Feasibility Study

February 2011

Jasper Place Fitness and Leisure Centre

Acknowledgements

City of Edmonton

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Table of Contents

1 | Introduction

Introduction 1
Purpose and objectives of the study 4
Organization of the Feasibility Study 5
Scope of the Study 6
Study Approach and Process 7

2 | Site Context and Analysis

Site Context 11
Program 17
Retrofits and Upgrade 20

3 | Preliminary Design Concept

Planning Concept 21
The Site 22
Social Heart / Central Lobby 25
Aquatic and Fitness Centre 26
Multipurpose Rooms + The Arena 27
Exterior Elevation: Facility Image 28
Services and Infrastructure 29

4 | Sustainability, Implementation and Phasing

Sustainability 41
Sustainable Design Initiatives: Implementation 42
Phasing Strategy 44

1 Introduction

In recognition of the City of Edmonton's broad vision to develop exceptional recreation facilities (where residents of all ages can gather to exercise, relax, meet, learn, and enjoy their neighbourhood and community), the preparation of this Facility Expansion Feasibility Study for the Jasper Place Fitness and Leisure Centre represents a key "step in the right direction." This Facility Expansion Feasibility Study is an update to an original study prepared in 2005.

Situated in the matured West Meadowlark Park neighbourhood community (located in the northwest quadrant of Edmonton), the Jasper Place Fitness and Leisure Centre is a community aquatic facility boasting a swimming pool complete with a diving platform, a teaching pool and a waterslide. Other amenities contained in the facility include a small fitness centre and steam room. As one of the 16 indoor pools in the city of Edmonton, the Jasper Place Fitness and Leisure Centre continues to be a popular destination and a valuable resource to the community of West Meadowlark and the Jasper Place Area.

The Jasper Place Fitness and Leisure Centre is situated in West Meadowlark Park community - a matured neighbourhood located in the northwest quadrant of Edmonton

Panoramic view of the Jasper Place Fitness and Leisure Centre in 2005

Built in the early 1960s, the Jasper Place Fitness and Leisure Centre is housed in a complex geometric shell constructed of concrete and supported by large concrete buttresses protruding at opposite corners of the building. Although the structure was renovated in 1985 and has been well-maintained over the years, there are a number of deficiencies and life cycle related challenges that need to be addressed.

Located in close proximity to the Jasper Place Fitness and Leisure Centre are two other separate buildings housing the Jasper Place Annex and the Bill Hunter Arena. The Bill Hunter Arena, constructed in the early 1960s, is an indoor ice skating and hockey rink with a capacity to accommodate 1800 people (seating for 1600, plus standing room for an additional 200) and contains an ice surface with dimensions of approximately 190 ft by 85 ft (57.91m x 25.91 m). It is important to note that the length of the ice surface is in fact 10 feet shorter than a standard National Hockey League (NHL) rink. As one of the 19 arena facilities operated by the City of Edmonton, the Bill Hunter Arena hosts numerous recreational and minor hockey leagues and is regularly utilized by groups and individuals outside of the immediate Meadowlark neighbourhood and as far reaching as greater Edmonton. Renovation to the arena building constructed of folded-plate structure and supported by massive glue-lam beams was recently completed in 2010.

The Japer Place Annex located between the aquatic centre and the Bill Hunter arena was also built in the 1960s and has subsequently been expanded westward. The building accommodates mechanical systems for both the arena and the pool and provides multi-purpose rooms for a variety of City of Edmonton recreation programs as well as appropriate space to carry out the administrative functions of the centre. Until September of 2005, the Annex housed the Edmonton Self Starters Organization Senior's Action Centre, however this space is currently used for community, social and cultural functions.

This report references the 2005 original study in concurrence with the principles and best practices outlined in the City of Edmonton's Recreation Facility Master Plan (2005 – 2015) - approved by City Council on August 31, 2004. The principles and best practices include (but are not limited to) the following: the need to develop recreation facilities that serve as community hubs through the creation of integrated spaces and components that are focused and flexibly multi-purposed in their design. This best practice initiative entails shifting from single-purpose recreation facilities to those with versatile spaces enhanced with flexible programming and wherever feasible, harness opportunities to group amenities such as ice surfaces, gymnasia and other compatible uses in order to support economies of scale and expand use.

To this end, this Facility Expansion Feasibility Study is intended to guide the development pursuits deemed necessary to integrate the Bill Hunter Arena with the Jasper Place Fitness and Leisure Centre to become a consolidated facility that offers safe, inviting, properly–equipped spaces for recreation, fitness, play, art and culture, as well as other activities that serve to challenge and improve the body, mind and spirit.

Purpose and Objectives of the Study

Besides examining the viability of integrating the Jasper Place Fitness and Leisure Centre and the Bill Hunter Arena into a single consolidated multi-use recreation facility, the main purpose of this feasibility study is to update the 2005 original study based on design and current maintenance-related issues identified by the City of Edmonton's Community Services Department in 2010.

The objectives of this feasibility study include (but not limited to) the following:

- To update the concept layout that was developed in the original 2005 study.
- To update the space requirements of the Centre based on needs identified by Community Services Department while at the same time maintaining the essence of the original 2005 concept that allows for a flexible and adaptable design that supports the space needs of a functional public recreation and leisure centre that is safe, people-oriented and environmentally responsible.
- To update the 2008 Parking Impact Assessment to reflect current information as well as any changes to parking-generating land uses within the Jasper Place Fitness and Leisure Centre. (The updated parking impact assessment will involve tasks such as on-site parking accumulation surveys).
- To identify a preferred parking strategy that will address current parking related challenges and deficiencies associated with on-site parking - and one that does not compromise the continued use of all recreation amenities on site.
- To prepare an outline of key services and infrastructural changes / upgrades required to ensure a successful integration of Jasper Place Fitness and Leisure Centre with the Bill Hunter Arena one that currently addresses existing building condition deficiencies.
- To develop a phasing plan that will allow for the logical implementation of recommendations contained in the feasibility study.
- To update and develop a preliminary order of magnitude cost estimates and a construction budget for the implementation of a consolidated recreation facility.

Organization of the Feasibility Study

Shaped and influenced by the City of Edmonton's commitment to excellence, sustainability as well as the recognition that public recreation facilities open doors to health and quality of life for all, this feasibility study is paramount in the City's endeavour to ensure the consolidated facility is attractive and welcoming, given that today's society of users are apt to select modern-looking fitness and leisure centres that display style and class well over outdated facilities with an utilitarian design.

Accordingly, this feasibility study update is organized into four sections as follows:

1 | Introduction

2 | Study Context and Analysis

3 | Preliminary Design Concept

4 | Sustainability, Implementation and Phasing

The first section (Introduction) describes the purpose and objectives of the feasibility study and as well, provides background and relevant information pertaining to the scope of the study.

The second section (Study Context and Analysis) provides background information and an analysis on the site, land use, character, conditions of existing facilities, utilities and infrastructure, parking and traffic related issues, security requirements, budgets and cost assessments and programmes that influenced the outcome of the feasibility study.

With the aid of diagrams and sketches, the third section (Preliminary Design Concept) unveils the suggested stacking and preliminary design concept.

Finally, the fourth section (Sustainability, Implementation and Phasing) presents the various sustainable design initiatives strategies and principles that will help shape and guide the development of the consolidated recreation facility. As well, this chapter encompasses the implementation and phasing of the plan. It outlines the infrastructural changes and upgrades needed to realize the vision of a consolidated Jasper Place Fitness and Leisure Centre including the development of preliminary cost estimates.

Supplementary information, including relevant maps, diagrams and reports, has been included in the appendix.

This report will refer to the consolidated facility as the Jasper Place Fitness and Leisure Centre.

Scope of the Study

The scope of the study include updates to the original 2005 layout concept for a consolidated recreation facility based on updated information provided by the City of Edmonton. The scope also includes the development of a phasing and implementation strategy for the new consolidated facility.

Note: With reference to the scope of the study and the extent of site boundary shown in the 2005 original study, it should be noted that the minor alterations recently completed to the north end of the Bill Hunter Arena parking lot as well as the construction of the St. Francis Xavier Field House have necessitated extending the north boundary of the study area because of the larger parking area and a new drop off area added to the north side of the Bill Hunter Arena.

Study Approach and Process

The approach adopted in preparing the feasibility study for the Jasper Place Fitness and Leisure Centre is both collaborative and iterative; involving the study team, the City of Edmonton (Capital Construction as well as Community Services) and users. The process utilized includes (but is not limited to):

- **Review of Existing Documentation**: To gain a thorough understanding of the study focus, the consultant team reviewed several reports including (but not limited to) the 2005 Expansion Feasibility Study for the Jasper Place Fitness and Leisure Centre and Bill Hunter Arena (prepared by Kasian); 2008 Johnny Bright Sports Park, Parking Impact Assessment (prepared by Bunt Engineering); 2005 Jasper Place Leisure Centre Energy Assessment (prepared by A.D. Williams Engineering); 2005 Jasper Place Pool - Building Condition Assessment (provided by the City of Edmonton); 2002 Jasper Place Swimming Pool Improvement Strategy (prepared by Burgess Bredo Architect); The Recreation Facility Master Plan - 2005 – 2015- (prepared by DMA Planning and Management Services) and approved by Council of the City of Edmonton on August 31, 2004.
- **Walkthrough and Site Reviews**: A number of walk-through and site reviews were conducted during the feasibility study process. The consultant team participated in the site reviews while the walkthrough involved staff of the Jasper Place Fitness and Leisure Centre and representatives from Community Services Recreation Facilities and Buildings Design and Construction Capital Construction Branches of the City of Edmonton. Highlights of the site reviews and walkthroughs included interviews, observations and analysis.
- **Site Observations, Surveys and Analysis:** Three existing buildings on the Jasper Place Fitness and Leisure Centre site were physically reviewed and examined during the feasibility study process. With due diligence, features, attributes and deficiencies associated with the buildings were observed and analyzed so as to arrive at recommendations for future interventions. In addition, on-site parking accumulation surveys were conducted to capture actual demands associated with the facility.
- **Interviews:** Informal interviews were conducted by the study team. This is the most critical interactive data-gathering aspect of the approach and process adopted for this study where staff of the Jasper Place Fitness and Leisure Centre and representatives from Community Services Recreation Facilities and Buildings Design and Construction Capital Construction Branches of the City of Edmonton helped to identify issues and constraints as well as ways and methods in which the goals and objectives of the study can be achieved. Each data-gathering aspect of this study yielded different and varied information, with one finding validating another identified from seemingly unrelated aspect.
- **Benchmarking:** This is a systematic process for identifying and implementing best practices where standards and expectations are set in comparison with existing similar projects (especially successful ones located elsewhere and used as the baseline). The study team researched a limited number of facilities of similar size, scope and components - comparable to the Jasper Place Fitness and Leisure Centre - in order to proffer appropriate solutions to the issues and constraints identified during the study process.

