



THE CITY OF  
**CALGARY**



The City of Calgary Recreation Facilities

## FUNCTIONAL PROGRAM AND CONCEPT DESIGN REPORT

June 19, 2012





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## 1.0 Introduction

### 1.0.1 Acknowledgements and Team

The consulting team wishes to thank the contributions of many individuals and groups who provided input into this report.

#### The City of Calgary

#### HarGroup Management Consultants with

- K. Knights and Associates

#### KPMG with

- Asbell Management Innovations Inc.

#### Costplan Management Ltd.

#### Calgary Public Library

#### Sport Calgary

#### Calgary Arts Development Authority

#### Clifton Associates Ltd.

#### ISL Engineering and Land Services

#### EBA Engineering Consultants Ltd.

#### GEC Architecture Design Team

- CEI Architecture
- MHPM, *Process and Document Management*
- Urban Systems, *Civil*
- ARUP, *Structural, Mechanical, Electrical*
- Counsilman-Hunsaker, *Aquatics Specialist*
- Thermocarb Ltd. *Refrigeration Specialist*
- EIDOS, *Landscape Architecture*
- Enermodal, *LEED Commissioning Authority*
- Bryan Versteeg Studios Inc., *Digital Artist*

### 1.0.2 Terms of Reference

This report has been prepared by GEC Architecture for The City of Calgary to summarize the site analysis, functional programming and concept design work completed to date for the construction of four new recreation facilities. Four sites have been selected by The City, referenced as Seton, Quarry Park, Great Plains, and Rocky Ridge. The functional programming and concept design work is predicated on a Program, Amenity and Market Assessment (PAMA) report, and previous work conducted by The City to select the four sites and to establish the project objectives.

### 1.0.3 Program and Design Objectives

The objectives of the New Recreation Facilities Project is to develop recreation facilities that will:

- Generate sufficient revenues to support programming and operations
- Provide affordable and accessible recreation and leisure opportunities
- Meet the needs of citizens residing in proximity to facilities
- Accommodate a variety of sport at different levels of play
- Accommodate a variety of arts and culture activities
- Complement existing recreation and leisure facilities
- Foster multi-purpose facilities with flexible design elements

These objectives are consistent with facility investment principles articulated in the Council-approved Recreation Master Plan 2010-2020. The development of the four new facilities will be guided by directives presented in the Recreation Master Plan, including the development of Calgary as vibrant, liveable and alive. These facilities will provide spaces to play, learn, grow and connect for all Calgarians. They are a critical component in developing healthy, vibrant and complete communities.

The PAMA report was commissioned to guide recommendations for facility components and program elements at each facility.

### 1.0.4 Process and Steps

#### Site Analysis and Development

Preliminary geotechnical, environmental and transportation work has been completed for each of the four sites. Considerable work has been undertaken to date in reviewing and testing the site conditions. Land use planning and analysis continues on all four sites to support site servicing, as well as facility planning, design, and development. Detailed geotechnical studies will be conducted as the designs are further developed.

#### Functional Program and Preliminary Program Estimate

The original facility components and program elements for all four recreation facilities were identified in the PAMA report. The PAMA report included extensive consultation with stakeholders and citizens and, based on this engagement, the amenity requirements for each of the four recreation facilities were confirmed.

To meet the Council approved project funding of \$480 million, multiple functional programming sessions were held by the The City design team with the consultant experts, cost consultants and end user organizations. Council directed that, where feasible, the original facility components and program elements for all four recreation facilities, as identified in the PAMA report, be maintained. While there is some impact on the PAMA recommendations, the design team has developed a solution to meet the approved funding allocation, while meeting the needs outlined by the citizens as described in the PAMA report and maintaining the integrity of the original scope and vision of the PAMA report.

The solution consists of some scope reductions and phasing strategies based on direction provided by Council. Phasing considerations required to bridge the funding gap provide opportunities for the development of fieldhouse or dry pad components on three of the four sites: Quarry Park, Great Plains, and Rocky Ridge.

The functional program for the three community library spaces and cultural spaces at Seton, Quarry Park and Rocky Ridge, will be further developed as part of the overall planning exercise for the Central Library project.

