which will be on the main floor at the building exterior). This location improves hydraulic efficiency, and ease of system startup and shut down. It also minimizes any air buildup or related water hammer in the pool piping.

The various elements of the pool mechanical systems will be interlinked, controlled, and monitored through a DDC-based control system. This system will allow for:



Natatorium pool basins

- Ease of system startup/shutdown by operational staff.
- Automatic detection of, response to, and operator notification for, equipment malfunctions
- Remote control and emergency stoppage control of water features.
- BMS-style digital user interface (including touchscreen interface in basement mech room)
- Remote monitoring, performance trend-logging, and some remote troubleshooting of pool equipment

Chemically, the overall intent is to provide a treatment system that is effective in maintaining sanitary water conditions, is safe, familiar, simple to operate, and cost effective. It will also provide automatic control system integration (i.e. remote access, trend-logging of measured data) via the building BMS system.

SYILX CULTURAL ENGAGEMENT

The project strives to continuously improve integrating Indigenous ideas within the facility. Drawing inspiration from the Syilx cultural engagement the facility will feature natural materials like the heavy timber roof structure, and wood around the health and wellness amenities. The natatorium will integrate colour, words for water, and provide views of the landscape and adjacent park space. The project seeks to include 'innovative' pool programming and features not present in nearby aquatic facilities, and correspondingly to include 'Vernon-appropriate features' suitable to the current and projected-future city demographics. To meet these goals, pool types and interactive features have been selected that maximize pool usefulness in efforts to achieve utmost value and bather experience, without compromising quality or operability.

50m pool conceptual rendering

CODE REFERENCES

The pool systems will be based on the following Codes, and Standards of Best Practice, at a minimum:

- BC Pool Guidelines - Design (2021) – Code Reference
- BC Pool Guidelines – Operations (2021) – Code Reference
- British Columbia Building Code (BCBC 2023) – Code Reference
- Model Aquatic Health Code Body & Annex (2023) – Best Practice Reference
- Lifesaving Society Pool Operational Guidelines – Best Practice Reference

POOLS SUMMARY

Parameter	50m Pool	25m Training Pool	Leisure Pool
Design Volume	684 000 USG	70 000 USG	110 000 USG
Turnover Rate	300 min / 5 hrs	240 min / 4 hrs	90 min / 1.5 hrs
Flowrate @ Turnover Rate	2280 USGPM (1140 x 2 systems)	283 USGPM	1250 USGPM
Design Bather Load	450 Bathers	150 Bathers	120 Bathers
Temperature (F)	82 F / 28 C	90 F / 32 C	90 F / 32 C
Heat Up Time	+/- 96 hours	+/-48 hours	+/-48 hours

Parameter	Family Hot Pool	Cold Plunge Pool	Adult Hot Pool
Design Volume	9 500 USG	5 800 USG	13 000 USG
Turnover Rate	15 min / 0.25 hrs	30 min / 0.5 hrs	15 min / 0.25 hrs
Flowrate	633 USGPM	193 USGPM	866 USGPM
Design Bather Load	24 Bathers	15 Bathers	39 Bathers
Temperature (F)	104 F / 40 C	60 F / 15 C	104 F / 40 C
Heat Up/Cool Down Time	+/-4-5 hours	4 hours to cool to design temperature	+/-4-5 hours

NOTE: the above turnover rates exceed BC pool design regulation requirements and have proven to provide high pool water quality even under sustained high bather loads.

Important note: specific manufacturers and types of equipment have been pre-selected and owner-approved during the Validation process.

PIPING SYSTEMS

The piping systems will feature NSF 50/CSA Sch 80 and Sch 40 PVC/CPVC piping and fittings.

- Sch 40 piping will be used for all under-slab pool piping (concrete encased) and Sch 80 piping used for un-encased underslab piping.
- Sch 40 piping will be used for all gutter piping in both under-slab and the mechanical room areas.
- Sch 80 piping will be used for all other mechanical room piping.
- CPVC piping will be used at heat exchanger piping connections.
- UHMW polyethylene piping will be used for chemical system piping connections.

Due to chemically aggressive soil and groundwater conditions, all under slab pool piping will be concrete-encased and tied into surrounding pool or building structure. This will also restrain the piping against damage due to seismic events.

Passive (PVC ring) or active (expanding chemical strip) waterstops will be used at all penetrations of watertight concrete structures.

Pipe supports and fasteners will be of stainless steel for all supports underground, and of plated steel for all mechanical room components.

Thermoplastic butterfly and ball valves selected for long term durability and ease of operation will be used. Chain operators will be provided for high-elevation, frequent-operation valves in the mechanical room.

CIRCULATION SYSTEMS

Each pool (except the 50m pool) will feature a single circulation system dedicated to filtration, heating, and chemical treatment. The 50m pool will include two parallel circulation systems. These have been provided to reduce construction costs and to simplify filter media regeneration/replacement tasks for the pool operator. While both must be operational for the 50m pool to be open to bathers, pool water chemistry and heating can be maintained by one system in case of a maintenance shutdown of the other, parallel system.

Pool water return will be provided through main drains and gutter systems. All main drains will meet ANSI-7 assembly requirements and be installed to ANSI 7/BC Pool Guidelines - Design (2021) requirements (and be sized for both circulation and water feature flowrate requirements),

Gutter systems will accomplish surface skimming for circulation purposes, and bather surge protection via a ‘surge gutter’ design, except for the leisure pool, which will include a conventional surge tank, to absorb the wave activity present in that pool. Each surge gutter or surge tank is sized to meet BC pool design guideline requirements of a combined 3ft3 / bather.

Pool water supply will be provided via floor inlets and localized wall inlets distributed to ensure thorough water circulation, including stair and ramp areas (and underneath the moveable bulkhead).

WATER FEATURE CIRCULATION

Leisure pool water feature and whirlpool/cold plunge pool jets will use dedicated pumping systems separate from the pool filtration systems. They will draw water from the main drains of a given pool and supply it under pressure back into the pool, without treatment or heating. The water features will be zoned based on owner programming preference and use individual pumps where possible.

Remote control of water features will be provided by a ‘lifeguard control panel’ in the facility lifeguard office and will also include a series of ‘emergency stop’ buttons distributed throughout the natatorium, and at amenities such as the waterslide and the WOW WaveBall™.

POOL CIRCULATION PUMPS

Each circulation system will feature a single circulation pump, to minimize capital, energy, and maintenance cost. Catastrophic pump failures have proven exceedingly rare when properly protected electrically, and the availability of spare motors make this a preferred option vs. multiple/ redundant pumps.

Circulation pumps will be of an end-suction/vertical discharge centrifugal design. All wetted parts including the impellor will be epoxy coated for long term durability. Each pump will be protected by a primary screening hair/ lint strainer that minimizes hydraulic losses. Where possible, thermoplastic-construction pumps will be used due to their ease of replaceability and robust chemical resistance. Pump models will be selected that meet NSF-50 certification.

Each circulation pump will also be served by a VFD (variable frequency drive) to maximize both energy efficiency and control integration with automatic filter system control systems. They also provide power spike, high amperage, and phase protection to pump motors, decreasing the likelihood of catastrophic pump damage vs. HOA starters.

Water feature pumps will likewise be of thermoplastic construction wherever possible, given their intermittent operation.

Bypass pumps will be provided for consistency of water bypass flow, and to enable a pool turnover / pump speed reduction outside of bathing hours, when the pool chemistry allows it.

POOL FILTERS

Each filter also incorporates a built-in automatic control system that assists the operator in daily maintenance, and controls filter, pump, and chemical control operation in a unified manner. It also features a built-in ‘website’ that is remotely accessible to monitor filter performance via an internet connection.

Each circulation system will feature a single, dedicated filter. Catastrophic failures have proven extremely rare

and have yet to be experienced on any Western Canadian projects and the filters feature few wearable parts, making this a preferred option vs multiple-filter circulation systems.

Regular annual maintenance (cleaning of the internal elements) is necessary and can be conducted during an annual shutdown over a 24–36-hour period.

POOL HEATING AND DOMESTIC COLD-WATER FILL

Plate and frame heat exchangers connected to the building heating plant and automatic control system will provide pool heating, to maximize overall building energy efficiency. This system will be provided by the project mechanical scope. Each pool will feature a domestic cold water (DCW) supply connected to the influent of the heat exchanger, to allow both filling of the pool without use of the circulation equipment (allowing ease of maintenance), and filling with 'tempered' water instead of cold water, allowing an accelerated pool fill process.

The cold plunge pool will feature a dedicated chiller that rejects water heat to the building hydronic chilled water circulation loop.

Pool heating systems (and cooling systems) have been sized with specific fill and heat-up intervals, to allow predictable facility operation and programming (refer to the pool characteristic charts above).

For example, the whirlpool systems and cold plunge pool capacity will allow pool drain, refill, and heating from 'cold' to operating temperature in a specific interval, to allow overnight servicing that does not impact bather use in the whirlpools/cold plunge pool, if necessary.

Each pool would feature a dedicated automatic level control and DCW fill system to maintain pool water level without regular operator intervention. This water supply would also be metered to monitor pool water consumption.

POOL CHEMICAL TREATMENT

All concentrated pool chemicals will be kept within, and fed into circulation water, from within dedicated chemical rooms on the facility main floor. No concentrated pool chemicals need to be carried into the pool mechanical room basement.

- **Chlorine Source**: calcium hypochlorite erosion feed is selected as the chlorine source for the facility. It is compatible with the source water available in the City of Vernon and presented the best combination of resulting water quality and economy of transportation cost amongst chlorine type alternatives. The feed equipment will be installed in a dedicated, ground-floor, exterior-access chemical room that is fire rated and ventilated to code requirements, with paved road access for ease of chemical delivery. Infrastructure is being provided within the room to allow for wash-down of the feed equipment as well. Storage space in the chemical room should be sufficient for a three-four-week storage supply of chlorine pellets.

- **pH feed**: sodium bisulphate acid will be used for pH control, based on the interaction between the source water and the calcium hypochlorite chlorine source. Facility staff have requested slurry feed tanks with mixers, and dry-chemical storage space. A dedicated, ground-floor room next to the chlorine room will be provided for storage and feed of this chemical. Peristaltic feed pumps controlled by a chemical controller will provide chemical feed.
- A chemical 'bulk feed' system is also provided in the pH feed room, to allow for bulk additions of chemicals such as sodium bicarbonate. However, space has been allotted in the off-deck mechanical space for storage for direct chemical additions to the pool tanks themselves, as the capacity of the bulk feed system is inherently limited.
- **Airborne Chloramine Removal**: for the leisure pool, a 'chloramine scrubber' system has been provided that will aerate and remove chloramines from the surge tank water, and exhaust resulting air from the building. This is in addition to the gutter-located chloramine removal system that is already part of the building HVAC system.
- **Secondary Oxidizer:** UV water treatment is planned as a 'secondary' oxidizer for the pool water in each pool. The units feature 'medium pressure' lamps that will provide both chloramine control and direct destruction of bacterial/viral DNA, with minimal operator intervention or addition of chemicals to the pool water. Each system is designed for 'full flow' – each system is designed to treat 100% of circulation water. Each system is also both NSF-50 rated, and 3rd party validated for three-log virus and bacteria reduction.
- The UV system can also be enabled/ disabled automatically to save power, based on combined chlorine readings.
- **Chemical Controllers:** the water parameters of PPM, ORP, and pH will be monitored by the chemical controller. One chemical controller will be provided for each pool, to provide equipment redundancy. It is possible to provide a PPM based chemical controller that is unaffected by turbidity unlike most ORP-based controllers. The unit will be NSF 50 certified and features an 'app' style control panel interface for ease of use. ***These controllers will also display pool temperature and flowrate, to allow for ease of overall system monitoring by lifeguard staff and will be located near the chemical rooms on the facility main floor rather than in the pool mechanical basement.***

- **Turbidimeter:** each pool will feature a dedicated turbidimeter, to verify a critical aspect of water cleanliness. While this is not a code requirement, low turbidity and monitoring thereof will prepare the facility for a circulation pump energy management strategy based on modifying pool flowrates when unoccupied.

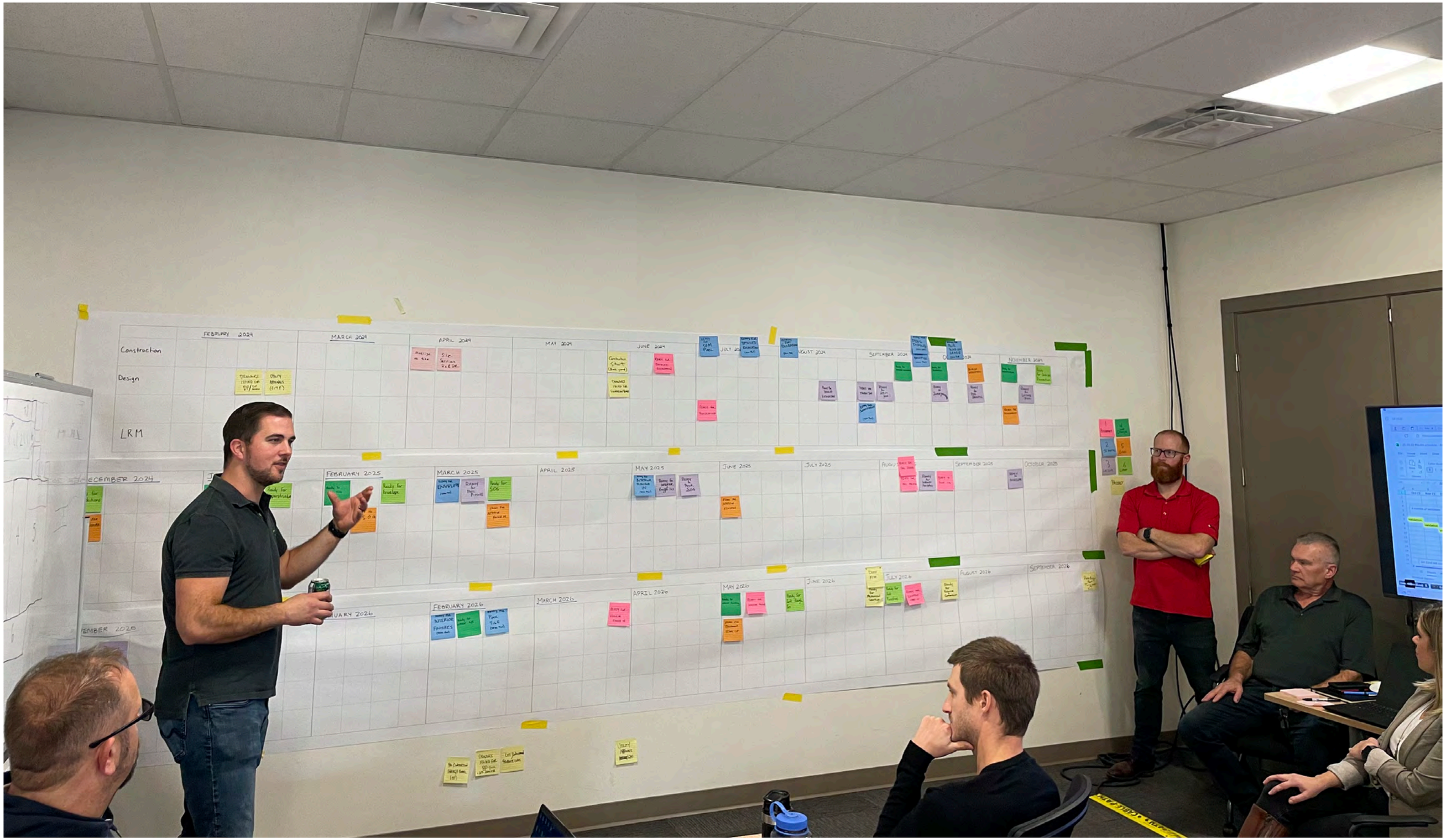
The overall intent is to provide a chemical treatment system that is effective in maintaining sanitary water conditions, is safe, familiar, and simple to operate, and cost effective. It will also provide automatic control system integration (i.e. remote access, trend-logging of measured data) via the building BMS system.

COMMISSIONING AND POST-CONSTRUCTION

The pool mechanical systems will be brought into operation and commissioning by an experienced commissioning agent, in concert with the overall commissioning strategy for the facility, and with mechanical/BMS commissioning processes.

Staff training will be provided by an NSPF-certified individual, and will cover routine system operations and maintenance support, as well as support on an as-needed basis to facilitate a successful start to pool system operations. **It is expected that pool staff do have previous training and experience in pool operations, however.**

Ongoing warranty support will be provided throughout the 1-year warranty proposed for the project, in addition to manufacturer warranties.



9 NET ZERO READY

St. Michael's School students "dressed" for badminton in -22 weather| Image Courtesy: Museum and Archives of Vernon – No. 25290

9 NET ZERO READY

As a two-storey recreational facility containing a natatorium, universal change rooms, multipurpose rooms, fitness zones, and a gymnasium with an integrated four lane walking/running track, the ALC presents opportunities and challenges related to recreation energy use intensity, considerations for long-term operating efficiency, and fuel switching in the future. The Energy Modelling Validation Report summarizes the energy modelling process and basis of design (see figures below and on the right) resulting from the completion of the Validation phase. The Validation phase was structured to align the building's design with the City of Vernon's requirements for achieving a Net Zero Ready facility. This process involved a systematic definition of targets that insured the project Conditions of Satisfaction were met, a comprehensive parametric analysis of various building parameters, and a sensitivity analysis to assess the impact of each identified measure. These steps collectively formed the foundation for establishing the basis of design.

