

WATERLOO MEMORIAL RECREATIONAL COMPLEX

AND OLDER ADULT CENTRES FACILITY INTEGRATION AND DEVELOPMENT STUDY PHASE 2: FEASIBILITY STUDY - FINAL REPORT

DECEMBER 04, 2017



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OBJECTIVES

THE PURPOSE OF THE REPORT IS TO PROVIDE A COMPLETE PICTURE OF THE FOLLOWING ELEMENTS:

What recreational infrastructure is required to meet the needs of older adults and the broader community?

Where should expansion of the facility be located?

What does the building and site modifications include?

What might the planning of the building and site look like when developed?

What are the order of magnitude capital costs?

What would it cost to operate the facility in net terms?



EXECUTIVE SUMMARY

An exploration of community program co-location, enhancement and expansion.

The City of Waterloo commissioned Perkins+Will Canada to explore the feasibility of relocating older adult programs from the Adult Recreation Centre (ARC) and Wing 404 RCAFA Rotary Adult Centre (Wing 404) to the Waterloo Memorial Recreation Complex (WMRC) as a replacement older adult centre. Concurrently this is an opportunity to expand the recreational opportunities at the WMRC to meet the changing needs of the community.

This undertaking was planned in two distinct phases; a Phase 1 Needs Assessment and a Phase 2 Feasibility Study, the result of which are contained in this report. The work of both phases included a needs analysis, spatial program development, conceptual planning and the creation of capital and operational cost projections. The objective was to assess and explore opportunities for the older adult population at the WMRC site, investigate options to enhance recreational programming at the WMRC for all ages, and identify efficiencies in construction and synergies in operations.

The Phase 1 Needs Assessment was presented to Council on May 8, 2017 and approved. The Phase 2 Feasibility Study therefore utilized the program recommendations in Phase 1 as the basis for community consultation and concept design exploration.

MOTIVATION FOR THE PROJECT

The motivation for the project is to address the evolving recreational and older adult program needs of the local population through expansion of the WMRC. Consideration of this expansion will explore how it could accommodate the relocation of the ARC and Wing 404 as well as new recreational activities.

The project will focus on the unique nature of older adult program participation in the current locations at the ARC and Wing 404. These locations have served their users

over many years but are limited in their capacity and ability to properly support the activities they house. It will also recognize the recent trends in community recreational programming as noted in the Recreation and Leisure Services Master Plan. This 2008 Master Plan indicated that the City's current capacity of indoor recreation space was sufficient however, as the community has continued to thrive and intensify, particularly in the Uptown core, community needs have begun to outpace the available recreation space.

In anticipation of continued community growth, particularly in the city core, the capital budget for this project includes funding for an addition to the Waterloo Memorial Recreation Complex. This potential addition aligns with the recommendations of the Master Plan which supported the provision of a broader range of community recreation activities. Accommodating these community based programs also reflects the current mandate of the WMRC to limit the impacts of displacement related to significant events and to focus on supporting events that positively benefit community organizations.

PHASE 2 FEASIBILITY STUDY

Phase 2 involved further public engagement, site evaluation, conceptual design exploration and technical considerations. In addition the study includes a management plan addressing staffing needs, and future revenue projections for a larger facility, construction cost estimates and cost / benefit implications from an economic, environmental, social viability and sustainability perspective. This feasibility report is the outcome of Phase 2.

The report includes a spatial building program, site analysis, conceptual layout and capital cost estimate. It also offers financial proformas that are associated with the operations of the facility, addresses regulatory requirements and analyzes future parking demand. The result offers a broad base of information and direction that is important for the implementation of the project and can be used by the City of Waterloo, pending Council Approval, to move the project forward to the Phase 3 Detailed Design in 2018, and Phase 4 Construction during 2019-2020.

RECOMMENDATIONS

Expansion Possibilities: The existing WMRC site has potential to expand to accommodate additional general recreational program spaces and a replacement older adult centre.

Ideal Location: The WMRC location is within close proximity to the existing WMRC site and the core of the city. With no other optimum locations available in the uptown area, this site is a very good destination for re-location with no land acquisition costs. It is also in close proximity to Uptown intensification.

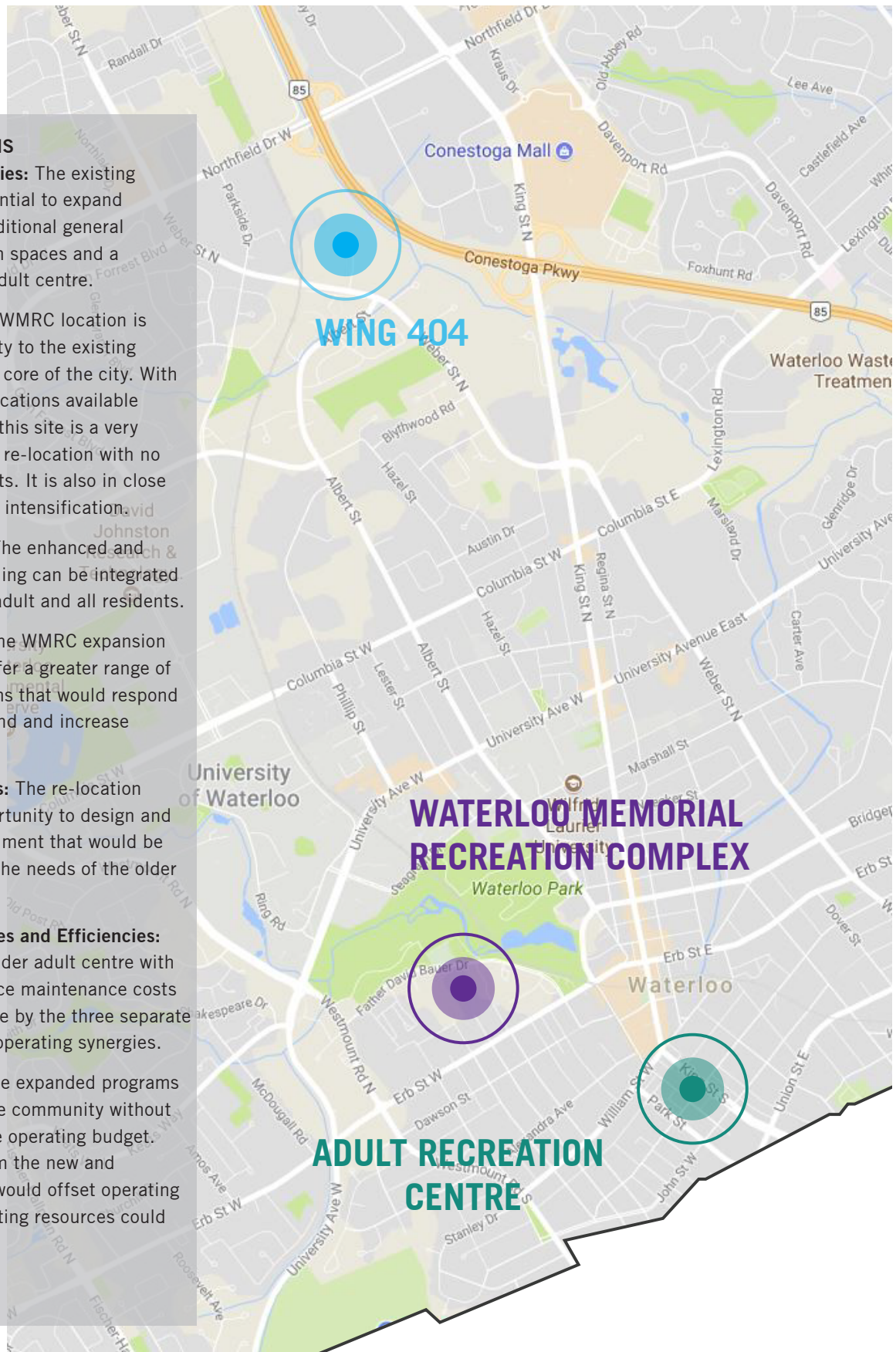
Broader Outreach: The enhanced and expanded programming can be integrated to serve both older adult and all residents.

Greater Potential: The WMRC expansion allows the City to offer a greater range of recreational programs that would respond to community demand and increase participation rates.

Improved Conditions: The re-location will provide an opportunity to design and construct an environment that would be more responsive to the needs of the older adult population.

Operational Synergies and Efficiencies: Co-location of the older adult centre with the WMRC will reduce maintenance costs currently being borne by the three separate sites, and allow for operating synergies.

Net Zero Impact: The expanded programs can be offered to the community without a net increase to the operating budget. Revenue growth from the new and repurposed spaces would offset operating cost increases. Existing resources could be re-positioned.



CONCEPT DESIGN VISION

The Phase 2 conceptual design was informed by the vision, guiding principles and functional program, established in Phase 1 and by a thorough location site analysis. The site analysis included assessment of Laurel/Clair Special Policy Area policies, fire exiting, impact on parking, construction logistics, circulation and program synergies. The outcome of that exploration resulted in a design proposal that located new programs in three strategic locations: at the east entry, the interior of the existing building and the west parking area. Each location would serve distinct programmatic needs but as a whole they combine to build new connections between the WMRC and the community.

Estimated Construction + Project Costs

The total estimated construction costs based on fourth quarter of 2017 dollars is \$17.65 M. This includes contractor operational costs. The soft costs would add 25% to the construction costs for a total of \$4.3 M. This would cover:

- Fees and Permits
- LEED Certification
- Public Art Policy Contribution
- Move in Costs
- Fixtures, Furniture and Equipment
- Testing and Inspection

An additional \$3.42 M is required to cover a construction contingency, HST, cost escalation until tender and Contractor's overhead and profit.

Total Project costs = \$17.65M + \$4.33M + \$3.42M = \$25.4M

The City of Waterloo has its own 3% overhead costs bringing the total cost of the project to \$26.1M

CONCLUSION + RECOMMENDATION

The success of this project lies in the synergy that is gained when programs and partnerships are brought together in one place.

Residents of Waterloo, regardless of age or capability, will identify the Expanded WMRC with a new Older Adult Centre as a thriving centre where they can gather, socialize and improve their health and well-being.

The conceptual design and program that is illustrated in this report is the result of a long process of research, site exploration, community engagement and iterative programming discussions. We believe at Perkins+Will it provides credible evidence that a move of ARC and Wing 404 programs to the WMRC is beneficial. It enables the City to offer older adults an improved facility and access to a greater range of programs. The synergies offered at one location will enhance and broaden the experience of the older adult users enabling them to choose from a greater range of activities. It will provide an intergenerational environment that allows them the opportunity to remain active participants in the community and explore experiences based on their capability and comfort and not just their age.

The proposed expansion of general recreational programs at the WMRC can also be justified as a needed and valuable investment. The current program offerings at the complex are dominated by aquatics and ice sport programs. With expansion, the activities offered can now include group fitness, walking, multi use programs, pickleball and basketball to name a few. The result is a recreation facility that can broaden its participation base without reducing the ability to be a premier rink and aquatic complex in Southern Ontario and host larger events.

NEXT STEPS

An RFP for Prime Consultant services can be released in early 2018. This will allow time for the Older Adult and Recreation staff to contribute detailed design input to the architectural and engineering teams. A Stipulated Sum tender to a Design Bid Build approach is recommended as it provides greater control for the City to shape the design and set the quality level of the project. Alternative delivery modes such as Design Build remove that control from the Owner.

The following is the suggested fee and task framework:

Phase 3 Develop Schematic, Design Development and Contract Documents including Class C, B and A cost estimates. Estimated project costs must stay within budget. Project does not move forward until approval by Council and when financing is in place.

Phase 4 Tender, Tender Review, Construction Administration and Post Completion services would start only after completion and approval of Phase 3 scope.

In this manner the project maintains momentum but is phased to allow the City to control the pace relative to the financing process, including possible disposition of ARC and Wing 404.



1. INTRODUCTION + PURPOSE

The combination of urban densification, older adult trends and changing recreational needs created the motivation to re-evaluate the state of existing facilities and services.

1.1 PROJECT FRAMEWORK + PURPOSE

In 2008, the Recreation and Leisure Services Master Plan indicated that the City's current capacity of indoor recreation space was sufficient; however, as the community has continued to thrive, grow and intensify, particularly in the Uptown core, community needs have begun to outpace the available recreation space. In anticipation of continued community growth, particularly in the city core, the capital budget forecast includes funding for an addition to the Waterloo Memorial Recreation Complex.

The City of Waterloo has responded to the unique recreation needs of older adults through provision of older adult focused recreation facilities and programs since the 1970s. Currently there are two facilities that focus on older adult programming within the City's inventory of seven indoor recreation centres. The Adult Recreation Centre (known as the ARC) has been used for older adult programming since 1974. Programming expanded to the Wing 404 RCAFA Rotary Adult Centre (known as the Wing 404) when it was acquired by the City in 1986. The City receives two annual grants from the Province's Elderly Persons Centre fund to help support both facilities. While these facilities are appreciated by older adult customers, they present challenges to meeting the changing need of the city's older adult population, particularly in light of broader changes within the city such as intensification of the Uptown area, and the development of the ION. These are older facilities and would require significant upgrades and structural adjustments to better meet current and future needs.

The role of the ARC and Wing 404 was addressed by the Older Adult Recreation Strategy which recommended re-location to another location in the Uptown close to the WMRC. This would provide an opportunity to consolidate programming offerings between the two facilities and offer access to programs at the WMRC. The combined result would be more effective at meeting the needs of older adults today and in the future. It is anticipated that proceeds of sale from one or both buildings may be used to partially fund construction of a replacement facility and support potential integration opportunities at the WMRC site.

Along with a response to older adult needs is a motivation to support the current mandate of the WMRC. This mandate, supported by the Corporate Strategic Plan, is to operate this facility as a community oriented recreation complex. This model has less program impacts of displacement related to significant events. It ensures the focus is to service the broad needs of the community, with accommodation of select events. This study envisions an expansion that supports this mandate.

The Feasibility Study, therefore, specifically addresses the form, function, location, associated amenities, and future expansion potential options for the expanded WMRC. The Study also provides construction and operating principles for the facility. This analysis is based on the findings of the preceding Phase 1 Needs Assessment report which should be read in conjunction with this document. The following key components provide a picture of the City staff and the consulting team's work to-date on Phase 2 and is a summary of the results comprising:

- Existing building and site reviews
- A series of data gathering initiatives in respect to site constraints and conditions to narrow the field of potential expansion sites for further assessment.
- Project team meetings that assessed conceptual design process and proposals.
- Meetings with operational staff and authorities having jurisdiction.
- Community Consultation through a drop in Town Hall format.
- A review of the results of community consultation on potential components of an Older Adult Centre and expanded sport and community recreation facility.
- Structural, civil, mechanical and electrical design briefs.
- Operational and programming model, revenue and cost analysis.

The project scope of work followed six basic stages. It began with a robust visioning and needs analysis period with iterative community, user group and staff input. It also included meetings and presentations to various committees of council and review of existing documentation - Older Adult Recreation Strategy, Recreation and Leisure Master Plan, and Age Friendly Waterloo Strategy. This provided the basis to determine the optimum locations for development on the WMRC site. A conceptual design emerged from that exploration supported by a full technical analysis, construction cost estimate and an operational analysis. The study therefore is formatted to summarize the input and outcome of these stages.

Section 2 / Vision Needs and Program

- Summary of Phase 1 visioning and impact on development of building program

Section 3 / Community Engagement

- Account of community input that occurred during Phase 1 and Phase 2

Section 4 / Contextual Analysis

- Documentation of site investigation and review that determined limits of development

Section 5 / Concept Design

- Outline of conceptual design with reference to supporting engineering documentation
- Capital costing
- Parking and Transit Study
- Engineering Design Briefs
- Sustainability Options

Section 6 / Operational Analysis

- Summary of financial analysis that determined expected operational costs, revenues and synergies

The specific purpose of the feasibility study is to confirm the appropriate forms and location of building expansion and the development of a high-level concept plan.

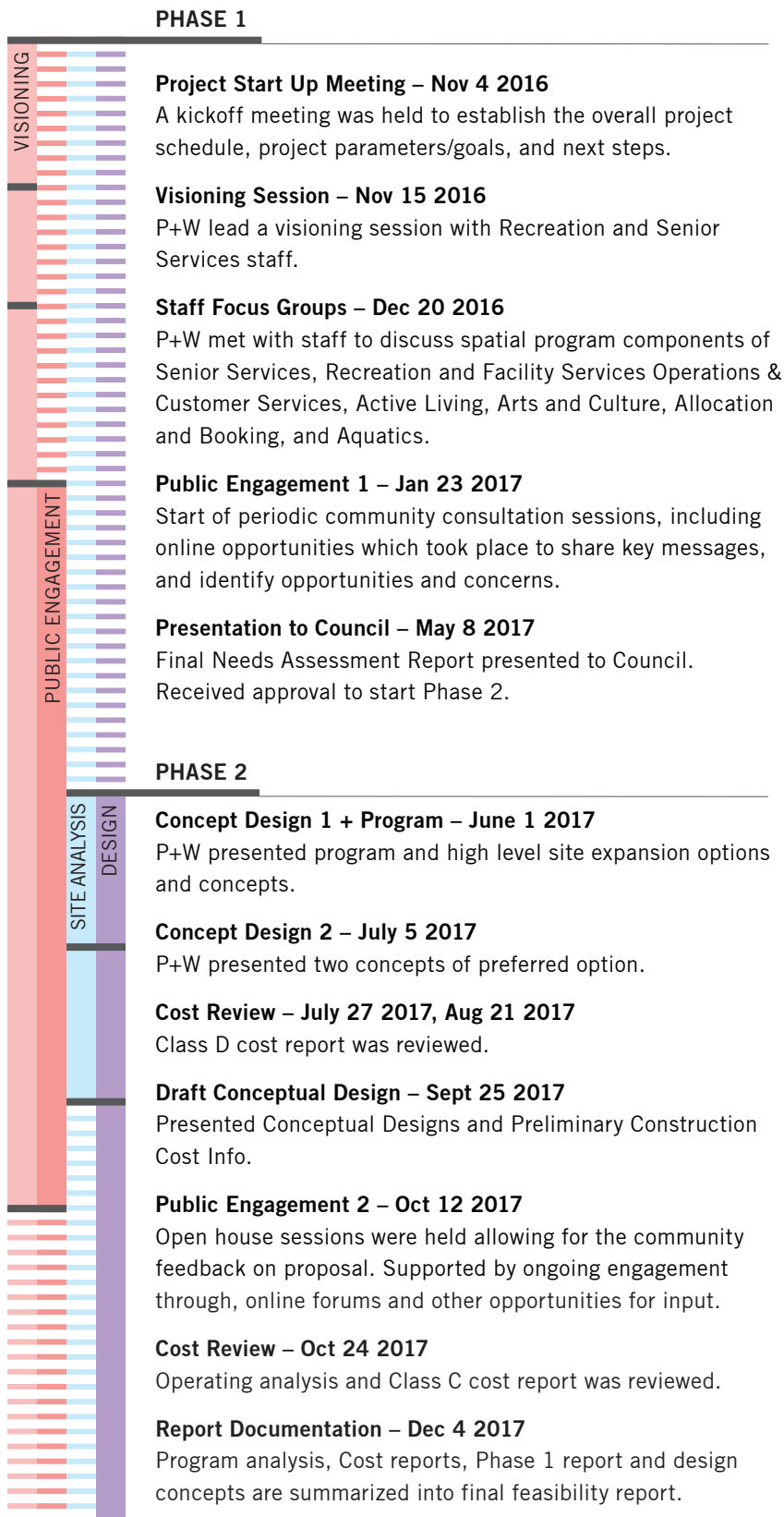
All of this is supported by a full technical analysis of the design and an accountable cost estimate that ensures the implementation plan has a basis in fact.

1.2 LIMITATIONS

The contents of this report and the analysis herein is based, in part, upon a range of primary analyses and secondary sources of information, supplemented where required by investigative discussions with municipal staff and community organizations as well as public consultations and facility reviews. While every effort is taken to ensure the accuracy of secondary sources of information, neither Perkins+Will or Sierra Planning and Management, nor the sub-consultants, can warranty the accuracy of this information. In the event that secondary source information is inaccurate or incomplete, Perkins+Will and Sierra Planning and Management will not be held liable for original errors in data. This assignment does include limited geotechnical field investigation but a detailed assessment of results for the purposes of structural design or civil services design is not provided. Further boreholes may be required during the following design phases.



1.3 PROCESS TIMELINE



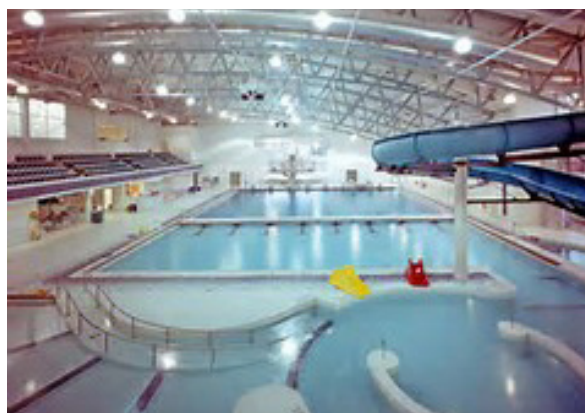
1.4 PROJECT BACKGROUND

This project potentially brings together three distinct recreation facilities and operations with unique contributions to the City of Waterloo.