The study team considered a broad range of factors, including site character, existing building conditions and programmes, utilities and infrastructure, security requirements, transportation, parking and economic considerations to assess the factors which affect the centre. The findings from the analyses and data-gathering process provided the foundation for the recommendations and updates proposed to the preliminary concept (layout) in the original report.

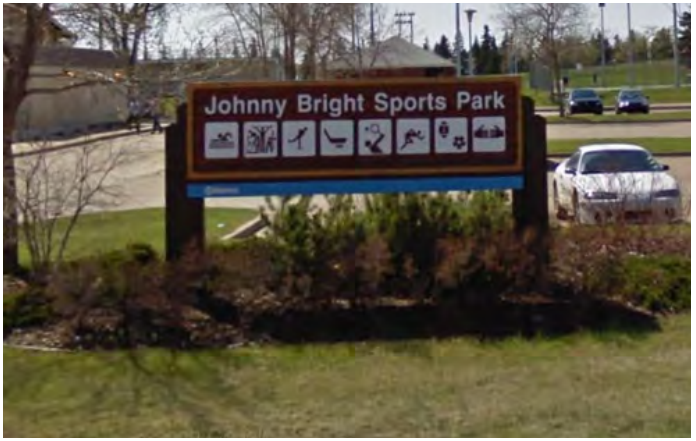
Above: Exterior view of the aquatic portion of the Jasper Place Fitness and Leisure Centre.

Below: Client and design team members reviewing existing utilities space during one of the walkthrough and site review sessions

Above: client and design team members during one of the walkthrough and site review sessions.

Below: Exterior view of the new entrance to the Bill Hunter Arena

Composite exterior view of the existing Jasper Place Fitness and Leisure Centre, Jasper Place Annex and the Bill Hunter Arena.

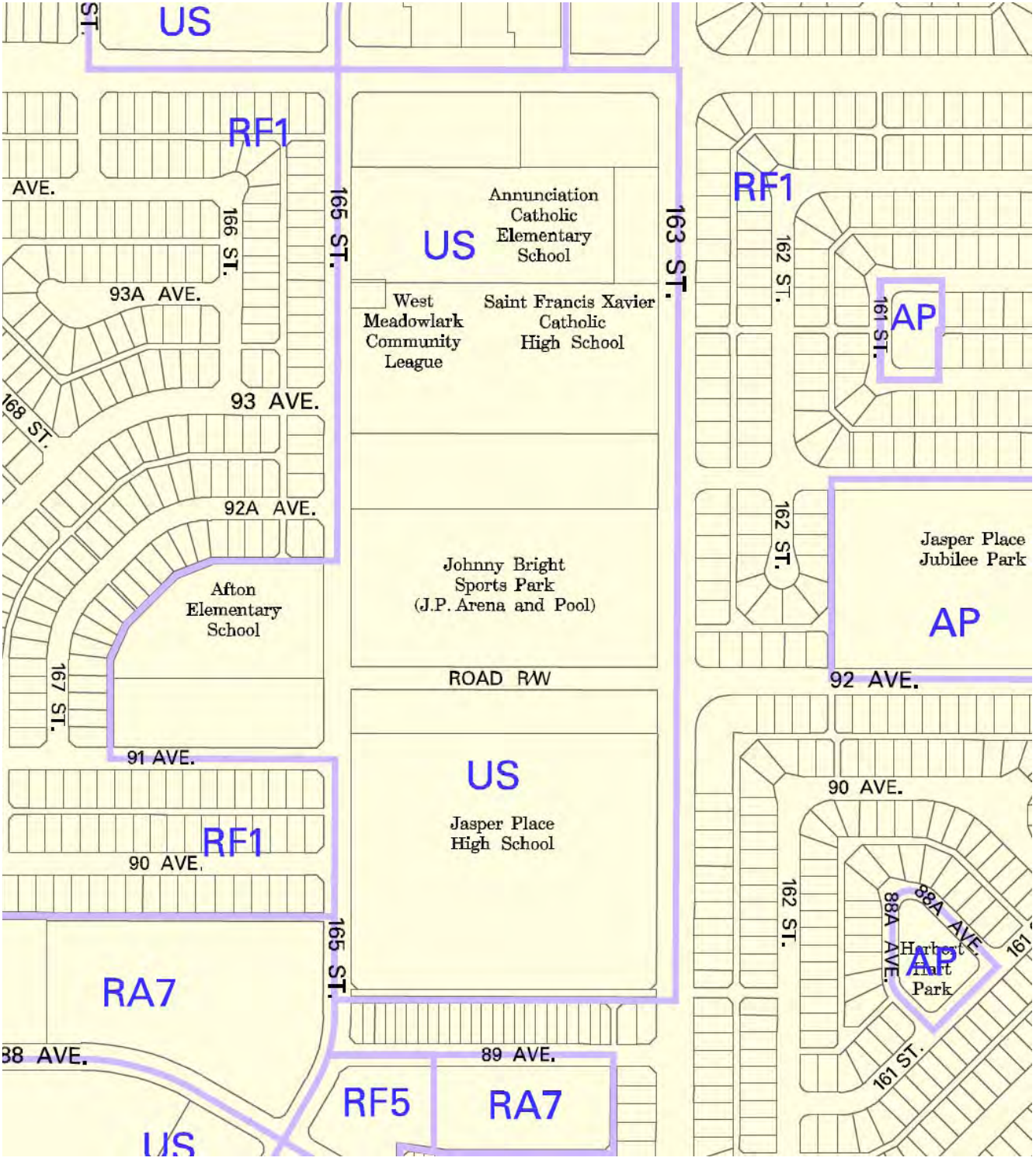

Johnny Bright Sports Park


Jasper Place Composite Hight School
Jasper Place Recreation & Leisure Centre
Jasper Place Bowl
Jasper Place Annex
Bill Hunter Arena
165 St NW
165 St NW
165 St NW
92A Ave
163 St NW
163 St NW
163 St NW
163 St NW
163 St NW
163 St NW
93 Ave NW

2 Site Context and Analysis

The Jasper Place Fitness and Leisure Centre lies within an intensively developed 7 hectare district park site located between 163 Street to the east, 165 Street to the west, 95 Avenue to the north and approximately 89 Avenue to the south. The site itself is situated in an area commonly known as the Johnny Bright Sports Park, and is centrally located within the West Meadowlark Park neighbourhood community of northwest Edmonton and is surrounded by the Jasper Place Bowl to the west, Jasper Place Composite High School to the south; Annunciation Catholic Elementary School to the north-west; St. Francis Xavier High School, St. Francis Xavier Sports Centre and the Annunciation Church to the north-east; and 163 Street to the east.

Furthermore, the Jasper Place Fitness and Leisure Centre lies adjacent to the West Meadowlark Community League Hall, several outdoor sports areas including an outdoor rink, a playground, tennis courts, Jasper Place Bowl (which includes bleachers and a shale running track), and a number of rectangular sports fields and ball diamonds.



City of Edmonton Zoning Map: The Jasper Place Fitness and Leisure Centre is zoned for Urban Services uses.

Land Uses

The site for the Jasper Place Fitness and Leisure Centre is currently zoned for Urban Service uses and is an intensively developed school and park site with recreational amenities, two elementary schools, two high schools, a church and community facilities including a childcare centre and the West Meadowlark Community League. Partly due to its superb neighbourhood community location, in and among schools and other family-oriented spaces, the Jasper Place Fitness and Leisure Centre and its surrounding grounds are a valued recreation, open space and hub for the Meadowlark community, and contributes to the economic vibrancy of the area.

Site Character

The character of the Jasper Place Fitness and Leisure Centre and surrounding grounds is defined by its relatively flat topography surrounded by well-proportioned residential lots with curving streets arranged in a curvilinear pattern. Lending weight to its popular appeal and further adding to its significance in the Meadowlark community is the acknowledgement of the intense use this facility realizes as a well sought after recreational venue. As well, other than the multi-storey school and field house buildings on the site, the dominant structure type in the neighbourhood is an average-sized single, detached house.

Existing Building Conditions

This study focuses on the Jasper Place Fitness and Leisure Centre (aquatic centre), the Jasper Place Annex (annex) and the Bill Hunter Arena (arena) with the objective of exploring the feasibility of integrating these three distinct structures into a single consolidated multi-use recreation facility. As variants of modernist architecture, the aquatic centre, arena and annex buildings were constructed in the early 1960s. The arena is constructed of a folded-plate structure that is supported by massive glulam beams while the aquatic centre consist of a complex geometric shell constructed of concrete and supported by large concrete buttresses protruding at opposite corners of the building. Conversely, annex building is a single-storey structure with a flat and gable roof accommodating multi-purpose rooms along with the mechanical systems for the aquatic centre and the arena.

Summary of the building condition of the various components of the centre within the scope of study are noted on page 14 of this report.


Jasper Place Annex
9200 - 163 Street

The Aquatic Centre

The exterior of the aquatic centre is barricaded with an unsightly chain link barriers (erected around each concrete buttress) to prevent the scaling or climbing of the structure. It is recommended that these chain link barriers be replaced with a less intrusive but effective solution.

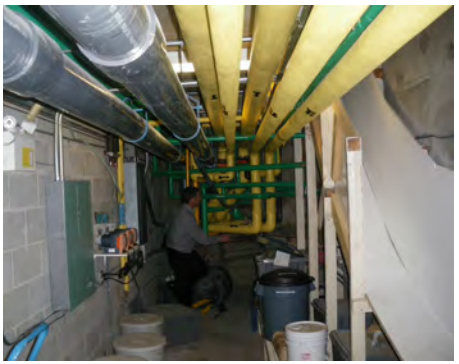
Within the interior of the aquatic centre, the family / handicap change room located on the main floor is inadequate for a facility of this size. Currently the building is not sprinklered and there is no access control or admissions control system in place for spectators and paying users – all of whom enter the facility through the same zone. In addition, the space around the pool is severely limited and there are no adequate standing and viewing areas for spectators. The existing fitness room which was previously used as a standing and viewing area for spectators is inadequate in size and occupies space that could be better utilized for other functions.

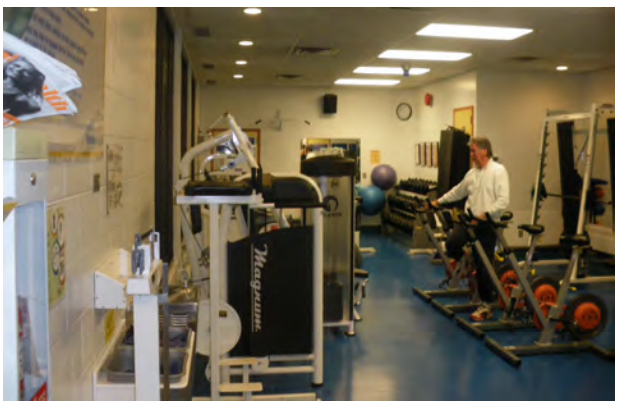
The Jasper Place Annex

The building condition assessment for the Jasper Place Annex building prepared in 2005 suggests several lifecycle replacements and renewals of existing systems. As such, the location of the annex building is vital for the integration of the arena and the aquatic centre into a single consolidated multi-use recreation facility. The annex also provides expansion opportunities to support economies of scale and helps to meet current and anticipated needs of the Jasper Place Fitness and Leisure Centre.