Aligned with the City of Vernon Climate Action Plan, the ALC is targeting Net Zero Carbon Emissions Ready which requires the basis of design to achieve 85% reduction in greenhouse gas (GHG) emissions compared to an NECB 2020 baseline as well as provide a transition plan for future Net Zero operations.

The proposed design of the ALC achieved substantial energy savings compared to the NECB 2020 gas reference building. The basis of design yielded a 52.1% reduction in energy and an 89.1% reduction in GHG emissions, meeting the Net Zero Carbon Emissions Ready target of 85% savings.

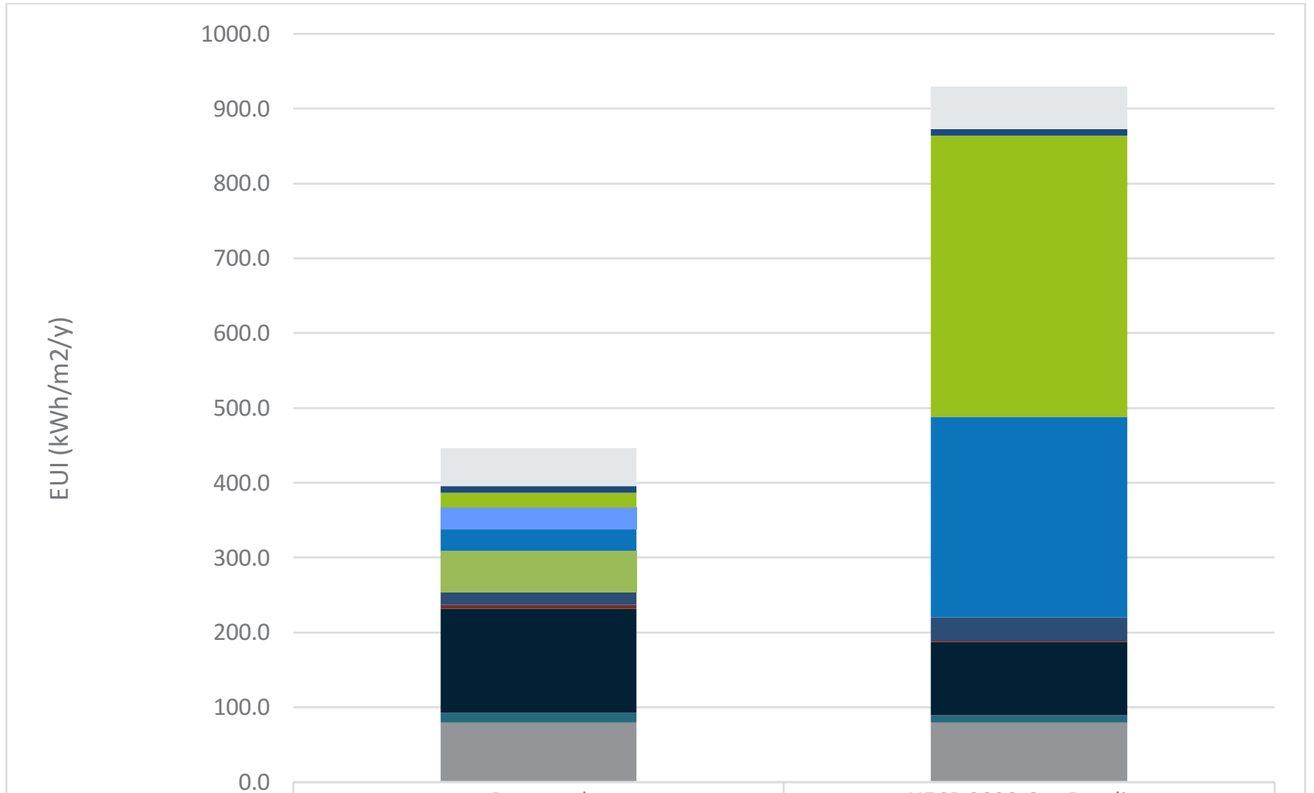
Summary of Performance Results (TEUI, GHGI, and Energy Cost)

	Total Energy (MWh/yr)	TEUI (kWh/m²/yr)	GHGI (kgCO2/m²/yr)	Energy Cost ($/yr)
NECB 2020 Baseline	11,661.9	932.0	122.4	-
Proposed Building	5,585.4	446.4	13.3	$516,976

Summary of GHG Results

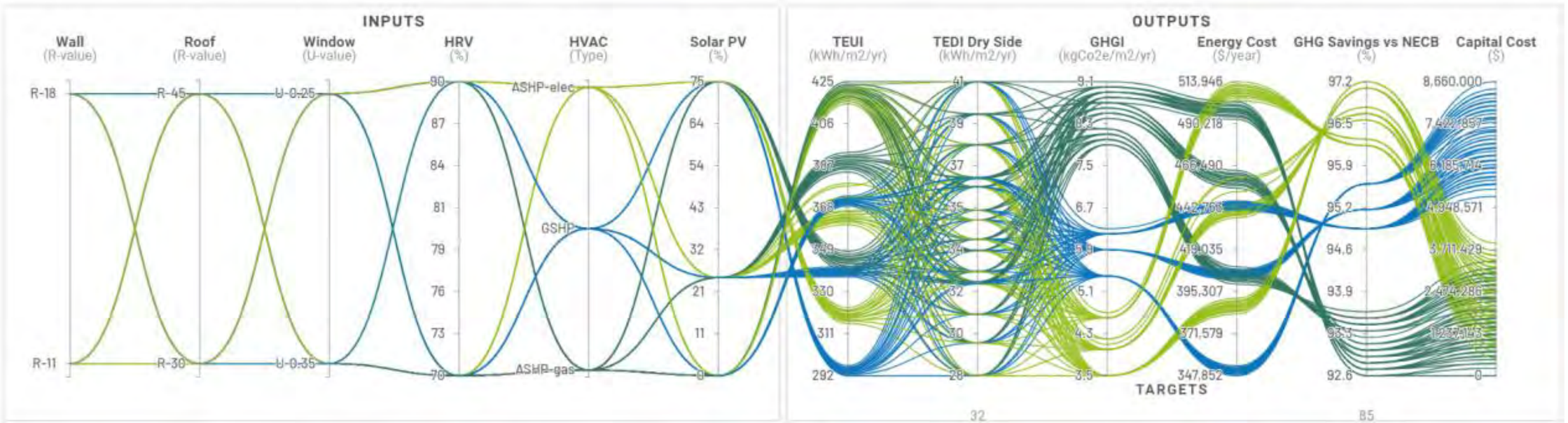
	% GHG Savings vs NECB 2020	Complies?
Net Zero Ready Target	85%	
Proposed Building	89.1%	Y

Energy performance targets

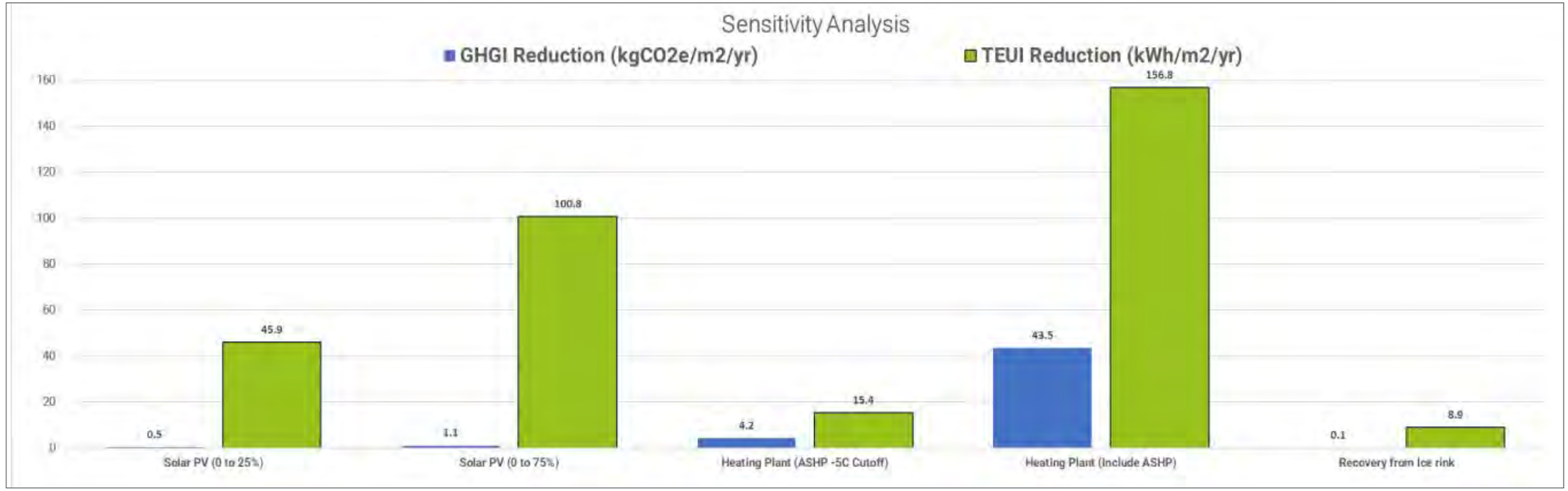


	Proposed	NECB 2020 Gas Baseline
Total	446.4	932.0
Lighting	50.9	56.6
Receptacle	8.6	8.6
Space Heating - Gas	19.8	375.6
Space Heating - Elec	29.5	0.0
DHW-Gas	28.6	268.7
DHW- Elec	55.4	0.0
Space Cooling	16.9	30.5
Heat Rejection	4.5	2.0
Supply Fans	139.2	98.4
Pumps	13.1	9.0
Pool Pumps	79.9	79.9

Proposed Energy Use Intensity (EUI)



Parametric analysis



Sensitivity analysis

10 BASE TARGET COST

Recreation centre complex at 3310-37 Avenue | Image Courtesy: Museum and Archives of Vernon – No. 2587

10 BASE TARGET COST

The target price is termed the Base Target Cost, which is developed over the duration of the Validation phase and articulated as the contractual term connected to the reimbursable costs required to complete the design and construction work in achieving the Project Objectives. Decisions about costing are based on fiscally responsible considerations which are cost effective and realistic that also meet the project CoS. The budget includes a project contingency that is risk informed (probabilistic), transparently reviewed and agreed upon by the entire IPD team including the Owner. Base Target Cost includes the Validation phase costs incurred by the design and construction team as well as all design and construction costs for the project.

The compensation structure under the IPD contract is a cost-reimbursable model with the integrated design and construction team signatories incentivized to achieve—among other things—a 'target price' in order to protect their 'Profit At-Risk Pool' (or collective profit or Incentive Compensation Layer (ICL) for for the project). The process behind this approach is called Target Value Delivery (TVD) and it includes cost consideration for a more holistic process for a team to target owner-defined value in design as well as a deeper integration of the production-like-construction value that is intended to create optimal LEAN flow in the full project execution.

The Hansen Bridget IPD specific contract includes the Base Target Cost and the 'Profit-at-Risk Pool' as the commercial focus for the IPD team. Additional Owner internally managed costs are typically clarified in the process of Validation, and while they are a recognized part of the total project expense for the City of Vernon, they are not considered part of the commercial agreement. Owner's costs include the collective project insurance, professional consultants for transportation, geotechnical and environmental services, public consultation, regulatory permitting fees, IPD advisory consulting services, FF&E costs, and an assortment of additional items.

The IPD Agreement further contemplates that the 'Base Target Cost' is re-established as a '(Final) Target Cost' (must be less then 'Base Target Cost') at the completion of the Detailed Design phase when the major procurement activities are known and completed and when the majority of procurement risk has been mitigated and project execution risk is more clearly understood.

Between the Base Target Cost and Final Target Cost determination is also when the Owner selects AVII—if relevant and appropriate. AVII are additional scope items that the Owner may want to consider as wish list items for the project, but they are not part of the Base Program or Base Target Cost commitment. AVII are contemplated throughout the Detailed Design phase and are only added to the Base Program and Base Target Cost through a process involving PMT recommendation and Owner alignment which includes a comprehensive demonstration that sufficient savings have been generated and that the execution is achievable (as articulated by a proposed 'Last Responsible Moment'). The addition of AVII would increase the 'Profit-at-Risk Pool' according to the IPD Agreement conditions as agreed between the parties.

It must be recognized that the IPD team demonstrated confidence as they have elected to align on the $121,030,909 Base Target Cost even with potential additional risks identified. An IPD team does not have the same risk profile as traditional projects, as they have waived liability between parties, therefore, this commitment demonstrates that this IPD Team has confidence in the governance process of collaborating and working together to innovate and meet the Base Target Cost with a much lower than normal risk informed contingency. The IPD Team will aggressively target risks identified during the Validation phase to mitigate or eliminate while rapidly exposing, coordinating, and detailing other systems and scopes that the Cost Model identified as potential areas of risk or opportunity.

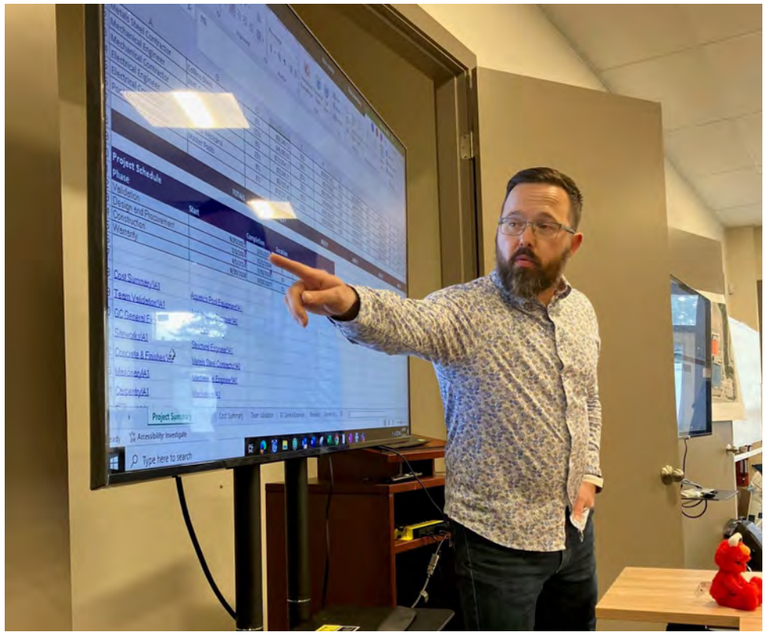
10.1 Benchmarking and Market Condition Discovery for Similar Builds

As a first step in the Validation process the IPD Team gathered benchmarking market intelligence − information that was available through IPD partners' current and recent projects, institutional relationships, and other publicly available data reporting on total project cost or budget projections for similar projects. The IPD Team selected a total of 10 projects whose parameters were similar to the ALC project. While programmatic differences were evident, the IPD Team were confident these projects would provide a reasonable starting point for establishing the project's Cost Model. The IPD Team's challenge was to use this benchmarking data to increase value and enhance Base Program and explore schedule acceleration through innovation and collaboration while targeting a similar overall cost as these comparable projects.

A benchmarking target was set and the IPD team proceeded to break this target down on a Master Format divisional basis using historical data and percentage of total cost metrics. The benchmarking exercise was completed independently of specific programmatic inputs for the ALC project and did not contemplate any project specific requirements, positioning of the building or the site, or other conceptual design information. It should also be noted that this original benchmark was not adjusted for time-based market escalation but was rather a first data point in establishing a Cost Model structure for the project. This exercise predated Base Program work completed by the team to establish a building layout that supported the ***Greater Vernon Active Living Centre Feasibility Study*** findings by improving community connectivity, the building's relationship to the adjacent Kal Tire Place, and integration into the overall former Kin Race Track site.

10.2 Cost Confidence

The evolution of Base Target Cost relies on a total Base Target Cost (not including Profit Pool or Proft at Risk), rigorous alignment of the Base Program or scope of the project with anticipated cost and schedule. Immediately upon establishing the benchmarking target, the IPD Team continued to break down the Cost Model into further levels of detail while simultaneously establishing narratives on a divisional and more detailed basis of each element of the building and site.



The IPD team continued in their exploration of Base Program additions and refinements resulting in increases to the Cost Model while simultaneously attempting to introduce new and exciting features and ideas while de-risking the permitting and construction timelines alongside an intentional expansion of the typical Validation phase undertaking. At around this time the City of Vernon re-articulated their desire to target a September 29, 2026 completion date and the IPD team was required to pivot and adopt an additional critical task of preparing permit application drawings for submission beginning with the foundation permit in May 13, 2024, with the full building permit application in August 6, 2024.

10.3 Risk Mitigation Strategy

The IPD team's awareness of the anticipated and recorded combined construction cost escalation projected for Greater Vernon resulted in proposed strategies to mitigate possible sources of construction escalation. These strategies include the following.

10.3.1 PARTNER SCOPE ESCALATION

Each partner has provided transparent estimates of escalation based on the collaboratively developed project schedule factoring resource commitments to meet the schedule in 2024 - 2026. These estimates were informed by a combination of corporate escalation projections, known escalation factors from established collective bargaining agreements and informed escalation projections based on current negotiations for collective bargaining agreements.

All partners were involved including architectural, structural, mechanical, electrical, civil, and aquatics consultants, the general contractor, and the mechanical, electrical, and structural partners. The Cost Modeling that informed the validated Base Target Cost included a Blended Rate approach as well as a blended approach to known and unknown material, and equipment escalation risk included in the IPD partner's scopes of work.