Waterloo Memorial Recreation Complex (WMRC)

The Waterloo Memorial Recreation Complex is located at 101 Father David Bauer Dr. The nearest major intersection is Erb Street West and Caroline Street North. The building has a total floor area of approximately 106,291 square feet and was opened in 1993. The Complex is actively used by minor hockey and lacrosse teams and by participants in learn to swim or competitive aquatic programs. It offers programs for hockey, figure skating, aquatics, track and group exercise. The rooms are available for rental to sport groups, agencies and the public. The ice surface can be covered to accommodate shows, trade shows and other special events.

- A 3,400 fixed-seating ice arena (Sun Life Financial Arena). This area includes a track that circles the arena on its upper level, home and visiting team changing rooms, referee changing rooms, elevated press box, public washrooms located on all four corners and concession stands adjacent to the washrooms.
- A multi-function aquatics centre which includes a large swimming pool with adjustable lap lanes, a portion of which has a changeable depth located at one end, and high diving area with separate wading and aerobics pools. There is a large whirlpool-spa separated from the main pool within a circular glass structure. A water slide completes the many aquatic activities associated with the pool. There are three changing rooms, including a separate family changing room, public washrooms and a 275 fixed seating viewing area accessed from the second level.
- Several function/meeting rooms at the complex including a large multi-purpose function hall known as the Hauer Haus. It is equipped with dividable walls, two separate food preparation areas and storage rooms for furnishings.
- Meeting/Program rooms are used for recreation and fitness programs although they are not design for this purpose.
- City of Waterloo Facilities' administrative offices, space for facility operations, meeting rooms and other functional areas available to the public.
- According to the 2012 Ontario Building Code, the major occupancies are: Group A, Division 2 (activity courts, walking track, meeting and program spaces) and Group A, Division 3 (arena, indoor swimming pool).



Adult Recreation Centre

At present, the ARC is located in a 16,000 square foot facility at 185 King Street South on a 0.36 ha / 0.89 acre lot. These facilities accommodate the Seniors Services Unit which provides a range of older adult program opportunities including WWLHIN funded programs such as the Adult Day Program and the Meal Program. The balance of the service delivery provides space for drop in programs, registered programs, and rentals.

- The ARC was designed as a seniors' centre and was originally constructed in 1974 and expanded in 1989. It was designed as a seniors' centre and is located within Waterloo's Uptown area.
- ARC is a 2 storey facility with a main floor that is home to administrative offices, 4 meeting rooms (largest holding 75 people) and a full-service kitchen facility. The second floor has a large community room with a capacity of approximately 180 people theatre-style (125 at tables) and a second kitchen area. The basement houses the electrical and mechanical equipment as well as storage space for the entire facility.

Wing 404

Wing 404 is an older adult community centre located in an industrial area in the Lakeshore neighbourhood at 510 Dutton Drive on a 1.17 ha / 2.9 ac lot. It is approx. 6,000 s.f. total, with the City using approx. 5,000 s.f. for seniors recreation and other community uses, and approx. 1,000 s.f. leased to the RCAFA. It was originally constructed in 1975 as a Royal Canadian Air Force Association (RCAFA) building. In 1986, the City of Waterloo purchased the full property, and renovations were done in 1988 and 1990. Currently, this facility caters mainly to older adults (those over the age of 55), and offers a number of drop-in and registered programs geared towards this demographic. Examples of programs offered here include ballroom dancing, fit pac, yoga, Zumba, knitting and crocheting, ukulele, bridge and Friday Flicks.

- This building houses a lounge, bar, office, meeting /program rooms, washrooms and a kitchen.
- The RCAFA currently leases a portion of main floor space from the City and the city has access to the remaining spaces. The RCAFA is also provided with access to some City spaces occasionally as per the lease agreement.
- As the Wing 404 was previously under the ownership of the Wing 404 RCAFA, the building was not designed to be a centre specifically for older adults.
- Both the ARC and Wing 404 are aging facilities that present many accessibility and space challenges, and have dated décor and amenities.



2. VISION, NEEDS AND PROGRAM

Visioning was critical to establish priorities and success factors amongst the partners of this project. Through structured dialogue a common ground and purpose emerged.

2.1 PHASE 1 VISION + GUIDING PRINCIPLES

Two separate visioning sessions were held with the staff related to (a) the WMRC and (b) the Older Adult facilities (ARC and Wing 404), to gather input on the key priorities for the operation, program needs and aspirations for these facilities in the future. This exercise was structured using a SWOL analysis, identifying key strengths, weaknesses, opportunities, and limitations.

Developed through visioning sessions and more focused meetings with the Project Committee, a series of design principles was developed and refined that will guide the project moving forward. These relate to programming and operations, as well as general aspirations for the future of a combined facility.

- **Program Growth** - Efforts should be guided by the need to create more program opportunities for more people.
- **Social Spaces** - The transformation should create a range of spatial experiences that accommodate large group, small group and individual interactions.
- **Financial Structure** - Flexibility in funding allocation is desired to ensure that both the general community and older adults benefit from this project.
- **Accessibility** - Accessibility should be seamless throughout. The transformation should aim to improve access for all users. Limitations of the existing building will be acknowledged in this pursuit.
- **Identity** – The WMRC and the Older Adult component will require some distinct identity of their roles but in a complementary manner.
- **Relationship** - Programs and spaces are to be integrated and connected where possible without compromise to operational concerns.
- **Site Connection** - The need for easy access to the site and availability of parking will be balanced by the desire to offer other modes of transportation and to change the current patterns of use.

2.2 PHASE 1 NEEDS ANALYSIS

Based on the needs analysis conducted in the Phase 1 Study, key conclusions and potential opportunities were stated that helped shape the final programming and conceptual design. These are summarized as follows:

1. Gap in General Adult Programming

- City provides little direct, registered programming aimed at adults in the 25-55 age range, beyond the Community Adult Recreation Leagues (CARL).
- Programming tends to focus on children and older adults who have a higher level of physical health and fitness.

Opportunity: Provide opportunities for general adult programs and activities that supports the inclusion of all community members (fitness, sport, dance and music, lifelong learning, etc.).

2. Lack of Program Variety

- Current recreation and leisure programming offer focuses on “activity” programming.
- There is a general gap in programs related to lifestyle, health, wellness, education, lifelong learning, arts and crafts.
- City is looking to expand program opportunities to include these in the future.

Opportunity: Provide opportunities for non-activity related programs such as health and wellness, hobbies, arts and crafts, travel, etc.

3. Lack of Appropriate Spaces for Activity Programs

- Existing spaces at the WMRC, ARC, and Wing 404 are not properly equipped for the group exercise and active living programs.

Opportunity: Provide properly equipped spaces appropriate for a range of active programs and uses (yoga, Zumba, fit pac, martial arts, other group exercise activities, dry land training, etc.).

4. Flexibility of Key Spaces is Currently Limited

- Spaces used by Adult Day Programs in the day must be flexible to allow for other community uses during non-core hours.
- New facility spaces must be flexible to accommodate other program opportunities.

Opportunity: Provide a variety of flexible recreation program spaces for use by a range of users and user groups (sports and fitness, adult day program, music, arts and crafts, educational programs etc.).

5. WMRC does not provide a range of programs that appeal to a wider age group

- There is potential to augment the programming options for those using the WMRC facility beyond swimming and walking.
- Combining pool use with other older adult and general recreation programs is another opportunity.
- Integrating ARC and Wing 404 programs at the WMRC would help address this challenge.
- The current lack of multi-functional programs is partially due to the design of the rooms which are not conducive to the types of activities being offered.
- An increase in multi-purpose use would be possible at WMRC if rooms were more flexible and were properly equipped.

Opportunity: The opportunity exists to renovate existing under-utilized spaces into better equipped and flexible program and meeting spaces to accommodate a variety of general community recreation and older adult programs and needs.

6. Increasing Demand for Track Usage at the WMRC is Presenting Program and Use Challenges

The City has seen an increase in demand for general community use as well as dedicated use of the track by clubs. Track usage has increased by both groups which has led to scheduling challenges and tensions amongst users. This is compounded by the location of the track around the arena seating where spectators frequently do not respect track usage. In addition, during ticketed events, the track must be closed to walkers.

Opportunity: There is the potential to address this challenge by offering an alternative walking option for users.



TRACK AT ARENA

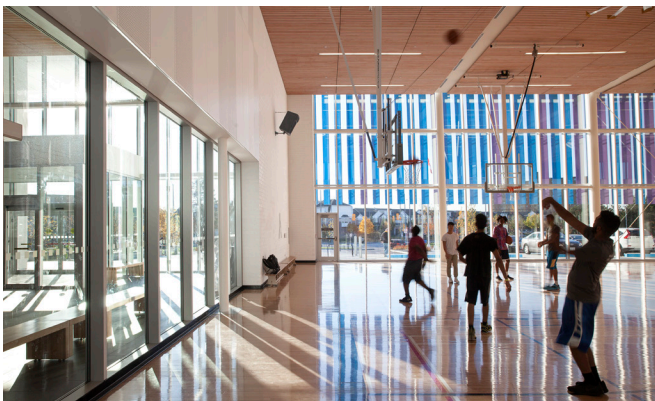
7. Programming use of the Hauser Haus is limited.

The centrally located Hauser Haus is not fully utilized and has programming limitations. It is rarely used as a banquet hall as originally intended. The soundproofing is poor when the space is divided and access is difficult due to challenging wayfinding and accessibility. The lack of natural light and views limits rental interest in the space.

Opportunity: Re-considerations of this space may lead to uses that are better suited to the location and scale of space.



HAUSER HAUS



PRECEDENT IMAGES FROM [MEADOWVALE COMMUNITY CENTRE AND LIBRARY](#)

2.3 FINAL PROGRAM DEVELOPMENT

In Phase 1, a list of key program spaces (new or repurposed) emerged for inclusion in an expanded WMRC combined with a re-located older adult centre. Phase 1 research also determined that the ice arena and Swimplex should remain unchanged during this expansion and renovation.

Older Adult Spaces

Program Spaces

- Better space for Adult Day Program, but not dedicated for Adult Day use, could be used by community recreational program after Adult Day Program hours.
- Should include a large program room available to larger community groups currently at ARC and Wing 404.

Meeting Hall / Dining Space

- A core function of the Adult Day Program and Meal Program.
- Community Programs that require a similar room set up (i.e. Bridge, euchre, etc.).

Lounge

- A space need identified in the Older Adult Recreation Strategy.
- Space needed for older adults to gather and socialize, could play cards, games, have a coffee.

Kitchen

- A required space as a core function of the Adult Day Program and Meal Program.
- Available for use by community groups as well.
- Located adjacent to the Meeting Hall/Dining Space.

Games Room

- Used by older adults on a drop in basis.
- Includes billiards tables and other amenities.

Computer Room

- Drop in function.
- Used for programs focused on learning and technology.

Administrative Space / Offices

- Administrative functions related to program delivery.
- Private spaces for client consultations (one-on-ones).
- Space to perform first aid functions.
- Private staff areas that are not accessible to the public for meetings, breaks, etc.

Reception

- Gracious space at entry with connection to reception.
- Ability to seat those waiting for transportation, as well as a gathering spot, opportunity to connect with staff, etc.

Group Exercise Studios

- Fitness / activity program space (no weight room).

- Utilized by older adults but also open to community (programmed or otherwise).

Storage Rooms

- Larger sized general and room specific storage capability.

General Recreation Spaces

Multi-Purpose Activity Court

- Low and high-impact sports.
- Programming opportunity for many different users.
- Accommodate pickleball, half-court basketball, wiffleball, dry land training, etc.
- Also available for larger community events.
- Supporting space for major arena events.

Walking Concourse

- Popular through the consultation process.
- Potential for an elevated fitness walkway.
- Reduce conflicting uses for existing track around rink.

Group Exercise Studios

- Fitness / activity program space (no weight room).
- Utilized by the general community (programmed or otherwise).
- Recreation programs geared towards older adults.
- A space for dry land training by community and sports groups.

Large Program Room

- Identified as a need through consultation and utilization data analysis.
- Replaces existing community rooms at both the ARC and Wing 404.
- Primarily used by Older Adult programs and Adult recreation classes during the day.
- In evenings and weekend this room can accommodate other community uses, including those groups currently using community rooms at ARC and Wing 404.
- Will be popular with community groups for meetings, band / orchestra rehearsals and larger gatherings.

Storage Rooms

- Appropriately sized general and room specific storage capability.

In Phase 2, this list of key program spaces was further developed into a summary spatial program. The areas were established based on expected occupancy and activity. They were benchmarked against existing spaces at the ARC and Wing 404. All new spaces match or exceed the existing space providing enhanced programming and circulation.

Spatial Program

The proposed building program was developed collaboratively with the input of residents, user groups and staff, and Sierra Planning and Management. In Phase 1 the overall structure of the program was determined which was then challenged and verified by an exhaustive needs analysis. The size and functional relationship of the program components was determined by expected occupancy and by site visits to the ARC and Wing 404 locations. In addition, key design team members embedded themselves in the ARC for a day to observe how the spaces are used and the needs of the older adult participants in the Adult Day Program.

New program components such as the Activity Court were sized based on expected demand for popular activities such as pickleball. Programming anticipated providing flexibility of this space to accommodate drop in basketball and other activities.

This programming exercise afforded the team an opportunity to determine the area and number of the group fitness and program rooms. The sizes of these rooms were established by referral back to the Phase 1 study and by recognizing the current class sizes.

A walking track component was included in the program. An area and length of the track was targeted but it was acknowledged that location within the existing building or new addition will limit the size. The location of the track should be easy to access and be adjacent to other uses. An isolated second level track at the Activity Court, for example, would not be advisable. As a stand alone component it would not likely be used as frequently as one that has adjacencies to other new program spaces.

Benchmarking tours were arranged to Meadowvale Community Centre and Library in Mississauga and Queen Elizabeth Park Community Centre in Oakville (QEPCC). These recently completed facilities incorporate many of the same program components envisioned for this project, including spaces focused on older adults. A comparative document was produced to demonstrate that the expected areas of this expansion are in line with other facilities. Through conversations with the operators of Meadowvale and QEPCC, the City of Waterloo staff gained insight into program use, operational challenges and design opportunities. This input was reflected in the final program and conceptual design.

As the concept design evolved, the program was revisited and adjusted as required to suit the availability of existing spaces, construction cost limits or improved program relationships. It was an iterative process that resulted in a program that is reconciled with the design layout. In comparison to the existing spaces at the ARC and Wing 404, the new program spaces are equivalent or notably larger. This is in response to user and staff comments about crowding, limited occupancy and the need for more circulation space. The new facility program was established, not just to replicate the existing, but to offer spaces that are more comfortable and appropriate for the users, and will provide more opportunities.



PRECEDENT IMAGES FROM [QUEEN ELIZABETH PARK CC](#)

SUMMARY OF PROGRAM

Below is the recommended spatial program that provides net useable areas per component and the gross up factors which are applied to each net area to accommodate wall thickness, corridors and service shafts.

Division / Space Type		SPACE PROGRAM		
		No.	ASF (sq. ft)	Comments
Older Adult Programs - Level 1				
	Meeting Hall (Room 1)	1	1345	existing Meeting Hall = 1060 sf
	Storage 1	1	280	
	Kitchen	1	345	existing Kitchen = 215 sf
	Electrical Room	1	160	
	Pantry	1	200	
	Lounge (Room 2)	1	580	existing Lounge = 390 sf
	Program Room 1 (Room 3)	1	820	existing Program = 512 sf
	Storage 2	1	185	
	Program Room 2 (Room 4- Owl's Nest)	1	800	existing Program = 864 sf
	Storage 3	1	120	
	Games/Computer	1	775	existing Games / Computer = 506 sf
	health room	1	110	
	Offices	1	1110	open office with 12 workstations
	Reception	1	180	
	Lobby/ Waiting Area	1	480	
	Universal Barrier Free WC	2	172	
	WC (Gender specific)	2	430	includes 1 barrier free fixture per gender
	Support	1	900	
	Assigned Area Sub-Total		8992	
	Lobby, Circulation, Walls, HVAC, Structural Allowance		25%	
	Gross Area		11240	
Division / Space Type		SPACE PROGRAM		
		No.	ASM/Unit (sq. m)	Comments
Older Adult Programs - Level 2				
	Community Room	1	3250	1 replaces ARC Community Room
	Storage	1	580	
	Fitness Studio	1	2770	replaces Wing 404 community Room
	Program Room	1	690	
	Storage	1	335	
	Office	1	165	
	WC (gender specific)	2	490	includes 1 barrier free fixture per gender
	Universal Barrier Free WC	1	140	
	Storage	1	130	
	Lounge	1	312	
	Custordial	1	50	
	Assigned Area Sub-Total		8912	
	Circulation, Walls, HVAC, Structural Allowance		25%	
	Gross Area		11140	
OLDER ADULT PROGRAMS			22380	

Division / Space Type		SPACE PROGRAM		
		No.	ASM/Unit (sq. m)	Comments
Expansion to WMRC				
	Activity Court	1	6450	planned for 4 pickle ball courts
	Activity Storage	1	635	
	Offices	3	495	at least 2 work stations in each office
	Lockers / Lounge	1	800	common area day locker use
	Arena Changerooms	2	1120	2 showers, 2 fixtures incl. barrier free, lockers space
	Universal WC	1	130	
	Washrooms	2	290	
	General Storage & Mechanical	1	590	
	Assigned Area Sub-Total		10510	
	Component Circulation & Walls, HVAC, Structural Allowance		23%	
	Gross Area Total		12901	
	Bridge to ARC Community Pavilion	1	1175	
	Assigned Area Sub-Total		1175	
	Component Circulation & Walls, HVAC, Structural Allowance		13%	
	Gross Area Total		1325	
EXPANSION OF WMRC		14226		
Mechanical Penthouse				
	Exterior Mechanical Rooftop	1	2928	enclosed area for air handling units and boilers
Mechanical Penthouse		2928		

Division / Space Type	SPACE PROGRAM		
	No.	ASM/Unit (sq. m)	Comments
Multi Purpose & Fitness (REPURPOSED HAUSER HAUS)			
Group Exercise Studio 1	1	1500	33 yoga mats
Group Exercise Studio 2	1	1425	33 yoga mats
Misc/General Storage	1	255	
Walking Concourse (102M Long Track) + Lounge	1	4790	
Barrier Free WC	1	100	
Mezzanine Stair Relocation	1	500	
Relocated Commercial Kitchen	1	905	
Assigned Area Sub-Total		9475	
Component Circulation & Walls, HVAC, Structural Allowance		10%	
Gross Area Total		10423	
TOTAL REPURPOSED SPACE		10423	

3. COMMUNITY ENGAGEMENT

Community engagement helped shape the needs assessment and feasibility study. Residents brought forward ideas, considerations and supporting comments which influenced programming and design.

3.1 PHASE 1 ENGAGEMENT

Two community workshop sessions were held on January 25, 2017 (one in the afternoon and one in the evening); approximately 300 people attended. In addition, an online survey was made available through the engageWaterloo website and received 173 responses. Notably, 55% of survey respondents were over the age of 60.

From the consultation conducted as part of this study, a number of themes became apparent that informed the functional program development and conceptual building design. These can be summarized as follows:

Transportation + Access

- Ensure that the site is accessible by public transit.
- Ensure there are adequate parking facilities.
- Ensure that access to the site is pedestrian-friendly and comfortable in all seasons.
- Universal accessibility throughout the facility.

Group Exercise + Sport

- Provide a variety of active programs for all skill levels of participants (including yoga, pilates, Zumba, pickleball, volleyball, etc.).

Leisure

- Expand the variety of programs related to arts and culture including dance, music, crafts, games, book clubs, etc.

Learning + Education

- Expand the program offer to include more learning opportunities and continued education. This could include lectures, computers, cooking, health and wellness, money management, etc.

Flexible Spaces

- Provide a variety of spaces that are flexible for a variety of interactions.
- This could include café / kitchen space, meeting rooms, program spaces, lounges, and social opportunities.

3.2 PHASE 2 ENGAGEMENT

A second round of public engagement happened in October 2017. Sessions were held on October 12, 2017 which was comprised of three drop in periods: Staff from 12:30 pm to 2:00 pm, General Public from 2:30 to 4:30 pm and again from 6:30 to 8:30 pm. At this stage in the project, the programming and conceptual design was drafted and the intention of the engagement session was to confirm that the work addressed the emergent themes in the Phase 1 engagement.

It was a 'drop in' format that allowed public and staff to read 8 large display boards that explained the project by recapping the process, summarizing the proposed program components, illustrating the potential site locations, describing the concept design and bench marking the proposed spaces against existing spaces at ARC and Wing 404.

Representatives from Staff and the Consultant team mingled amongst the participants to gauge reaction and respond to questions. A form was circulated to ensure everyone had an opportunity to offer detailed comments. All input was analyzed and changes to the design were identified.

In addition to the Engagement Session, the City provided a survey on the engageWaterloo web site. City staff also received many phone calls from residents, and connected with select committees of council - Age Friendly, Grand River Accessibility Advisory Committee and Uptown Vision. In total approximately 200 residents were consulted.