The Bill Hunter Arena

The arena building is in excellent condition as renovations were recently carried out in 2010. As such, this study will not include any detailed reviews of the arena.






TEACH
POOL
PROCEDURES

Program

As noted in the City's Recreation Facility Master Plan, it is increasingly clear that recreation plays a vital role in the overall well-being of a society (both at individual and community level). As one of Canada's most northern cities, residents of Edmonton regularly rely on all-season facilities to help stay physically active and connected during long winters of limited sunlight and daylight hours. As such, the Jasper Place Fitness and Leisure Centre is an important component of the Meadowlark community and the City of Edmonton network of recreation facilities.

The existing programs in the arena, aquatic centre and annex are severely limited by space and other physical constraints. Therefore, the amalgamation of the three facilities into a single consolidated recreation centre will provide patrons and users with full access to several recreational opportunities.

Accordingly, new program areas will be required to supplement existing spaces in order to meet current and anticipated needs of the recreation centre as well as ever-changing demographics.
Program considerations for the consolidated recreation centre include (but are not limited to) the following:

- Provision of revenue-generating spaces such as ATMs, vending areas, equipment shops, etc.
- Acknowledgement of users' preferences and tendencies to choose facilities with style and class over those with a utilitarian design. As such, incorporating modern aquatic trends like irregular pool shapes, waterslides, fountains, well- illuminated pool for night programs, warmer water, access for users with disabilities, space for beginner lessons, lanes for lap swimming, sufficient viewing area and family change rooms as programmatic requirements is a value- added benefit.

Although the provision of a detailed space program is not within the scope of this study, based on research of similar facilities and accounting for the demographics of the Jasper Place Area, the table below show the major program areas suggested for the consolidated Jasper Place Fitness and Leisure Centre.

Table 2.1: Key Program Areas

	Function	Quantity	Size	Remarks
1.0 - Aquatic Centre				
1.1	Fitness Pool	1	23m x 13m 6-lane	Existing pool Complete with waterslide and diving boards (1,3,and 5 metre)
1.2	Teach Pool	1	~12m x 7m	Existing
1.3	Leisure Pool, Tot Pool and / or Whirlpool	1	As required	New space
1.4	Change / Lockers / Showers / Staff	Male / Female / Universal / Family	As required	Modified existing space / New space
1.5	Viewing Area		260 sm	Modified existing space
1.6	Pool Storage		As required	
2.0 – Fitness Centre				
2.1	Fitness Studio	1	400 sm	New space
2.2	Fitness & Weight Training centre	1	1000 sm	New space
2.3	Locker / Shower / Sauna / Fitness Storage	Male / Female	As required	New space
3.0 – Multi-Purpose Rooms and Rental Facilities				
3.1	Multi-Purpose Rooms	4	~120 sm each	New space / dividable
3.2	Support Areas		As required	New space
3.3	Party Room	1	50 sm	New space
4.0 – Miscellaneous Program Areas				
4.1	Children Play Space / Child Minding		250 sm	New space
4.2	Social Heart (central gathering space / lobby)		1000 sm	New space
5.0 – Retail Space & Seating				
5.1	Retail / Concession / Vending		As required	New space
5.2	Seating		As required	New space

Key Program Areas ... contd.

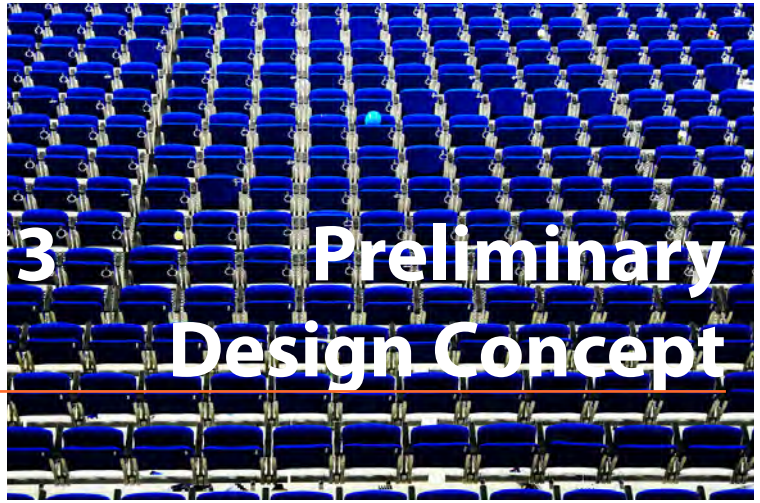
	Function	Quantity	Size	Remarks
6.0 – Arena				
6.1	Non NHL-regulation ice surface	1	57.91m x 25.91 m	Existing space
6.2	Seating (Bleachers)	1700 people		Existing space
6.3	Meeting Room	1		Existing space
6.4	Change / Lockers / Showers / Staff	Male / Female / Barrier-free	620 sm	Existing space
6.5	Control		As required	Existing space but new configuration required.
7.0 – Administration & Sports Clinic				
7.1	Sports Medicine	1	As required	New space
7.2	Massage Services	1	As required	New space
7.3	Physiotherapy	1		New space
7.4	Administration	1	110 sm	New space
8.0 – Support Spaces / Circulation				
8.1	Control Desk / Cash / Office / First Aid / Bookings	1	As required	New space
8.2	Community Resource Centre	1	As required	New space
8.3	Security / control		As required	New space
8.4	Maintenance / Janitor		As required	New space
8.5	Pool Mechanical Rooms		As required	Modified existing Space
8.6	Exterior Walls / Partition		As required	New / existing space
8.7	Public Washrooms		As required	New space
8.8	Staff Change		As required	New space
8.9	Entrance / Vestibules		As required	New space

Retrofits and Upgrades

One of the objectives of this feasibility study is to identify issues associated with the concept of integrating the Jasper Place Fitness and Leisure Centre and the Bill Hunter Arena into a single consolidated multi-use recreation facility. Integrating the arena, annex and aquatic centre into a single consolidated facility presents a number of challenges that needs to be addressed during planning stages. Some of these issues are programming, maintenance and construction related and these needs to be addressed through proactive and innovative intervention so as to ensure operational efficiency and effectiveness of the centre.

Some of the challenges at the Jasper Place Fitness and Leisure Centre have already been identified in previous reports. These include deteriorating building components, the need for additional spaces such as new change rooms and fitness centre in order to meet program needs, addressing defects in the pool deck area through upgrades and retrofits as well as renewals of related mechanical and electrical systems, replacement of pool windows and other building envelop related issues.

While considering the age and condition of the existing buildings and noting the fact that there is a high possibility that more challenges may surface during implementation of proposed interventions (especially during construction), there is the need for any proposed retrofits and upgrades to be carried out in a sustainable manner. Therefore, as a priority recommendation, detailed-design studies should be conducted before commencing any retrofits and upgrades. Additionally, further building evaluations and other relevant studies should be carried out with a view to identify and mitigate risks associated with any proposed renewal, retrofits and upgrades proposed for the consolidated Jasper Place Fitness and Leisure Centre.



3 Preliminary Design Concept

Building on the original feasibility study prepared in 2005 for the Jasper Place Fitness and Leisure Centre, this study explores the idea of creating a fitness and leisure centre that will serve the recreation needs of residents of Meadowlark Park and one that well extends beyond the immediate neighbourhood.

Planning Concept

The planning concept for the new consolidated Jasper Place Fitness and Leisure Centre is intended to:

- Provide expanded user opportunities;
- Improve visitor experience;
- Improve opportunities for social interaction and serve as a social and communal hub for the Meadowlark Park community;
- Provide support for community arts and culture;
- Create an improved access for programs such as the City of Edmonton's Leisure Access Program;
- Create economies of scale with respect to staffing and scope of programs offered in the centre;
- Enhance operational efficiency and concurrently reduce operating and capital costs;
- Provide opportunities to generate revenues from new sources.

The proposed planning concept developed in 2005 and updated in this report was driven by the following factors:

- Transparency and visibility;
- Intuitive wayfinding and clear circulation patterns;
- Operational convenience with enhanced sense of security;
- Encouraging dynamism of shared spaces;
- Effective and efficient access control opportunities;
- Improved capacity to host special and multiple community events;
- Creating clear sense of entry and clear hierarchy of spaces;
- Functional, attractive and welcoming;
- Centrally located administration and concessions with ease of accessibility.

The Site

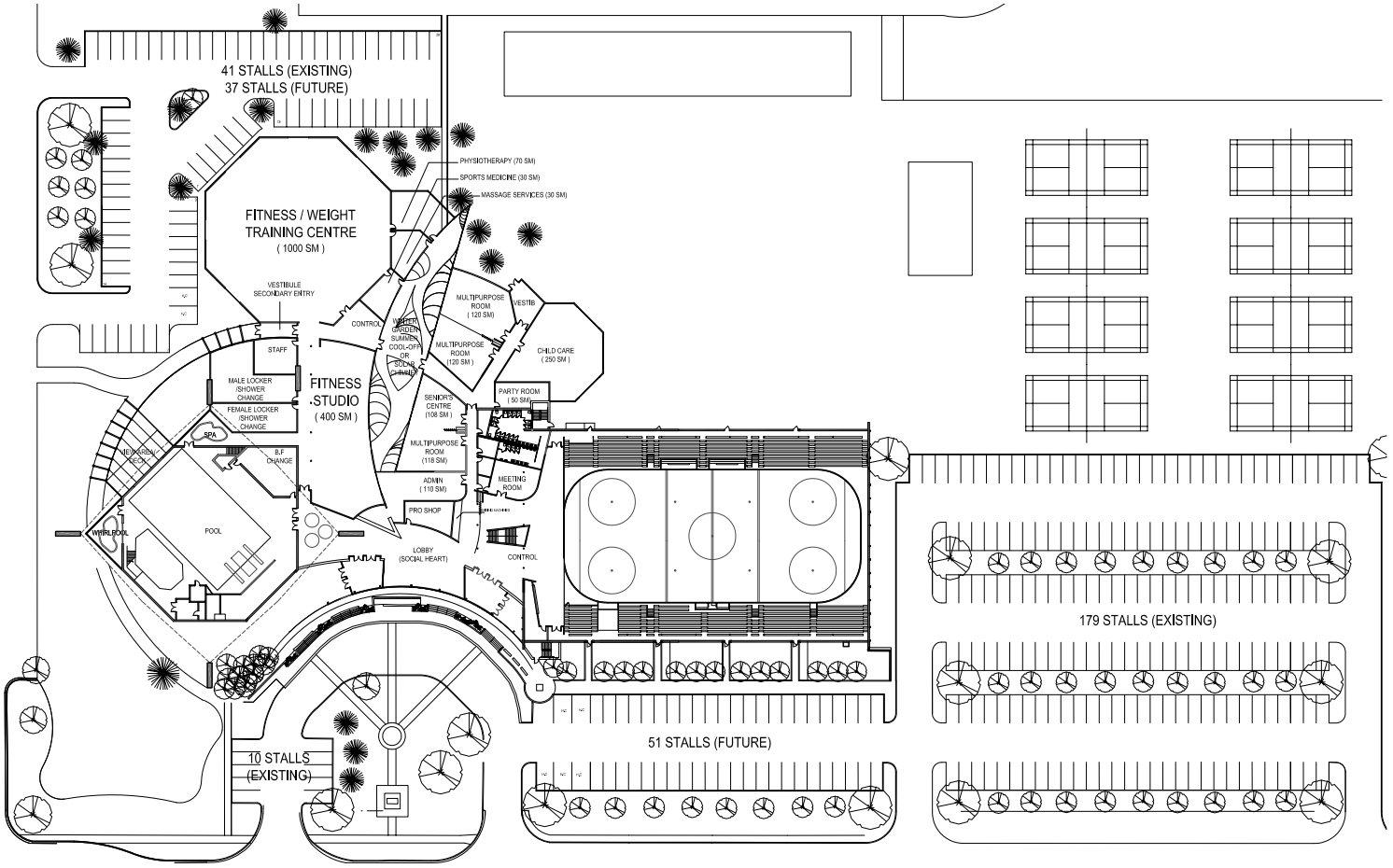
In order to broaden the scope of offerings provided by the Jasper Place Fitness and Leisure Centre to its users, the preliminary design concept proposes an option that will improve the linkage between the Jasper Place Fitness and Leisure Centre with adjacent amenities (such as the existing tennis courts and the outdoor fields on Johnny Bright Sports Park) with appropriate hard and soft landscaping elements.