10.3.2 SCHEDULE MANAGEMENT

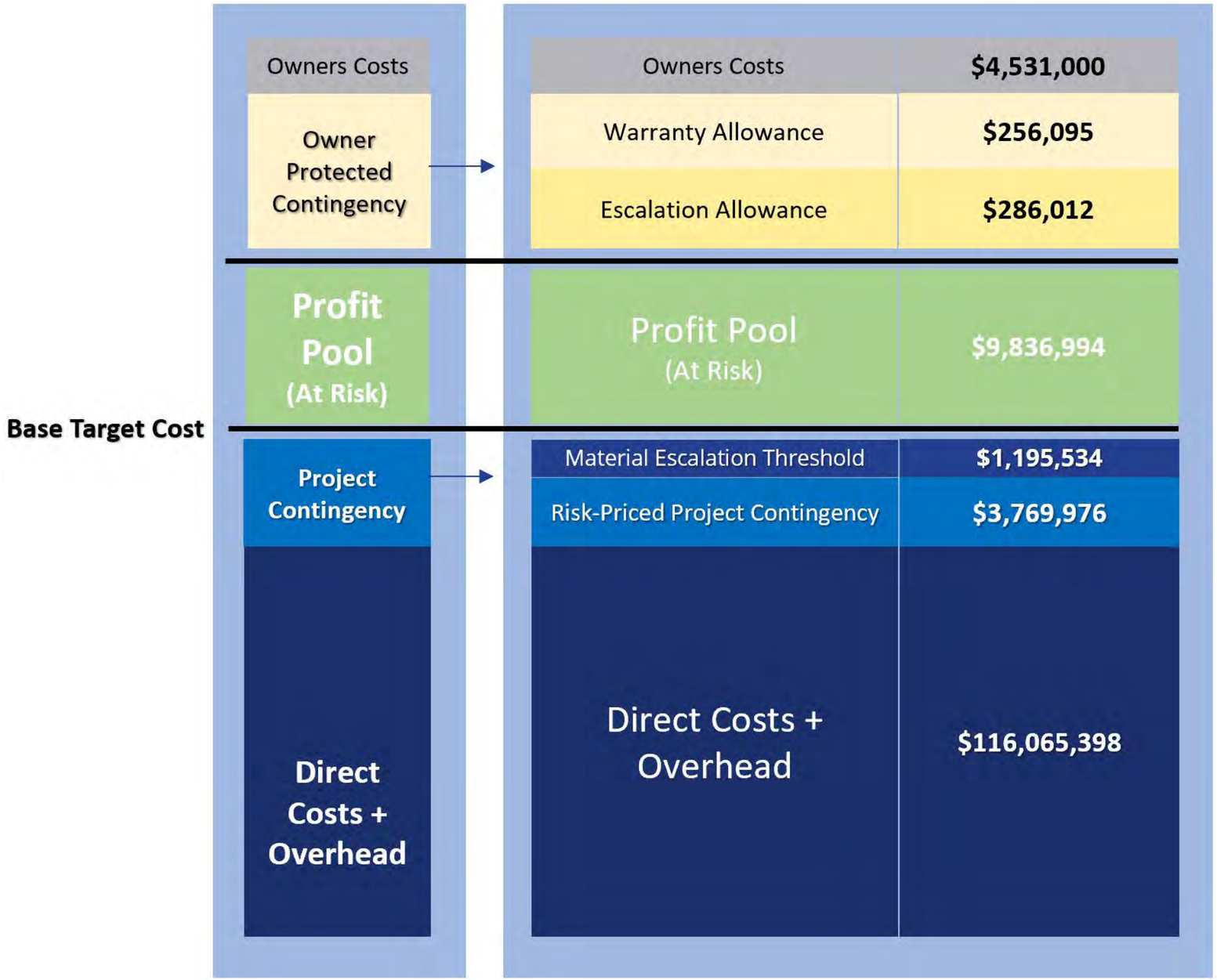
The IPD team understands that a predictable flow of the work will impact productivity, potential seasonal impacts and mitigate labour escalation on schedule slippage. To gain the optimal control of critical path scopes including site servicing, foundations, and structure the concrete trade partner and structural partner were engaged during the Validation phase. This strategic decision was made to improve flow and help mitigate escalation costs associated with possible construction delays.

10.3.3 MARKET INPUT

The IPD team chose to approach the market as a means to 'vet' costing in the region and locally for pricing options throughout the Validation phase to de-risk the project early. This included multiple parties external to the IPD team representing multiple scopes of work and future trade partner packages, including possible Design-Assist or Design-Build partners to inquire about pricing to get multiple data points on what might be occurring including escalation considerations. The team were compelled to explore and gain a higher level of certainty related to future trade partner scopes. Market sounding and trade partner costing information was solicited and received regarding earthwork, site services, concrete and rebar, mass timber, wall framing, millwork & cabinetry, roofing, flooring, painting, toppings, furniture, specialties, glazing, elevators, and most other major scopes of work. These strategies have allowed the eam to establish a high degree of confidence in both the impacts of escalation and the tools and processes available to the IPD team to better manage these during the Detailed Design and Procurement phase and the Construction phase.

10.4 Base Target Cost and Budget Summaries

The project Cost Model follows a work breakdown structure (WBS) informed by construction Master Format norms into basic units using expected unit rates and input from trade partners and suppliers. Each IPD team partner has produced a detailed cost estimate spanning from the Validation phase through to the Warranty phase. The IPD team has reviewed partner cost estimates in detail to ensure alignment with scope and consensus on forecasted costs for the project. Increases to line items over the course of the Validation phase were evaluated by the IPD team, and innovative options and alternative solutions were considered to align the Base Program and desired Project Objectives within Allowable Costs. The detailed cost estimate provided as part of the Validation report will form the basis of the forecast workbook moving forward and will be managed by the PMT and reviewed monthly by the team.



Project costs summary diagram

10.5 Risk & Opportunity Register

The project Risk and Opportunity Log is a project management tool developed by PMT during the Validation phase to identify risks that could jeopardize the IPD team's ability to deliver the project within Base Target Cost. The Risk Register outlines all risks known and understood by the team, including risks external to the project such as market conditions. These risks could have both positive and negative impacts to the project. The Risk Register, including weighted formulas, services as a tool and visualization that informs and rationalizes the Base Target Cost contingency amount.

The Risk Register will be reviewed regularly by PMT throughout the project to identify, monitor, and control these risks and opportunities. The Risk Register may be utilized by PMT to inform the management and total dollar value of the project contingency. The Risk Register and project contingency are inextricably linked throughout the project and represent all funds allocated for unforeseen conditions. While the amount of project contingency has been established as an integral part of the Base Target Cost, this amount will evolve throughout the Detailed Design and Procurement phase as risks are mitigated and opportunities are realized that have already been identified and as new risks and opportunities are documented. It should also be noted that the currently identified project contingency amount represents a weighted percentage of the total risk cost of over $3,769,976 documented. This weighting of a reduction of anticipated project cost is only possible by the risk transparency and team approach afforded by the IPD delivery model.

Project contingency, included in the Base Target Cost, is established during the Validation phase by the PMT based on an analysis of potential risks and innovations, and covers reimbursable costs that may arise from that analysis, but does not cover reimbursable costs resulting from conditions or circumstances that vary substantially from what was anticipated during the Validation phase.

10.6 Added Value Incentive Items (AVII)

In order to successfully incorporate AVII, the IPD Team will use a strategy of keeping important and irreversible decisions open until the point in time that the cost of not making a decision becomes greater than the cost of making a decision. This is called the last responsible moment (LRM), and usually identifies an exact point in the project schedule where the decision must be made to avoid major impacts to budget, schedule, quality and provides teams with the time to adequately evaluate design options.

11 PROJECT EXECUTION PLAN

Hilma Foote and unidentified in Badminton Club| Image Courtesy: Museum and Archives of Vernon – No. 22898

11 PROJECT EXECUTION PLAN

11.1 Overview

IPD TEAM GOVERNANCE

Colliers Project Leaders provided guidance to the City of Vernon in assembling the IPD team with the architect (Prime Consultant) and general contractor (GC) onboarded first, followed by engineering and major trade partners. The layers of organizational structure on the IPD team include a Senior Management Team (SMT) responsible for major decisions or issues resolution, a PMT responsible for day-to-day project leadership, and various multi-disciplinary PITs responsible for the execution of the work. The IPD team gathered bi-weekly in a dedicated (virtually equipped) physical big room located in Vernon, utilizing LEAN techniques and practices to launch the Validation phase and advance a joint articulation with the City of Vernon of the Project Objectives and Base Program requirements.

COMMITMENT TO SAFETY & ENVIRONMENT

Grounded in the City of Vernon's project's values of building community, forward thinking, sustainability, flow, and fun, the IPD team believes that every person on the project can expect to work in a safe and healthy environment, where their physical safety is assured each day, their psychological and social wellbeing is attended to by a caring team, and there is joy in their work. The procedures and practices established collectively as a team will demonstrate a commitment to safety and the overall environment of all who work on or visit the project. The objective and goals of the IPD team are to ensure a safe atmosphere of continuous improvement; especially regarding workflows on site. The collaborative IPD model allows for safety to be integrated into the design and planning such that constructability is improved, waste in the field is reduced, public safety is maintained, property and environmental damage is avoided, and worker exposure hours associated with hazardous work is minimized.

INSURANCE AND CONTRACT SECURITY

Insurance and contract surety for the project will be in accordance with the IPD Agreement. The City of Vernon is procuring the construction specific insurances including Wrap Up Liability Insurance and Builder's Risk Broad Form or "All-Risk" Property Insurance directly (a form of Owner-Controlled- Insurance-Program (OCIP). It is further contemplated that the Prime Consultant will procure Project Specific Professional Liability (Errors & Omissions) Insurance through their standard processes. It is also understood and agreed by the IPD team that the General Liability Insurance will be provided by all subcontractors and subconsultants onboarded to the project outside the IPD contract. The IPD team will not require Contract Security for the IPD Agreement and the parties which are signatories to it.

PROCUREMENT STRATEGY

The procurement process for the engagement of consultants, subconsultants, subcontractors, and major suppliers for the project has been established collaboratively according to the City of Vernon's procurement policies, procedures, and best practices. Generally, the mechanism established to comply with the City of Vernon's procurement requirements involves the consultant, contractor, and other parties providing the PMT, in writing, with a recommendation to respond to in a timely manner for persons or entities proposed to perform services or work as a subconsultant, subcontractor, vendor, or supplier, together with their qualifications, project experience, proposed compensation terms, and any other information relevant to their proposed role or activities on the project. Of note is that procurement activities may occur across all phases of the project based on an evaluation of what is best for the project to ensure that long lead times are respected. The LRM framework, coupled with active condition of the market intelligence is very useful in informing planned procurement activities.

BASELINE MILESTONE SCHEDULE

The Milestone schedule developed during the Validation phase of the project consists of four distinct phases; Validation phase, Detailed Design & Procurement phase, Construction phase, and Project Completion.

With a phased permitting approach supported by the City of Vernon—the Authority Having Jurisdiction (AHJ)—the IPD team is confident that a 30-month construction schedule is rationally assertive yet attainable with well executed planning, phasing, and flow of work being put in place on site. Working backwards, a 30-month construction schedule necessitates permitting and design during March 2024, and a start on site in April 2024. Key partners onboarded through the Validation phase continue to provide the team with required early services, as the team de-risks the project with their expertise, and plan for rapid mobilization in April 2024. Remaining procurement packages will be released in advance of the sequenced construction workflow, as the project requires.

Sequencing of design effort has been structured to align with the phased permitting process, as well as construction sequencing. Construction scopes of work are sequenced such that specific design packages are required in order to facilitate the work; i.e.: mechanical and electrical underground services, concrete footings, and foundations. As opposed to full mechanical, electrical, and structural construction drawings being produced to an Issued for Construction (IFC)-level, design of the underground portion of the work was advanced in order to facilitate the most critical piece of work, with the subsequent pieces following after. In this way, the design effort is segmented into optimized pieces, allowing for a more streamlined release of work packages. This stream of connected pieces of work provides the smooth flow required in order for the IPD team to meet the timeline identified herein. Weekly Work Plans (WWP) will be a pillar of our efforts to create and maintain a reliable flow of work on site.

CONSTRUCTION LOGISTICS PLAN & KEY ASSUMPTIONS

The fundamentals that the IPD team must adhere to in order to assure economy and unencumbered workflow are items such as utilization of existing available utilities and providing a project office on site during construction, above standard conditions for safety, and creating a controlled space for separation of construction activities from neighbourhood, Kal Tire Place Arena, and Alexis Park Elementary School activities. LEAN in construction is self-mandated by the IPD team for the project, modelled, and taught with respect to any subcontractors who are experiencing LEAN for the first time. Use of technology, Building Information Modelling (BIM). The principal communication platform for the project is Microsoft (MS) Teams, which provides a multi-layered file structure perfect for collaboration and sharing of information and overall communication. A "no email" culture and practice for collaborators, with a commitment to working and sharing through the MS Teams platform continues to guard against reverting to traditional siloed work, and models the trust, respect and working behaviours that are most useful in highly functioning teams.

With teamwork continuing through the MS Teams platform, the technical work of designing the project occurs concurrently along streams of work lead by each discipline, using a variety or proprietary software (i.e., Autodesk Revit, energy modelling software, etc.) but consolidated and aligned with a comprehensive Digital Project Delivery strategy, the engine of which is the project's BIM Execution (BIMx) plan. The BIMx provides technical guidance about the quality and level of detail (LOD) required for aspects of the project, as well as the protocols for sharing, integrating with others work, and identifying and resolving clashes in the model. The BIMx is a living document that evolves as the project's needs change, with increasing detail required in service to project elements that can be designed for fabrication (i.e., mass timber components or select mechanical plant). Clark Builders virtual design and construction personnel will continue to lead the comprehensive Digital Project Delivery strategy, which is a significant contributing actor in the project's efforts to reduce waste (human capital as well as physical and equipment resources).

COMMISSIONING & OPERATIONS

Certain Net Zero Ready and aquatics specialties trigger the involvement of an in-house commissioning provider, that will work with the IPD team from the outset to plan for a smooth and issue minimal close-out, training, handover, and warranty period. Quality is designed into the project, with consideration of operational efficiency (i.e., access to serviceable components, ease of maintenance favoring local parts and labour, etc.). The end goal of the team is to reach a state in which the City of Vernon is adequately trained, oriented, made familiar with, appropriately informed, and provisioned with spare parts, materials, and information to confidently occupy, operate, and maintain from day one.

11.2 IPD Team Governance

The IPD team was assembled by the City of Vernon under the guidance of Colliers Project Leaders. The architect and general contractor were selected and onboarded first to start pre-validation activities beginning in April 2023. This was followed by the selection of an engineering and aquatics consultant team as well as mechanical, electrical, and structural trade partners. This IPD team was fully assembled for initial team alignment sessions and then Validation launch in September 2023.

IPD teams have a specific structure that is intended to integrate all people that are involved in the delivery of a project. It is important to note this structure works in conjunction with a collective and collaborative Big Room operation. This is critical and central to how all elements and layers of this structure can function effectively and efficiently.

THE “BIG ROOM”

This is an actual large room located at the site of Vernon Fire Rescue Services Station 2 Okanagan Landing that has provided an in-person space where the team can co-locate together for open collaboration. The objective was to leverage the power of collaboration in order to innovate, generate creative and pragmatic options that leapfrog the bureaucracy and sequential timing and delays that are typical of conventional processes and set up. These are visual spaces with agendas and organization managed by the PMT members to best leverage resources.

This Big Room at 7210 Okanagan Landing for Validation will transition in the next phase to the project site when the team engages in that stage of the project. Additionally, the team is using MS Teams channels and video meetings to provide a virtual Big Room equivalency to support the continuity of the responsive work culture virtually between in-person gatherings.

SMT: SENIOR MANAGEMENT TEAM

This team provides oversight and ensures that the IPD delivery and commercial model is respected and followed. This group also is involved in decision making as needed for the PMT, and specifically responsible for any dispute resolution and may resolve questions regarding scope changes.

This group is comprised of the executive leaders who can represent the main decision making within their organizations, including the owner and all nonowner IPD signatories.

PMT: PROJECT MANAGEMENT TEAM

The Project Management Team (PMT) provides management-level guidance for collaborative planning, design, and construction of the Project to achieve the Project Requirements and will be chaired by a person designated by the Owner. The PMT is responsible for monitoring all Project progress and for developing benchmarks, metrics, and standards for progress evaluation.

CORE PMT

This is a core or subset of PMT members who have more daily management responsibility of the project and will meet on a higher frequency. This structure has been activated and used as required in this project given the number of IPD signatories, core membership will adapt to suit the executional needs of the project (for example during detailed design will have more consultants vs. during construction execution the core PMT may have more trade partners on it). The core PMT does not make financial and other key project decisions outside of the full PMT.

PITS: PROJECT IMPLEMENTATION TEAMS

These are the multi-disciplinary diverse working teams that are responsible for the executional work to perform the heavy lifting of design optimization and execution, coordination, Cost Modeling, estimating, planning, and building. Project Implementation Teams (PITs) must work collaboratively to coordinate their scopes, seek innovative new ideas and ensure ‘best-for-project’ is integrated in all that is done on the project. Each PIT has a PIT captain who is responsible for managing the tasks undertaken by the team.

The PITs were initially developed to align with the major challenges on the project and were more flexible in the early stages of Validation. As Validation work progressed, the PIT structure was refined, and the following have been active. The PMT will continue to adapt and revise the PIT structure to suit the emergent needs of the project.