All public feedback was reviewed and wherever possible design modifications were made before posting the updated plans for Class C costing. In general the community consultation yielded valuable user based input that helped influence the current schematic design being presented in this report.

PHASE 1 SAMPLE ENGAGEMENT QUESTIONS

- Some Older Adult and Community programs and spaces could be shared. How would your experience benefit by this opportunity? Do you have any concerns?
- The transformation should aim to improve ease of participation for all users. What would make your experience easier?
- These changes and additions should have clear identity. What is an important quality that you would like to see kept in the new addition and transformation?
- Access to parking will be balanced by other ways of getting to the Complex. How would you get to Older Adult programs at the WMRC? How would you get to the Memorial Complex?
- What activities from ARC do you want to see in the new addition?
- What new activities are needed in the addition at WMRC?
- What types of spaces are important to you from ARC?
- What new types of spaces are important to see in the addition at WMRC?
- What other guiding principles might you suggest?

PHASE 2 SAMPLE ENGAGEMENT COMMENTS

- Generally the community was very supportive of the type of spaces and planning.
- Community input focused mainly on the amenities and areas of the new spaces including:
 - Input on storage access, type of flooring and wall coverings, windows, access to sinks in rooms, etc.
 - Comments to ensure larger adult day program room, games room, and storage spaces in the community pavilion to better support programming.
- Lack of access to a bus route along Father David Bauer Drive was a common concern as was access to parking. Staff are investigating future transit options with GRT.
- There were questions raised about repurposing Hauser Haus from a small number of people. Staff explained that the activity court was an option for larger groups, and that there were two rooms in the community pavilion that are half the size of Hauser Haus. Most community members were satisfied with these options.

3.3 MEETINGS WITH AUTHORITIES HAVING JURISDICTIONS

On July 12 2017 Perkins+Will met with City Planning and Grand River Conservation Authority (GRCA) to review the regulatory restrictions on this property. The key considerations that emerged from this meeting include:

Floodplain Regulations

The development within the portions of the property subjected to the GRCA regulations would require a permit from the GRCA. As part of the permit process, the proposal will need to demonstrate that all requirements of the Laurel/Clair Creek Special Policy Area policies can be addressed/met.

The GRCA and City are currently updating the Laurel/Clair Creek floodplain mapping which could result in different floodplain extents, flood elevations and floodway limits. There is a potential that the new mapping may further restrict the property by increasing the amount of land located within the floodway.

The Community Pavilion and Activity Court addition occur within the SPCA. Development would be supported provided the SPA policies are satisfied. Certain elevations of the ground floor will be set for the east and west development. The west side addition would be set at a minimum 327.05m and the east side addition would set at a minimum 326.79m elevation based on the current SPA policies, but this may change.

Definitions:

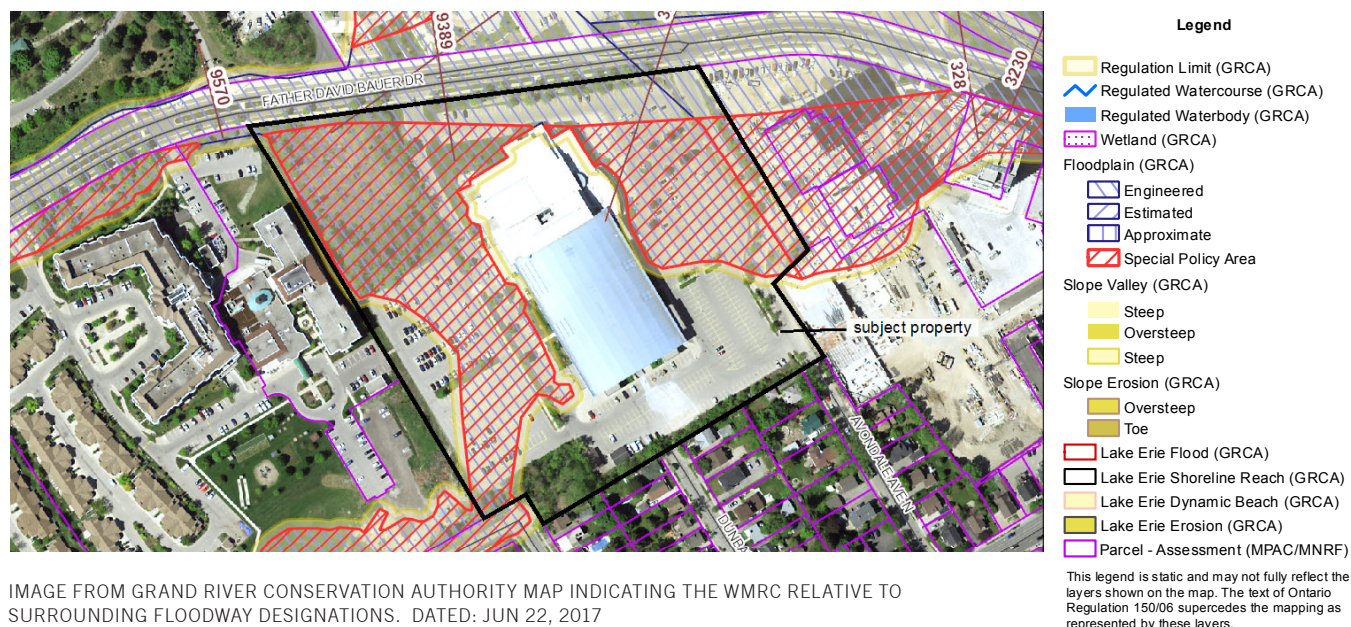
The flood plain is divided in two parts: floodway and flood fringe. New development is generally prohibited in the floodway. Some development, with restrictions, is permitted in the flood fringe.

Special Policy Area (SPA) is an area within a community that has historically existed in the flood plain where site-specific policies, approved by both the Ministers of Natural Resources and Forestry and Municipal Affairs and Housing, are intended to provide for the continued viability of existing uses.

Urban Design

It was recommended that a direct path of travel for pedestrians be provided from Father David Bauer Dr. to the two entrances of the Community Pavilion and Activity Court Addition. The building design is to comply and respond to the Urban Design Manual. These priorities include

- Integrate the proposed development to the existing building.
- Reinforce and maintain the architectural, visual and thematic integrity.
- Design building facades for visual interest.
- Design buildings with articulated rooflines.
- Use high quality building materials.
- Incorporate new rooftop mechanical equipment (if any) into the design and provide screening.



4 CONTEXTUAL ANALYSIS

The site context provided challenges that limited the location for expansion. But equally exciting opportunities were leveraged from the design of the existing building.

4.1 CHALLENGES + OPPORTUNITIES

While there are several challenges with the WMRC site, as there invariably are with inhabited sites, there are also significant beneficial opportunities. Foremost will be the opportunity to leverage the value of the site's existing assets by developing an integrated new facility that is greater than the sum of its parts. The well-used arena and aquatic components represent an essential existing component for any year-round multi-purpose complex, and with thoughtful, cost effective design, WMRC can be expanded to serve a greater range of demographics and interests. The site is very well located to important, as well as complementary recreational, residential and institutional facilities such as Waterloo Park and Luther Village. The site also benefits greatly from its high visibility and convenient vehicle accessibility.

4.2 EXISTING WATERLOO MEMORIAL RECREATION COMPLEX SITE EVALUATION AND ASSESSMENT

A broader site and program analysis helped clarify contextual connections and key relationships.

Using the design principles and the spatial program as a basis for design exploration, Perkins+Will began a broader analysis of the existing site which helped clarify contextual connections and key program relationships before progressing into site test fit exercises.

Site Description

The 106,291 sf WMRC facility sits surrounded by a 573 vehicle parking lot. Daily access is off Father David Bauer Dr. and emergency access is off Avondale Avenue. To the east is the Barrel Yards residential development, to the south is single family residential and to the west is Luther Village on the Park. Across Father David Bauer Dr. is Waterloo Park. The west parking lot is adjacent to a treed area. Additional parking is located close to the site at the gravel Bauer Lot at Waterloo Park. Topographically it is relatively flat with no significant grade challenges.

Context and Connection

At the outset, the site characteristics were documented to establish key design criteria. This included noting relationships to surrounding neighbours. There are significant multi storey residential developments that include older adult housing. In addition the south side of the site is fully bounded by a lower rise residential neighbourhood. Across Father David Bauer Dr. is Waterloo Park which is undergoing an exciting repurposing and rejuvenation as a destination civic place. There are likely great synergies between the planned events and passive daily use of the park and this potential expansion to the WMRC. The context therefore provides ample opportunities for connection to, and engagement of the surrounding residential context including the Luther Village residences or the newer high rise residences to the east. The building and site design should support this opportunity. Enhancements for pedestrian connections, bicycle connection and parking, and parking lot configurations are being planned, of which some improvements are being made now.

Exterior Spaces

The site is almost fully developed as parking and hard landscape with the exception of a treed area in the northwest corner. The treed area is not designated as a storm water pond or a significant wet land but it does provide permeable drainage and helps reduce the overall heat island effect of the site. It is located within the floodplain and adjacent to the floodway. City authorities that govern development on the WMRC lands advised that building on the treed area would not be advisable due to the adjacency to the floodway. In addition the lot does not offer good potential for expansion due to its distance from the public spaces of the existing facility. There is also a desire to retain natural landscaping on the site, especially to support the older adult programming.

In response the building and site design should explore the benefits of this area as it exists as a natural feature and perhaps envision its transformation into more active trail uses.

Site Servicing and Floodplain

Significant site and civil restrictions were discovered early in the design process. They had a notable impact on the siting and conceptual design. The site is bounded to the north by lands that are under the jurisdiction of the Grand River Conservation Authority as a Special Policy Area.

A portion of the site is impeded by a floodway that restricts

development. Since the preferred option is not be located in close proximity to the floodway the restriction has no impact. However the balance of the site is affected by a restriction that sets the minimum elevation of occupied space. City staff have indicated that the floodway limits will likely be adjusted in the future, increasing the infringement on the site. Therefore the preferred conceptual design should respond to this restriction by keeping ample distance from the current regulatory floodway development lines.

Below grade to the west of the WMRC there is a major civil infrastructure corridor which includes an existing municipal trunk storm sewer (1350 mm and a 200 mm dia. watermain). Moving these services was explored but since they service approximately 35.5 ha of upstream area to Westmount Road it will likely result in significant site disruption and capital costs in the range of \$650,000 to \$1,000,000 according to an order of magnitude estimate by Turner Townsend.

Approvals from the City of Waterloo, the Region of Waterloo, and the Grand River Conservation Authority (GRCA) would be required before relocating any municipal/regional trunk sewers.

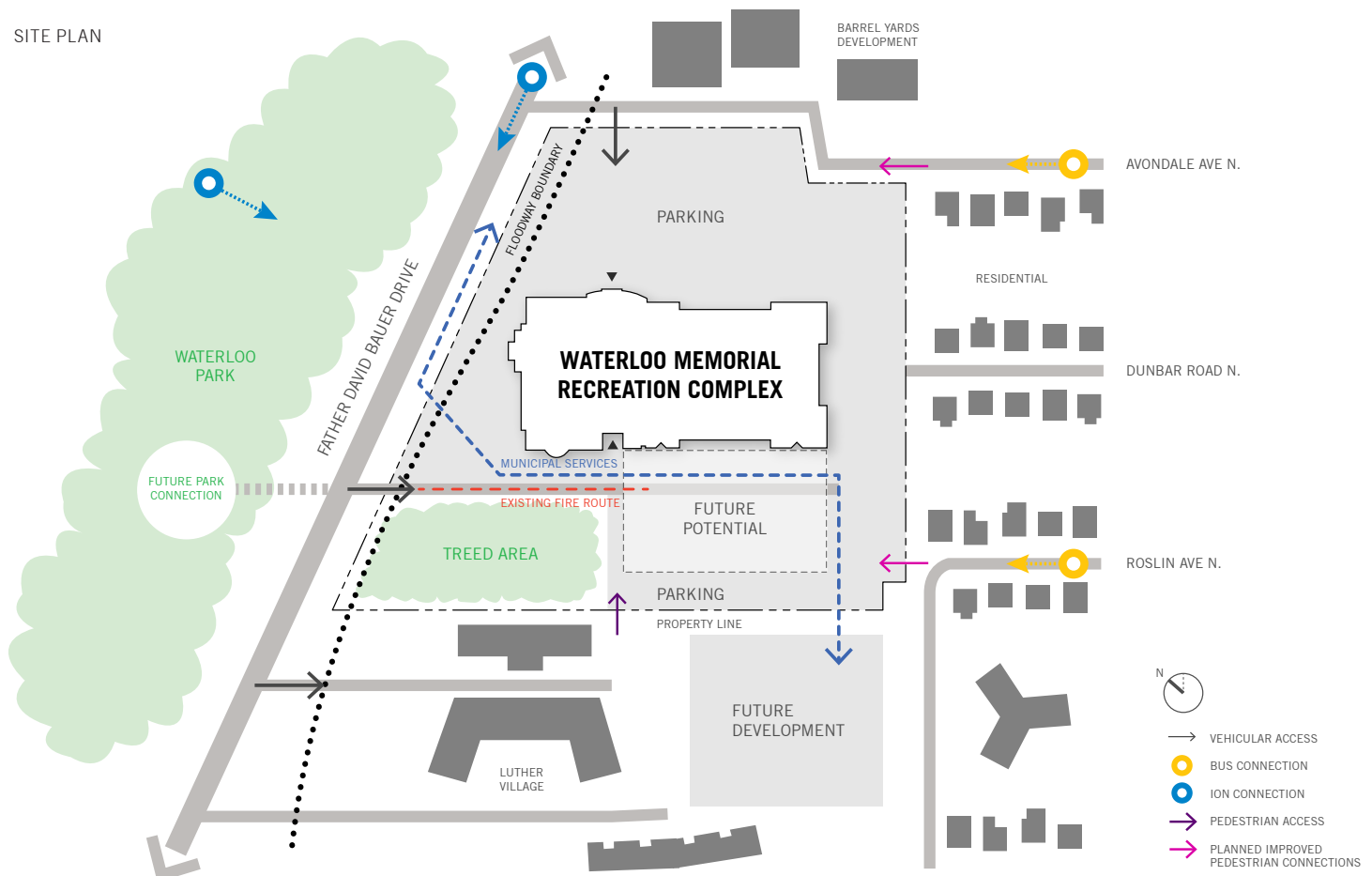
During the conceptual phase additional efforts and investigation was expended to fully understand the

implication of these services. The design outcome represents the collective belief that re-location at this time is not warranted after analyzing the impact on program, operations, design and construction cost. A short description of these services can be found in the Civil Engineering design brief in section 5.6.

Arena Functions + Future Expansion

The existing arena is approximately 50,000 sf in area, housing a single ice pad, with fixed seating and additional standing room. The arena has associated dressing rooms, referee rooms, concession area and media spaces. With the proposed expansion, existing operations, access, exiting and service will be maintained. The project will allow the possibility of a future expansion of the arena into a twin pad to the west of the site. At that point parking capacity would require re-assessment.

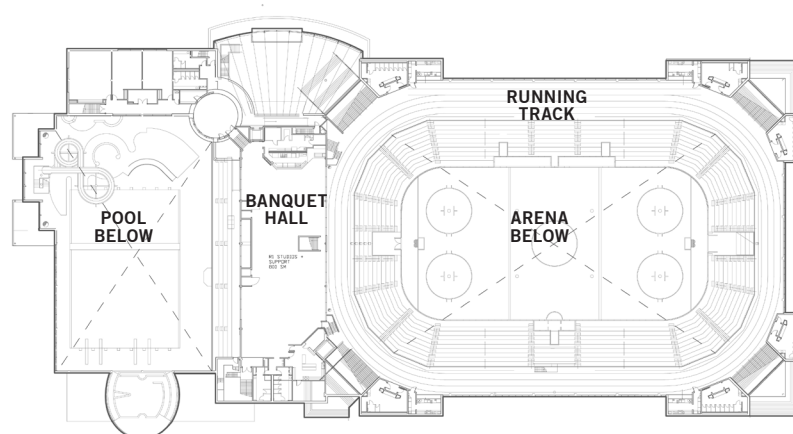
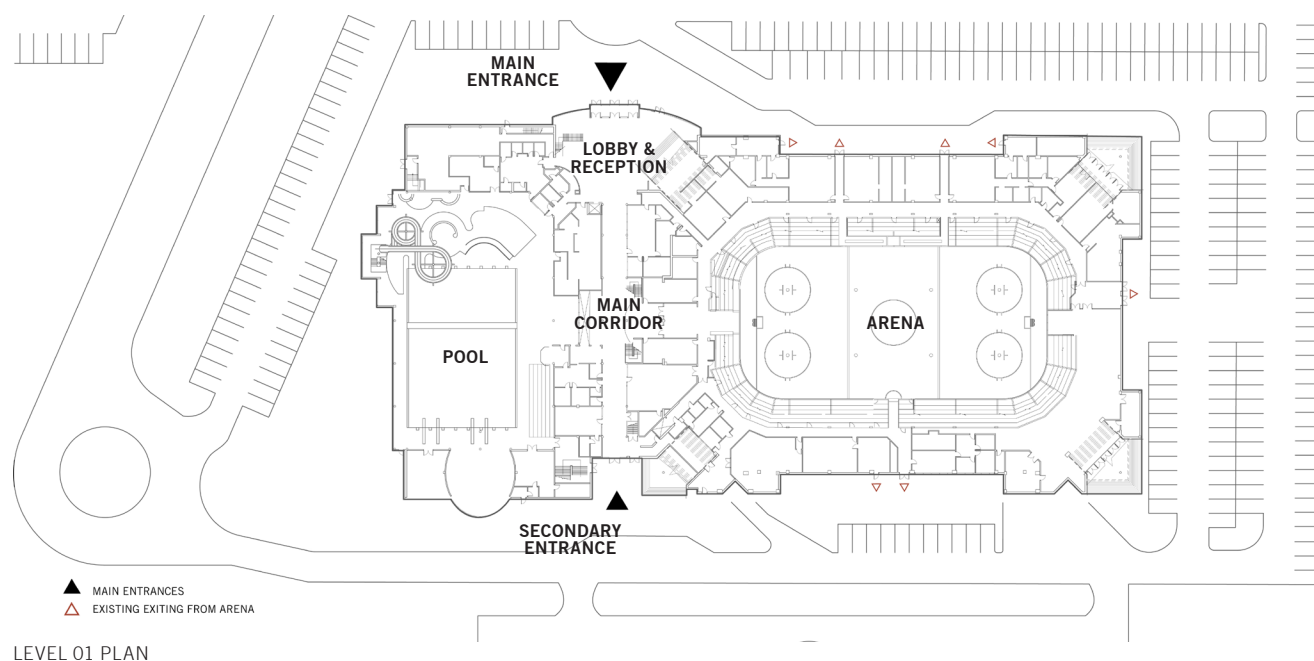
SITE PLAN



4.3 Existing Waterloo Memorial Recreation Complex Facility Evaluation and Assessment

The WMRC offers programs in sports and fitness, leisure, life safety and day camps. The WMRC has an arena spectator capacity limitation of 4,400 seats (3,400 seats and 1,000 standing on the track). Although there is seating capacity to support significant events, staff over the years have recognized these events displace community programs. The current strategy is to focus on supporting community events and limit disruption of services.

In its current capacity the building functions quite well being able to accommodate a busy routine of hockey programs, aquatic lessons and training as well as some multi-purpose and fitness programs. The Hauser Haus banquet hall within the WMRC is used for community meetings, by City staff for corporate purposes and to support events in the arena and aquatic centre. Architecturally the design is defined by the arena spectator capacity with large entry and exit stair ways at all corners of the arena. Any addition to the building would need to keep these means of egress and exiting clear.



4.4 PROGRAM SYNERGIES

A conceptual exploration of activities and their relationships was undertaken to determine direct connections, adjacencies and possible synergies.

Multi use facilities function optimally when programs are within close proximity visually and physically. This capitalizes on the potential to offer a ‘one stop shop’ where users can engage in many different activities during the day. The conceptual design exploration should maximize this potential to ensure all programs have exposure to surrounding activities, are easily accessed and collectively work as a whole. With closer proximity of programs and a denser network of relationships, a stronger use pattern will emerge that encourages intergenerational use, which includes programs that multi-generations use together or multiple programs for different generations. The range of connections increases, the daily use of spaces grows and the types of users expands. The combined WMRC and older adult facility can work together to maximize participation, build social capital and support broader initiatives.

Residents of all ages will have access to a facility that will appeal to a wider range of interests. Families can opt to have children in classes beyond swimming, children’s programs and ice sports. Students can use the centre for drop in sport or social programs. Older adult partners will find opportunities to visit the centre together but engage in separate activities. Users can sequence their visit and enroll in a range of activities that may include fitness as well as education, wellness and creative ventures within a day or week.