The site design concept maintains the existing drop-off loop and related landscaping and as well, meets the requirement for additional parking required to accommodate the anticipated expanded use of the facility. Approximately 50 parking stalls can be accommodated between Bill Hunter Arena and 163rd Street. Further, the new southwest parking area, accessed via the north Jasper Place High School parking lot, is anticipated to be able to be expanded to accommodate an additional 37 parking stalls.

It should be noted that while access is currently provided via the Jasper Place High School parking lot, parking management issues, such as improper use of Jasper Place High School stalls by members of the public during weekdays, have been raised by staff at Jasper Place High School and it is anticipated that there will be on-going discussions to resolve existing parking management issues.

Further interventions on the site for an effective parking strategy would be needed to improve pedestrian pathways, include lighting, between parking fields and building entrances, improve way-finding, develop a parking map that can be posted on-site and distributed to community groups when site bookings occur to inform people of options regarding parking, and remove the staff-only stalls in front of the Jasper Place Fitness and Leisure Centre.

For further details on the parking strategies recommended for the new Jasper Place Fitness and Leisure Centre, refer to the updated Parking Impact Assessment appended to this study.



1m 5m 15m

Conceptual Site Plan

Social Heart / Central Lobby

In order to create a clear sense of entry, the lobby is the central component that will unify the existing arena, annex and aquatic centre into one single building. Due to the physical distance between the existing arena building and the aquatic building an elongated space is required. The lobby option demonstrated in this feasibility study shows an elongated space softened by a long curving form. This space will serve as a 'social heart' and pre-function area for the new consolidated facility. The existing entrance to the arena is connected to the new lobby while the existing aquatic centre entry is removed and re-oriented through the new lobby.

A glazed entry feature extends out of the lobby curve, providing access near each end of the space to allow flexibility in access. The roof of this entry curve continues into a canopy over each entry, creating sheltered outdoor areas. The canopy on the pool side is wider and lower, lending itself to a more casual outdoor space.

The lobby is a dynamic open space with visual connections to the facilities it serves. Visibility to the pool is provided by a glazed wall that allows viewing of the diving board, pool, and teaching pool. (The location of the existing entry behind the diving board limits visual access.) Glazing separates the Fitness Centre from the Lobby, allowing visual access. Visibility from the lobby to the existing arena, via the glazing in the viewing area, is also provided.

Adjacent to the lobby are the administration component and control points. These areas are located to allow supervision of public spaces as well as visual communication between each other. The aquatic centre and the fitness centre share a common control point, but have separate entries while the arena has its own control point. Located at one end of the administrative component is a reception desk (intended to serve as the information counter) where users obtain general information about the facility. A large window behind the reception desk will allow a visual link to an outdoor winter garden from the lobby. The winter garden may be covered or uncovered and could allow a strategically placed skylight / clerestory window the ability to provide daylight to the regularly occupied administrative space.

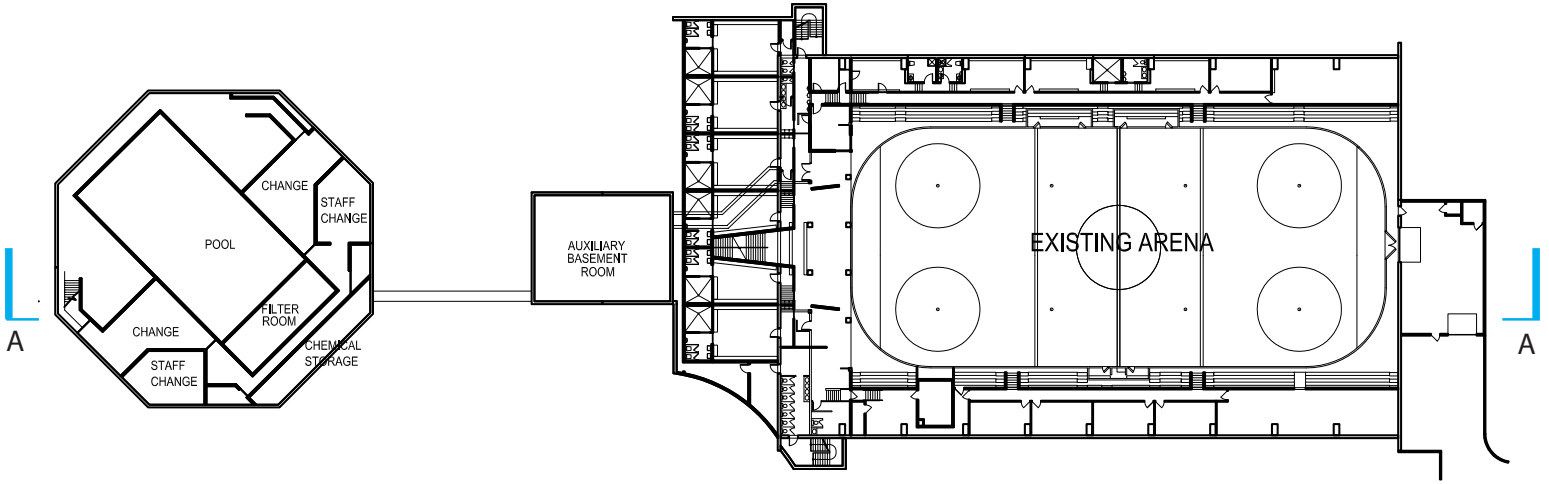
A sports shop (Pro-Shop) and concessions providing goods and services related to the pool, fitness centre and the arena is located in a central location adjacent to the lobby. The location of the sports shop in proximity to the administration component of the building will allow for flexibility in staffing. The concessions are centrally located for the convenience of all users and are intended to serve the arena, the multipurpose rooms and the aquatic centre at all times (with the ability to serve the arena separately during special events).

The south end of the lobby encapsulates one of the existing concrete buttresses and part of the roof of the existing pool; framing and highlighting this piece of the existing facility. Holes may be punched through the encapsulated part of the existing aquatic centre roof to allow the entry of daylight to the space below.

Aquatic and Fitness Centre

The aquatic centre and the fitness centre share a family / barrier-free change room. The change rooms in the basement of the aquatic centre are retained, and new change rooms for the fitness centre are provided separately (Separate change rooms for these facilities will improve operational efficiency and reduce maintenance challenges). The aquatic centre and the fitness centre share access to a small spa tucked under one of the wings of the existing aquatic centre building.

The fitness centre is a medium sized facility, encompassing a fitness weight and training areas and fitness studio for aerobics, fitness machines, free-weights and warm up areas. The fitness areas are adjacent to an outdoor north facing cool-down area and winter garden.
The relocation and expansion of the existing fitness centre allows for more open deck space around the existing pool, to be used for teaching and special occasion viewing. Remaining spaces and functions in the aquatic building will be retained.