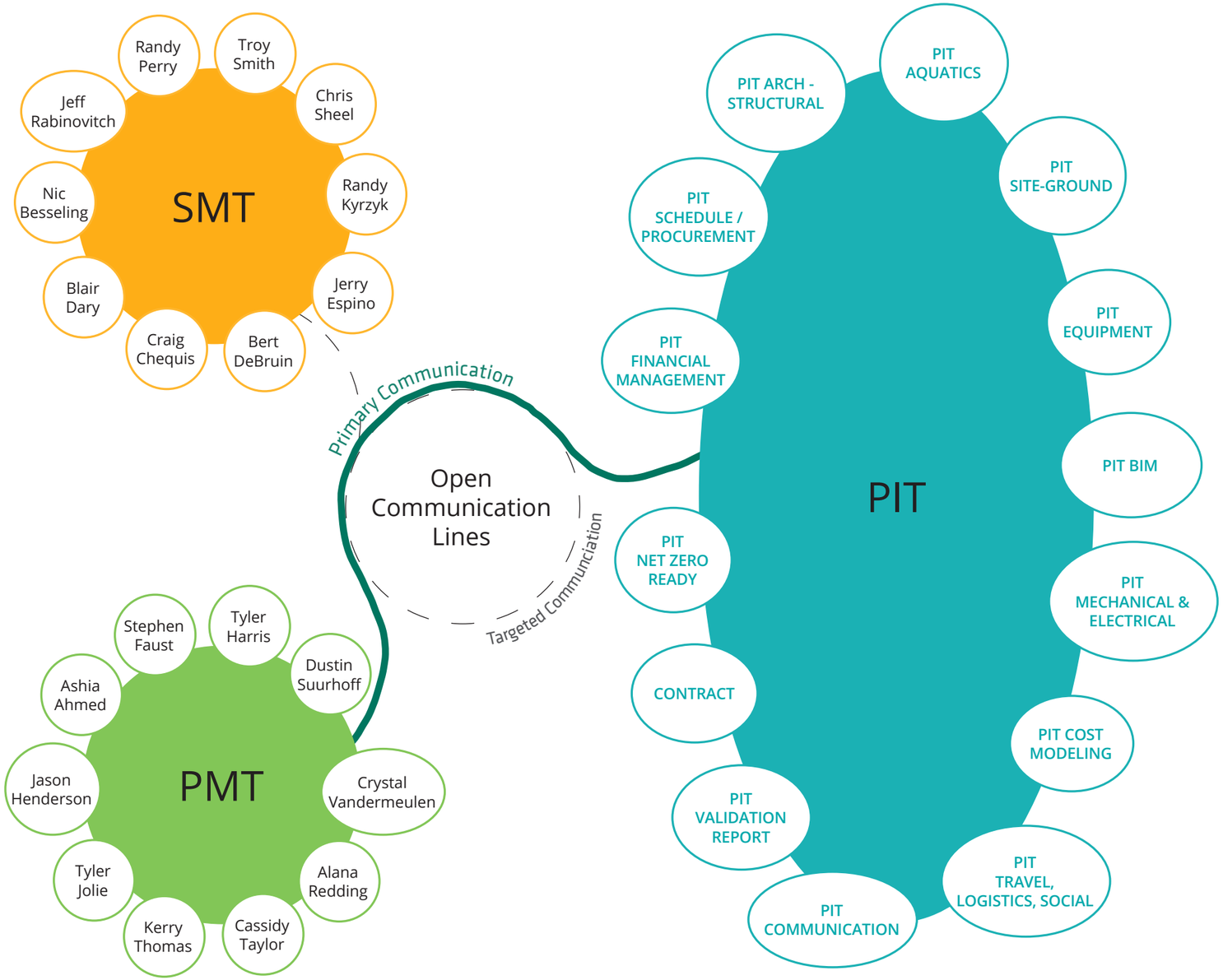
- PIT - Communications
- PIT - Travel, Logistics, Social
- PIT - Cost Modelling
- PIT - Mechanical + Electrical
- PIT - BIM
- PIT - Equipment
- PIT - Site + Ground
- PIT - Aquatics
- PIT - Architectural + Structural
- PIT - Schedule + Procurement
- PIT - Validation Report
- PIT - Net Zero Ready
- PIT – Financial Management

THE CITY OF VERNON ALC OWNERS TEAM

The City of Vernon proactively developed a team of key leaders to be part of the SMT and PMT. This team has continually invited and included key individuals from within the City of Vernon ecosystem representing operations, planning and development, permitting, maintenance, security, aquatics, and most importantly, the recreation experience. These individuals have been integrated with the Big Room activities throughout Validation. These and other Interest Holders will continue to be tied into the Detailed Design phase and executional progress. The ALC Owner team is meeting weekly and as required to support this work in a manner that ensures owner consistency and fully leverages the collaborative benefit of the IPD model.

11.3 IPD Project Team (Organization Structure)

The following chart illustrates the IPD partners and the organizational structure of the team. The team was organized to support and benefit from the input of Interest Holders, various specialty groups, and industry sources.



11.4 Key Governance Process

The IPD Team has progressed the project design scopes of work to meet the Base Program requirements as outlined in the IPD Agreement, explained below. Each of these play an important role within the IPD process that are important to understand as a part of the IPD team governance.

PROFIT AT RISK POOL DISTRIBUTION AND RESPONSIBILITIES ALIGNMENT

The 'Profit at Risk Pool' is an agreed upon amount that is calculated from the profit expectations per scope of work executing the Base Target Cost elements. This Validation report contains that calculated amount that will be locked in for the project. The profit is distributed in alignment with the scope alignment per IPD signatory and in an agreed upon manner governed by the Milestone payment schedule. The contract document that reflects the profit distribution is Exhibit I Incentive Program and the IPD party contract responsibilities assignment is Exhibit C Responsibility Matrix. The PMT must manage cost trends, risks, and opportunity projections continuously to assess how the team can navigate decisions to mitigate risk and meet/exceed the Base Target Cost expectations alongside other delivery commitments. If the team is on-track at the Milestone payment schedule achievements, then the team can distribute profit accordingly.

REIMBURSABLE ALLOWED COSTS AND FEES

These are the direct and actual costs that are incurred by the IPD signatories in carrying out the project execution. The contract documents that list the Allowable Cost are Exhibits D and E and the fee schedule (time-based) costs is Exhibit B-5. Costs of Exhibits D and E are paid out monthly and the PMT with the support of the Financial Management PIT execute a monthly invoicing package process that has owner involvement plus an IPD 'peer-review' process integrated to engage a mutual accountability practice. The fee tables showing payment rates for all individuals transparently, captures the base labor costs and the agreed upon Overhead component. There are no profits included in these costs as those are managed through the 'Profit at Risk' process. These costs are included in the Base Target Cost calculations and therefore form the team commitment.

The PMT is charged with managing the project execution in accordance with these schedules and will be utilizing a number of tools to execute this joint management work either directly or with the support of the Financial Management PIT. These tools include, but are not limited to the following:

- Responsible Accountable Supports Consulted Informed (RASCI) matrix
- Decision Matrix
- Risk & Opportunities Log Management
- Target Cost Budget management reporting (for each budget area)
- Project cost projection management including project contingency allocation management

- Last Planner System for Milestone and Phase management, 'Make-Work-Ready' Management including Constraint management and Weekly work planning commitment & monitoring
- Dashboard management to support all of the above

11.5 Commitment to Safety & Environment

Grounded in the ALC project values of Building Community, Forward Thinking, Sustainability, Flow, and Fun, the ALC IPD Team believes that every person on the Project can expect to work in a safe and healthy environment, where their physical safety is assured each day, and their psychological and social wellbeing is attended to by a caring team. The procedures and practices established collectively as a team of partners will demonstrate commitment to safety and the environment to all who work on or visit the Project.

The IPD model requires all participants to work in a collaborative manner, therefore the execution of safety on this project will allow safety and production to enjoy a symbiotic relationship. The alignment of safety and production will generate the quality that the City of Vernon expects and the working environment and conditions that all workers deserve.

The IPD model requires early constructability and operations involvement. This approach will allow for safety to be integrated into the design. The design will carefully consider the safety for operations and construction workers. The safest strategies and sequences of work can be developed, detailed, and thoughtfully laid out in the design and planning stages. This will reduce the waste in the field and minimize rework. This not only increases the explicit safety associated with the project but also the implicit safety based on the reduction of worker exposure hours associated with the delay and rework hours.

The objective and goal of the IPD team is to have a project with zero lost time incidents. The IPD team will ensure that we communicate the goals and activities set out for this project to all workers and visitors on the site. Metrics like total recordable injury frequency (TRIF), and lost time incident frequency targets will outline what is expected of all participants on this project. Alignment with these goals will be managed by having activities like inspections, safety meeting, tailgate meetings, safety Milestone celebrations, etc. An atmosphere of continuous improvement around safety and workflow on site will be encouraged during this project.

The work will be continually assessed to identify any potential hazards well before any work takes place. Job Hazard Analysis (JHA) will be completed and enforced during this project. The risks will be documented and reviewed in practicable intervals and mitigations will be introduced and tracked. Field Level Hazard Assessments (FLHA) will be used to endorse the critical thinking process and encourage all workers to be part of the safety solution.

Engineering out the hazards will provide the highest degree of control. The next level of hazard control will be to create Safe Job Procedures, Safe Job Practices, policies, and rules. The IPD team will employ Personal Protective Equipment (PPE) as the last line of defense. All workers on site will be required to wear all the minimum PPE as stipulated in the Project Specific Safety plan.

Safe performance is a shared responsibility. The initiation of the safety culture, policy and expectations starts by providing necessary training, orientation, safety equipment, supplies, and resources. The onboarding procedure for this project will include all the required safety training describing the supervision requirements. Safety absolutes, rules and management will be established and communicated during the Design/ Procurement Phase. Environmental responsibilities are also taken seriously, and the IPD team is committed to following sound environmental management practices and executing this project so that the environment is not adversely affected.

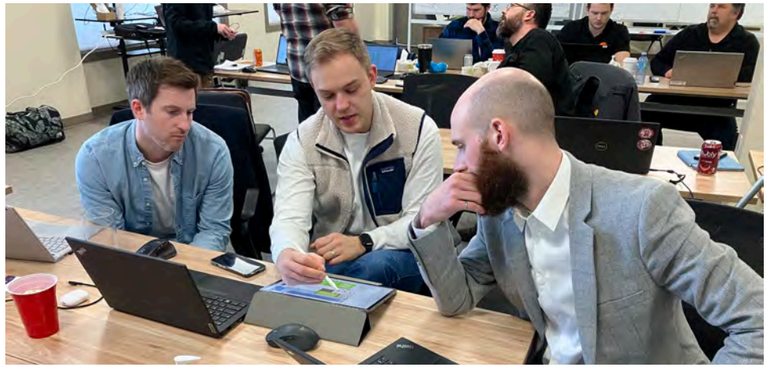
The IPD team is aligned on the importance of taking all reasonable measures to identify and control conditions that may cause adverse environmental impact and will be prepared to respond immediately and effectively to any incidents that may occur so that worker and public safety is maintained, and property and environmental damage is minimized. Proactive planning with respect to the potential impact of construction activities on the environment is a critical component of effective environmental protection. Accordingly, the site is required to develop and have in place an Environmental Emergency Response Plan prior to commencement of construction activities.

11.6 Joint Site Investigation

The joint site investigation is intended to include reasonably investigative tasks required to reduce risk and set a baseline for encountering unforeseen conditions during construction by balancing cost of additional investigation and the risk being reduced. Throughout the Pre-Validation and Validation phases, this process for the ALC project included a combination of review and development of technical investigations and studies, physical site visits, and review of as-built documentation of nearby Kal Tire Place and underground utilities for the previous uses of the site.

The technical reports and studies included:

- Preliminary Geotechnical Investigation and Report by Fletcher Paine Associates (June 2021 – February 2024)
- Impact Assessment by Sage Environmental (August 2022)
- An Environmental Management Plan by Sage (March – April 2024)
- A Hydrogeological Assessment by Interior Geoscience Inc (March – April 2024)
- An Archeological Overview assessment (AOA) and preliminary Field Reconnaissance (PFA) was completed by Ursus Heritage Consulting (December 2021
- A Traffic Impact Assessment by McElhanney (June 2023)
- A Stormwater Management Report by Align Engineering (June 2023)



All studies confirmed the feasibility of the project, listing no major concerns or unusual considerations that would prevent the project from moving forward. The geotechnical investigation included drilling and analysis of 25 boreholes, confirming the site generally includes a combination of existing backfill and topsoil above in-site high plastic clays and silts, and the identification of high-water tables. This information was used to: increase the accuracy of expected earthworks quantities within the Cost Model, inform on structural measures needed to counteract buoyancy in the pool, and highlighted the need of a groundwater management plan for deep excavations.

WATER TABLE

In principle, if the groundwater table rises high enough, the buoyancy forces may push the structure upward with the potential of causing significant damage. Through the results of the geotechnical report, it was concluded this issue would need to be mitigated for the ALC project. The areas of concern include the basement and 50-meter pool when emptied for maintenance purposes. Solutions reviewed during Validation included pile anchors, permanent dewatering, and the use of hydrostatic relief valves in the pool basin which allow the inflow groundwater to balance the buoyancy forces while the pool is empty. Through consideration of maintenance, constructability, sustainability and cost the team settled on a combination of pile anchors in the basement and hydrostatic relief valves. This solution requires dewatering from the excavation until the pool is filled with water. In a collaborative Big Room session, the team worked to understand the expected movement of surface and groundwater and developed a strategy consisting of a combination of a french drain system and the collection and pumping of water from the excavation. The proposed french drain is located along the west and north sides of the site, and extend through the existing topsoil / backfill, penetrating the in-situ clay. The intention is to collect surface water entering the site, before traveling over the disturbed ground into the excavation, and redirect it to the field north with appropriate treatment measures. During Construction, water is expected to collect within the excavation through seepage and rainfall. This water will be collected in a pit before pumping out and disposing in a matter aligning with a forthcoming Environmental Management Plan.

Physical site investigation, site walks and utility locates, combined with the as-built information allowed for the accurate mapping of deep and shallow utilities and provide the opportunity to include the concise information when developing the Base Target Cost. Live existing electrical kiosks were also identified and have been disconnected in preparation for mobilization and to allow the earthworks to begin safely.

11.7 Procurement Strategy

The IPD team with guidance from Colliers Project Leaders, worked seamlessly with the City of Vernon to ensure that the IPD team is operating in alignment with all City of Vernon protocols and policies. This resulted in the establishment of the procurement PIT that developed the IPD team specific plans. It is important to note that these plans have been also developed to be in alignment with the Hansen Bridgett contract, especially as they related to added parties to the IPD signatory and profit-sharing group as well as the procurement of the Non-Signatory participants, which may include potential Design-Assist or Design-Build subtrades, who are subcontracted to members of the IPD team.

The team has identified additional scopes of work that are higher risk to the team, a specific and relevant example being the drywall trade. At any point in time, following the Hansen Bridgett contract execution, the PMT supported by the SMT can agree to add other signatory parties to the delivery of the project. This will adjust the 'Profit at Risk' pool distribution accordingly and the new IPD project signatory will join the IPD team structure. The Owner and City of Vernon procurement leadership will be an intimate part of this process as identified in the procurement plan.

All other subcontracted work, including consultant or contractor, will be procured, and managed by one of the IPD parties in complete alignment with the Procurement plan identified. These parties are not part of the Hansen Bridgett contract as an added party to the shared Risk/Reward agreement and will be managed in a manner contractually appropriate to the situation. All procurement decisions will be made by the PMT with oversight by the SMT. The site services and earthworks Request for Quotation (RFQ) was recently sent out through Clark Builder's platform Building Connected. The RFQ information was gathered from all IPD partners and combined to create a project specific document that can be tailored to any RFx (i.e., Request for Qualification (RFQ), Request for Proposal (RFP), Request for Information (RFI)) process throughout the job. There is proper representation from multiple partner groups during the evaluation process to ensure the best trade is selected for the scope of work and various points of views are provided. The results are then shared with the PMT for final approval before the selected subtrade is finalized and offered a contract.

11.8 Project Delivery Schedule Management

The IPD team is driven to deliver this project on a goal of reaching completion by September 2026, which would enable the City of Vernon to be able to open concurrent with the school calendar year, and at the earliest possible timing in support of the *Greater Vernon Recreation Master Plan* to relieve the bottleneck and built-up demand for a new recreation facility. To accomplish this, the team is committed to using an innovative adaptive planning system that is focused on construction flow-based operational execution (Takt Planning aspirations). This system allows for more early warning systems and schedule mitigation approaches than traditional methods, which will allow the team to manage constraints earlier. The Project Team will be proactively working with the City of Vernon to manage this timeline to minimize disruption for the neighbouring community.

MILESTONE SCHEDULE	
Design Milestones	March 22, 2024
Procurement	March 29, 2024
Construction Milestones	April 1, 2024
Siteworks	April 1, 2024
Phase 1 Basement	June 11, 2024
Phase 2 50m Pool	July 1, 2024
Phase 3 Leisure Pool	July 1, 2024
Phase 4 Wet Change Rooms	July 30,2024
Phase 5 Gyms	September 2, 2024
Phase 6 Lobby	September 24, 2024

BASELINE SCHEDULE MARCH 22, 2024

The indicative Milestone schedule for the project has been developed with a focus on construction execution to enable the aggressive September 2026 occupancy goal. This baseline schedule purpose is to establish the project timeline with key Milestones that will be used to formulate all design and planning priorities. The team has started aspects of design and procurement in the Validation phase that are deemed higher risk, in order to gain an increased confidence in the Base Target Cost and schedule development.