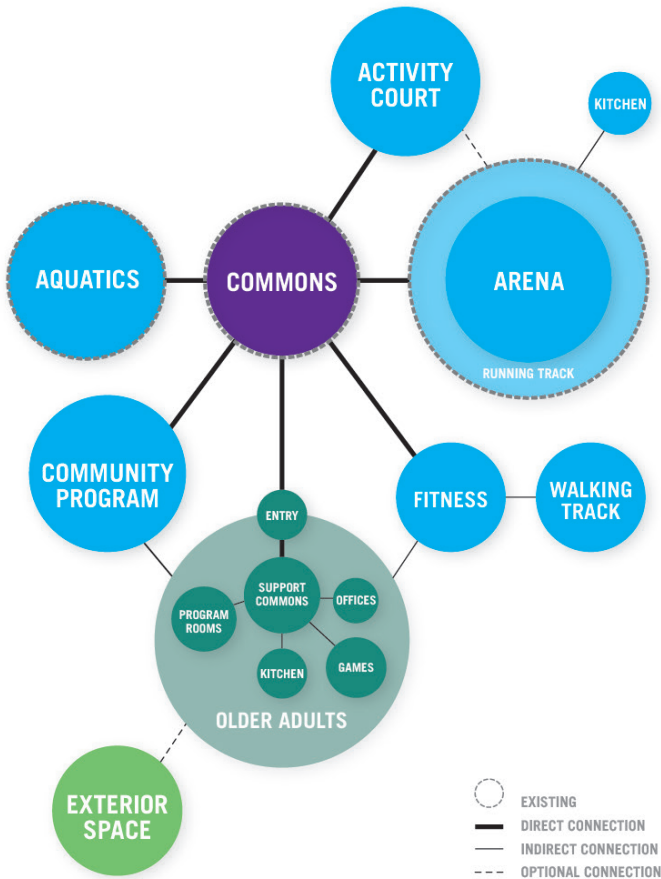
Operationally the City also gains from this synergy. A centralized staff can provide services that are better integrated and responsive to a wider generation of users. By gauging public reaction at one site, they can tailor and

shape new programs. They will have greater ability to offer programs that introduce new users to activities previously not offered at the separate centres.

Program Zoning

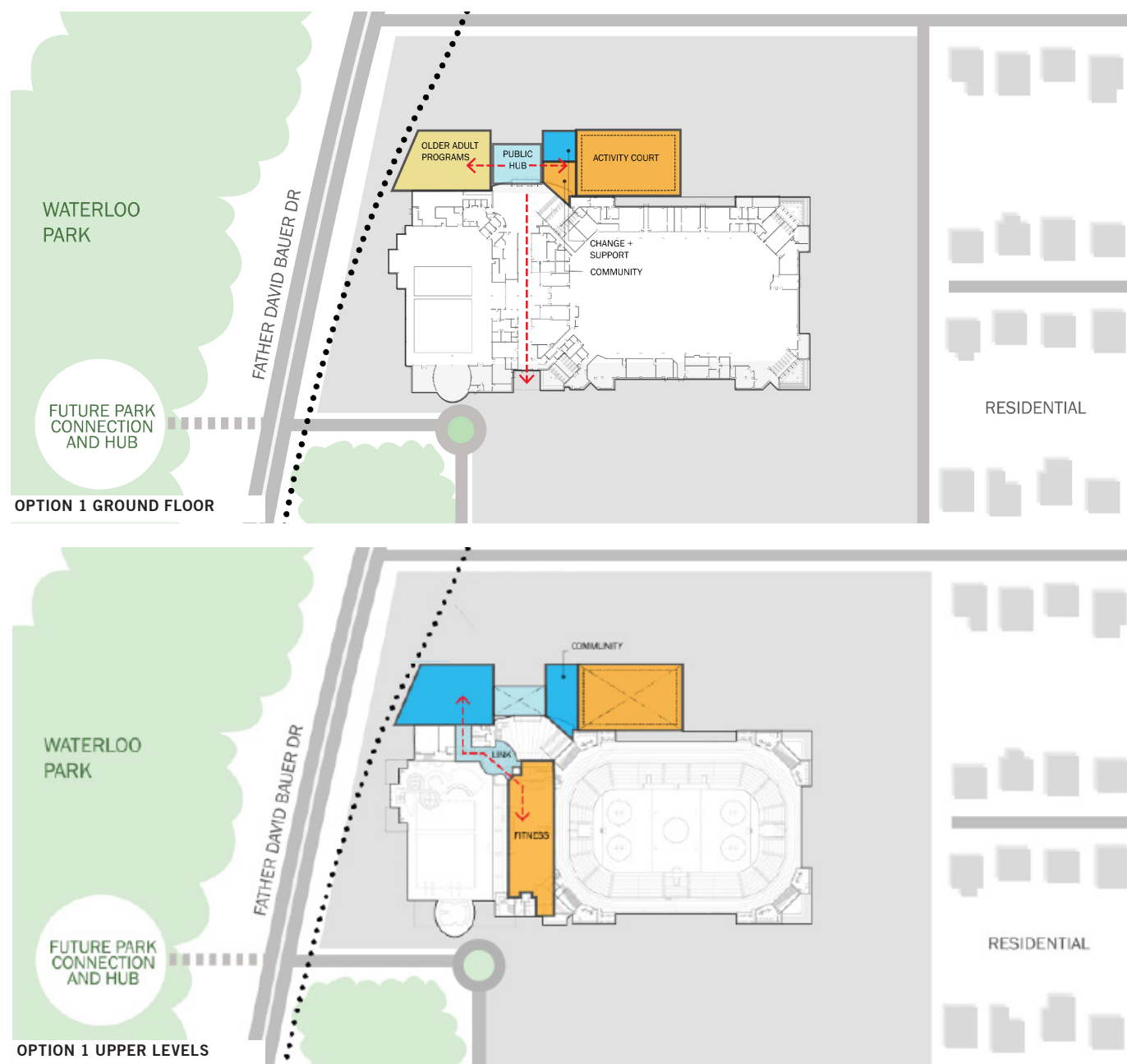
At the outset, the relationships of the existing WMRC programs were explored with those of the new recreational components, the Older Adult programs and the Adult Day Program. This ensures relationships did not impede the operating priorities of each program. The diagram below conceptually indicates the expanded program with direct, indirect and optional connections.

New recreation components, program rooms, fitness rooms and walking concourse should have direct connections to the common spaces of the WMRC. The older adult programs should be strategically located that connects to the common space but allows some degree of separations and an independent entry point. Internally the planning of the older adult focused programs should closely resemble that of the existing centre with enhancements to way finding, circulation width and entry sequence.



4.4 Site Expansion Locations

A site fit exploration revealed potential but also unique site and jurisdictional constraints.



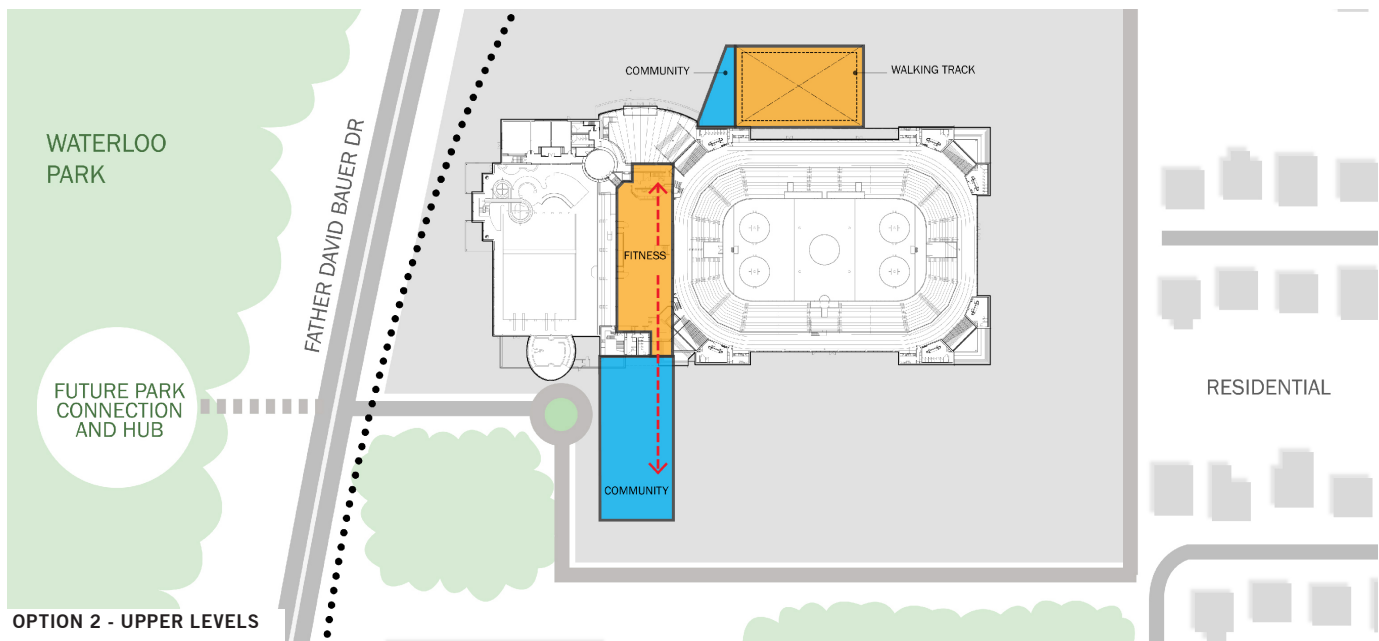
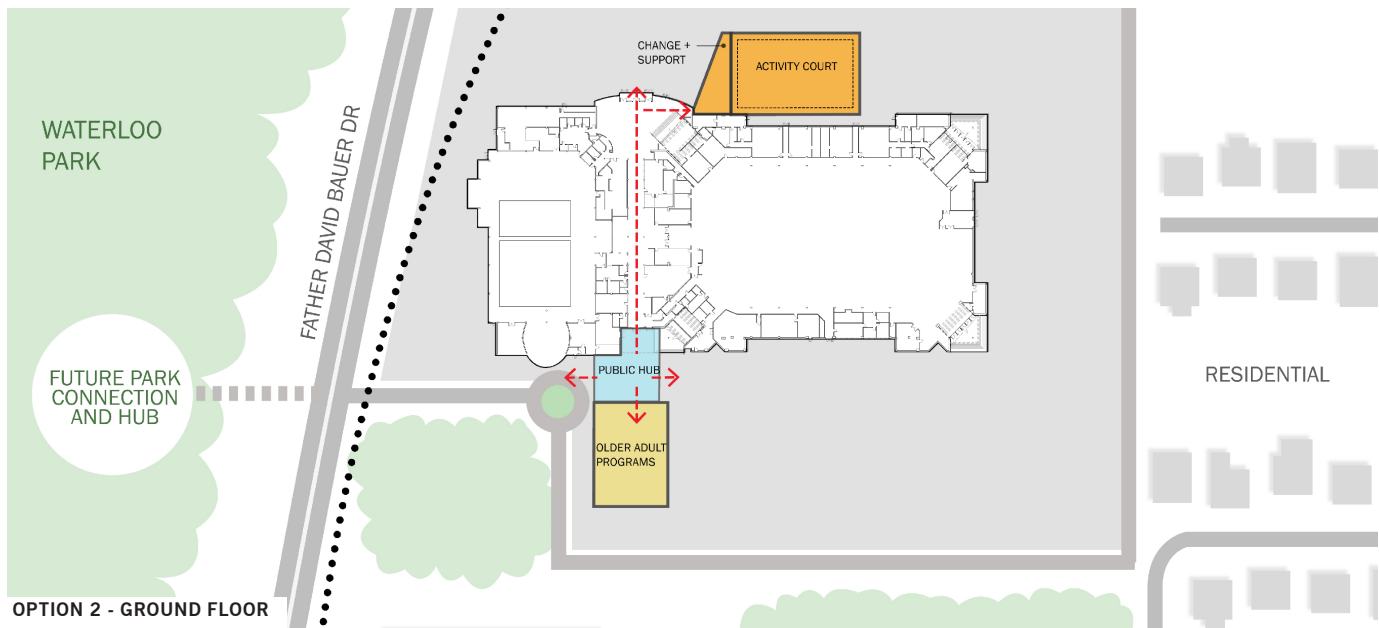
The first proposal sought to build an addition on the east face of the existing building. The entrance lobby would expand into a larger space for the public, flanked by Older Adult programs and Activity Court programs on each side. Recreation and Fitness programs would be located centrally and above the Older Adult recreation programs. A walking track was proposed at a second level around the Activity Court.

PROS

- Celebrates main frontage of building.
- Minimizes impact on parking lot to the rear (West).
- Ensures direct program connections to the existing building.
- Enables 'one stop' experience by users.
- Reserves space for potential arena twinning

CONS

- Shared entrance for all patrons does not provide a separate quieter area for older adult entry and reception as per their input.
- Significant impact to existing operations during construction.
- Encroachment on the floodway.
- Location reduces parking capacity on the east and does not take advantage of west parking.
- Walking track is isolated from circulation and other programs.



The second proposal split the expansion to both the east and west sides of the existing building, with the Activity Court to the east, and Older Adult Recreation Centre to the west. Recreation and Fitness programs would be located centrally and above the Older Adult recreation programs. A walking track was proposed above the Activity Court on the second level.

PROS

- Dedicated drop-off for Older Adults/Multi-purpose program.
- Provides a separate, quieter entrance and space for older adults as per their request.
- Proximity to treed area.
- Away from current floodway boundary and green area.
- Takes advantage of west lot parking area.

CONS

- Access to west addition is farther from main entry.
- The walking track is isolated from circulation and other programs.

4.5 Preferred Site Expansion Option

The second option was preferred and selected for further study based on the noted advantages. In splitting Older Adult Recreation/Multi-purpose programs to the west end of the building, the team looked at two ways of connecting the additions on either ends of the WMRC. The design options below illustrate preliminary planning for both options.



OPTION 2A LOBBY CONNECTION - GROUND LEVEL



OPTION 2A LOBBY CONNECTION - UPPER LEVEL

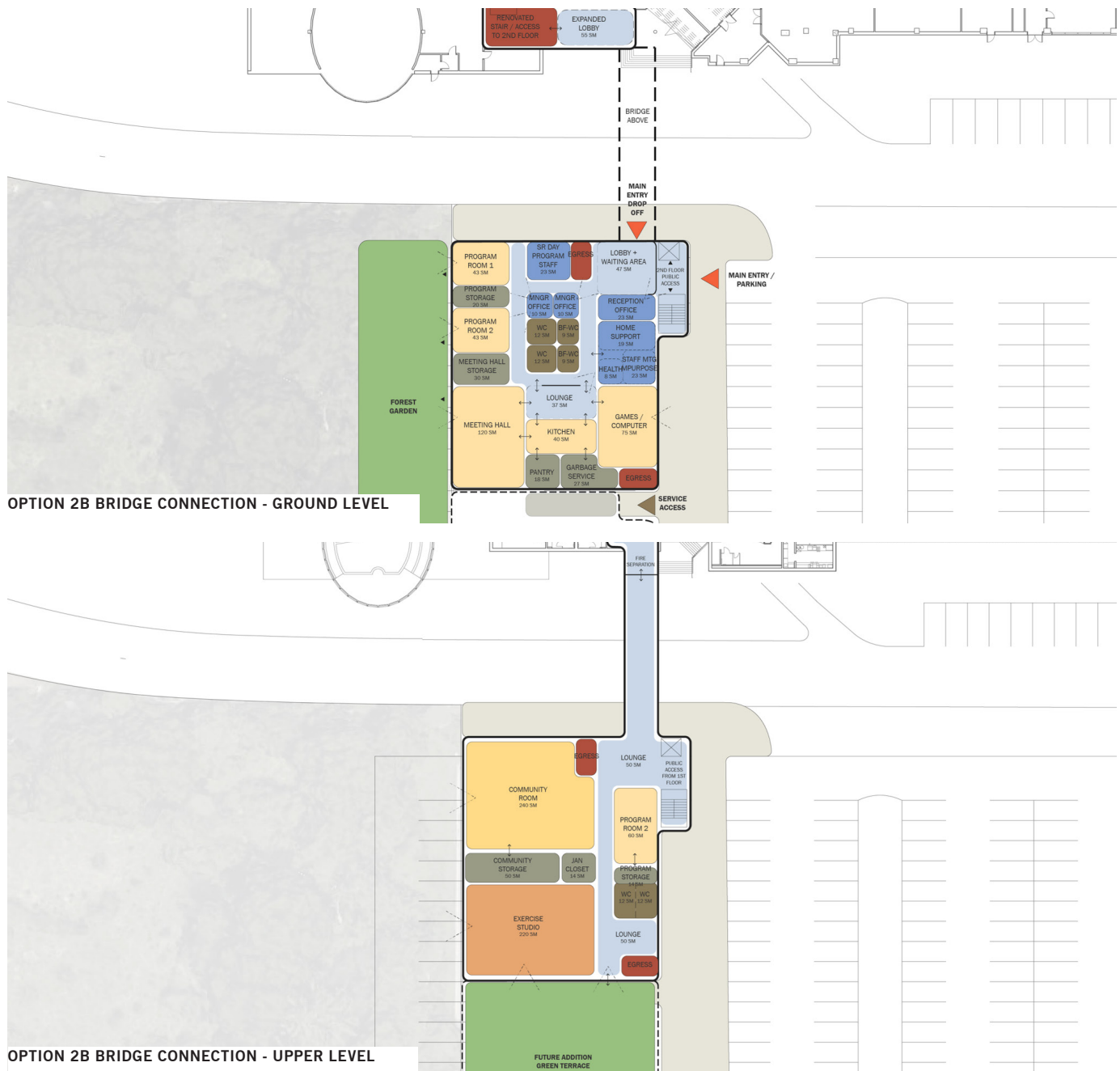
Option 2A looked at connecting the Older Adults/Multi-purpose program on the ground level through a common lobby that would link the addition to the WMRC. This would necessitate re-location of emergency access and annunciator panel. Re-location of the underground services would be required.

PROS

- Direct ground floor connection to Older Adults/Multi-purpose space and from WMRC.
- Public access to the second level from main lobby.

CONS

- Requires re-locating services and fire access route.
- Cost to re-locate major services and fire access route.
- Schedule impact for additional approvals required to re-locate services.
- Requires new driveway reconfiguration.
- Less opportunity for future expansion.
- Disrupts existing services to surrounding residents.



Option 2B looked at connecting the Older Adults/Multi-purpose program through a second level bridge. The bridge would be elevated to ensure passenger and emergency vehicle passage. Construction of the addition would not affect underground services.

PROS

- Dedicated drop-off for Older Adults/Multi-purpose program.
 - Provides privacy at entrance for Older Adults/Multi-purpose.
 - Proximity to treed area.
 - Decentralized access to avoid congestion.
 - Provides ample distance from floodway limits of development.
- Ensures there is contingency area should the future limits extend closer to the existing WMRC and treed area.
- Takes advantage of west lot parking area.

CONS

- Access to addition is slightly more removed from the WMRC entry.

BY DISTRIBUTION OF THE PROGRAMS 3 OPPORTUNITIES WERE CREATED

Three strategic architectural ideas combine to infuse the existing building with new programming potential.

1 CIVIC FRONT:

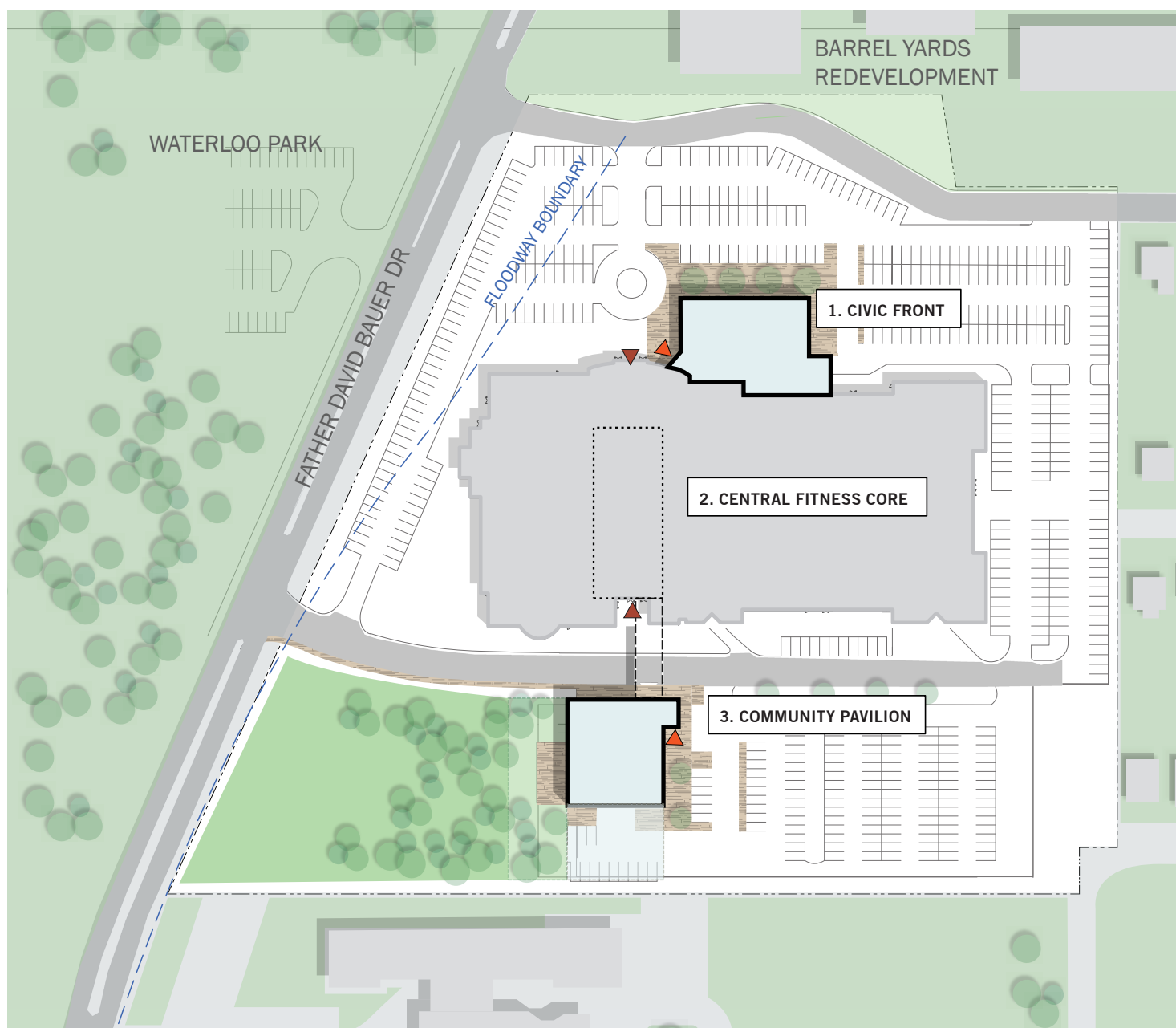
An expansion along the east that showcases new activities within a multiuse activity court. The addition of transparency and activity with strong simple massing will enhance the existing facade.