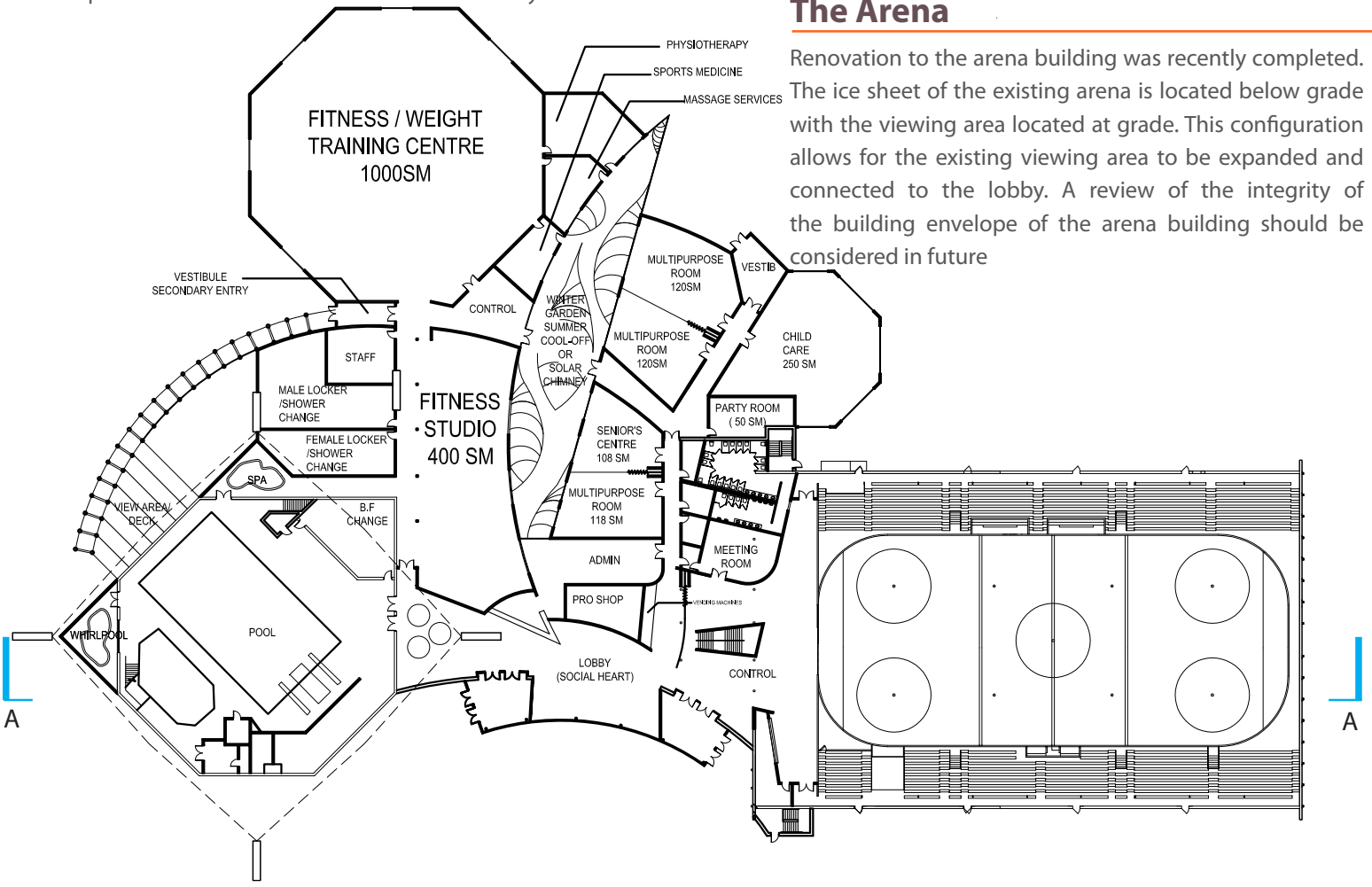
Conceptual Basement Level Plan

Multipurpose Rooms

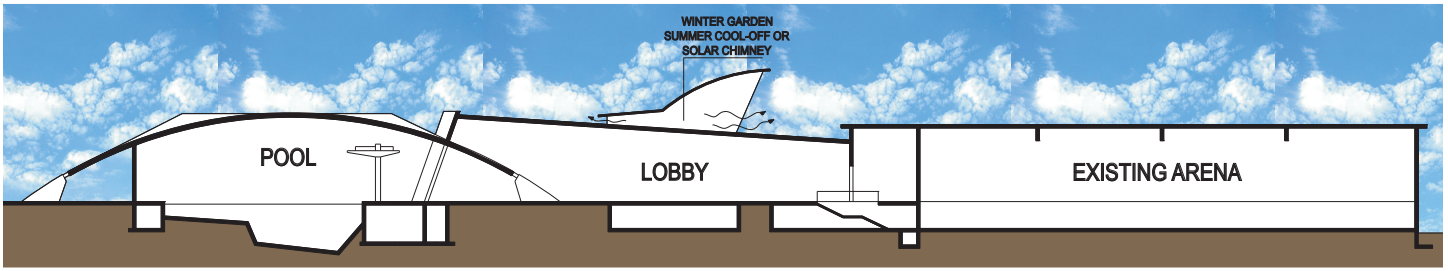
In order to accommodate more programs and users, 4 new multipurpose rooms and support spaces have been provided. The rooms are connected to the main lobby through a secondary corridor and are adjacent to the west entry and the winter garden - provided for the benefit of users of this facility.

The Arena

Renovation to the arena building was recently completed. The ice sheet of the existing arena is located below grade with the viewing area located at grade. This configuration allows for the existing viewing area to be expanded and connected to the lobby. A review of the integrity of the building envelope of the arena building should be considered in future



Conceptual Ground Level Plan



Conceptual Section A-A

Exterior Elevation: Facility Image

Study Model: Detail - Entrance view from 163rd Street


Study Model: Southwest view from 163rd Street

As variants of modernist architectural style of the 1960s, the exterior images of the existing buildings have dynamic geometries and structures that allow integration of existing and new expanded spaces to be executed through the use of simple elements including (but not limited to):

- Glazed feature entry wall (with alignment that allows for a long, low informal canopy area on the aquatic centre side and a higher, formal looking canopy on the arena side);
- The use of bright colours and large graphic text at the glazed surface by the entry area (intended to accentuate and enhance the dynamic imagery of the facility)
- The signage program for the consolidated facility should be developed to conform with signage standards for recreation centres developed by the Community Services and Buildings Design & Construction Departments of the City of Edmonton.


Study Model: Northwest view from 163rd Street

Study Model: East Entrance

Services and Infrastructure

Site Services

Location of existing utilities must be considered during the design and construction of this project. Further investigation is recommended to determine whether existing services are adequate for the proposed future expansion. Required services include:

- **Natural Gas**: Existing gas lines on site may not be impacted; however, care must be exercised not to damage these pipes during construction.
- **Power (light poles)**: Considering the planning concept proposed, a number of existing light poles will need to be removed and service lines relocated.
- **Power (service line)**: The main service line and transformer will be relocated.
- S**torm Water**: Existing storm water lines run west of the existing arena and may not be impacted by new developments.
- **Domestic Water and Sewer**: Existing water and sewer lines are located on 163 Street. These lines may require appropriate upgrades in order to adequately meet the need of the expanded recreation centre.

Electrical Services

Based on the planning concept illustrated on page 24, the existing EPCOR utility transformer and associated underground conductors will be relocated to suit the proposed new fitness centre and lobby expansion. This feasibility study suggests that the suitability and relocation be confirmed and coordinated with EPCOR to determine a suitable location - one that would not interfere with the building and proposed exterior development.

A new electrical service is proposed to be located in a new electrical room in the basement of the Central Lobby Building. Preliminary size of the new electrical service would be 1200A, 347/600V 3Ph, 4W. Connections to the existing electrical services of the aquatic centre and the Bill Hunter Arena would be provided. Conduit feeders would be routed through the existing utilidors. The new electrical service air circuit breakers for the aquatic centre and the arena would be equipped with solid state trip units with full metering capability to monitor power usage to these areas. Transformers would be provided at the pool and arena to connect to the existing 120/208V services.

Site Lighting

Lighting will be provided to the new parking lot to enhance safety and provide sufficient lighting levels for security CCTV requirements. Lighting will be pole-mounted at approximately 4 – 5 M. Luminaires selected should be Dark Sky compliant and the lamp source should be LED to reduce energy consumption and maintenance costs. Luminaires should be selected based on the criteria noted and to visually comply with the architecture of the facility.

Site and pathway lighting would also be provided depending on the configuration of the site plan. These luminaires will provide appropriate safety and security lighting to conform to City of Edmonton requirements. Luminaires should be selected based on the criteria noted.

Telecommunications

New incoming telecommunications services will be provided from the existing pedestal to the proposed new fitness centre and lobby expansion. A 100 mm conduit will be extended to the service pedestal on 163 Street. Conduit provisions to the pool and the arena will be provided and routed through the utilidor.

Security and Access Control

Access control card readers will be provided at all doors required and selected during design. These doors will be provided with a proximity card reader, door position sensor, locking mechanism (electric mortise lock or electric strike) and exit request push-button or motion sensor. System specifications will be based on the City of Edmonton standard "C-Cure" from Software House.

Intrusion alarm system provisions will include door sensors on all exterior doors not equipped with card reader access control. Motion sensors will be located at exterior windows and in offices requiring additional security. A keypad will be located at the main entrance to the facility to arm and disarm the system. The intrusion alarm system will be integrated into the access control system for alarm monitoring.

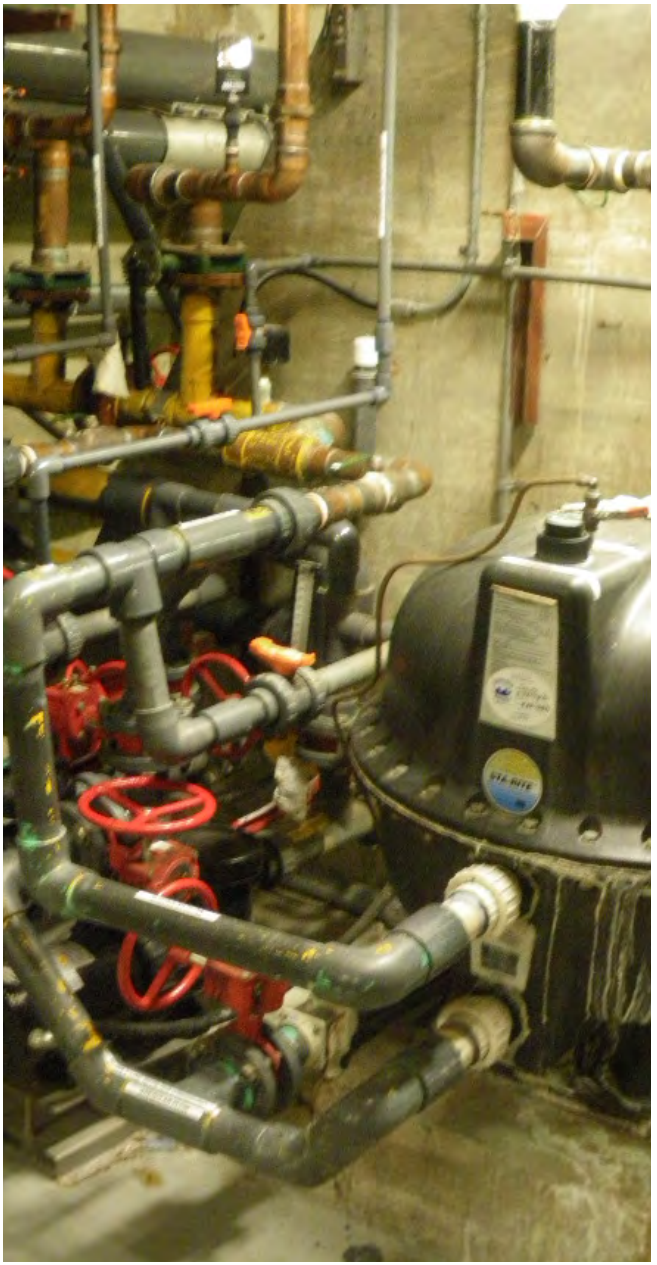
A panic alarm pushbutton should be provided at the cashier's location for personnel security and connected to the central monitoring system and the CCTV system. All security devices are to be located in accordance with City of Edmonton Corporate Security and Building Maintenance Department's requirements.

CCTV

Closed circuit television cameras will be provided at exterior entrances, parking lots, cashier locations and at locations to view public areas. The cameras will be connected to digital video recorders. There will be a fibre optic connection to the City of Edmonton central monitoring provisions. There will be an interface to the access control system and the intrusion alarm system. All CCTV system installations are to be located in accordance with City of Edmonton Corporate Security and Building Maintenance Department's requirements.

Mechanical Equipment Connections

Electrical power will be routed to the new mechanical equipment in the pool, fitness centre and lobby expansion. All motors will be connected to a new motor control centre (MCC) which will be provided in the mechanical room. This will provide safe working provisions for maintenance staff when equipment is serviced. Locking provisions will be provided to the MCC. The MCC will contain motor starters for all motors 3/4HP and larger running at 208V or 575V. Electrical connections to motors in the pool equipment areas will be installed in PVC conduit as required by Canadian Electrical Code due to the high humidity environment. Final connections to all motors will be completed using seal-tite flexible conduit.