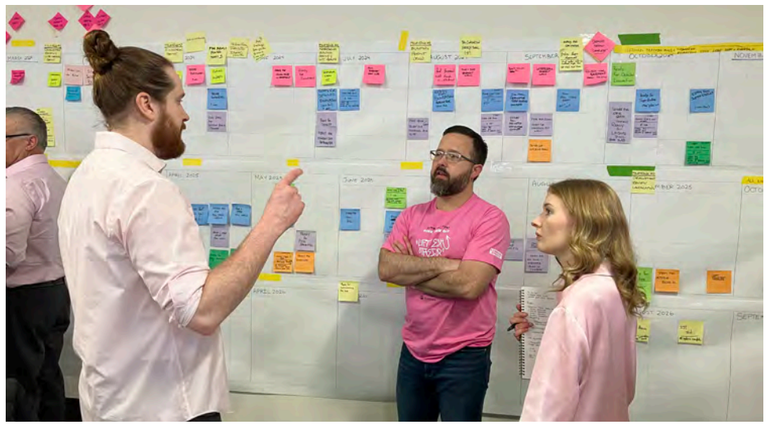
Throughout the remaining IPD process, the team will look to utilize the LPS to ensure that no workers are ever waiting on work and that there is an optimized schedule that is adapting to increased efficiencies and opportunity gains.

The schedule was developed by starting with the most complex areas first which have the longest durations to ensure enough time to properly complete these tasks. These areas include the 50m pool and leisure pools due to the complexity of the piping, electrical systems, and specialized finishes. The mechanical and electrical room were also prioritized to ensure there is enough time to place, install and commission all building equipment. The next areas or phases (gymnasium, community rooms) are straightforward and require less specialized work, and therefore less schedule time. The schedule was developed to help minimize heating and hoarding requirements by focusing on excavation and underground utilities in the summer months of 2024 and 2025. This will help keep temporary heating costs to a minimum and decrease the length of required activities.

The critical path focuses on the concrete foundations of the basement and 50m pool followed by the steel superstructure. The concrete slab on grade follows the superstructure which then leads into pool finishes including tile and specialized finishes. Exterior envelope activities including roofing, glazing, and cladding can begin following the completion of the superstructure. The envelope is important to complete to protect the delicate and sensitive interior work that needs protection from high humidity and cold temperatures. Interior finishes come last due to the required minimized dust to complete painting, millwork, and flooring. These elements bring the life of the building together and create spaces for the community to enjoy so these tasks require a delicate touch to perfect. These major Milestones will be used as the base of the LPS to create Pull (rather than typical Push or waterfall style) plans and Weekly Work Plans. Some of these Milestones include 'Ready for Superstructure', 'Ready for Envelope', 'Ready for Interior Finishes', 'Dust Free Dates' and 'Ready for Turnover'.

All of the IPD partners worked together to determine the best sequence of the building based on needs from each trade. All partners determine timelines developed from past experiences and knowledge of the systems and designs. This allows the team to create confidence in the baseline schedule so the LPS can be used to optimize the schedule through innovation and design adjustments. The schedule will become a living document that will continue to be updated and improved as new trade partners join the team and provide innovative ways to optimize time on-site by reducing risk. The schedule will be used to track progress but will also use LEAN practices to optimize productivity and eliminate waste (time, resources, and budget).

The team will utilize six week make ready visuals to create an illustrated sketch of the various area of the building and corelating tasks associated with subtrades. This allows management to find areas of congestion and potential overlap as well as clearly outlining the work planned for the next six weeks that all partners on site can view. This visual is created on a weekly basis and viewed during make ready meetings and daily Huddles.



CITY OF Vernon

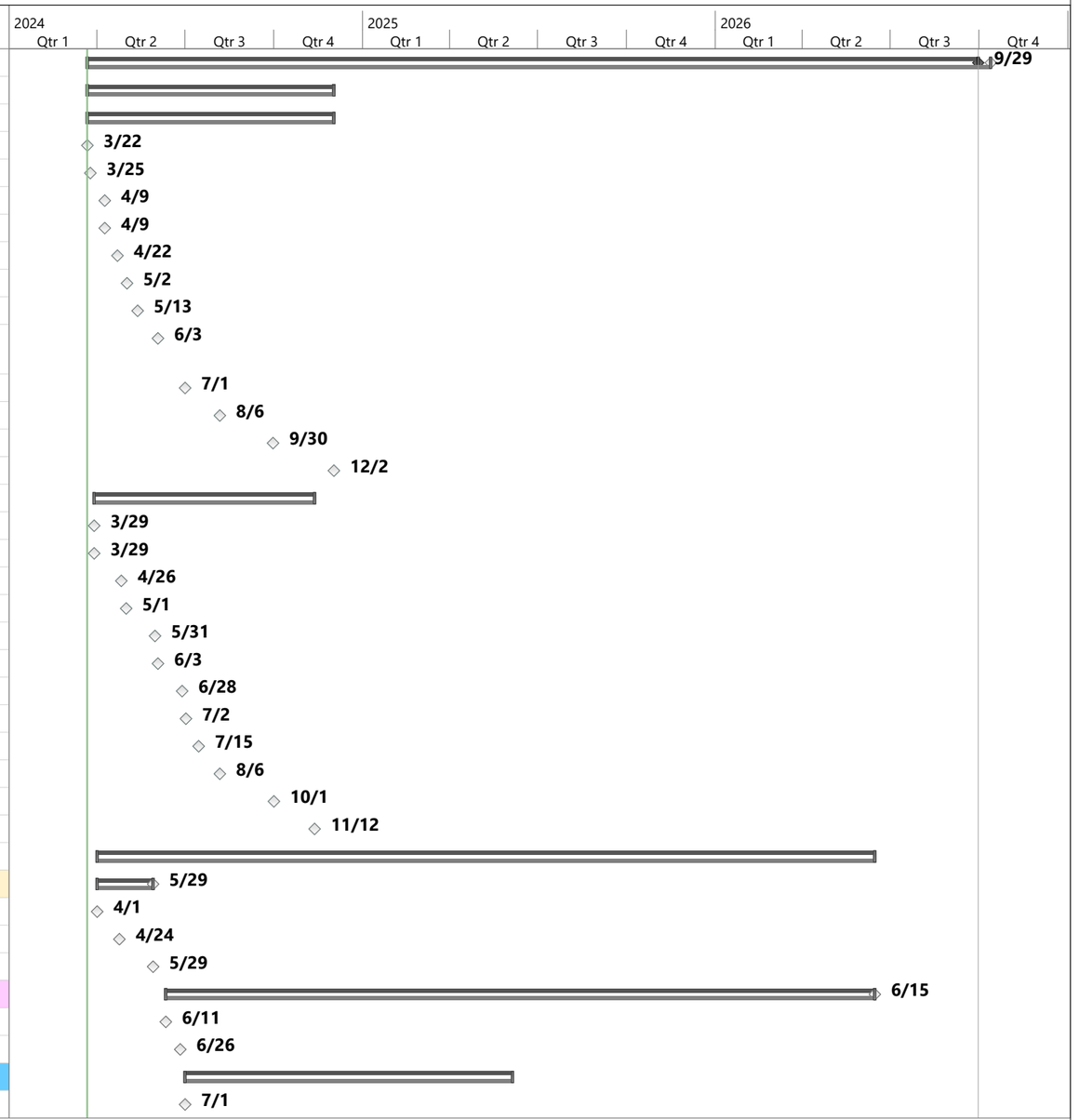
1

VERNON ALC PROJECT

PRELIMINARY MASTER PLAN (MILESTONE)

March 21, 2024

ID	Task Name	Duration	Start	Finish
1	**Schedule**	**658 days**	**Fri 3/22/24**	**Tue 9/29/26**
2	**MILESTONES**	**181 days**	**Fri 3/22/24**	**Mon 12/2/24**
3	**DESIGN MILESTONES**	**181 days**	**Fri 3/22/24**	**Mon 12/2/24**
5	SOIL AND DEPOSITION PERMIT	0 days	Fri 3/22/24	Fri 3/22/24
6	DEV ENGG REVIEW SUBMIT	0 days	Mon 3/25/24	Mon 3/25/24
4	PRIME SUBCONTRACT SIGNED	0 days	Tue 4/9/24	Tue 4/9/24
7	APPROVAL FOR RELOCATES/ DEMOLITION	0 days	Tue 4/9/24	Tue 4/9/24
8	SECTION 10 APPROVAL FROM WLRS	0 days	Mon 4/22/24	Mon 4/22/24
9	MASS TIMBER DESIGN COMPLETED	0 days	Thu 5/2/24	Thu 5/2/24
10	FOUNDATION PERMIT	0 days	Mon 5/13/24	Mon 5/13/24
11	SUBMIT NATATORIUM CONSTRUCTION PERMIT TO INTERIOR HEALTH	0 days	Mon 6/3/24	Mon 6/3/24
12	SUBMIT PARTIAL BUILDING PERMIT FOR NATATORIUM	0 days	Mon 7/1/24	Mon 7/1/24
13	SUBMIT FULL BUILDING PERMIT	0 days	Tue 8/6/24	Tue 8/6/24
14	COMPLETE IFC DRAWING PACKAGE	0 days	Mon 9/30/24	Mon 9/30/24
15	SUBMIT FOR SPRINKLER PERMIT	0 days	Mon 12/2/24	Mon 12/2/24
16	**PROCUREMENT**	**162 days**	**Fri 3/29/24**	**Tue 11/12/24**
17	EARTHWORKS AND SITE SERVICES SCOPE AWARDED	0 days	Fri 3/29/24	Fri 3/29/24
18	HELICAL PILE RFQ SENT OUT	0 days	Fri 3/29/24	Fri 3/29/24
19	HELICAL PILE SCOPE AWARDED	0 days	Fri 4/26/24	Fri 4/26/24
20	CONCRETE PACKAGE RFQ SENT OUT	0 days	Wed 5/1/24	Wed 5/1/24
21	CONCRETE PACKAGE SCOPE AWARDED	0 days	Fri 5/31/24	Fri 5/31/24
22	OWSJ AND DECK RFQ SENT OUT	0 days	Mon 6/3/24	Mon 6/3/24
23	OWSJ AND DECK AWARDED	0 days	Fri 6/28/24	Fri 6/28/24
26	LONG LEAD AQUATICS EQUIPMENT TENDER SENT OUT	0 days	Tue 7/2/24	Tue 7/2/24
24	LONG LEAD ELECTRICAL EQUIPMENT TENDER SENT OUT	0 days	Mon 7/15/24	Mon 7/15/24
25	LONG LEAD MECHANICAL EQUIPMENT TENDER SENT OUT	0 days	Tue 8/6/24	Tue 8/6/24
27	REMAINING BUILDING PACKAGE RFQ SENT OUT	0 days	Tue 10/1/24	Tue 10/1/24
28	REMAINING BUILDING PACKAGE SCOPE AWARDED	0 days	Tue 11/12/24	Tue 11/12/24
29	**CONSTRUCTON MILESTONES**	**575 days**	**Mon 4/1/24**	**Mon 6/15/26**
30	**SITEWORKS**	**42 days**	**Mon 4/1/24**	**Wed 5/29/24**
31	MOBILIZE TO SITE	0 days	Mon 4/1/24	Mon 4/1/24
32	SITE SERVICES RE & RE	0 days	Wed 4/24/24	Wed 4/24/24
33	BULK EXCAVATION START	0 days	Wed 5/29/24	Wed 5/29/24
34	**PHASE 1 - BASEMENT**	**524 days**	**Tue 6/11/24**	**Mon 6/15/26**
35	READY FOR HELICAL PILES	0 days	Tue 6/11/24	Tue 6/11/24
36	READY FOR FOUNDATIONS	0 days	Wed 6/26/24	Wed 6/26/24
40	**PHASE 2 -50M POOL**	**243 days**	**Mon 7/1/24**	**Thu 6/5/25**
41	DETAILED EXCAVATION	0 days	Mon 7/1/24	Mon 7/1/24



CITY OF Vernon

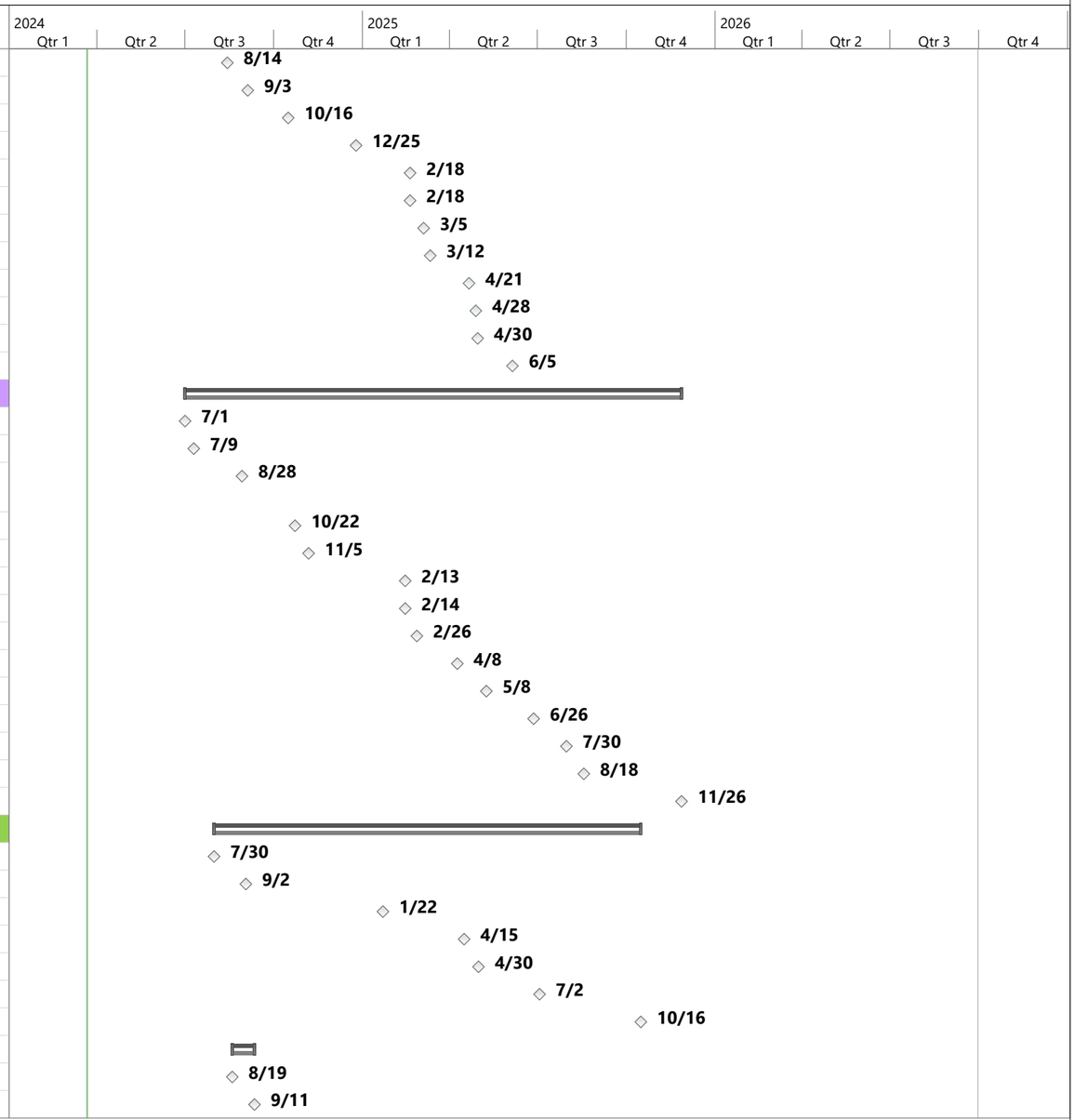
2

VERNON ALC PROJECT

PRELIMINARY MASTER PLAN (MILESTONE)