2 CENTRAL FITNESS CORE:

An internal repurposing of the Hauser Haus banquet hall into a fitness centre bringing new life to the heart of this facility. Flexibility of the new rooms will ensure they can also become event support spaces.

3 COMMUNITY PAVILION:

A facility for the Adult Day Program and expanded older adult recreation programs, and other community uses, with a bridge connection to the WMRC.



5. CONCEPT DESIGN

After a thorough site fit analysis, a concept emerged that reflected the design principles.

5.1 DESIGN CONCEPT PRINCIPLES

The Design Concept is informed on the design principles established in Phase 1: Program, Social Spaces, Financial Structure, Accessibility, Identity, Relationship, Site Connection. These were developed to both ensure that the design takes full advantage of the opportunities of expansion and of re-location of Older Adult programming, and to incorporate the input of the public, user groups, council and staff in a functional, imaginative, and fiscally responsible way.

- Provide best possible programmatic response to needs analysis and community input.
- Create spatial adjacencies that maximize operational synergies between the existing activities and new program offerings.
- Locate programs to ensure maximum participation and resources, and limit operational costs.
- Create a range of social spaces.
- Integrate expansion with circulation through WMRC building.
- Ensure seamless accessibility.
- Provide an identity for Older Adult components and new general recreation components.
- Ensure impact on parking does not impede daily use.
- Enhance pedestrian and bike connections through the site to the expansion locations.
- Minimize impact on existing operational uses and services to the building.
- Ensure a substantial distance from regulatory floodway development limits.



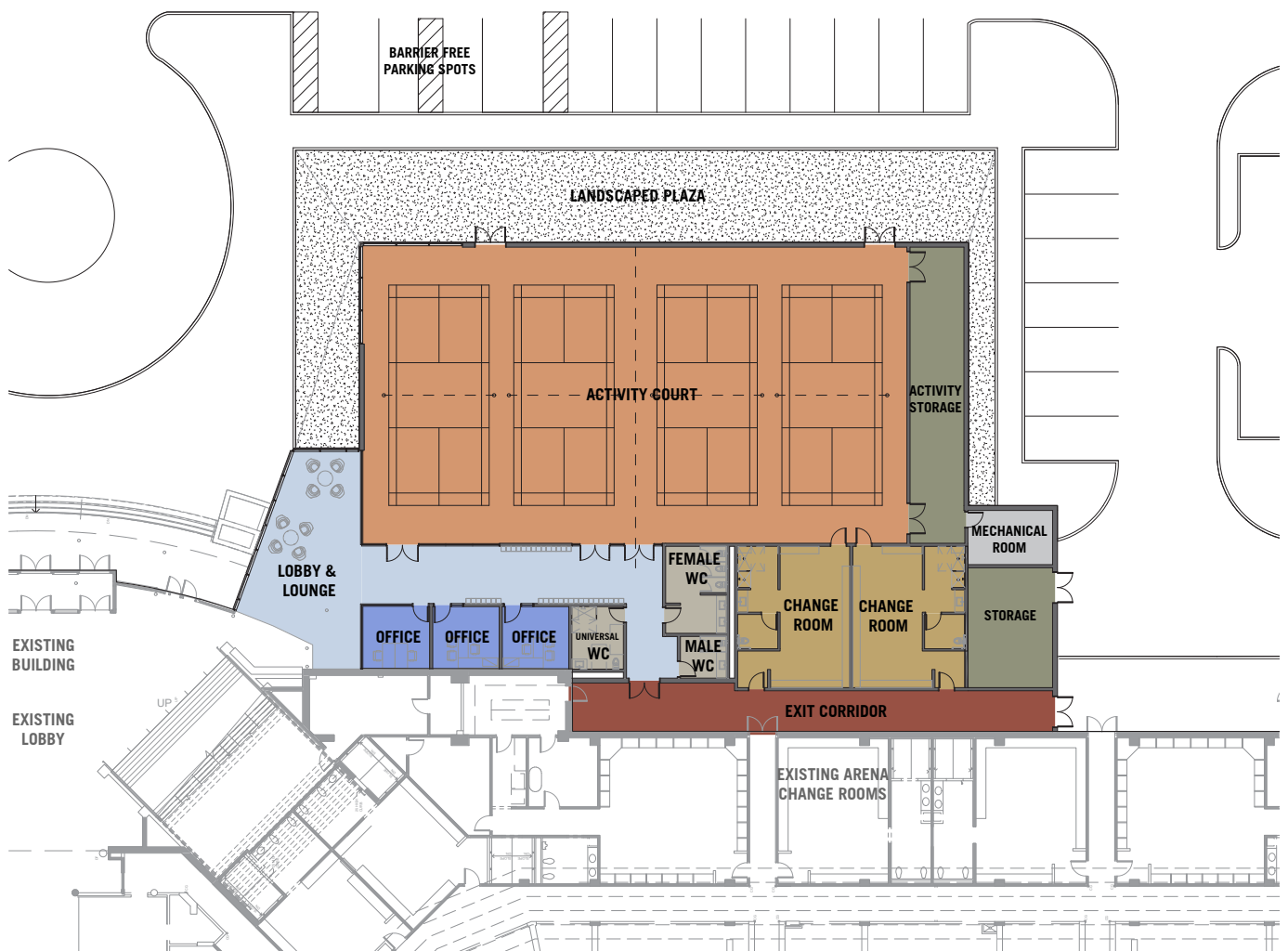
GOOGLE EARTH VIEW OF WMRC WITH SHADOW MASSING OF ADDITIONS

CIVIC FRONT

By building a new multi activity court along the east front of the WMRC, valuable new program space is provided for activities such as pickleball, basketball, large group yoga and Zumba. This high volume space is flexible enough to also accommodate larger community assemblies, private functions and lectures or act as a supporting space for rink or aquatic events. The public space would flow seamlessly from the main hall into this new addition. Users could view the activities within or prepare for their program. Passive supervision would be provided by strategically located offices. Day lockers would be provided for participants to store their belongings. The addition includes two change rooms that provide needed change space to the adjacent

arena and are flexible enough to allow use by the Activity Court participants. The location would offer easy access by users of all ages and the flexibility of the Activity Court will allow programmers to respond to a wider range of community interests. Impact on parking would not be significant since a majority of the area displaced would be circulation, not parking spaces.

From the exterior, exploration on the use of materials and massing can be undertaken to ensure a sympathetic response to the existing building. Through the use of strategic glazing this addition has great potential to showcase action in the space and create a dynamic new first impression.

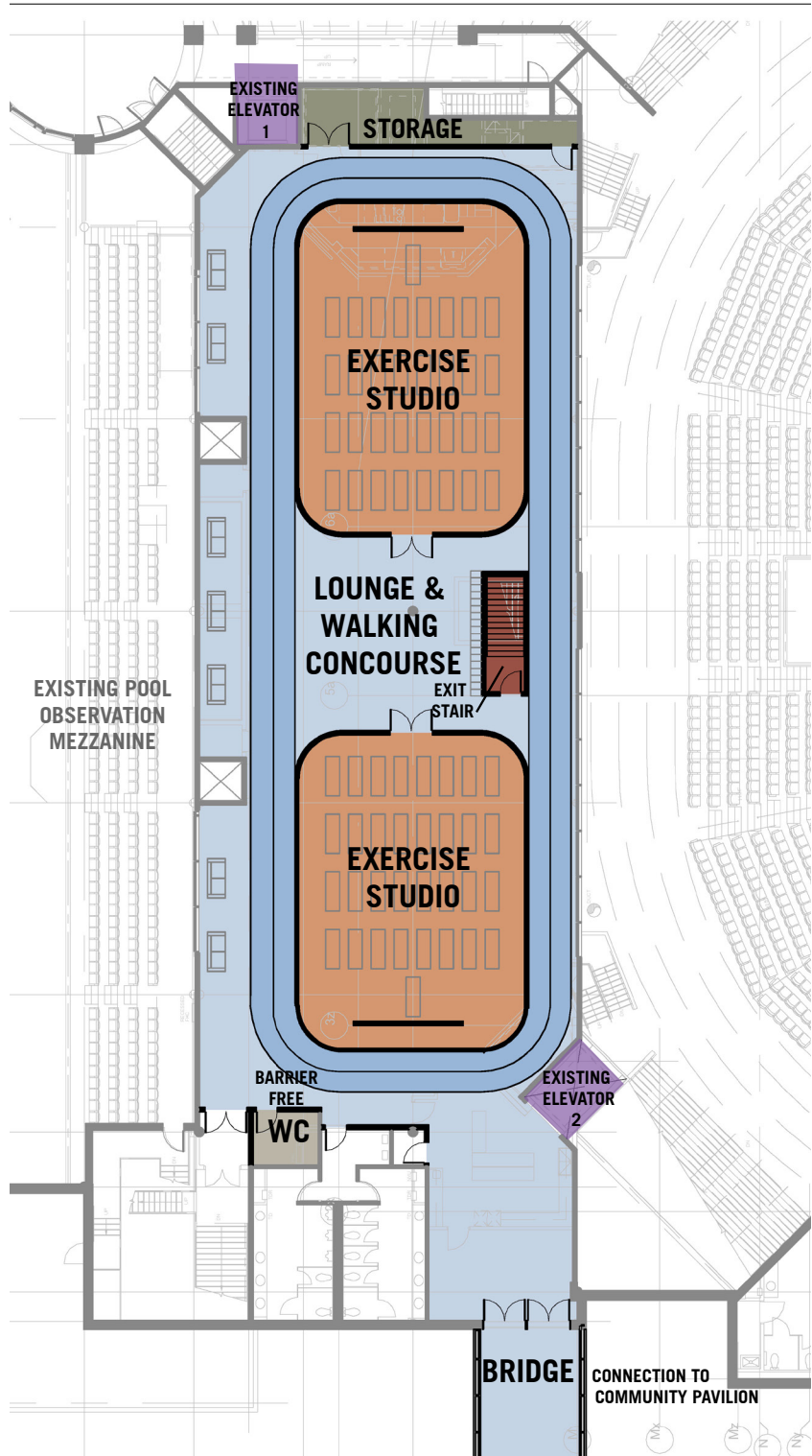


FITNESS CORE

Re-purposing the underutilized Hauser Haus Banquet Hall on the 3rd floor allows the City to offer additional fitness programming such as yoga, aerobics, karate and dance. The space is generous enough to accommodate an indoor walking concourse open for use by everyone at all times. This walking concourse and fitness room configuration was based on precedent facilities such as the Meadowvale Community Centre in Mississauga.

Access to the fitness and walking concourse spaces can be provided from the main entry existing elevator or a new bridge connection from the Community Pavilion. During special events in the arena or aquatics centre this space could be transformed to become a reception or convening area. The fitness rooms would open up to the general area to function as support rooms. The walking track and lounge spaces would have heavy duty sport flooring suitable for chairs and benches.

The walking concourse would allow drop in use by residents and offer an alternative to the running track. It would double as circulation area to access the exercise studios maximizing its use and flexibility. This should help address the conflicts between residents and track athletes in the use of the sport track. It would also provide an option for residents during sport track closures that occur due to



COMMUNITY PAVILION

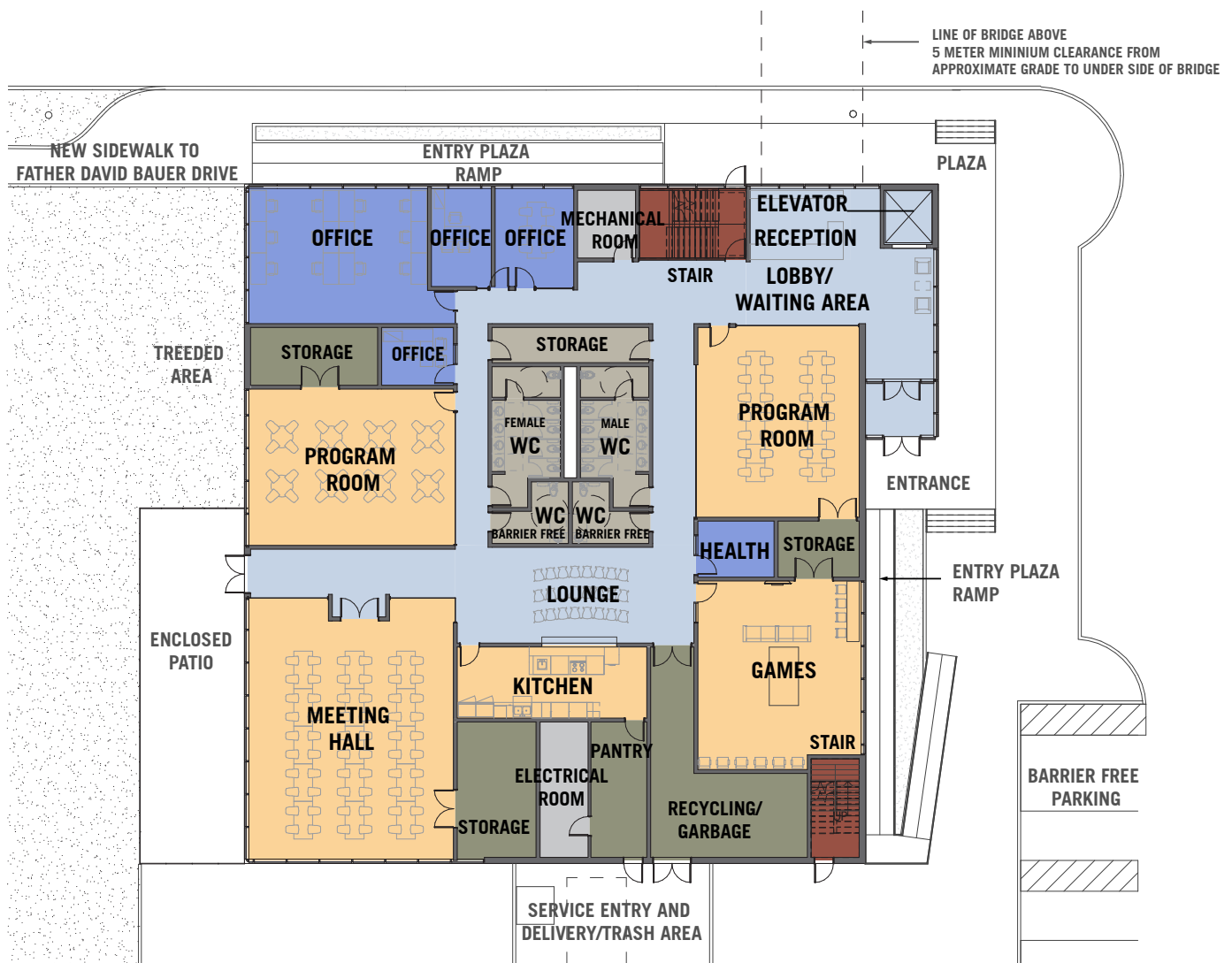
Ground Level

A new home and identity for the older adult programs is offered along the southwest side of WMRC. There is a direct connection from Father David Bauer Dr. and plenty of adjacent parking. The pavilion would have a separate entry, not shared with the WMRC, from the west parking area. This would enable programmers to monitor access and respond to the range of participant safety and security needs.

The design and planning of both floors ensures a high level of accessibility that exceeds the building code minimum and prepares for the more stringent Accessibility of Ontarians with Disabilities Act (AODA) standards. This includes wider corridors and doors, accessible washrooms with a space for adult change table and lift. The universal designation

of washrooms would allow use by all genders. In subsequent phases the detailed design will strive to incorporate all AODA guidelines.

The ground floor would be arranged around a central core of common and support spaces. As reflected in the spatial program, the rooms were designed to exceed the sizes of the existing ARC rooms and corridors. Two program rooms are located to take advantage of exterior connections to a patio adjacent to the existing treed area. A central kitchen would serve the main program dining room and could also be used for the other purposes. Lounge, games and supporting administration complete a comfortable 'home like' experience for older adults; one that recalls the ARC but is better in many ways having wide circulation and quiet, calm spaces, ideal for those with hearing or mobility issues.

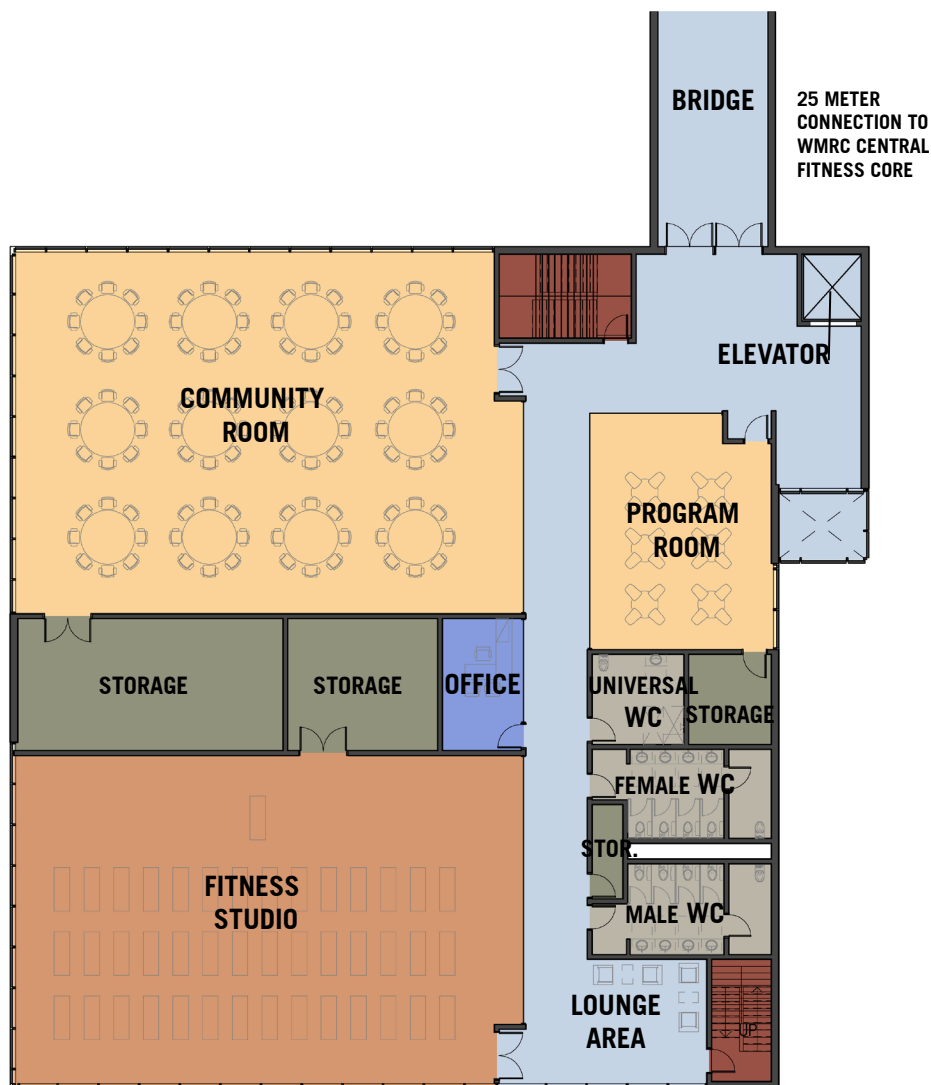


COMMUNITY PAVILION

Second Level

Access to the second floor by elevator or stair enables participants to partake in broader programming options offered through a large community room, a group fitness room, a smaller meeting room and a bridge connection to the Central Fitness Core at the WMRC.