Mechanical Systems

The following is a description of the proposed mechanical systems for the Jasper Place fitness centre expansion and upgrades identifying the mechanical system concepts that should be considered. The final concept recommendations for building mechanical systems will be dependent on the actual building design and the needs of the owner and occupant groups, the design concept assumptions made to complete this report should be verified at the time of design. The mechanical systems shall be considered to include heating, cooling, ventilation, plumbing, humidity control and fire protection systems and the control systems that coordinate their operation.

System Performance Targets & Design Criteria

To achieve the goals of the project, it is important that those goals be clearly defined and understood before any design decisions are made. It shall be understood that any systems or strategies that are considered for this building must consider energy conservation and savings as a high priority. As a facility targeting LEED certification, (and noting that more points are now available under the energy and atmosphere category of LEED NC), the mechanical system proposed for the consolidated Jasper Place Fitness and Leisure Centre must facilitate the achievement of the following criteria:

- **Occupant Comfort and the Indoor Environment**

  The climate data for Edmonton, Alberta, described in the Alberta Building Code is what will be used as a basis for the outdoor climate conditions at the project location and they are as follows:

  - Winter: -34ºC Dry Bulb (1% variance).
  - Summer: 28ºC Dry Bulb, 19ºC Wet Bulb (2½% variance)

  For these climate conditions, it is recommended that the design be capable of maintaining the indoor occupant comfort criteria as defined by ASHRAE Standard 55 – 2004, Thermal Comfort Conditions for Human Occupancy. As such, it is recommended that inside design temperature for all office areas and assembly areas conform to the following conditions:

  - Winter: 21 to 22ºC with a relative humidity of 20%
  - Summer: 23 to 24ºC with ambient relative humidity
  - Fitness testing areas should be designed to Summer: 19ºC

  Fresh air that is brought into the building through the mechanical system will pass through filters meeting MERV 13 as a minimum.

System Quality & Reliability

The mechanical systems for this facility shall be of a commercial or institutional grade and quality.

Maintenance

It is recommended that systems and equipment be selected to minimize the burden on the owner`s maintenance efforts. Further, the positioning and arrangement of equipment should be such that maintenance points can be easily accessed to ensure that maintenance activities can be carried out easily and with minimal disruption to building occupants.. When selecting a system (during the detailed design stage), it is essential that the need to have systems that are effective and optimally efficient (from cost and energy usage standpoint) should be balanced with the need to have systems that will minimize the burden on owner's maintenance efforts and consistent with other systems used in other City of Edmonton Recreation Centres.

Standards and Codes

All mechanical systems should be designed and installed in accordance with the requirements of the latest adopted edition and revision of the applicable codes and standards in effect for building construction in Alberta, and with any specific owner requirements. Such standards include those published by the following organizations.

- Alberta Building Code (ABC), including associated Standata
- National Plumbing Code of Canada (NPCC)
- National Fire Protection Association (NFPA), City of Edmonton Fire Marshal
- Alberta Occupational Health and Safety Act
- Model National Energy Code for Buildings in Canada
- ASHRAE
- SMACNA
- CaGBC LEED®
- Associated Air Balance Council (AABC) National Standards For Testing and Balancing Heating, Ventilating, and Air Conditioning Systems

Plumbing Systems

Natural Gas

At this preliminary stage it is expected that natural gas service can be extended from the existing gas service main, this should be verified at the design phase of the project. The meter arrangement should be coordinated between the aquatic building, the arena building and the new fitness building. The current gas service for the site has one utility company meter set with incoming gas line. The current configuration and capacity will need to be assessed during the detailed design phase of project.

Storm Water Drainage and Collection

A system of roof drains and storm drainage piping will collect rain water flows from the roof of the expansion. The storm drainage from the existing building currently passes through the vicinity of the expansion. Opportunities for bringing the storm-water from the roof of the existing building to this new rainwater collection system should be considered in detail during the schematic and design development phases.

Sanitary Drainage

The new fitness centre component will require a 6 inch diameter sanitary service; this line will connect into the sanitary mains serving the existing facilities. A new sampling manhole may be required on the sanitary main in the site. This approach and the current layout of the buried drainage system on the site will need to be confirmed during the schematic design stage.

Using camera and other suitable devices, existing sewers should be investigated prior to the detailed design phase of the project.

Domestic Water Systems

Domestic cold water and domestic hot water will be distributed throughout the building via copper piping to serve plumbing fixtures and maintenance outlets. Maintenance outlets will include hose bibs on the outside of the building and in the service spaces.

A domestic hot water recirculation system, including a pump and a copper piping loop adjacent to the domestic hot water (DHW) distribution system, will ensure availability of hot water at the fixtures within a reasonable amount of fixture run time.

As a priority recommendation, upgrades to the existing domestic hot water boiler plants and the existing heating system be carried out during the design phase of the project (with both systems integrated to form one large efficient boiler plant.

Plumbing Fixtures

It is recommended that the plumbing fixtures for the facility be selected on the basis of quality, performance, hygiene, and minimal demand on water and maintenance resources. Showers, lavatory basins, toilets, urinals, and sinks would be installed in the locations identified by the architect and be connected to the main building plumbing and sanitary drainage systems. Low-flow toilets and urinals are recommended.

All sinks, lavatories, and faucets should be selected specifically for the use and function that is required by the occupants. Sensor operated fixtures are recommended where appropriate to minimize user contact for improved hygienic conditions. In locations where users would require more precise temperature and volume control, the fixtures should have manual faucet controls.

Non-freeze hose bibs will be located within lockable enclosures at various points around the outside of the building to allow landscape and building exterior maintenance. Hose bibs will also be located appropriately inside the building, in the mechanical room or similar spaces, to serve maintenance needs.

Landscape Irrigation

Considering the scope of work and extent of the expansion of the centre, having an irrigation systems may not be required. Should irrigation system be required in future, this component of the project would be under the design scope of the Landscape Architectural consultant. Any required mechanical component or system required to support the irrigation system would include connection points within the building that are sized and located as necessary to supply water to the irrigation system. It is recommended that the irrigation system be isolated from the potable water systems using approved means of backflow prevention and engineering best practices.

Fire Protection

The building will be fully sprinklered to meet NFPA and City of Edmonton Fire Marshall's requirements. Also the facility will be fully equipped with hand-held fire extinguishers.

A fire hydrant will be required within 45 m of the main entrance to the building. Compliance with this requirement should be confirmed as the schematic design phase of the project is developed.

Heating, Ventilation, & Air Conditioning (HVAC)

There are several options available to the City of Edmonton (owner) for heating, cooling and ventilating the building in order to achieve the goals of efficiency, occupant comfort, and sustainability described on page 32 of this report. In all cases, the effectiveness and performance of these mechanical systems relies heavily on their integration with the architectural design.

As the finished facility connects the aquatic centre and the arena building, there is a potential to utilize waste heat from the arena ice plant. This could be captured and reused for heating services in the aquatic and fitness facilities. For the purposes of this report and project budgeting at this phase of the project this option has not been included.

Ventilation

This study recommends that the most suitable ventilation system for the fitness centre be assessed during detailed design phase in order to determine the most efficient and cost effective system available. The selected system should be designed to address both functional and owner's operational concerns and should not constitute a burden on the owner's maintenance efforts.

For costing purposes (in this report), the use of one of the most energy efficient and cost effective system consisting of a central make up air system in conjunction with a 4 pipe fan coil system (with fan coils located throughout the facility at ceiling level or similar service spaces) have been identified. The make-up air unit should be located either on the roof, penthouse or inside a fan room to precondition fresh air and supply it to the building fan coil zones. Considering the fact that the 4 pipe fan coils system may present some challenges such as inadequate service access, the final system to be selected during the design phase must address any known maintenance concerns associated with the system.

Further, the make-up air unit should be designed to utilize a heat recovery section to extract waste heat from exhaust air flows and hydroid heating and cooling coils to provide the remainder of the supply air tempering and dehumidifying. Winter time humidification will be provided at this unit as well.

Heating

It is proposed that the main source of heat for the building be of a high efficient natural gas fired boiler plant, located in the existing annex basement boiler room. The boiler plant would include modulating, condensing boilers with stainless steel heat-exchangers that operate at above 92% thermal efficiency.

Cooling

Cooling load reduction through architectural features and the use of free cooling available from ambient air will be maximized, however mechanical cooling would still be required. It is recommended that mechanical cooling be provided by a modular air-cooled chiller, complete with a dry-cooler module located on the roof of the building or on grade. Chilled water and glycol will be distributed to the make-up air unit and to fan coils as needed.

Pumps for circulating heated and chilled water will use variable frequency drives (VFDs) to more closely match operation with the fluctuating demands.

Existing Boiler Plant Integration Option

The existing low efficient boiler plant and domestic water heating plant currently located in the existing basement mechanical room and as noted in the energy assessment carried out in November of 2005 is near the end of its life-cycle. It is highly recommended that the integration of both the existing heating system and the domestic hot water boiler plants be replaced/upgraded and incorporated into one larger high efficient boiler plant as part of the design phase of the project.

Systems Information Schedule

The system data provided in the schedule on page 38 is preliminary, no detailed calculations have been performed, therefore the information is for opinion of cost use only.

Conceptual HVAC Requirements for Jasper Place Fitness & Leisure Centre and Bill Hunter Arena

		VENTILATION		HEATING		COOLING			
Area Name	Area (sq.m)	Supply Air (l/s)	Outside Air (l/s)	Approx. Requirement (kW/m2)	Approx Capacity (kW)	Approx. Requirement (kW/m2)	Approx Capacity	No. of Fan Coil Units	Fan Coil Type
Fitness / Weight	1000	7619	1905	0.126	126	0.095	95	12	TRANE UNITRANE MODEL C-12
Physiotherapy	30	229	57	0.126	4	0.095	3	1	
Sports Medicine	15	114	29	0.126	2	0.095	1		
Massage Services	20	152	38	0.126	3	0.095	2		
Control A	91	693	173	0.126	11	0.095	9	1	
Multi-Purpose A	120	914	229	0.126	15	0.095	11	1	
Multi Purpose B	120	914	229	0.126	15	0.095	11	1	
Child Care	250	1905	476	0.126	32	0.095	24	3	
Party Room	50	381	95	0.126	6	0.095	5	1	
Senior's Centre	108	823	206	0.126	14	0.095	10	1	
Multi-Purpose C	118	899	225	0.126	15	0.095	11	1	
Admin	110	838	210	0.095	10	0.095	10	2	
Pro Shop	47	358	90	0.095	4	0.095	4		
Lobby	32	240	60	0.126	4	0.095	3	5	
Control B	411	3131	783	0.095	39	0.095	39		
Fitness Studio	400	3048	762	0.126	50	0.095	38	5	
Staff	52	396	99	0.095	5	0.095	5	1	
Viewing / Deck Area	525	4000	1000	0.126	66	0.095	50	6	
Meeting and Adjacent Rooms	82	621	155	0.095	8	0.095	8	1	
Corridors	115	876	219	0.095	11	0.095	11	1	
Female W/R	50	381	95	0.095	5	0.095	5	1	
Male W/R	27	206	51	0.095	3	0.095	3		
Stairwell	14	107	27	0.126	2	0.126	2	0	
Male Locker	122	926	231	0.095	12	0.095	12	1	
Female Locker	78	594	149	0.095	7	0.095	7	1	
Total	**3986**	**30366**	**7591**		**468**		**378**	**48**	

** Note: This schedule does not include any second floor areas. The pool area has its own separate air system.*

Solar Chimney

The option to include 'solar chimney' should be reviewed at the schematic design phase of the project. This is because information regarding thermal mass, operable window, return and relief air path, solar chimney height, etc. would be required prior to designing and proceeding with the solar chimney as part of the project.