March 21, 2024

ID	Task Name	Duration	Start	Finish
42	READY FOR FOUNDATIONS (PERIMETER)	0 days	Wed 8/14/24	Wed 8/14/24
43	PERIMETER STRIP FOOTING COMPLETE	0 days	Tue 9/3/24	Tue 9/3/24
44	READY FOR SUPERSTRUCTURE	0 days	Wed 10/16/24	Wed 10/16/24
45	READY FOR ENVELOPE	0 days	Wed 12/25/24	Wed 12/25/24
46	READY FOR 50M POOL TANK	0 days	Tue 2/18/25	Tue 2/18/25
47	UNDER SLAB PIPING	0 days	Tue 2/18/25	Tue 2/18/25
48	50 M POOL SLAB POURED	0 days	Wed 3/5/25	Wed 3/5/25
49	READY FOR POOL BACKFILL	0 days	Wed 3/12/25	Wed 3/12/25
50	READY FOR 50M POOL TANK WALLS	0 days	Mon 4/21/25	Mon 4/21/25
51	POUR & STRIP POOL WALLS	0 days	Mon 4/28/25	Mon 4/28/25
52	READY FOR POOL BACKFILL	0 days	Wed 4/30/25	Wed 4/30/25
53	READY TO POUR SOG	0 days	Thu 6/5/25	Thu 6/5/25
54	**PHASE 3 -LEISURE POOL**	**368 days**	**Mon 7/1/24**	**Wed 11/26/25**
55	READY FOR DETAILED EXCAVATION	0 days	Mon 7/1/24	Mon 7/1/24
56	READY FOR FOUNDATION PERIMETER	0 days	Tue 7/9/24	Tue 7/9/24
57	LEISURE POOL PERIMETER STRIP FOOTING COMPLETE	0 days	Wed 8/28/24	Wed 8/28/24
58	READY FOR LEISURE POOL TANK SLAB	0 days	Tue 10/22/24	Tue 10/22/24
59	POUR LEISURE POOL TANK SLAB	0 days	Tue 11/5/24	Tue 11/5/24
61	COMPLETE INSTALL STRUCTURE & DECK	0 days	Thu 2/13/25	Thu 2/13/25
62	READY FOR POOL WALLS	0 days	Fri 2/14/25	Fri 2/14/25
60	READY FOR ENVELOPE	0 days	Wed 2/26/25	Wed 2/26/25
63	POUR & STRIP WALLS	0 days	Tue 4/8/25	Tue 4/8/25
64	READY FOR POOL BACKFILL	0 days	Thu 5/8/25	Thu 5/8/25
65	READY TO POUR SOG	0 days	Thu 6/26/25	Thu 6/26/25
66	READY FOR DUCT + SPRINKLER ROUGH IN	0 days	Wed 7/30/25	Wed 7/30/25
67	READY FOR POOL TILE	0 days	Mon 8/18/25	Mon 8/18/25
68	READY FOR INTERIOR FINISHING	0 days	Wed 11/26/25	Wed 11/26/25
69	**PHASE 4 -WET CHANGE ROOMS**	**316 days**	**Tue 7/30/24**	**Thu 10/16/25**
70	READY FOR DETAILED EXCAVATION	0 days	Tue 7/30/24	Tue 7/30/24
71	READY FOR FOUNDATIONS	0 days	Mon 9/2/24	Mon 9/2/24
72	READY FOR SUPERSTRUCTURE	0 days	Wed 1/22/25	Wed 1/22/25
73	COMPLETE INSTALL STEEL & DECK	0 days	Tue 4/15/25	Tue 4/15/25
74	READY TO POUR SOG	0 days	Wed 4/30/25	Wed 4/30/25
75	READY FOR INTERIOR ROUGH IN	0 days	Wed 7/2/25	Wed 7/2/25
76	READY FOR INTERIOR FINISHING	0 days	Thu 10/16/25	Thu 10/16/25
37	**POUR CONCRETE SLAB**	**17 days**	**Mon 8/19/24**	**Wed 9/11/24**
38	POUR & STRIP WALLS	0 days	Mon 8/19/24	Mon 8/19/24
39	WATERPROOF WALLS	0 days	Wed 9/11/24	Wed 9/11/24



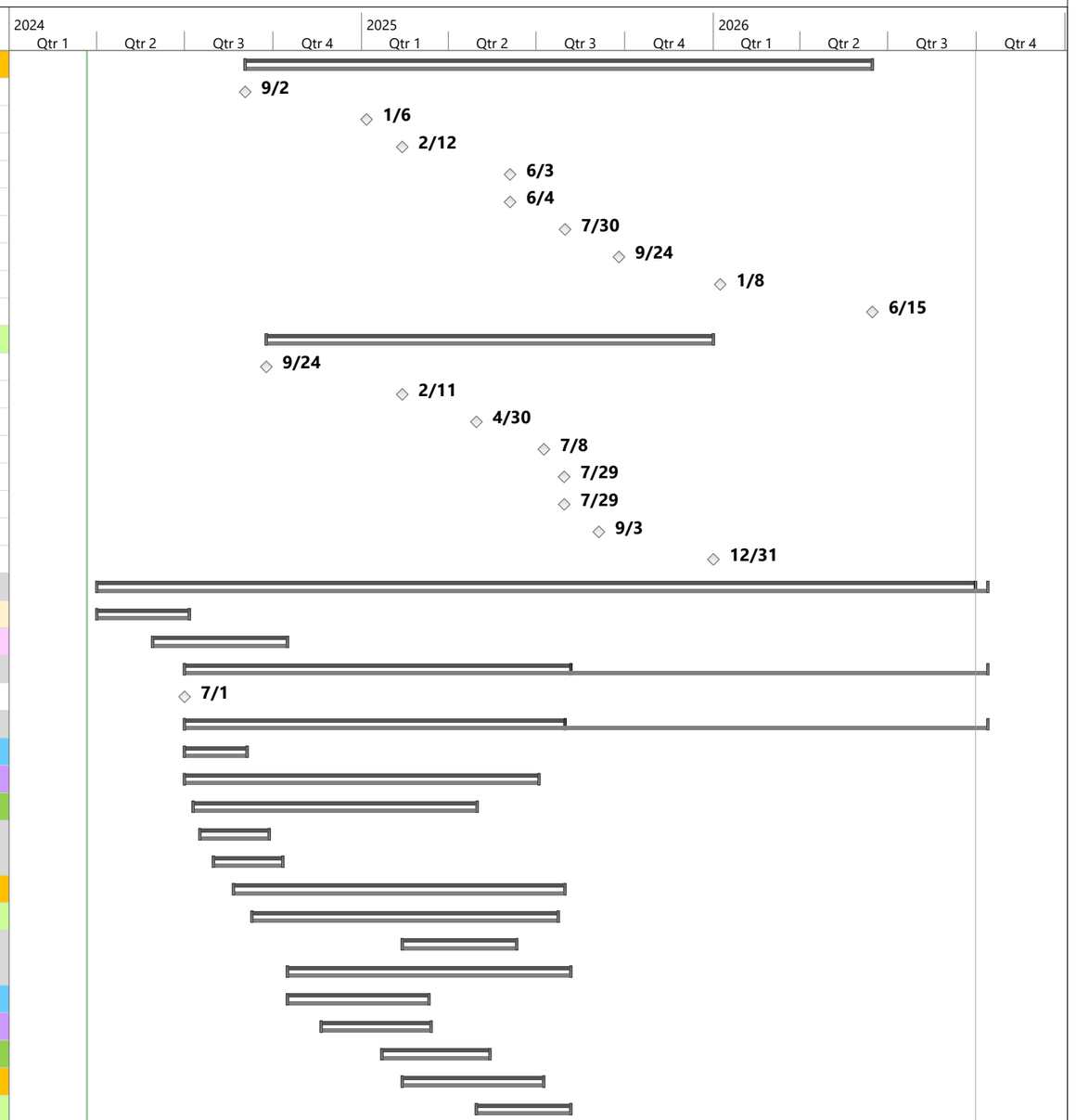
3

VERNON ALC PROJECT

PRELIMINARY MASTER PLAN (MILESTONE)

March 21, 2024

ID	Task Name	Duration	Start	Finish
77	**PHASE 5 -GYMS**	**465 days**	**Mon 9/2/24**	**Mon 6/15/26**
78	READY FOR DETAILED EXCAVATION	0 days	Mon 9/2/24	Mon 9/2/24
79	READY FOR FOUNDATIONS	0 days	Mon 1/6/25	Mon 1/6/25
80	READY FOR SUPERSTRUCTURE	0 days	Wed 2/12/25	Wed 2/12/25
81	COMPLETE INSTALL STEEL & DECK	0 days	Tue 6/3/25	Tue 6/3/25
82	READY FOR ENVELOPE	0 days	Wed 6/4/25	Wed 6/4/25
83	READY TO POUR SOG	0 days	Wed 7/30/25	Wed 7/30/25
84	READY FOR INTERIOR ROUGH IN	0 days	Wed 9/24/25	Wed 9/24/25
85	READY FOR INTERIOR FINISHING	0 days	Thu 1/8/26	Thu 1/8/26
86	READY FOR EQUIPMENT START-UP	0 days	Mon 6/15/26	Mon 6/15/26
87	**PHASE 6 -LOBBY**	**332 days**	**Tue 9/24/24**	**Wed 12/31/25**
88	READY FOR DETAILED EXCAVATION	0 days	Tue 9/24/24	Tue 9/24/24
89	READY FOR FOUNDATIONS	0 days	Tue 2/11/25	Tue 2/11/25
90	READY FOR SUPERSTRUCTURE	0 days	Wed 4/30/25	Wed 4/30/25
91	COMPLETE INSTALL STEEL & DECK	0 days	Tue 7/8/25	Tue 7/8/25
92	READY FOR ENVELOPE	0 days	Tue 7/29/25	Tue 7/29/25
93	READY FOR SOG	0 days	Tue 7/29/25	Tue 7/29/25
94	READY FOR INTERIOR ROUGH IN	0 days	Wed 9/3/25	Wed 9/3/25
95	READY FOR INTERIOR FINISHING	0 days	Wed 12/31/25	Wed 12/31/25
96	**CONSTRUCTION**	**652 days**	**Mon 4/1/24**	**Tue 9/29/26**
97	**SITEWORKS**	**70 days**	**Mon 4/1/24**	**Fri 7/5/24**
108	**PHASE 1 -BASEMENT**	**100 days**	**Wed 5/29/24**	**Tue 10/15/24**
121	**SUPERSTRUCTURE**	**287 days**	**Mon 7/1/24**	**Tue 8/5/25**
122	SUPERSTRUCTURE PERMIT ISSUED	0 days	Mon 7/1/24	Mon 7/1/24
123	**EXCAVATION BUILDING PERIMETER**	**283 days**	**Mon 7/1/24**	**Wed 7/30/25**
124	**PHASE 2- 50M POOL PERIMETER**	**47 days**	**Mon 7/1/24**	**Tue 9/3/24**
132	**PHASE 3 -LEISURE POOL**	**264 days**	**Mon 7/1/24**	**Thu 7/3/25**
172	**PHASE 4 - WET CHANGE ROOMS**	**211 days**	**Wed 7/10/24**	**Wed 4/30/25**
207	**STAIRCORE 1**	**52 days**	**Wed 7/17/24**	**Thu 9/26/24**
219	**STAIRCORE 2**	**52 days**	**Wed 7/31/24**	**Thu 10/10/24**
183	**PHASE 5 - GYM**	**246 days**	**Wed 8/21/24**	**Wed 7/30/25**
195	**PHASE 6 - LOBBY**	**228 days**	**Mon 9/9/24**	**Wed 7/23/25**
231	**PRIMARY SERVICES**	**85 days**	**Wed 2/12/25**	**Tue 6/10/25**
237	**STRUCTURE STEEL & WOOD**	**210 days**	**Wed 10/16/24**	**Tue 8/5/25**
238	**PHASE 2 - 50M POOL**	**105 days**	**Wed 10/16/24**	**Tue 3/11/25**
244	**PHASE 3 -LEISURE POOL**	**82 days**	**Wed 11/20/24**	**Thu 3/13/25**
250	**PHASE 4 -WET CHANGE ROOMS**	**80 days**	**Wed 1/22/25**	**Tue 5/13/25**
256	**PHASE 5 -GYMS**	**105 days**	**Wed 2/12/25**	**Tue 7/8/25**
262	**PHASE 6 - LOBBY**	**70 days**	**Wed 4/30/25**	**Tue 8/5/25**



CITY OF Vernon

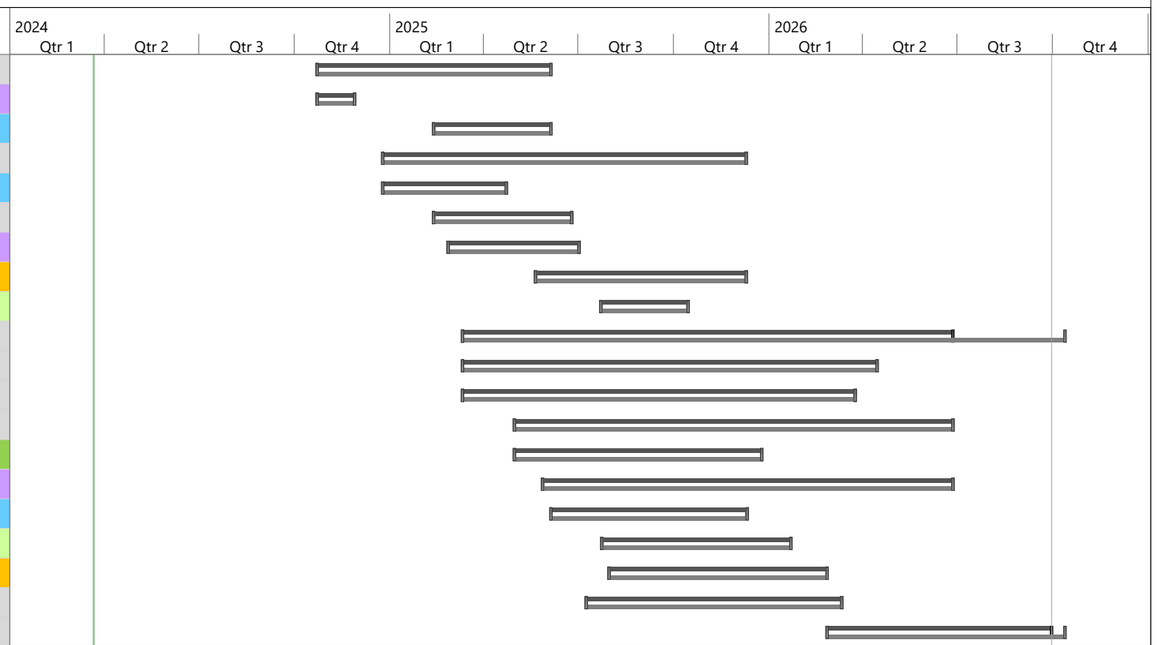
4

VERNON ALC PROJECT

PRELIMINARY MASTER PLAN (MILESTONE)

March 21, 2024

ID	Task Name	Duration	Start	Finish
268	POOL BASINS	161 days	Wed 10/23/24	Wed 6/4/25
269	PHASE 3 -LEISURE POOL AREA	26 days	Wed 10/23/24	Wed 11/27/24
275	PHASE 2 -50 METER POOLBASIN	81 days	Wed 2/12/25	Wed 6/4/25
296	ENVELOPE	250 days	Wed 12/25/24	Tue 12/9/25
303	PHASE 2 - 50M POOL	85 days	Wed 12/25/24	Tue 4/22/25
297	ROOFING	95 days	Wed 2/12/25	Tue 6/24/25
310	PHASE 3 -LEISURE POOL	90 days	Wed 2/26/25	Tue 7/1/25
324	PHASE 5 -GYMS	145 days	Wed 5/21/25	Tue 12/9/25
317	PHASE 6 - LOBBY	60 days	Wed 7/23/25	Tue 10/14/25
331	INTERIORS	338 days	Wed 3/12/25	Fri 6/26/26
340	MECHANICAL SYSTEMS	285 days	Wed 3/12/25	Tue 4/14/26
346	PLUMBING SYSTEMS	270 days	Wed 3/12/25	Tue 3/24/26
353	INTERIOR FRAMING & FINISHING	302 days	Thu 5/1/25	Fri 6/26/26
389	PHASE 4 - WET CHANGE ROOMS	170 days	Thu 5/1/25	Wed 12/24/25
369	PHASE 3 -LEISURE POOL	283 days	Wed 5/28/25	Fri 6/26/26
354	PHASE 2 - 50M POOL	135 days	Thu 6/5/25	Wed 12/10/25
402	PHASE 6 - LOBBY	130 days	Thu 7/24/25	Wed 1/21/26
414	PHASE 5 -GYMS	150 days	Thu 7/31/25	Wed 2/25/26
332	SYSTEMS	176 days	Wed 7/9/25	Wed 3/11/26
426	Closing	154 days	Thu 2/26/26	Tue 9/29/26



11.9 Use of Technology

TEAMS COMMUNICATION PROTOCOL

The following points highlight the organization structure and protocols.

- Avoid using email. All project communication to occur on Teams where possible;
- It is the responsibility of users to regularly (i.e. once daily) check Teams. Notification options are customizable to the user's preference (email, Teams, etc.);
- Teams is hosted by and administered by the City of Vernon. All new users must be invited to the Teams site to have access;
- Users will be added to all project channels except for those few that are secured and limited to specific members. Restricted channels are limited to the Financial Management Cluster and SMT;
- When creating a post, ensure it is in the correct channel, has a title and is addressed to at least one person or group. Addressing a person or group is accomplished by typing the "@" symbol followed by the first few letters of the name. This will cause Teams to suggest matching identifiers for selection;
- Use the Reply option to respond to a post;
- The entire Teams site can be searched using the search form at the top of the window;
- Files added to chats will only be available within the chat and are not viewable or accessible to other members of the team.

11.10 Communication Plan

Construction of the ALC represents one of the most significant investments in the City of Vernon's history. Throughout the Detailed Design and Procurement and Construction phases, the City of Vernon will provide project updates, and relevant technical information, supporting a broad understanding of the project needs and how they serve the City of Vernon, Greater Vernon, North Okanagan, and guests.

This project will be publicized as a legacy project for the benefit of future generations and an investment that City of Vernon residents and businesses may take collective pride in.

Through the Detailed Design and Procurement and Construction phases, the City of Vernon and project partners are committed to the provision of timely and effective communication with interest holders, other municipalities, industry peers and the community at large. The City of Vernon's Communications team, working in collaboration with the PMT, will designate staff members to support communications planning and activities.

Through effective communication, the City of Vernon fosters a sense of community inclusion, transparency, and cooperation, leading to public support for important municipal initiatives and investments.

MUNICIPAL COMMUNICATIONS TEAM ROLES

City of Vernon Project Managers working in conjunction with the City of Vernon Communications department will assume responsibility for the following:

Development of communications materials including:

- Communications and engagement plans;
- Public notifications and advertising;
- Public meeting materials;
- Q&A documents;
- Website;
- Speaking notes;
- Project signage;
- Oversight of the development and distribution of construction and traffic notifications (to be undertaken by the relevant contractor);
- Communicating – or facilitating communication – with community members regarding specific issues;
- Providing progress reports and updates on the project and responding to issues raised by media;
- Liaising with the public at community/public meetings;
- Ensuring the PMT is mindful of community interests and concerns to inform construction plans;
- Management of City project website vernonalc.ca, social media, and other resources; and,
- Facilitation of public events.