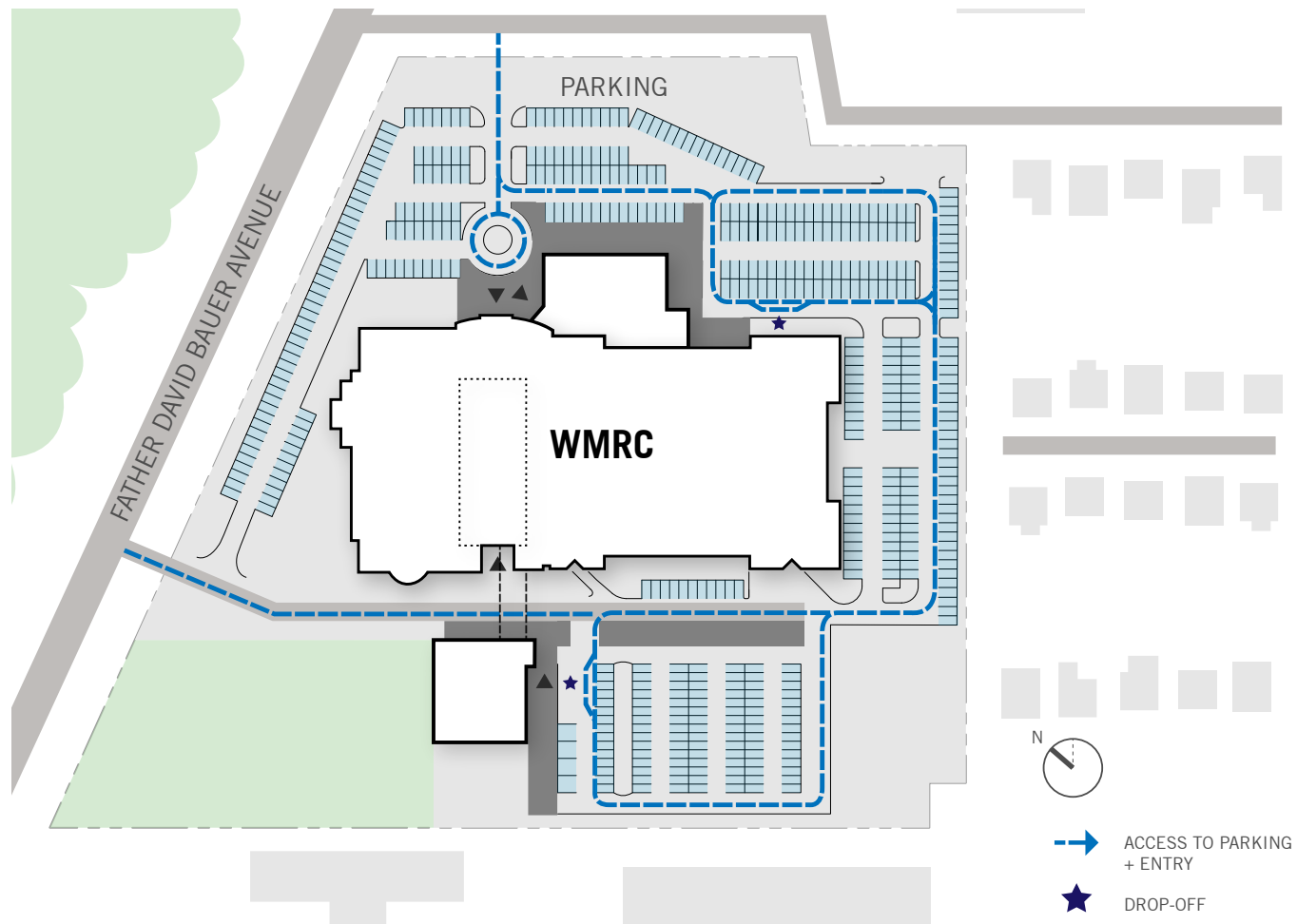
The result is a Community Pavilion that is designed to respond to older adult needs but also offer opportunities for general community use, including the community groups currently using spaces at the Hauser Haus, ARC and Wing 404. To accommodate these new uses the existing central exit stair would be reconstructed in a east - west orientation. No changes to exiting from this stair are expected at the lower mezzanine level.



PARKING + ENTRY SPACES

To the east the addition of the new recreational components would occupy a portion of the parking area without alteration to the main east side drop off area. An extended public plaza would wrap around this addition to help situate it as an integral part of the civic front to the complex. Consideration was given to team bus drop off along the west side of the arena. Through some re-routing, buses can still drop off players at the west team entry doors.

The Community Pavilion would occupy a portion of the west parking area. The impact on the circulation along this side of the complex is minimal since access to the lot is maintained from Father David Bauer Dr. The plaza for the pavilion allows visitors to be dropped off at a layby and offers barrier free parking spaces. Site pedestrian access to the Community Pavilion would be provided by a new extended sidewalk that connects to Father David Bauer Dr.



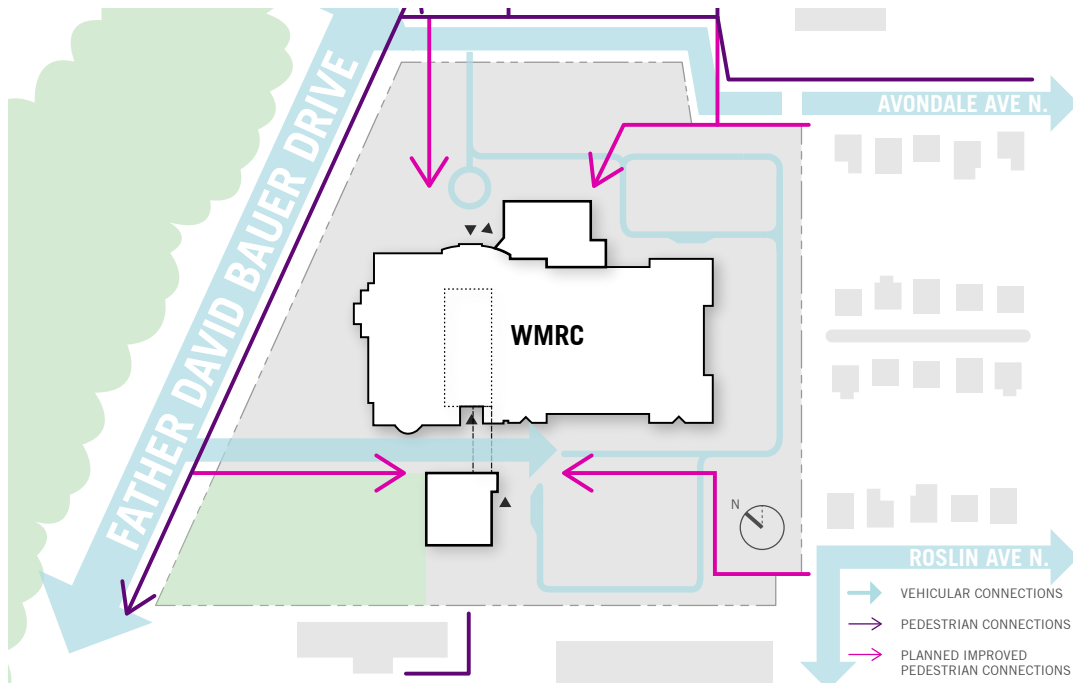
SITE SERVICING AND FLOOD PLAIN

The conceptual design remains quite distant from the floodway boundary. This ample distance is important since City staff are currently working with GRCA to re-evaluate the flood way boundary which will likely be further expanded into the site. The floor level is set to respond to current flood plain restrictions that requires an elevated podium for the building. A basement is not advisable as it would be considered an occupied space within the flood fringe.

The proposed bridge does not impact the WMRC major civil infrastructure below which includes an existing municipal trunk storm sewer (1350 mm dia.), municipal sanitary sewer (375 mm dia.) and a 200 mm dia. watermain located directly to the west of the existing WMRC building.

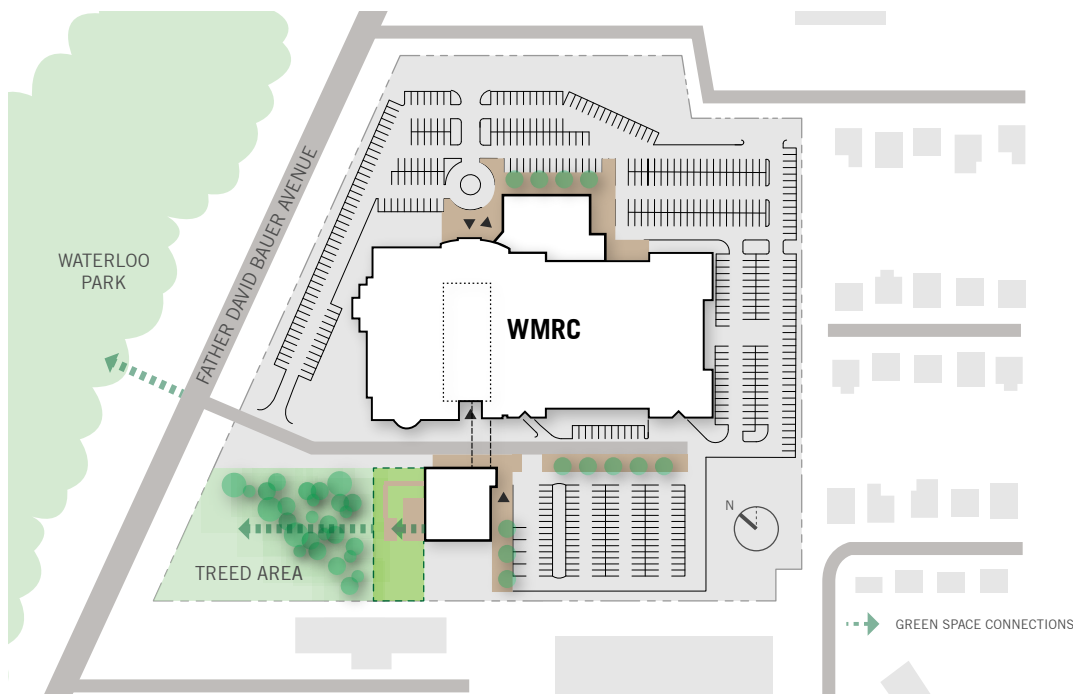
CONTEXT + CONNECTION

The proposed locations provide ample opportunities for connection to and engagement of the surrounding context. The building and site design support this opportunity through expansion of the site plazas surrounding the new buildings. Enhancement for pedestrian connection within the site, and to transit and trails, will be explored further in the next phases of this project. Bicycle parking will also be considered.



NATURAL EXTERIOR SPACES

The building and site design capitalizes on the benefits of the treed area natural feature and offers the future transformation of this space into active uses. The older adult centre programs would be located adjacent to the lot with a patio or deck that allows users to enjoy and engage in neighboring natural surroundings. Over time the City could consider transforming this treed area into a more accessible trail, a natural garden experience.

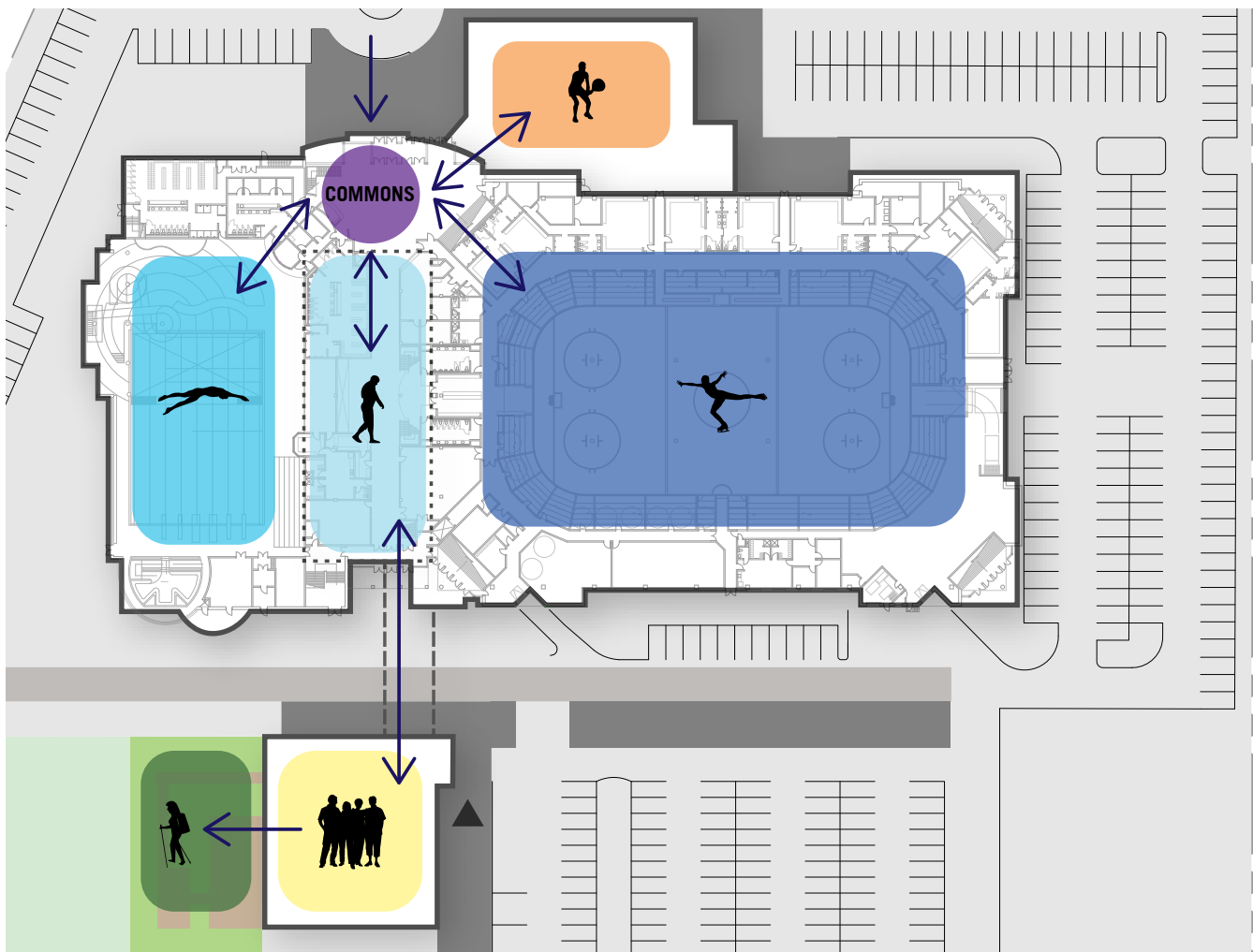


CIRCULATION

Ensuring continuity of experience for all users was an important factor in the design exploration. The linear circulation route of the WMRC links the three components of this proposal. From the east entry there are ground level connections to the new Activity Court. Access to the third floor Fitness Core is gained from the existing east elevator. West access to the Fitness Core is possible through the existing west freight elevator. The current door locking hardware from the corridor enables this elevator to be used by the public. The elevator itself would require re-fitting to become a more accessible passenger elevator. The result provides greater accessibility to the new third floor fitness and walking spaces. At the Community Pavilion a new stair, elevator and bridge enables users to access the Fitness Core. This continuity of the passage would enable older adult and general recreational users to explore the entire new suite of programs encouraging participation and strengthening synergies.

For example, older adults could arrive at the community pavilion to partake in older adult activities but then have the option to use the second floor bridge to participate in walking or fitness activities. They could then extend their visit to the west activity court to play pickleball or take a swim. Families or couples would now be able to participate in a variety of activities within close proximity to each other. Parents could keep a watchful eye on children using the pool, activity court or rink.

The diagram below conceptually indicates circulation and connections between the program activities.



Additional Considerations / Aquatics, Food Services + Arena Change Rooms

The conceptual design work included investigation into three areas that could benefit from this project. The decision to proceed with these changes was evaluated based on revenue impact, capital cost and complexity of scope.

Food Service Relocation

- The transformation of the Hauser Haus into a fitness centre and walking concourse necessitates the removal of the commercial kitchen on the third floor.
- This kitchen is needed during events and conferences but its present location on the third floor is not ideal.
- The project offers an opportunity to address this deficiency.
- The solution involves providing commercial kitchen facilities on the ground floor in surplus space behind the freight elevator. It will be designed to serve concessions and catering.
- This new location would be more effective with minimum impact on surrounding spaces.
- This consideration was accepted as part of the scope since the kitchen remains a key part of the WMRC program offerings, albeit only on occasion during the year.

Additional Arena Change Rooms

- Expanding along the west face of the arena offered the option to add two additional arena change rooms.
- This would help improve the arena change room capacity.
- It would also provide optional change room space for participants in the Activity Court.
- Since these change rooms could serve both the existing and new program spaces it was accepted as part of the scope. It was easily incorporated into the expansion plans.

Aquatics Change Room Alterations

- Renovate change rooms to provide a greater capacity in the family change room.
- This would address increasing demand for access to private change stalls.
- It would also provide gender neutral spaces.
- The solution involved expanding the family change space into the adjacent surplus male locker area.
- This consideration was not advanced as part of the scope due to capital budget constraints.

EXTERIOR DESIGN CONSIDERATIONS

The dynamic roof line and white masonry of the WMRC define the building. The design of the addition or linking building will need to explore options that provide either complementary responses or convincing counterpoint approaches. Therefore further exploration on relationships, massing, elevations, articulation and assembly is required in the following phases of work pending council approval of this report and recommendations. Below are proposed designs from Perkins+Will which are intended to be complementary to the existing WMRC. This supports the Urban Design Guidelines that suggest an integration of the potential new development, one that reinforces and maintains the architectural, visual and thematic integrity of the original design.

The following key design principles are employed to support the complementary approach:

- Incorporation of sloped articulated roof lines that echo those of the WMRC. The arched roof areas can be used to either shape the interior room or create mechanical penthouse or plenum spaces.
- Match the current horizontal datum of glazing and block coursing.
- Consider and explore masonry materials that are complementary or very close match to the existing architectural block.
- Consider and explore glazing tints and framing that is complementary or a very close match.
- Determine a glazing partition module that is similar to the WMRC.



OVERALL VIEW

These additions should also reflect the architectural considerations of our current time. The following elements are suggested:

- Incorporation of vertical glazed fins to bring colour that also provide glare and radiant heat control.
- Increase the vertical expanse of glazing at key locations to help showcase the activities within .
- Articulate the spaces that are unique to the interior experience with projecting glazed and framed bay projections.

Design strategies that reflect the use and character of the Activity Court and Community Pavilion

Activity Court

In this proposal, the Activity Court, as place of action and social gathering, is showcased through a strategic two storey glazed corner. This transparent opening allows views into the room without impacting use or distracting the participants. A higher clerestory lightens the mass and provides daylight into the room. A row of aluminum vertical coloured fins provide a dynamic band of colour and useful shading of the morning sun.

Community Pavilion

The proposed design of the Community Pavilion utilizes the sloped roof motif as an identifying element that also encloses a mechanical penthouse. The strong profile will help Older Adult users relate to this addition as independent but related to the WMRC complex and can be used in branding the facility. The massing is quite simple with glazed corners or slot windows at appropriate internal locations. The horizontal banding of the WMRC is reinterpreted in the pavilion through a change in material or an extension of a canopy or pergola.



NORTHWEST VIEW - COMMUNITY PAVILION



SOUTH VIEW - COMMUNITY PAVILION



NORTH VIEW - CIVIC FRONT

5.2 PARKING & TRANSIT ANALYSIS

IN RESPONSE TO PUBLIC CONCERN, FOCUSED STUDY AND DIALOGUE WAS UNDERTAKEN ON PARKING AND TRANSIT.

Since this project involves the re-location of functioning programs from ARC + Wing 404 to another site, vehicle access, transit connections and parking are key factors to consider and address. During both Phase 1 and Phase 2 the City engaged in discussions on transit access with Grand River Transit.

PARKING

A parking study was undertaken as part of the Perkins+Will scope. JD Northcote Engineering were retained to prepare the study and provide an assessment of the WMRC, ARC and Wing 404 parking patterns. It was determined that the existing parking lot at the WMRC would remain in the same location with generally the same configuration. There would be some minor adjustments required to accommodate the proposed addition, accommodate bus access, provide more accessible parking, and create more accessible pedestrian access. The remaining parking spaces at the WMRC site would be shared by the existing WMRC programming and the expanded recreational and Older Adult programming within the WMRC additions. The scope of the analysis included an estimation of the anticipated parking demand for the expanded WMRC and a review of the suitability of the proposed parking supply to service the expansion. The parking counts at the WMRC were completed using video recording devices and the parking counts completed at the ARC were collected by a surveyor. JDE also estimated parking at Wing 404 based on programming. The result was identification of quantification of site-specific parking demand characteristics.