Existing Pool Deck Drainage

As a priority recommendation, it is proposed that the existing pool deck and drainage be upgraded; the re-sloping of the deck and the incorporation of a continuous drainage gutter system would require that the associated existing drainage piping to tank is provided. Detailed calculations are required to confirm surge capacity and piping sizes if this system is to be incorporated into existing pool system.

Controls

The mechanical systems in the fitness facility portion of the building will be operated by a fully digital Building Management System (BMS).

It is highly recommended that the new energy management system be extended to both the aquatic centre and the arena facility to ensure full integration is achieved between each component of the finished facility.

4 Sustainability, Implementation, and Phasing

To ensure the proposed consolidated Jasper Place Fitness and Leisure Centre is operated sustainably, a number of creative design initiatives and sustainable strategies would have to be implemented during the planning of the facility. The overarching sustainable design themes for the consolidated recreation centre should include the following:

- Creating a balance between economic and environmental needs.
- Efficient use of material resources.
- Efficient use of water resources .
- Energy efficiency and renewable energy systems.

Sustainable Design Initiatives: Implementation

Considering the overarching themes noted on page 41, implementation of sustainability on the consolidated Jasper Place Fitness and Leisure Centre should be carried out in a holistic manner. Therefore, key sustainable design initiatives recommended for the centre should include:

- provision of reduced number of parking to promote shared access and active lifestyle.
- Use of innovative stormwater management techniques - consider the installation of a green (vegetated) roof on part of the new facility, utilizing underground and rooftop storage cisterns, and create a cooling water feature in and around the winter garden / cool-down area.
- Use collected stormwater to irrigate the sports park.
- Re-use stormwater and non-potable water in washrooms throughout the facility.
- Specify and install low-flow toilets, waterless urinals, water efficient faucets and showers in new change rooms and washroom facilities. Upgrade existing washrooms with water efficient fixtures.
- Use native landscaping to reduce irrigation needs.
- Specify an energy efficient building envelope.
- Design the facility to engage in passive heating and ventilation. Locate windows and skylights to maximize thermal gain in winter months.
- Use the building's thermal mass to reduce diurnal temperature fluctuations.
- Ensure HVAC and lighting systems use best practice solutions to reduce energy demand.

- Use excess heat released from the production and maintenance of arena ice surfaces to condition other parts of the facility.
- Use ice scrapings generated during ice surface maintenance to precondition fresh air in summer months.
- Investigate the use of solar water heating and solar air heating products.
- Incorporate measurement and verification for the building systems to help analyze the savings and to identify systems that may need adjustment and repair over time.
- Incorporate the use of BIPV (Building Integrated Photovoltaic) cells as part of the building system.
- Reuse parts of the existing administrative building structure.
- Specify materials with high recycled content (common in materials such as insulation, drywall, and steel).
- Specify durable low maintenance materials.
- Use local producers when possible.
- Ensure effective ventilation (with heat recovery to maintain reduction in energy consumption).
- Specify best practices for the management of indoor air quality during construction (to prevent contamination of materials).
- Specify low volatile organic compound emitting materials.
- Use glazing to provide occupants with a connection to the outdoors.
- Provide occupants in the administrative areas, meeting rooms, and the multipurpose rooms control over their thermal and ventilation systems (operable windows and local controls).
- Consider implementing cleaning policies that specify environmentally-friendly cleaning products.

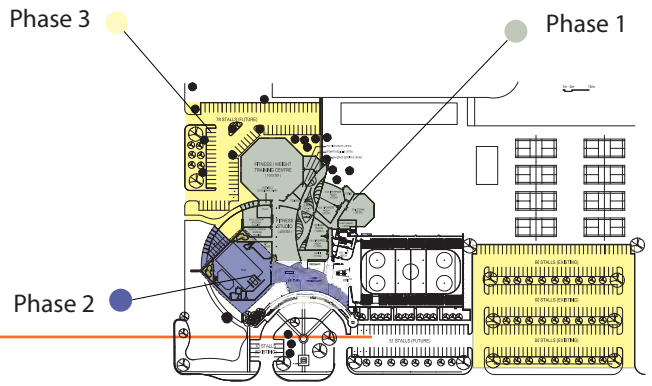
Sustainable Development and Third Party Verification

As a priority recommendation of this feasibility study, the implementation of the LEED® 'green building' rating system is recommended as a demonstration of the City of Edmonton's commitment to sustainability. A preliminary LEED® scorecard envisioned for the centre is provided in the appendices of this feasibility study.

The design and construction is recommended to target a LEED® Silver rating by the Canadian Green Building Council (CaGBC) green building rating system known as LEED® Canada NC 2009. This rating system ensures that the design and construction practices (and sometimes operational practices) have met industry best practices in environmental sustainability, as judged by an independent third party. As this rating system encompasses almost every aspect of building design, many of the other goals listed herein have been chosen to ensure that a LEED® certification can be achieved.

It is recommended that a sustainability 'champion' (preferably within the City's project administration) be assigned to coordinate and monitor the implementation of the green initiatives proposed for the Jasper Place Fitness and Leisure Centre, either on part-time or contractual basis.

Phasing Strategy



Implementation of this feasibility study is recommended to involve consultations, negotiations and detailed planning processes with various stakeholders and authorities having jurisdiction in order to create the desired facility that is responsive to site context, schedule, budget pressures and other implementation realities and factors. It is against this backdrop that a phasing strategy supported with an order of magnitude cost estimates was developed to aid the implementation of this study.

Before implementing recommendations contained in this feasibility study, it is proposed that a detailed needs assessment, program and scope confirmation exercise be conducted in order to ascertain and bridge lapses in design information as well as to set priorities that will provide a sound foundation for the subsequent detailed design phase.

Phasing Implementation

The phasing strategy adopted in this study reflects a development that can be implemented in a logical and progressive manner such that each stage of the development can be considered complete unto itself thus allowing the centre to operate with minimal disruptions during construction.

The phasing is grouped into three main implementation clusters (Phases 1, 2 and 3). The strategy expressed in this phasing recommendation is intended to be a guide for the sequence of work anticipated for the various components of the centre and it should be acknowledged that with time, a number of variables may potentially warrant revisions to the phasing plan.

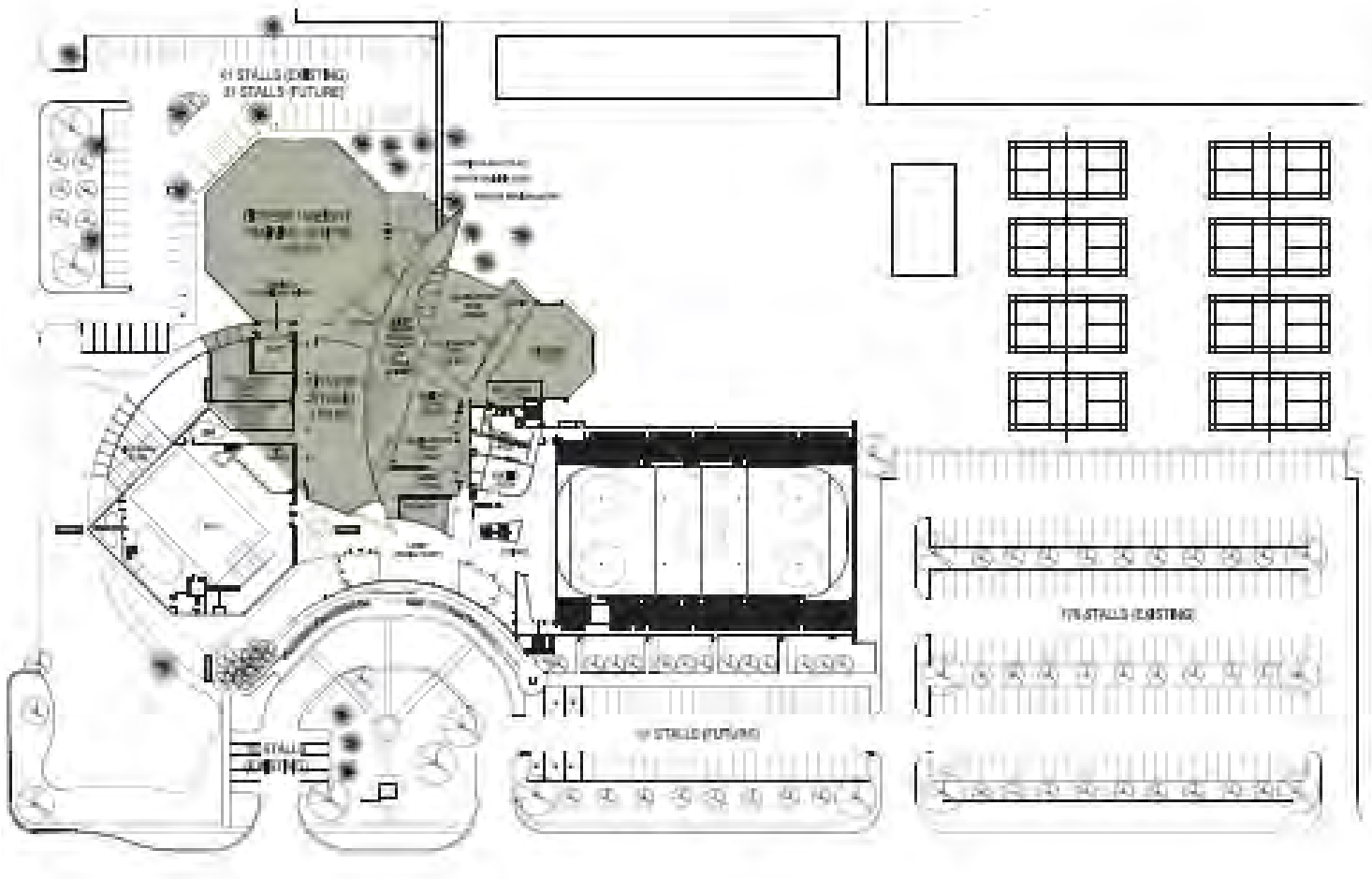
Phase One

Due to logistics, operational and other pragmatic considerations, the feasibility study recommends work to commence with the fitness centre and the multipurpose rooms component of the project, largely in the existing annex area. Commencing the expansion of the Jasper Place Fitness and leisure Centre from this area will ensure the availability of new space that will help free up the aquatic centre so that work slated for subsequent phases can commence in the pool area. During this first phase of construction, the arena and the aquatic centre are intended to remain in operation.