ISSUES MANAGEMENT

Project-related public issues will require management through coordination with media, development of public information, meeting with residents and Interest Holders, updating websites, posting updates on social media or correcting information in media coverage. Project-related communications issues may include:

- Safety / security incidents;
- Theft or unauthorized sharing of confidential information;
- Team conduct violations;
- Significant cost or timeline changes;
- Politically sensitive matters;
- Other matters with potential for public impact or interest.

COMMUNICATIONS OBJECTIVES

Instill public confidence in project delivery through the following measures:

- Transparent process;
- Fiscal accountability;
- Commitment to quality;
- Involved community;
- Dedicated, experienced Project Team;
- Share learnings for community and industry benefit;
- Showcase IPD process;
- Build relationships;
- Document for posterity;
- Inspire and encourage the PMT;
- Recognize Milestones;
- Celebrate team achievements;
- Showcase expertise.

KEY COMMUNICATIONS MESSAGES

- ALC built as recommended in the ***Greater Vernon Recreation Master Plan (2018-2033)***
- Integrated Project Delivery (IPD) model being used to deliver best value and ensure quality.
- The City of Vernon will own, operate, and maintain the entire facility.
- Project funding was supported and is being provided by the citizens of the City of Vernon.
- The City of Vernon will ensure local vendors and contractors are aware of relevant opportunities to participate.
- The new facility is future facing and will serve the community for decades to come.

COMMUNICATIONS ACTIVITY HIGHLIGHTS

Ground-Breaking Photo Opportunity

The City of Vernon will coordinate a photo opportunity to celebrate the ground-breaking on April 8 following the presentation of the Validation Report during the City of Vernon Council Committee of the Whole meeting. Vernon City Council, representatives from the IPD team and Interest Holders will participate in the photo opportunity.

Dedicated Project Website

A project website with the URL www.vernonalc.ca has been established. Site content will be developed by City of Vernon Project Managers and members of the PMT, working in collaboration with the City of Vernon Communications department. The site will be maintained by an external web provider. The City's www.vernon.ca/alc page will be updated and maintained by the City of Vernon Communications department.

Construction Camera

Once the project is well underway, it is anticipated that the ALC project will provide camera footage on the vernonalc.ca project website. Viewers can logon to the website and see the construction camera and the project as it progresses in real time.

Scheduled Media Visits

Approximately once per quarter, media will be invited to the Big Room and/or the construction site to capture images, learn about the project and hold interviews with designated PMT / City of Vernon spokespersons.

Construction Updates

City of Vernon Project Managers will draft Construction Updates for the City of Vernon Communications department to review. Updates to be posted on the vernonalc.ca website. Updates will be distributed in the same way as media releases.

ANTICIPATED CONSTRUCTION MILESTONE UPDATES

- Stage 1 – Site Servicing and Excavation
- Stage 2 –Foundations
- Stage 3 – Superstructure
- Stage 4 – Interior Work
- Stage 5 – Occupancy

SCHEDULED SOCIAL MEDIA

The City of Vernon Project Managers and PMT in conjunction with the City of Vernon Communications department will post project updates and Milestones on City of Vernon's and Greater Vernon Recreation Facebook and Instagram channels. These updates and Milestones will be strategic and aligned with the overall communications strategy.

FREQUENTLY ASKED QUESTIONS (FAQ)

Was a Master Plan and needs assessment conducted for Greater Vernon recreation facilities?

Yes, the ***Greater Vernon Recreation Master Plan*** was conducted by RC Strategies + PERC between January and October of 2018. The Master Plan, which served as a needs assessment was endorsed by all the elected officials in Greater Vernon in October 2018. The extensive public engagement and results of the Master Plan can be found at www.vernonalc.ca.

Note: The Greater Vernon area includes the City of Vernon, the District of Coldstream, and Electoral Areas B and C of the North Okanagan Regional District.

Was a feasibility study conducted for the Active Living Centre project?

Yes, the ***Greater Vernon Active Living Centre Feasibility Study*** was conducted by FaulknerBrowns Architects between August 2019 and May 2020. The extensive public engagement and results can be found at www.vernonalc.ca.

What facilities did the Recreation Master Plan and the Feasibility Study identify as priorities for the community?

The Recreation Master Plan identified the following facilities as priorities (listed in order of priority):

- a leisure swimming pool
- an indoor walking/running track
- fitness/wellness facility
- a 50m pool

A potential action identified in the Master Plan was to "*develop an additional indoor aquatic facility considering both leisure and competitive components*."

The goal of the *Greater Vernon Active Living Centre Feasibility Study* was "*to find an indoor facility mix that meets the current and future needs of a growing community and has the opportunity to attract new residents and visitors to the Greater Vernon area*." One of the guiding principles of the Feasibility Study was to "*design a facility that would accommodate the everyday needs of the community and have the ability to host events*".

The statistically valid results of the controlled direct mail survey that was part of the Feasibility Study indicated that the aquatic priorities were (in order of priority):

- a 50m pool
- a secondary warm pool
- a leisure pool

The 'dry' indoor priorities were (in order of priority):

- a walking/running track
- fitness centre
- multi-purpose rooms
- gymnasium

Why was a 50m pool proposed and not a second 25m pool?

As part of the Recreation Master Plan process, a needs assessment was completed by RC Strategies + PERC. At that time, it was determined there was a short term/high priority need (0-5 years) to "Enhance the quality and quantity of indoor aquatic facilities" in Greater Vernon.

A 50m pool was identified by the public, through the needs assessment, as one of the top four indoor facility priorities. The Feasibility Study supported that finding and concluded that the best way to meet the identified need for 25m more 'water' was to build a single 50m facility rather than operate two separate 25m facilities. This was, in part, due to the feedback from the public that they would prefer that there be only one Aquatic Centre, estimated savings of more than $300,000 per year to operate one 50m pool as opposed to 2 – 25m pools, and the increasing costs to maintain the aging Vernon Aquatic Centre.

How does the aquatic facility in the Active Living Centre accommodate the everyday needs of the community?

Through the public and interest holder engagement process, it was determined that having a 50m pool with moveable bulkheads would provide the desired goal of accommodating the everyday needs of the community, while also having the ability to host events. Having the ability to move a bulkhead into configurations that can create two 25m pools, or three areas of varying size by using lane ropes (e.g., 12.5m, 12.5m, 25m), would provide increased programming opportunities. It is anticipated that the 50m pool would be used in the two 25m pool configuration, the majority of the time.

As an example: lane swimming can be taking place in one area of the pool, while the other areas are set up for public swim, aquatic exercises, or swim lessons.

The Feasibility Study concluded that rather than having a leisure pool with fixed amenities like a wave pool, or wave rider features that tend to lose their appeal after time, it was determined that using one of the 25m halves with features like a rock-climbing wall, water walking mat, rope swing, etc. – along with portable amenities like the floating Wibit, brought out on a rotational basis – would be a more effective and efficient, but fun alternative. As such, the proposed pool is a versatile pool that can be used in a variety of ways.

What amenities will be included in the Active Living Centre?

The new state-of-the-art multipurpose facility will be approximately 12,000 sq.m. (130,000 sq.ft.), 464 sq.m. (5,000 sq.ft.) larger than originally proposed. The new ALC includes an aquatic centre with an eight lane 50-meter pool with a moveable bulkhead and two diving boards; leisure pool with zero depth beach entry; tot slide; spray features; a lazy river and a family hot tub. Also featured will be a warm water 25-meter x 3 lane teaching pool; sauna; steam room and adult's only hot tub. The facility also includes a fitness centre, double gymnasium with multiple sports courts, a synthetic walking/running track and eight dedicated multipurpose activity and program rooms. Planned enhancements to the original conceptual design include a major water slide, a WOW WaveBall™, a NINJACROSS™ course, additional interactive spray features, a cold plunge pool as well as increasing the length and width of the walking/running track to 185 meters and adding a fourth lane.

Will the Active Living Centre be able to host events?

Yes, the facility has been made large enough to accommodate our community's projected growth and to host events such as provincial swim meets and tournaments for a variety of sports with features like permanent raised spectator seating over the pool, portable bleachers and enough pool deck, gymnasium, and multipurpose space to accommodate athletes, coaches, and officials.

How does the proposed Active Living Centre meet the current and future needs of our population?

As above, it was determined there was a short term/high priority need (0-5 years) to "*Enhance the quality and quantity of indoor aquatic facilities*" in Vernon and the best way to meet that need and provide the community with 25 more meters of water was to build a single 50m facility rather than operate two separate 25m facilities. The Master Plan also identified a mid-term/mid to high priority need (6-10 years) for non-school based gymnasium spaces, enhanced quality and quantity of dedicated programming spaces, and fitness and indoor walking spaces.

Given that the *Greater Vernon Recreation Master Plan* was completed and endorsed in October 2018, the short-term time period would be 2019-2023, mid-term 2024-2028, and long term 2029-2033. The ALC is targeted to open by the fall of 2026; directly in the middle of the mid-term time period. Facilities have an anticipated 50-year life cycle and need to be built large enough to accommodate both the current needs of a community, and the anticipated future needs of a growing population.

Is there an anticipated increase in use of the proposed Active Living Centre?

The opening of the proposed ALC is potentially two to three years away. The North Okanagan has already surpassed the population that was projected for 2026 just five years ago in the Regional District of North Okanagan's Growth Strategy Report. It is anticipated that with the expected continued population growth in the North Okanagan and a new facility likely to attract new users, the number of user households will increase substantially.

What is the estimated cost to build the proposed Active Living Centre?

As part of the Feasibility Study completed in May 2020, the cost of the proposed ALC, including a 50m pool, a leisure pool, a fitness centre, a walking running track, two gymnasiums, multipurpose rooms, and associated support spaces like a lobby, change rooms and storage spaces was estimated at $90M, which included design, professional fees, construction, and contingency.

Construction costs and supply chain issues experienced during the pandemic had a significant impact on large scale project cost estimates. Reviews in June of 2022 by two independent Quantity Surveyors estimated costs to increase in the order of 25-35% by 2023. A revised estimated cost of $112.5M to $121.5M was established. In February of 2024, Vernon City Council approved an additional investment of $15M to fund enhancements to the original proposed project including a major water slide, a WOW WaveBall™, a NINJACROSS™ course, additional interactive spray features, a cold plunge pool as well as increasing the length and width of the walking/running track to 185 meters and adding a fourth lane. The additional investment also allows the incorporation of the Syilx culture into the building design, ensures the new facility is Net Zero Ready and RHFAC Gold Certification, and addresses cost escalation experienced in the past two years. The total estimated cost to complete the project is now $136M.

Why was the Integrated Project Delivery model chosen for the project?

IPD is a project development model that merges all parties into a single shared multi-party contract. It transforms the traditional Design-Bid-Build, low bid, change order, adversarial relationship, into one that is team focused and value added, encouraging behaviours that lead to exceptional project performance and value. IPD merges the Owner, architect, general contractor, and trade partners early on, to form a team that together conducts a Validation phase. The Validation phase is conducted over approximately four months and project partners together perform preliminary design, intensive cost estimating, and agree upon a Base Target Cost to the Owner for the project. This process delivers the kind of detailed and committed budget certainty early on that the City of Vernon requires for this high-profile project.

What is the plan for the existing Vernon Aquatic Centre if the Active Living Centre is approved?

The Feasibility Study recommendation is that once the new Active Living Centre is open, the existing Vernon Aquatic Centre be decommissioned. Once the development of the proposed facility is underway, a feasibility study will be conducted to determine the best use of the interior space that is currently occupied by the Vernon Aquatic Centre. At least one prospective tenant has already provided a letter of interest to rent the Vernon Aquatic Centre space.

11.11 Building Information Modeling (BIM)

INTRODUCTION

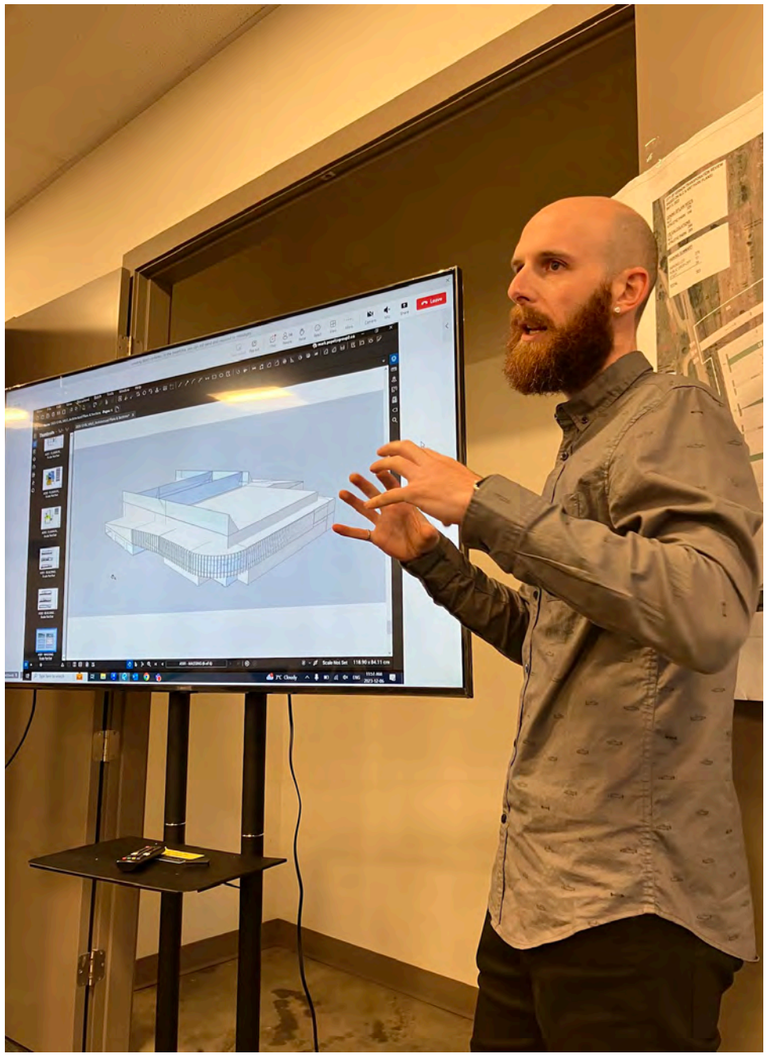
The IPD team recognizes the City of Vernon's commitment to utilizing BIM technologies to improve the design and construction of its facilities. It is with this commitment in mind that a BIM Execution Plan (BIMx) has been developed for the ALC project. This project specific BIMx will serve as a road map for the integration of collaborative technologies by outlining standard procedures and aligning expectations between all interest holders. Once developed, the BIMx (as updated with team approval from time to time) will become part of the contract documents for the project and govern over other contract documents regarding its subject matter.

The primary objective of the BIMx is to outline project-specific collaboration procedures and provide a clear understanding of the project's digital project delivery goals. The IPD team's BIMx identifies the goals of the project, defines uses for BIM on the project to help achieve those goals (e.g., Design Authoring and 3D Coordination), provides a detailed description of the processes for executing BIM throughout the project, and outlines some of the technical guidelines for maintaining and storing the data created.

PROJECT APPROACH

The IPD team integrates applicable BIM techniques within construction processes, where through its application improvements in design, planning, safety, quality, and construction, efficiency can be realized, and client expectations met or exceeded.

The use of BIM allows the IPD team to streamline the design and construction workflows that ultimately result in a better building. By implementing these techniques in the design and construction phases, unnecessary rework can be eliminated. This LEAN BIM process helps control the cost, schedule, and sustainability of the project while cultivating a collaborative team environment.



Current technology allows design development to take place within a virtual 3D environment. Design models, when coordinated with the additional building system models, construction models will be developed to become the basis for the installers and fabricators' shop drawings and models. Those drawings and models are used in the field, ensuring that the system is installed as planned. This approach relies on close team collaboration early in the design phase and a commitment to modeling for construction efficiency.

BIMx, A LIVING DOCUMENT

The BIMx is intended to be maintained by the Project Team through all phases of the project. The IPD team recognizes that technology is constantly improving and that during design and construction, project needs may surpass their current requirements. Key team members should review the BIMx on a regular basis to determine cohesion with current project needs and propose modifications as needed for approval by the team. The BIM team will maintain the current, approved version of the BIMx, and any updates approved by the team will be distributed to all applicable project team members. Ultimately, the use of BIM has permitted work done in the Big Room to be shared immediately with the larger IPD Team, and has resulted in less conflicts and drawing coordination errors contributing to overall efficiency.

SUCCESSFUL INFORMATION MANAGEMENT

A successful project requires a smart plan, LEAN scope, collaborative processes, team agreement, supporting technology, and solid tracking, control, and verification workflows. Project execution planning ensures that all parties are clearly aware of the opportunities and responsibilities associated with the incorporation of BIM into the project. This BIMx details the correct and approved processes for executing BIM throughout the project's lifecycle.

Visual Management is something our IPD Team will lean into during the project to democratize and widely share information intuitively and accurately.

11.12 Key Assumptions & Construction Logistics Plan

During the Validation phase, the project IPD team developed a site logistics plan to be implemented upon the commencement of construction activities. The plan focuses on achieving several key objectives, including leveraging existing available services, establishing a designated space for collaborative activities (Big Room activities), ensuring controlled separation from neighbouring facilities, and optimizing efficiency and safety within the site. A thorough on-site assessment of was conducted, considering factors like terrain, existing infrastructure, environmental impact, and accessibility prior to developing the layout displayed in the logistics plan.