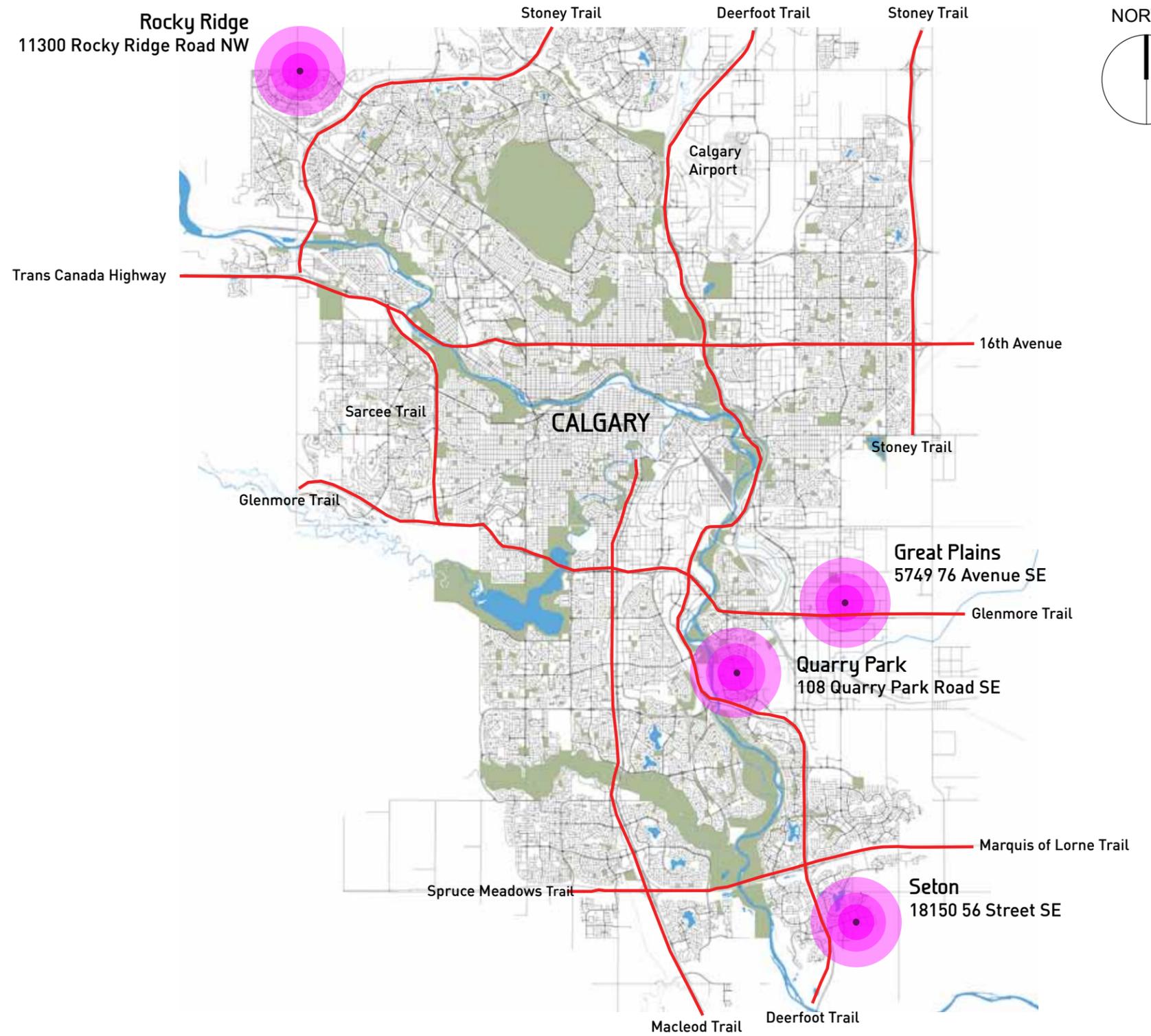
#### Sustainability Objectives

The Calgary Recreation Facilities design and construction will meet The City of Calgary sustainability policies.

# SECTION 2.0 | SITE ANALYSIS INTRODUCTION

## 2.0 Site Analysis Introduction

Site planning and analysis have provided a foundation for the conceptual plan designs and developments proposed at the recreation facility sites. Pre-design considerations included facility locations, neighbourhood context, land use designation, transportation, accessibility, site conditions, legal agreements, architectural guidelines and servicing requirements. The sites range in character from vacant grassland to fully serviced parcels with wide variations in site specific conditions. As a result, the approach undertaken for each site was specifically geared towards the unique attributes identified.