- 1 There is a total of 573 parking spaces at the WMRC including 8 accessible parking spaces. Sun Life Financial, located at the northeast corner of Erb Street and Westmount Road, has 90 of these WMRC parking spaces dedicated for their use, of which only 26 were used in 2016.
- 2 The proposed WMRC addition would occupy an area that is currently used for approximately 93 parking spaces resulting in 480 spaces available. The Parking Study determined that the 480 parking spaces would be sufficient to handle a typical peak parking demand of 432 spaces.
- 3 The parking survey period was selected to cover the weekday and weekend peak hours of parking demand at the WMRC and ARC, which were confirmed through discussions with the City.
- 4 The parking for the expanded WMRC will have capacity with the revised parking supply to accommodate the typical weekly peak parking demand.
- 5 During special major events additional parking capacity may be required which will need to be addressed as a temporary measure.
- 6 There is an estimated 190 additional parking spaces in nearby lots and street: Bauer Lot - approximately 80 spaces, Train Station Lot - 77 spaces total (50 permit, 27 hourly) on street on Father David Bauer Dr. - approximately 34 between Erb and Westmount.
- 7 A parking management strategy will be required to address major event parking needs and parking by non WMRC customers.

TRANSIT

Currently the site is serviced by bus transit through the #5 route which travels along Erb Street. The pedestrian connections from those stops down Avondale St. and Rosilin St. to the site will be improved as part of this development. Initial improvements, including seating, are already underway with funding provided through Grand River Transit. There will also be ION connections on Seagram Drive and Caroline Street.

Through older adults, broader community feedback and Council input, it is recognized that transit connections to the site are important. Bus routing on Father David Bauer Dr. is not planned by Grand River Transit however at this stage in the project, discussions are occurring between the City and Grand River Transit to address the concerns of the users and residents. In addition to bus transit, Waterloo residents who may have mobility limitation, have access to Grand River Transit Mobility as well access to the City's Senior Services volunteer transportation service, both of which provide front door drop off.

5.3 CAPITAL COSTS

An estimated construction cost analysis was undertaken to provide an indication of the final cost and completion date. The analysis by Turner Townsend had access to the concept plans, the site plan, program area summary, structural concept sketches, outline architectural specifications and design briefs from Structural, Mechanical, Electrical and Civil engineers. As a Class C costing it provides the team with costs based on utilized component costs.

The result is a comprehensive statement with expected precision variance of +/- 20%. A number of key determining factors are yet to be determined which may have a bearing on the final construction costs such as, but not limited to:

- Tender period and delivery method.
- Full geo-technical soil analysis.
- Further below grade exploration that includes confirmation of the size and invert locations of the known site services and location of any other services not currently documented.

This estimate should be used only in preliminary discussion of feasibility and is sufficient for selecting correct investment decisions but should not be used for making commitments related to final construction budgets. As the project progresses through the design phases, an updated Class C costing is recommended before proceeding to Class B and Class A costing during the subsequent stages of design. Each costing phase will have more accuracy with less risk allowing the City to gain a better understanding of the expected final construction costs. The construction cost estimates provided by Turner Townsend do not include soft costs and furniture, fixture and equipment (FFE). The soft costs and FFE costs are based on industry norms as a percentage of the construction costs. In the future they should be developed in detail by the City. The Turner Townsend cost analysis concludes that the estimated construction costs based on fourth quarter of 2017 dollars is \$17.3M. If the project is delayed or phased it is recommended that a 2%/year escalation premium be applied to these totals.

5.4 LIFE SAFETY ANALYSIS

A preliminary building code analysis was undertaken as part of this study. The WMRC has a A3 Assembly Classification for the Arena functions and Common spaces with an minor A2 Assembly for the Aquatic and change room functions. The additions and re-purposed spaces were designed to ensure the exiting of the existing functions was not compromised.

Activity Court Addition:

The Activity Court addition does not pose significant challenges in terms of complying with the Building Code since the expected use is very similar to the current recreational use of the building. There is a difference in how the addition is classified but that can be addressed through the use of doors and glass walls separating the new Activity Court lobby from the existing lobby.

Total washroom capacity which includes the new arena change rooms was calculated to serve an expected maximum occupancy of the gym and lobby spaces at 200 to 250 persons. Since the addition is at grade, exiting is easily achieved. The arena exiting is extended through the addition of an exit corridor. Although the arena change rooms use this exit corridor for access, this is allowable since they have a secondary means of exiting through the activity court.

Community Pavilion

The Community Pavilion is located more than 18 m from the WMRC and will be classified as an A2 occupancy. Exposure protection is not anticipated. The pavilion itself would be deemed to be a separate building connected by a bridge. This will provide more flexibility in determining the construction assembly and ratings.

Fitness Core Repurposing of the Hauser Haus

The conceptual design approach ensured that exiting of the existing building was not impeded. The capacity of the Hauser Haus decreases with its re-purposing as exercise studios and a walking concourse. Therefore the stair and WC size and count remains unaffected.

Authority Review

The proposed design was reviewed by the Waterloo Fire Chief who supported the design in principle provided the fire route to the west and east of the existing building were not impeded or altered. The west entry is the main fire department address and the location of the annunciator panel. The east entry is a secondary and supporting fire department access point. Neither access or exit point is impacted by the design. The Community Pavilion would be provided with a separate fire department address and annunciator to be located in the main vestibule. The Fire Dept. suggested an investigation into the possibility of connecting the new additions to the existing back-up emergency generator for the WMRC providing prolonged power outage for example.

If the project advances to the next stage, a more exhaustive building code analysis would be required that would involve an assessment of the existing building occupancy, exit routes and WC capacity. The project is not seeking high importance or post disaster status since it is directly linked and joined to the existing building which does not have that status and is located adjacent to the floodplain. Therefore the additions will be built to normal importance not high or post disaster importance. This determination was supported by the City through the Fire Chief.

5.5 SUSTAINABILITY

The proposed additions address sustainability principles through design strategies that are embedded into their location and building form. Siting the buildings close to the WMRC with minimal impact on un-paved areas ensure the heat island effect is not increased. Carefully considered glazing provides daylight and maximizes views thereby reducing the need for artificial lighting. The compact massing and orientation of both additions mitigate heat gain with a low surface-area to volume ratio reducing the building's heat transfer. The forms will be well insulated with a high-performance envelope that will help the building stay cool during the summer and warm during the winter, reducing demand on the building's mechanical system. The Community Pavilion benefits from an adjacency to the existing treed area that provides shade and wind resistance. The following sections consider the impact on further design development to achieve LEED or Passive House targets.

LEED

Currently, the City of Waterloo requires all new buildings to target LEED Silver as a minimum standard. This requires a building to achieve a total of 50-59 points. The LEED Energy category can contribute 33 points to a certification, with 18 points attributed solely to energy consumption. In addition to the City of Waterloo's standards, there are new GHG targets that the Ontario government is implementing. Ontario's Five Year Climate Change Action Plan 2016-2020' calls for a 15% reduction in GHG emissions by 2020 and a 37% reduction by 2030. This new facility will be constructed within the 2020-2030 period and should therefore be designed to meet these future targets rather than today's minimum standards.

PASSIVE HOUSE OPPORTUNITIES

In addition to LEED targets, Passive House status was explored. Passive House is a rigorous, voluntary standard for energy efficiency in a building, reducing its ecological footprint. It results in ultra-low energy buildings that require little energy for space heating or cooling. It was found that the Community Pavilion is a good candidate for this exploration since it is a suitable project in terms of design stage, building type and scale. The Activity Court addition was harder to justify for Passive House since it demands higher cooling needs, is a large enclosure facing north and is connected to the existing building.

If the City were to pursue passive house status, the plans of the Community Pavilion may need some internal adjustments to ensure more occupied rooms along the south and west face. The uses are compatible with Passive House environments with very consistent temperatures and uses that do not demand a lot of cooling. The current design supports the principles of Passive House by its compact size and use of larger program spaces to act as big thermal masses with glazing along the south and west. The shape is compact which is preferable since Passive House demands a very tight envelope. If Passive House becomes a target sustainability goal, during the design process, the wall, roof and floor assemblies will be developed to a higher R value and degree of air tightness. This combination ensures minimal heat gain during summer and heat loss during winter. The goal is to have a super insulated enclosure that passively gains heat and thereby lowers need for artificial conditioning. Performance target is 15kw/hour/sq meter/year for both cooling and heating with a modest air handling unit as a result.

The design process including Quality Assurance and Quality Control is more rigorous which will likely have an impact on design fees and construction costs. In addition the construction process is also very rigorous since the building must pass an air tightness test. Construction cost premium is in the range of 15% to 20%. During any future sustainability explorations, these options can strategically selected in the efforts to contain capital costs.

PRELIMINARY LEED CHECKLIST

The process of integrating sustainable architecture and design arrives as much from practical decision making throughout the design process pertaining to all levels of the building's components and systems as well as through intelligent site design. These decisions do not necessarily incur large capital costs but in total add up to appreciable savings in the operation and efficiency of the building. They might include such things as choosing materials with low embedded energy costs, maximizing and controlling natural lighting or perhaps utilizing the thermal mass of the earth to help insulate the building. The definition of sustainability is also expanding to include human health by selecting materials that do not pose any adverse physiological or environmental effects.

At this stage in the design exploration and study, the cost to achieve a LEED Silver target is included in the construction cost estimates. Achieving this target does not require certification with the Canada Green Building Council (CaGBC). To attain certified LEED status would require registration, construction monitoring, additional consultant attention and fees. The following is a preliminary LEED Checklist that demonstrates achieving LEED is a very possible.

LEED CANADA BUILDING DESIGN AND CONSTRUCTION V4 CHECKLIST FOR NEW CONSTRUCTION

	TARGET	POSSIBLE POINTS		TARGET	POSSIBLE POINTS
INTEGRATIVE PROCESS			MATERIALS AND RESOURCES		
Integrative Process	1		Storage and Collection of Recyclables	Prereq	Prereq
Sub-total	1	1	Construction and Demolition Waste Management Planning	Prereq	Prereq
LOCATION AND TRANSPORTATION			Building Life-Cycle Impact Reduction	3	5
LEED for Neighbourhood Development Location		1	Building Product Disclosure and Optimization - Environmental Product Declarations	2	2
Sensitive Land Protection		1	Building Product Disclosure and Optimization - Sourcing of Raw Materials	2	2
High Priority Site		2	Building Product Disclosure and Optimization - Material Ingredients	2	2
Surrounding Density and Diverse Uses	1	5	Construction and Demolition Waste Management Planning	2	2
Access to Quality Transit	1	4	Sub-total	11	13
Bicycle Facilities	1	1	IEQ INDOOR ENVIRONMENT QUALITY		
Reduced Parking Footprint	1	1	Minimum Indoor Air Quality Performance	Prereq	Prereq
Green Vehicles	1	1	Environmental Tobacco Smoke Control	Prereq	Prereq
Sub-total	5	16	Enhanced Indoor Air Quality Strategies	2	2
SUSTAINABLE SITES			Low-Emitting Materials	3	3
Construction Activity Pollution Prevention	Prereq	Prereq	Construction Indoor Air Quality Management Plan	1	1
Site Assessment		1	Indoor Air Quality Assessment	2	2
Site Development - Protect or Restore Habitat		2	Thermal Comfort	1	1
Open Space	1	1	Interior Lighting	2	2
Rainwater Management	2	3	Daylight	1	3
Heat Island Reduction	2	2	Quality Views	1	1
Light Pollution Reduction	1	1	Acoustic Performance	1	1
Sub-total	6	10	Sub-total	14	16
WATER EFFICIENCY			INNOVATION IN DESIGN		
Outdoor Water Use Reduction	Prereq	Prereq	Innovation Measure: Exemplary Water Savings	1	1
Indoor Water Use Reduction	Prereq	Prereq	Innovation Measure: Green Education	1	1
Building-Level Water Metering	Prereq	Prereq	Innovation Measure: Strategy		1
Outdoor Water Use Reduction	2	2	Innovation Measure: Strategy		1
Indoor Water Use Reduction	6	6	Innovation Measure: Strategy		1
Cooling Tower Water Use		2	Credit: LEED Accredited Professional	1	1
Water Metering	1	1	Sub-total	3	6
Sub-total	9	11	REGIONAL PRIORITY		
ENERGY AND ATMOSPHERE			Indoor Water Use	1	1
Fundamental Commissioning and Verification	Prereq	Prereq	Heat Island Reduction	1	1
Minimum Energy Performance	Prereq	Prereq	Building Life Cycle Impact Reduction		1
Building-Level Energy Metering	Prereq	Prereq	High Priority Site		1
Fundamental Refrigerant Management	Prereq	Prereq	Sub-total	2	4
Enhanced Commissioning		6	TOTAL POINTS TARGETED = LEED SILVER (50-59)		
Optimize Energy Performance	4	18		59	110
Advanced Energy Metering	1	1			
Demand Response		2			
Renewable Energy Production	1	3			
Enhanced Refrigerant Management		1			
Green Power and Carbon Offsets	2	2			
Sub-total	8	33			

5.6 SUPPORTING DESIGN BRIEF - SUMMARY

CIVIL ENGINEERING

The following is a summary of the Design Brief provided by Development Engineering.

Site Location

The site is subject to a significant grade change from southeast to northwest, with geodetic elevations ranging from 329.0 m at the southeast corner of the site to 324.0 m within the vegetated area northwest of the existing building. The main finished floor of the building is approximately 327.0 m and should be matched for the proposed additions. Since the existing grades around the outside of the building are typically lower surface runoff will be directed away from the building. Both proposed additions lie within overland flow routes for some directly adjacent parking areas; therefore major storm flows from these portions of the parking lot must be directed around the proposed additions through deliberate use of storm sewer infrastructure and grading to avoid potential flooding concerns. The Father David Bauer Dr. right-of-way and northern half of the site lies below the flood elevation of the nearby Laurel Creek and is regulated by the Grand River Conservation Authority (GRCA). The majority of the site is also designated a GRCA Special Policy Area which allows some types of construction. As such, any proposed development will require circulation and approval by the GRCA in addition to typical municipal approvals.

Water Service

The existing 150mm PVC water services are anticipated to be sufficient to service the proposed additions for domestic cold water demands and fire flow, with a total required service length of 20 m. Due to the location of the proposed eastern addition, the existing 150 mm diameter private watermain needs to be relocated to the east (outside the proposed building envelope) as it could pose operation and maintenance risks to the City. The proposed re-location would include the removal of approximately 65 m of existing 150 mm diameter watermain and the installation of approximately 90 m of new 150 mm PVC watermain. The proposed new watermain will be connected into existing on each side of the proposed building addition.

Sanitary Service

On a preliminary basis, 200 mm diameter PDC's are anticipated to be sufficient to service the proposed additions for sanitary drainage. Due to the location of the proposed eastern addition, the existing 200 mm diameter private sanitary sewer will need to be re-located to the east.

Storm Water Management

The WMRC building additions are proposed to be constructed over areas that are primarily impervious under existing conditions, with surface treatments consisting of asphalt, concrete sidewalks and landscaping. As such, it is anticipated the proposed additions will result in a minimal overall increase in storm runoff rate and quantity from the site. However, as a best management practice (BMP), it is recommended that all rooftop drains will be proposed as flow control roof drains (FCRD's) for the proposed additions.

Quality control of storm water was addressed. Rooftop runoff is typically considered "clean" for the purposes of stormwater quality control. As such, the proposed building addition is anticipated to provide a net improvement to overall quality control from the subject site and an oil-grit separator (OGS) is not anticipated to be required to fulfill municipal storm water management (SWM) obligations.

Overland flow routes

Currently, the proposed additions are in the path of major overland flow routes from a portion of adjacent western and eastern parking lots. Because the addition's finished floors are anticipated to be raised compared to the surrounding grades to match the existing building, the flow routes can be maintained through the grading and storm sewer design process. Major flows around the western addition should be directed around the addition to the east and north, under the second story bridge within the municipal servicing corridor towards Father David Bauer Dr. Major flows around the eastern addition should similarly be directed east and north.

STRUCTURAL ENGINEERING

The following is a summary of the Design Brief provided by VanBoxmere Stranges Engineering.

Above Grade Structural Systems

The new structures are proposed to be designed using structural steel. The structural steel strength used in the design of this building is to be 350 MPa (fy=50 ksi) for all primary steel such as joists, beams and columns. The structural steel will also be used as braces in various walls to resist lateral loads where shear walls elements are not used to resist lateral loads.

Foundation

The structural elements comprising the new foundation system shall be constructed of cast-in place concrete. The design of the foundation system will be based on the geotechnical information provided. For the purposes of this design brief, we have used a bearing pressure of 250 kPa (5,200 psf). It is anticipated that the structure will be founded on shallow spread type foundations on native undisturbed soil. The requirement for site dewatering is unknown at this time. It is not anticipated that caissons or piles will be required at this time. In understanding some of the history of the existing building construction, it is anticipated that spread footings will be sufficient. A final review and design of the foundation will be completed after the final geotechnical report is submitted.

Connecting Bridge

The steel bridge will be comprised of 2 steel trusses located on each side of the walkway. The floor and roof structure will span between the trusses with concrete and 38mm composite steel deck bearing on the steel floor beams. The roof of the walkway will have 38mm metal roof deck bearing on structural steel beams. The bridge will be supported on 4 steel columns located at or close to the ends of the bridge. The 2-steel columns at the new addition will be located within the east walls of the west addition. These columns will also bear on conventional concrete piers down to pad footings. The 2 steel columns closest to the existing building will be supported on pile caps which will have helical piles down to founding soil. It is anticipated that the two columns at the east end of the bridge will be designed as a structural frame to resist the lateral loads applied by seismic and wind loads.

The far east end of the new bridge will abutt the existing building. The new to existing building interface will have a 3-dimensional expansion joint.

MECHANICAL DESIGN BRIEF SUMMARY

The following is a summary of the Design Brief provided by HH Angus Engineering.

Community Pavilion

The Community Pavilion will be designed to include a roof top mechanical penthouse. Within this penthouse, a new hot water heating plant will be provided to serve the building and will be located in the mechanical space. The hot water plant will be sized for the sum of the base heating load as well as the hot water reheat loop. The boilers will be fully condensing to provide enhanced efficiencies when ambient conditions permit the use of lower circulating water temperatures for the perimeter loop.

Two (2) packaged indoor air handling units will be used for ventilation and air-conditioning. These units will be hydronic heated and cooled by direct expansion of refrigerant by remote outdoor condensing units. Sprinkler and standpipe systems are required to be installed in this facility. The building mechanical systems will be operated through a local Building Automation System (BAS).

Activity Court

A new hot water heating plant will be provided to serve the addition and will be located in the mechanical space provided on the ground level. The hot water plant will be sized for the sum of the base heating load. In this way the packaged air-handling equipment can be turned off when the building is unoccupied, allowing the hot water system to keep the building warm. This provides energy savings over using the air systems for heating purposes. The boilers will be fully condensing to provide enhanced efficiencies when ambient conditions permit the use of lower circulating water temperatures for the perimeter loop.

Two (2) packaged outdoor air handling units will be used for heating, ventilation and air-conditioning. This unit will be indirect gas fired and cooled by direct expansion of refrigerant. Each unit shall have a variable frequency drive on the fan motor to allow for a reduction in fan speed where rooms are unoccupied and therefore the supply air can be reduced. Rooftop units will be cycled during the summer season to maintain acceptable building temperature.

Fitness Core Re-purposing

In the fitness centre the existing Air Handling Unit will be re-used for renovated space. Existing ductwork for space will be disconnected and removed back to mains. Reheat coils will be removed, cleaned and relocated. Location will be reviewed further during design development phase. Air shall be distributed from the existing unit (AHU-x) by means of new galvanized steel supply air ductwork located in the ceiling spaces of the building. This ductwork will be insulated and acoustically lined where required. Air shall return to the units by means of uninsulated return air ductwork and ceiling plenum spaces. Return grilles shall be provided in various locations throughout the building to allow for adequate circulation of airflow within the building. Condition of Air Handling unit to be reviewed during detailed design for life expectancy.

ELECTRICAL DESIGN BRIEF SUMMARY

The following is a summary of the Design Brief provided by HH Angus Engineering.

Based on the Hydro Utility Reports provided by WMRC it appears that the highest demand recorded was on November 01, 2015, the reading indicated a demand of 805.58 kVA. The Main Electrical Room contains 1 customer owned 15kV Loadbreak Switch and Fuse Cubicle, a customer owned 2000kVA dry type stepdown transformer providing a 2000 Amp, 347/600 Volt, 3 Phase, 4 Wire Electrical Service for the building. The City owned transformer contains an internal connecting secondary bus terminating in the Main 600 Volt Switchboard. The Main 600 Volt Normal Switchboard contains a Main 2000Amp, 600 Volt 3 Pole Breaker, and a number of switch and fuse feeder sections and spaces.

General Service

The new Community Pavilion, Bridge and Activity Court Addition will be fed from the existing main 600 Volt normal switchboard located on the Ground Floor of the existing building. Emergency egress lighting and exist lighting to be fed from the Central Inverter System.

The fluorescent lighting system throughout consists of new energy efficient T8 lamps and electronic ballasts consisting of primarily of 1' x 4' - 2 Lamp direct and direct/indirect fluorescent luminaires.

A Centralized Battery Inverter System will be sized as the secondary emergency power back-up for the emergency egress and exit lighting. This System will consist of a Central Battery System complete with breakers and/or breaker panels to feed the required lighting systems for a minimum of two hours.

At the Activity Court a new stand alone two stage, non coded, zoned fire detection and alarm system shall be installed. The new installation shall consist of a fire alarm control panel/ fire alarm annunciator located at the Level 1 Main Entrance. The new fire alarm system shall be integrated with the existing fire alarm system to indicate all required new zones on the existing Annunciators.