The scope of work suggested for Phase One includes:

- Proper hoarding of existing entrance to the aquatic centre in readiness for construction and safe use of facility by the public during construction. Maintain access to facilities through existing entrance.
- Upgrades to the basement of the annex to accommodate mechanical and electrical systems upgrades to support future expansion of the centre;
- Demolition of the main floor of the annex building to accommodate the new fitness centre and multipurpose rooms;
- Construction of the new fitness centre, new multipurpose rooms and new space for administration area;
- Construction of new change rooms, lockers and showers for men, women and barrier-free users on the main floor west of existing pool area.

With the completion of the scope of work noted above – marking the end of Phase one construction, the feasibility study recommends the relocation of the existing fitness area (currently in the aquatic centre) to the new fitness centre in readiness for selective demolition slated for the second phase of the project.



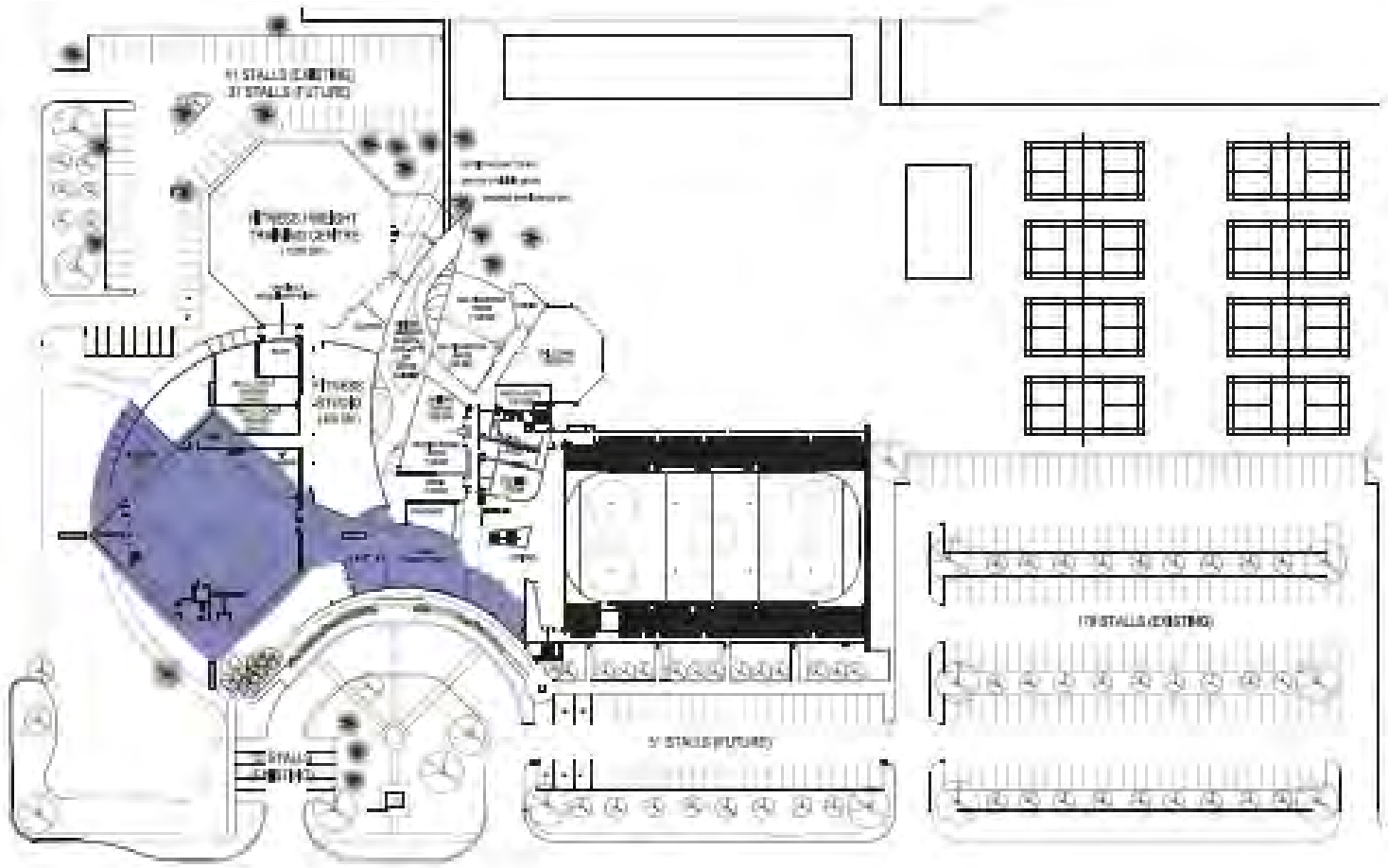
Phase One Plan

Phase Two

The scope of work suggested for this phase involves addressing immediate deficiencies, retrofits and upgrades in the aquatic centre including the following:

- Selective demolition in the aquatic centre starting with the existing fitness area adjacent to the pool;
- Expansion of the viewing deck area and associated works;
- Replacement of existing pool overflow drains with the installation of a new continuous perimeter drains around the pool;
- Replacement of existing pool windows.
- It is proposed that the existing pool deck and drainage be upgraded to address safety and maintenance related challenges. This entails the re-sloping of the deck, replacing the existing smooth slippery floor tiles with a more slip-resistant durable floor finishes and the incorporation of a continuous drainage gutter system would require that the associated existing drainage piping to tank is provided, detailed calculations are required to confirm surge capacity and piping sizes if this system is to be incorporated into existing pool system;
- Carrying out structural and waterproofing repairs to the teaching pool to address water leakages evident in the basement ceiling (as noticed in the women's change room, located directly beneath the teaching pool) in the basement;
- Remove and replace all soiled spray acoustic materials located in the ceiling above the pool area. When disturbed, the acoustic material falls into pool below and subsequently creates pool maintenance challenges. Consider the use of suspended acoustic ceiling tiles or origami ceiling constructed from gypsum board;
- Retrofit, upgrade, or provide additional change rooms to the basement of the aquatic centre.
- Construction of a new whirlpool and spa area.
- Construction of new Lobby (Social Heart).
- Construction of the new vestibules, new curved entrance feature commencing from the aquatic centre area of the building.
- Demolition of existing pool entrance area and associated remedial work.
- Security systems and CCTV installation (pool and arena).

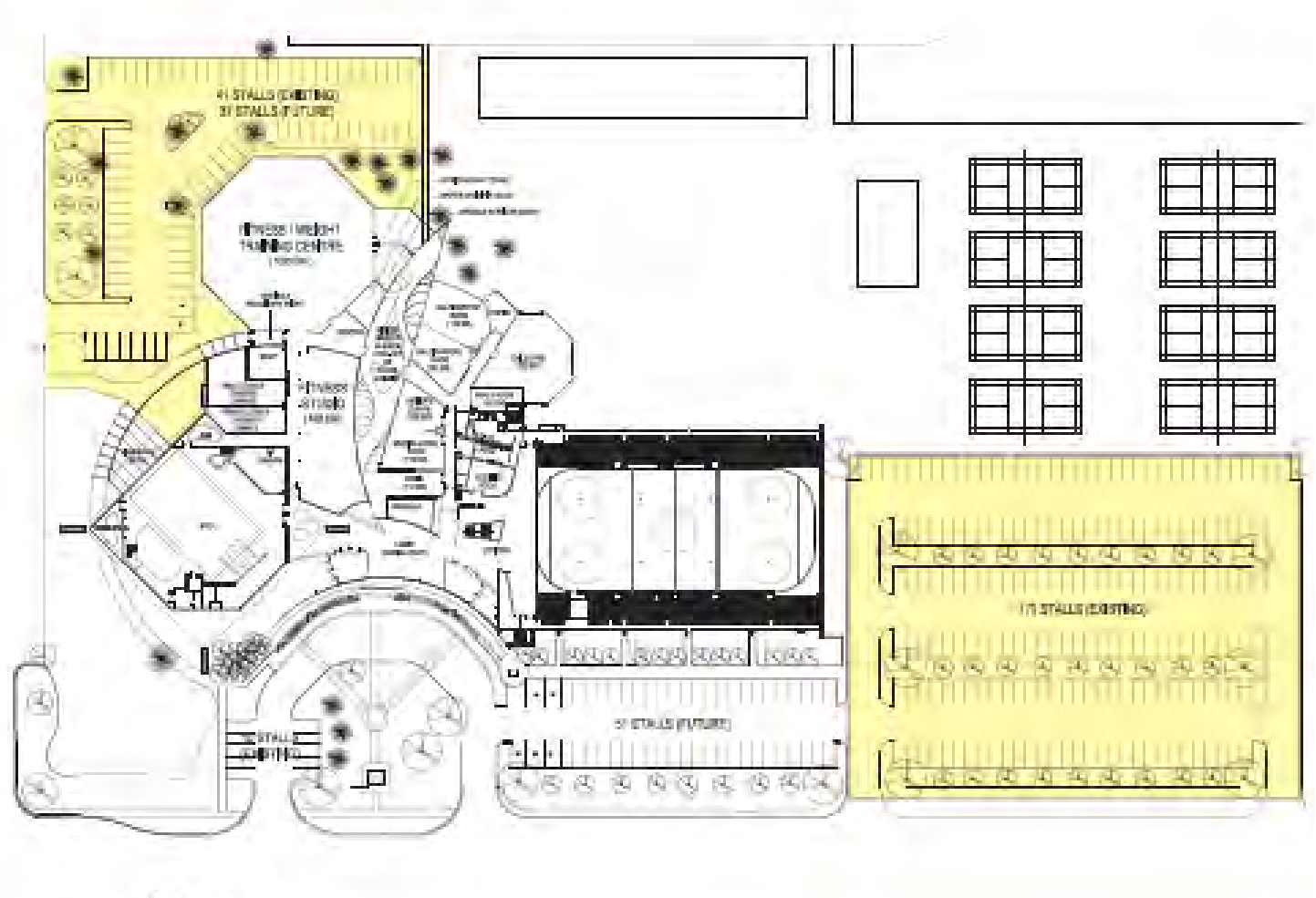
Phase two will physically unify the arena with the aquatic and fitness centre, during this phase, the pool should remain closed because renovation during this phase will be extensive and therefore cost prohibitive for pool to remain operational.



Phase Two Plan

Phase Three

The main scope of work anticipated for this phase is exterior (site) works including new parking facilities as recommended in the Parking Impact Assessment appended in the appendices of this study. During this phase, the centre (pool, fitness centre and the arena) is expected to remain in full operation.



Phase Three Plan