Key items identified in the logistics plan include:

- Neighboring Alexis Park Elementary School & Kal Tire Place
- The proposed site office and Big Room
- Existing electrical and sanitary services
- Site parking, laydown and storage areas
- Proposed stockpile location
- Vehicle and equipment travel paths
- Planned crane locations

Notably, the Big Room, site office, and laydown area are strategically positioned on an existing parking lot, offering stable ground that requires minimal preparation before setup. This location minimizes disruption to construction sequencing and allows the team to leverage the existing nearby sani-station and electrical services. Controlled entrance and exits planned around existing concrete let downs provide a safe flow of traffic and separation of heavy equipment from regular site visitor traffic, and clear sightlines to the site office upon entering.

The size of the lot affords the ability to: stockpile reusable earthworks material without interruption to construction activities, include access roads for efficient flow of people and materials, and delineate laydown and safe prefabrication areas while providing clear separation from neighbouring facilities.

The building footprint does not lend itself to the efficient use of a tower crane due to reach, capacity, and cost. As a result, mobile cranes, telehandlers, and rough terrain lifts will be utilized for movement and hoisting of people and materials. The ground is anticipated to be saturated for a significant duration of the project and access mats will be relied upon to ensure no impediment to the movement of this equipment.

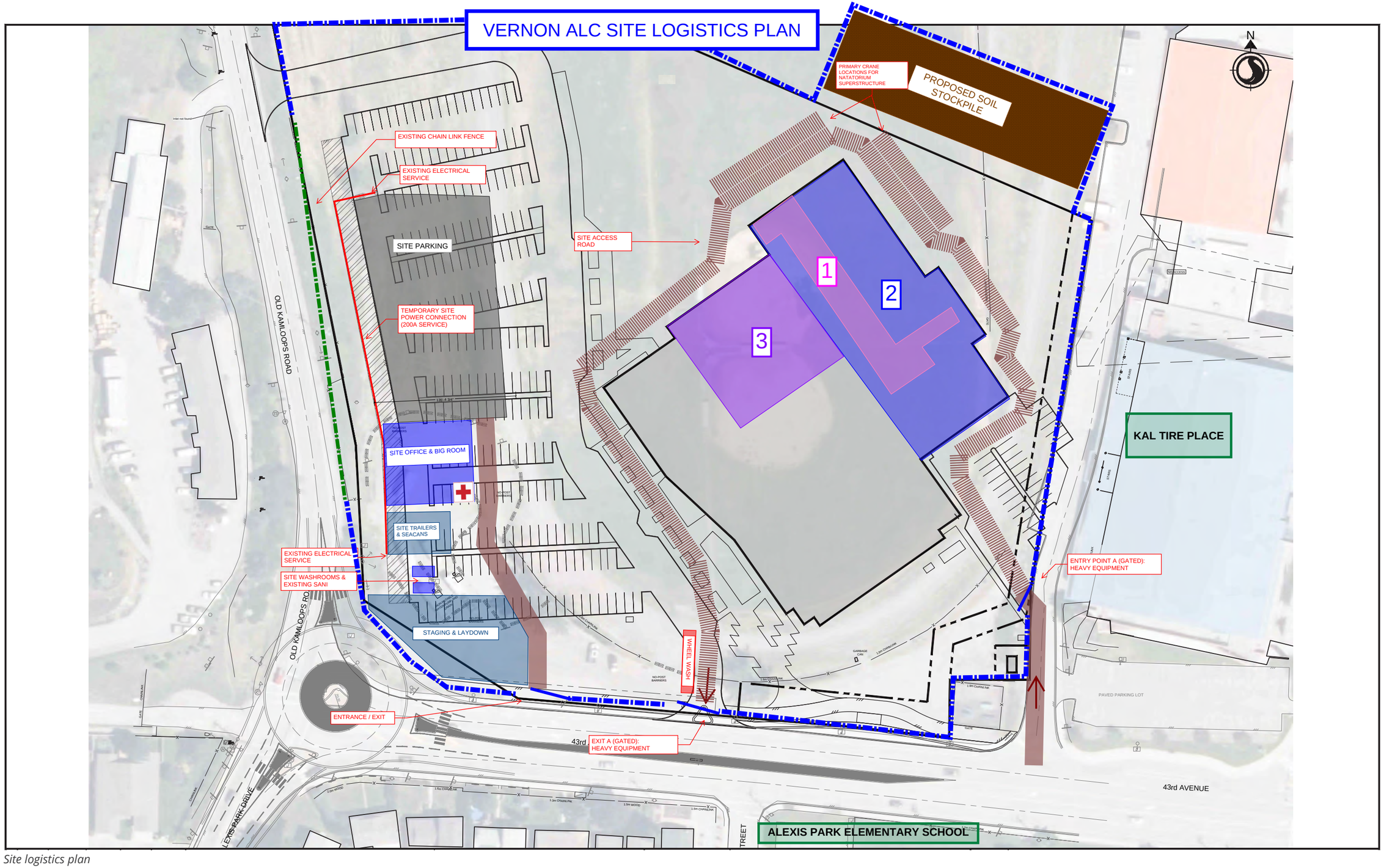
11.13 Commissioning and Operation

The IPD team will deploy a robust project close out and turnover program including the commissioning of building systems, Quality Assurance & Quality Control (QAQC), Owner training/building orientation, permit close out, and development of operation of maintenance manuals. This section further describes how the team will manage these aspects of the project.

FUNDAMENTAL COMMISSIONING & VERIFICATION

This process will entail the testing and confirming that the building systems operate correctly and as designed and intended. The testing process will be documented and will include commissioning (Cx) process activities for mechanical, electrical, plumbing, and renewable energy systems and assemblies, in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1–2007 for HVAC&R Systems, as they relate to energy, water, indoor environmental quality, and durability. In addition, there is a requirement to:

- Develop and implement a Cx plan;
- Confirm incorporation of Cx requirements into the construction documents;
- Develop construction checklists;
- Develop a system test procedure;
- Verify system test execution;
- Maintain an issues and benefits Log throughout the Cx process;
- Prepare a final Cx process report.



Site logistics plan

ENHANCED COMMISSIONING

The IPD team is pursuing enhanced commissioning as part of the overall sustainability strategy, and this will include Option 1 and Option 2.

Option 1, Path 2: Develop monitoring-based procedures and identify points to be measured and evaluated to assess the performance of energy- and water-consuming systems which will include the procedures and measurement points in the commissioning plan.

Option 2: Complete the commissioning process (CxP) activities for the building's thermal envelope in accordance with ASHRAE Guideline 0–2005 and the National Institute of Building Sciences (NIBS) Guideline 3–2012, Exterior Enclosure Technical Requirements for the Commissioning Process.

QUALITY ASSURANCE & QUALITY CONTROL

Throughout the Detailed Design and Procurement and Construction phases the team will deploy a QAQC program with the end goal of providing the City of Vernon with a product that meets or exceeds specific quality requirements and objectives. This will be jointly managed by the IPD team's builder and designer representatives. The team will ensure the proper requirements and expectations are communicated to the personnel putting work into place – this will be managed through conversations and prototyping to assist with clearly establishing expectations for the quality of specific building components well in advance of work occurring on site. This will mitigate wasteful rework as construction progresses and quality reviews are performed. As the first areas of the building near completion the designers and builders will work as a team to identify deficiencies in the final product; any gaps in quality expectations will be communicated to the trade workers in an effort to drive continuous improvement through the progress of finishing stages in future building areas.

OWNER TRAINING / BUILDING ORIENTATION

As building systems near completion of installation and commissioning the IPD team will coordinate with the City of Vernon to develop a program of owner training and orientation to suit their operational requirements. A detailed list of training sessions will be communicated, and attendance requirements established. The scheduling of these sessions will be flexible to best suit the City of Vernon's needs and can be designed to optimize the experience of the attendees. The IPD team will also explore innovative techniques to provide a system of training that the City of Vernon can continue to utilize long after completion of construction – this can include not only the information contained within the Operation & Maintenance Manual (further described below) but also video recorded sessions or other innovations as conceived by the City of Vernon and the IPD team in unison.

PERMIT CLOSE OUT

The IPD team, including the project code consultant and certified professional partner, will endeavor to engage with the City of Vernon throughout the life of the project to ensure alignment of expectations related to the building permit and related engineering permits / services. Specifically, during construction, the IPD team will strive to host the City of Vernon Inspections group for regular site visits and reviews—dependent on their availability. This process will assist with establishing expectations and parameters for final inspections not only in advance of the completion of the project, but continuously and throughout the construction process. As the project nears completion of construction the IPD team will work hand in hand with the City of Vernon to ensure a smooth and efficient process in closing out the building & engineering permits, and, ultimately, the granting of occupancy for the building.

OPERATION & MAINTENANCE MANUALS

Through alignment, the IPD team determined that the Operation & Maintenance (O&M) manual will live as a digital document only. This provides the utmost flexibility in its format, development, and accessibility for the end user. The digital O&M manual will contain a full catalogue of as-built drawings (drawings will be kept current as changes occur during construction through live BIM), submittals, shop drawings, and product data for all materials installed into the building and across the site. It will contain a complete list of material and workmanship warranties as prescribed by the design specifications, and, finally, it will contain information detailing the operation & maintenance process / requirements for all building materials, equipment, and systems. The format of this digital manual will be determined by feedback received from the City of Vernon and tailored to best suit their requirements. The manual will be turned over to the City of Vernon as soon as reasonably possible following compilation and review by the IPD team.

BUILDING TURNOVER

The end goal of the elements described in this section is to reach a state in which the City of Vernon is adequately trained, orientated, made familiar with, and provided the appropriate information, materials, spare parts, etc. to confidently possess, operate, and maintain the facility post building turnover. During this process the IPD team will assist to fill any potential gaps that appear in the turnover elements described herein during construction and after turnover. The IPD team commits to remaining present and available to the City of Vernon to provide assistance as their level of familiarity with the facility develops.

11.14 Warranty Management

The IPD team's handover plan includes procedures for the transition, final inspection, commissioning, and turnover of all required closeout documents, such as warranties. The IPD team's approach to resolving issues that arise during the warranty period in a timely manner is founded on the creation of a Warranty Management + Concept specific to the ALC. The concept factors in and responds to the community infrastructure nature of the ALC and its location in the South Okanagan.

The Warranty Management and Concept is based on these three principles:

1. Minimize warranty issues through engineering, design, QA/QC, and commissioning;
2. Provide direct, fast, and reliable response to the City of Vernon and solve warranty issues with minimal impact to operations; and
3. Prepare Warranty phase proactively with the City of Vernon, all partners, and subcontractors.

From the beginning of the Design phase and through the Construction phase, the IPD team will prioritize the Warranty Management + Concept using phase by phase measures, as described below. Warranty management is integrated into each phase of the project, from Detailed Design and Procurement to Warranty phases.

DESIGN PHASE

The foundation of the IPD team's Warranty Management + Concept is based on engineering and design. Selecting proven design details and reliable equipment is crucial to minimizing warranty issues from the outset. Based on the team's extensive experience with recreation projects, there is an understanding that the majority of warranty issues are usually related to the more complex mechanical, electrical and plumbing systems (MEP) and aquatics systems. With this knowledge in hand, the team will emphasize the selection of systems and equipment and the later execution of this work. Additionally, the team will draw on the City of Vernon's previous experience with certain products when selecting equipment.

The IPD team will evaluate options to procure extended trades and equipment warranties. Moreover, the team will prepare a cost-benefit analysis for the extended warranties and decide with the City of Vernon where such warranties provide the best value for the cost.

CONSTRUCTION PHASE

An enhanced QAQC program will further reduce potential deficiencies and warranty issues during the Construction phase. Special emphasis will be given to the MEP and aquatics systems. The IPD team will commission and test as early as possible to correct any potential challenges before Substantial Completion.

In cooperation with the City of Vernon, the IPD team will create a tailor-made Training Program to ensure the facility staff is familiar with the new ALC before Substantial Completion and facility handover. The IPD team will allocate appropriate time for the training to prevent staff from being overextended. The IPD team will also propose conducting regular site walks and inspections during the Construction phase to provide the facility team with detailed advanced knowledge regarding the future facility.

Months before Substantial Completion, the IPD team will finalize the Warranty Organization in collaboration with relevant subcontractors and start the handover of all necessary materials.

From the outset, a Plan-Do-Check-Adjust (PDCA) approach will inform the IPD Team's efforts to continually improve on our performance, as will reflecting on our efforts to identify what is going well (the "Pluses" and where there is room for improvement (the "Deltas").

WARRANTY PERIOD

The Warranty Period obligation in the contract commences when a Stage of Work is substantially complete and continues until one year after Substantial Performance of the entire Project or the date of repair of the defective component, whichever is later. When longer warranty periods are specified for some equipment then those longer periods apply.

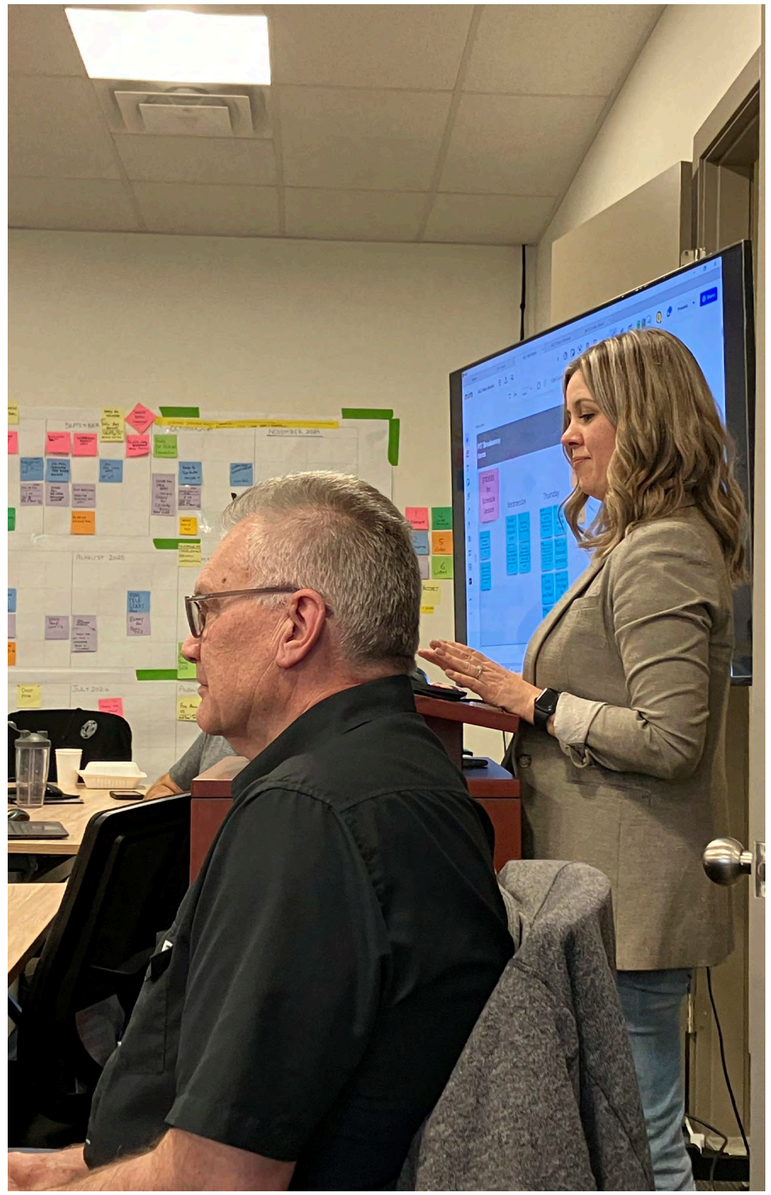
The Vernon ALC IPD team has developed an informed Warranty Allowance budget held in the Owners' Costs section of the project budget to address and fund applicable post completion issues. This allowance is a fixed amount and is not intended to address manufacturer-related equipment failures that are to be resolved by those third parties.

ALC Partner labor and overhead costs to address warranty issues may qualify for the Warranty Allowance and the contract has contractual language to govern that process with a PMT / SMT Bulletin protocol to apply its application. The Owner will administrate the Warranty Allowance for the duration of the Warranty Period and retain any unexpended funds.

11.15 Interest Holders

Project success is often determined by the interaction of the Project Team with internal and external interest holders. The IPD Team brainstormed a list of known and anticipated users during the Pre-Validation and Validation phases, including:

- Vernon City Council
- The Citizens of Vernon
- Vernon Social Planning Council
- Halina 50+ Activity Centre
- Kindale Development Association
- Vernon Winter Carnival
- North Okanagan Youth & Family Services
- Swim BC
- Artistic Swimming BC
- Swimming Canada
- Kokanee Swim Club
- Vernon Masters Swim Club
- Vernon Track & Field Club
- Vernon Silhouettes Artistic Swimming Club
- Vernon Water Polo Club (Future)
- Vernon Tennis Association
- Okanagan Rhythmic Gymnastics
- Sky Volleyball Club
- BC Hydro
- Fortis
- Telus
- Local businesses and contractors
- City of Vernon Departments (Senior Management, Recreation, Infrastructure, Planning, Operations, Finance, Tourism)
- Okanagan Indian Band (OKIB)
- Regional District of North Okanagan
- Southern Interior Construction Association (SICA)



VERNON ACTIVE LIVING CENTRE IPD

ACTIVE LIVING CENTRE

"...an indoor facility mix that meets the current and future needs of a growing community and has the opportunity to attract new residents and visitors to the Greater Vernon area."