The new Fire Alarm System components required for the Activity Court shall be integrated into the existing Fire Alarm System. The new installation shall consist modifying and adding the required new fire alarm zones to the existing fire alarm control panel and fire alarm annunciator located at the main control desk and a second remote annunciator in Office 1311. Fire alarm pull stations, strobe lights, and horn speakers etc. shall be compatible with the existing fire alarm System.

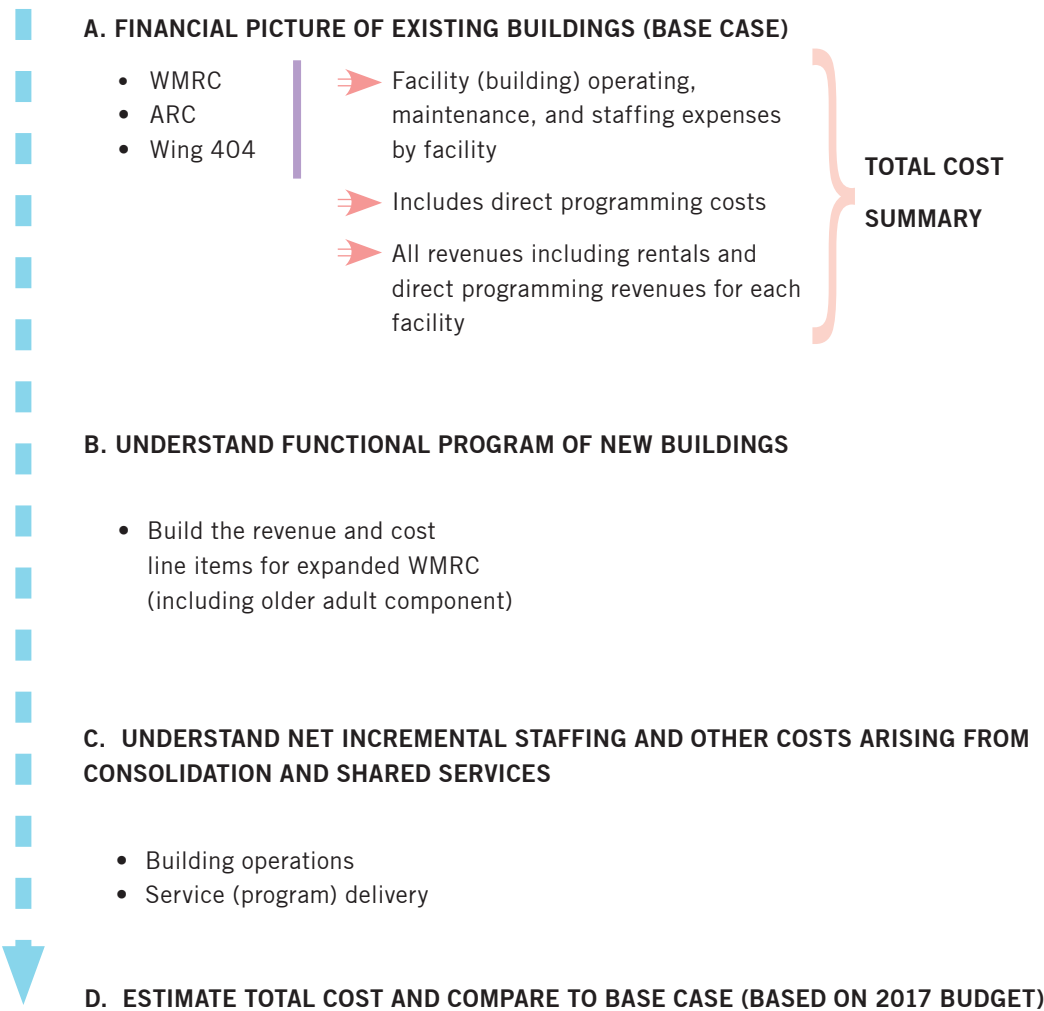
6 OPERATIONAL ANALYSIS

6.1 PURPOSE OF FINANCIAL ANALYSIS

The development of an expanded Waterloo Memorial Recreation Complex (WMRC) including a consolidated older adult recreation centre (replacing ARC and Wing 404) requires a consideration of its operating revenue/cost implications as part of the overall feasibility assessment. Such a consideration is based on a comparison of the existing costs of operating three separate facilities, as well as their revenues, to the likely costs and revenues associated with a combined facility.

The financial analysis does not constitute a full business plan sufficient to accurately depict the necessary annual operating budget. This analysis is a schematic assessment of the financial consequences of decommissioning two existing older adult buildings and transferring their function and services to a consolidated facility, as well as expanding the WMRC to provide the broader community with more recreation access.

EXHIBIT A: APPROACH TO FINANCIAL ANALYSIS



The resulting estimates of net operating income as a result of the proposed changes to these assets are influenced by a number of important assumptions. These assumptions are laid out below:

1. Recognizing that the consolidation of uses at a single site will generate greater efficiencies in some categories of building-related operating costs, the staffing requirements of the consolidated building is guided by the City's current practices with respect to employment classifications, roles and responsibilities of staff and required staffing complements for a given function.

2. With respect to both operating costs and revenues, the analysis assumes that there is no change to City policy or practice with regard to any aspect of operating these buildings. There is no assumption that rental rates will be increased above rates currently in effect at these buildings and the commitment of the City remains one of providing general programming to as wide a range of groups and individuals in the community as possible. Therefore, while new multi-purpose state of the art recreation space can be viewed as a candidate for higher rental and programming rates, the analysis has assumed a business-as-usual approach to all revenue generating potential for the combined building.
3. The analysis also excluded all costs and revenue associated with the aquatics centre and the Waterloo Wellington Local Health Integration Network (WWLHIN) funded programs provided through the ARC as these are assumed to remain static.
4. An important assumption is that the renovation of the Hauser Haus generates a net loss in revenue from the loss of existing rentals, but it represents an important element of the overall changes to the WMRC - comprising two group exercise studios, a walking concourse and lounge. Its revenue potential is tied to programs while it also provides general recreation space (walkway concourse) for which revenues are not collected. The exercise studios are expected to generate \$533.7K whereas the loss of Hauser Haus banquet hall revenue is estimated to be \$85.4K, for a net increase of \$448.4K.
5. The analysis also considers the fact that the capacity of the new floor area to operate as effectively as possible – both in operating efficiency and revenue maximization – will occur over time. For illustrative purposes we have assumed that this “ramp up” can be achieved over a three-year period. It needs to be recognized that we cannot predict how quickly the municipality will be able to achieve these intended revenue targets. The City needs to undertake an effective process of pre-opening business planning in order to mitigate the risk of higher deficits in the early years of the combined operations.
6. There is no assumption of annual escalation – typically escalation applied to costs should also be applied to revenues. If the City has a user fee policy which enables rates to be adjusted annually for inflation, the assumption of equivalent escalation in costs and revenues is reasonable. For purposes of this type of analysis, escalation is not included.

6.2 OPERATING PERFORMANCE

For the purposes of analysis, a high-level operating model has been developed for an expanded Waterloo Memorial Recreation Complex (WMRC). This operating model, provided in Exhibits B (summary) and Exhibit C (details), assumes a Normal Operating Position (NOP) for the WMRC. In addition, a 3 year ‘ramp-up’ in operations has been provided; which is typically a reality when a new facility opens (see Exhibit D for details) as programs often take time to ‘catch-on’ and become a standard program offered by the City on a regular basis.

Note that all figures are shown in 2017 dollars and do not include escalation.

6.2.1 OPERATING ASSUMPTIONS

The operating model is built upon a series of assumptions that have been developed in collaboration with the City of Waterloo, based on both the consulting team’s experience with comparable facilities, and on the experience of the City in operating the existing recreation facilities.

6.2.2 REVENUE

The expanded WMRC facility will have a combination of revenue streams, likely to include:

- Direct Recreation Programming
- Room Rentals (incl. User Groups and Special Events)
- Drop-in Recreation Programming

The Analysis also assumes that all existing direct programs, room rentals, and drop in programs at ARC and Wing 404 will transfer to the new facility and will continue to generate comparable revenue.

Direct Recreation Programming

It is assumed that the City will directly provide recreation programming in a number of spaces at the expanded WMRC, specifically within the Activity Court (new space) and Group Exercise Rooms 1 and 2 (repurposed space). Direct programming is also assumed to be provided within several of the older adult components.

- **Fill Rate:** Direct recreation programming occurring in the new facility will have an average fill rate of 68%. This fill rate reflects the historic enrollment in the City's recreation programs at WMRC, ARC and Wing 404, combined with a well-performing palette of programs.
- **Cost per Class:** The average cost per is estimated to be \$7.00 based on the existing fee structure of the City's recreation programming.
- **Session:** It is assumed that each program will run for a total of eleven weeks, with four sessions per year.
- **Classes per Day:** The number of classes offered per day has been assumed to depend on which room the programming is taking place in. Rooms that house direct programming are assumed to also be used for drop-in programs and room rentals by user groups.

'Fill rate' refers to the average enrollment in a class. For example, if the maximum capacity (based on room size and historic size of classes in comparable facilities) of a class is 20 participants, a 75% fill rate would mean the class has an average of 15 participants on a weekly basis.

Room Rentals (includes User Group and Special Events)

The revenues related to the direct recreation programming are based on the following assumptions
It is assumed that the majority of space at the expanded WMRC will be available to rent for a fee to community members and user groups. The revenues related to the room rentals are based on the following assumptions:

ROOM	RENTAL RATE	SOURCE
Activity Court	\$59.61/hr	City 2017 Fee Schedule: RIM Single Gym
Meeting Hall (Room 1)	\$45.00/hr	City 2017 Fee Schedule: Comparable Spaces at ARC
Program Rooms 3 & 4	\$20.00/hr	City 2017 Fee Schedule: Comparable Spaces at ARC
Program Room 5	\$35.00/hr	City 2017 Fee Schedule: Comparable Spaces at ARC
Community Hall	\$65.00/hr	City 2017 Fee Schedule: Comparable Spaces at ARC

- **Rental Rate:** The rental rates for the new spaces have been developed as follows:

As affiliated community groups get a 50% discount on room rental rates, the analysis includes an impact on the facility rental discount budget.

- **Rental Duration:** The specific duration of rentals is expected to vary by room and other uses in each space. The take-up of bookable time in each space has been assumed based on a review of the existing utilization of spaces at WMRC, ARC and Wing 404.

The operating model accounts for the conversion of the Hauser Haus space to Group Exercise Rooms in the expanded WMRC, and therefore, a loss in revenue related to the rental of Hauser Haus is included.

Drop-In Recreation Programming

It is expected that the expanded WMRC, including the Older Adult Component, will continue to function as a drop-in facility for a number of day users and members. Drop-in activities are expected to occur in the Activity Court, Meeting Hall (Room 1) as well as Program Rooms 3 and 5.

The revenues related to the direct recreation programming are based on the following assumptions:

- **Fill Rate:** Drop-in recreation programming occurring in the new facility is expected to have an average fill rate of 55% within the older adult component and 68% for those programs held in the Activity Court. These fill rate reflects the historic enrollment in the City's recreation programs at WMRC, ARC and Wing 404.
- **Cost per Class:** The average cost per is estimated to be \$2.00 for older adult programs and \$4.00 for all other programs based on the existing fee structure of the City's recreation programming.

6.2.3 EXPENSES

A number of expenses have been accounted for within the operating model, as detailed below.

- **Staffing:** The operating model accounts for incremental changes to staffing including programming, custodial, operations/maintenance. There is no increase to customer service/reception staff.
- **Office/Admin/Advertising:** These costs are estimated based on 2016 actuals and proposed budget increases to support new program growth.
- **Equipment/Equipment Maintenance:** Based on the range of amenities being proposed within the expanded WMRC, the operating model estimates the cost for equipment and related maintenance are estimated based on a three year average of actual costs.
- **Program/Supplies:** The operating model accounts for the fact that instructor hours are included here, as all program instructors are hired on a contract basis, not on payroll.
- **Building Maintenance:** Based on the range of amenities within the expanded WMRC, the operating model assumes an average cost of \$2.00 per square foot in building maintenance costs annually (including electrical, mechanical, general building, and asset facility management maintenance, exclusive of labour).
- **Utilities:** The estimated costs for utilities (including electricity, natural gas, water, etc.) are based on a combination of 2016 actuals and / or a 4 year average cost.
- **Landscaping and Outdoor Maintenance:** The operating model accounts for the fact that a reduction in budget with the removal of two facilities (ARC and Wing 404) will be realized; however, the new Older Adult component will require additional attention (snow and ice clearing) above and beyond what is currently being provided at the WMRC.

6.3 OPERATING PROFORMA SUMMARY

Normalized Operating Position

Exhibit C provides a summary by category of all projected revenues and expenses. This includes:

A) Existing (Base Case): This is a total of all revenues and expenses associated with the 3 existing facilities (WMRC, ARC, and Wing 404) as provided for in the City's 2017 Budget (excluding aquatics and WWLHIN funded programs).

B) Incremental Change (New Costs): The additional revenues and expenses (or reduction) associated with the expanded and

EXHIBIT B: SUMMARY OF NORMALIZED OPERATING POSITION

	A		B		A + B	
	EXISTING (COMBINED)		ADDITIONAL		NEW (NORMALIZED)	
	\$	\$/Sq. Ft.	\$	\$/Sq. Ft.	\$	\$/Sq. Ft.
TOTAL EXPENSES	\$ 3,369,240	\$ 29.82	\$ 520,897	\$ 40.40	\$ 3,890,137	\$ 30.90
TOTAL REVENUES	\$ 1,315,119	\$ 11.64	\$ 523,001	\$ 40.56	\$ 1,838,120	\$ 14.60
NET	-\$ 2,054,121	-\$ 18.18	\$ 2,104	\$ 0.16	-\$ 2,052,017	-\$ 16.30

EXHIBIT C: NORMALIZED OPERATING POSITION

	A		B		A+B	
	EXISTING (BASE CASE)		INCREMENTAL CHANGE		NEW	
	TOTAL (2017 BUDGET)		ADDITIONAL		TOTAL	
Expenditures:						
Salaries/Wages/Benefits	\$	2,169,103	\$	156,832	\$	2,325,935
Other Staffing Related	\$	3,150	\$	1,823	\$	4,973
Office/Admin/Advertising	\$	154,989	\$	43,445	\$	198,434
Equipment/Equipment Mtce	\$	6,400	\$	1,491	\$	7,891
Program/Supplies	\$	89,039	\$	190,977	\$	280,016
Custodial/Maintenance	\$	105,894	\$	11,725	\$	117,618
Concessions	\$	3,900	\$	-	\$	3,900
Turf/Landscape	\$	32,387	-\$	15,000	\$	17,387
Snow Clearing	\$	71,370	-\$	30,000	\$	41,370
Misc Exp	\$	24,301	-\$	9,624	\$	14,677
Capital Cost Recovery - Equipment	\$	-	\$	5,000	\$	5,000
Facility Rental Discount	\$	-	\$	36,781	\$	36,781
Electricity	\$	420,651	\$	55,441	\$	476,092
Natural Gas	\$	69,663	\$	11,077	\$	80,740
Water	\$	53,110	\$	10,413	\$	63,523
Other	\$	-	\$	3,727	\$	3,727
AFM Maintenance	\$	12,300	\$	5,963	\$	18,263
Building Mtce	\$	75,694	\$	14,968	\$	90,663
Annual Capital Main	\$	-	\$	1,938	\$	1,938
Electrical Mtce	\$	2,931	\$	3,031	\$	5,962
Mechanical Equip Mtce	\$	74,358	\$	20,890	\$	95,248
TOTAL EXPENSES	\$	3,369,240	\$	520,897	\$	3,890,137
Revenues:						
Memberships	\$	10,381	\$	-	\$	10,381
Admissions	\$	49,185	\$	-	\$	49,185
Fees (Direct Programming)	\$	372,090	\$	495,933	\$	868,023
Ice/Floor/Track Rentals	\$	486,763	\$	-	\$	486,763
Room Rentals (User Group Usage)	\$	144,969	\$	137,068	\$	282,037
Equipment Rentals	\$	3,400	\$	-	\$	3,400
Merchandise Sales /Concessions	\$	2,326	\$	-	\$	2,326
External/Sponsorship/Grants	\$	81,000	\$	-	\$	81,000
Misc Revenue	\$	100,260	-\$	24,630	\$	75,630
Special Event Revenue (Party/Event Ren	\$	64,745	\$	-	\$	64,745
Loss of Hauser Haus Revenue	\$	-	-\$	85,370	-\$	85,370
TOTAL REVENUES	\$	1,315,119	\$	523,001	\$	1,838,120
Net	-\$	2,054,121	\$	2,104	-\$	2,052,017

Operating Position with 'Ramp-Up'

The model provided above reflects a normalized (full capacity) operating position for the facility. However, revenues are variable and expenses are less so. Revenues (effectively market awareness and take-up of programs and rental opportunities at the new facility) take time to grow. Acknowledging that the facility's revenues could take 2-3 years to reach this position, the following schedule reflects this approach. The City's investment in programming planning and marketing and promotion of new programs and spaces offered is assumed to begin before the facility opens (prior to Year 1). This will help achieve full capacity in terms of facility utilization faster but as many of the operating expenses are fixed rather than variable, there is a negative impact to the net operating position of the facility in years 1 and 2. As noted in our assumptions, the period of ramp-up can be mitigated by detailed planning, marketing and program implementation.

EXHIBIT D: RAMP-UP PROJECTIONS FOR REVENUES AND EXPENSES

PROJECTED RAMP-UP			
	YEAR 1	YEAR 2	YEAR 3
REVENUES	50%	75%	100%
EXPENSES	96%	98%	100%

When applied to the revenues and expenses respectively in years 1 and 2 operations, the resulting Net Operating Income (NOI) is as follows based on this ramp-up:

EXHIBIT E: OPERATING PRO-FORMA WITH RAMP-UP

	50%	75%	100%
	YEAR 1	YEAR 2	YEAR 3
Expenditures:			
Salaries/Wages/Benefits	\$ 2,325,935	\$ 2,325,935	\$ 2,325,935
Other Staffing Related	\$ 4,973	\$ 4,973	\$ 4,973
Office/Admin/Advertising	\$ 176,712	\$ 187,573	\$ 198,434
Equipment/Equipment Mtce	\$ 7,891	\$ 7,891	\$ 7,891
Program/Supplies	\$ 184,527	\$ 232,272	\$ 280,016
Custodial/Maintenance	\$ 117,618	\$ 117,618	\$ 117,618
Concessions	\$ 3,900	\$ 3,900	\$ 3,900
Turf/Landscape	\$ 17,387	\$ 17,387	\$ 17,387
Snow Clearing	\$ 41,370	\$ 41,370	\$ 41,370
Misc Exp	\$ 14,677	\$ 14,677	\$ 14,677
Capital Cost Recovery - Equipment	\$ 5,000	\$ 5,000	\$ 5,000
Facility Rental Discount	\$ 18,390	\$ 27,586	\$ 36,781
Electricity	\$ 476,092	\$ 476,092	\$ 476,092
Natural Gas	\$ 80,740	\$ 80,740	\$ 80,740
Water	\$ 63,523	\$ 63,523	\$ 63,523
Other	\$ 3,727	\$ 3,727	\$ 3,727
AFM Maintenance	\$ 14,088	\$ 15,878	\$ 18,263
Building Mtce	\$ 80,184	\$ 84,674	\$ 90,663
Annual Capital Main	\$ 581	\$ 1,163	\$ 1,938
Electrical Mtce	\$ 3,840	\$ 4,750	\$ 5,962
Mechanical Equip Mtce	\$ 80,625	\$ 86,892	\$ 95,248
TOTAL EXPENSES	\$ 3,721,780	\$ 3,803,620	\$ 3,890,137
Revenues:			\$ -
Memberships	\$ 10,381	\$ 10,381	\$ 10,381
Admissions	\$ 49,185	\$ 49,185	\$ 49,185
Fees (Direct Programming)	\$ 620,056	\$ 744,040	\$ 868,023
Ice/Floor/Track Rentals	\$ 486,763	\$ 486,763	\$ 486,763
Room Rentals (User Group Usage)	\$ 213,503	\$ 247,770	\$ 282,037
Equipment Rentals	\$ 3,400	\$ 3,400	\$ 3,400
Merchandise Sales /Concessions	\$ 2,326	\$ 2,326	\$ 2,326
External/Sponsorship/Grants	\$ 81,000	\$ 81,000	\$ 81,000
Misc Revenue	\$ 75,630	\$ 75,630	\$ 75,630
Special Event Revenue (Party/Event Revenue)	\$ 64,745	\$ 64,745	\$ 64,745
Loss of Hauser Haus Revenue	-\$ 85,370	-\$ 85,370	-\$ 85,370
TOTAL REVENUES	\$ 1,521,619	\$ 1,679,870	\$ 1,838,120
Net	-\$ 2,200,160	-\$ 2,123,750	-\$ 2,052,017

Under this illustrative example years 1 and 2 record an incremental worsening in net operating position (baseline compared to the proposed consolidation of facilities) of approximately \$148,000 and \$72,000 respectively.