# SECTION 2.1 | SITE ANALYSIS

## SETON RECREATION FACILITY

### 2.1 Site Analysis - Seton

#### 2.1.1 Site Location

The proposed 8.35 hectare (20.63 acre) Seton Recreation Facility site is located at 18150 56th Street SE, south of Seton Boulevard and east of Deerfoot Trail, in the developing community of Seton (figure 1). The site is currently privately owned, with City ownership anticipated by Q4 2012.

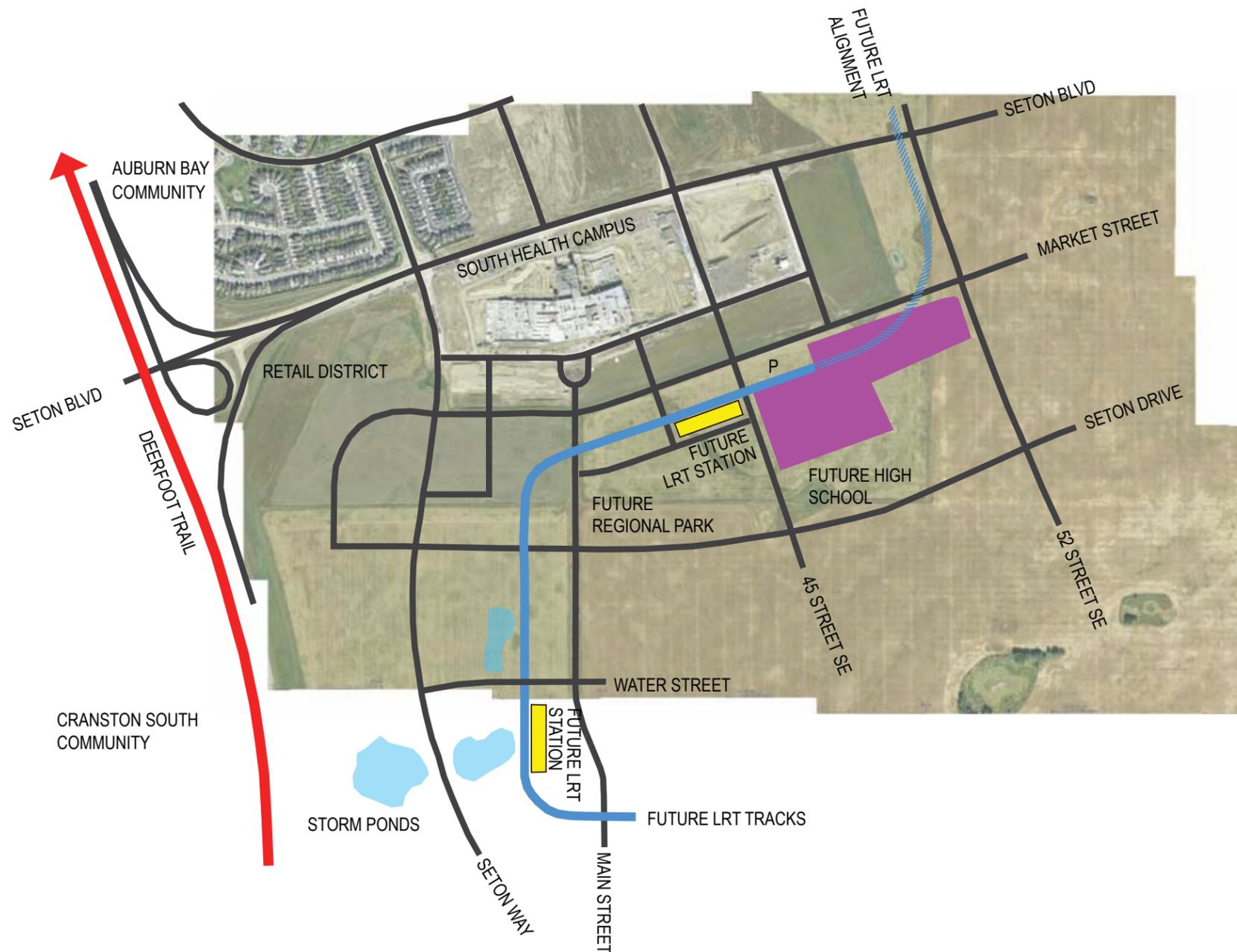


Figure 1 Seton Recreation Facility Context Map

#### 2.1.2 Planning Context

The Seton Recreation Facility is located within the Southeast Centre Area Structure Plan (ASP) area, south of Market Street SE between 45th Street SE and 52nd Street SE.

The ASP identifies the site as the location of a “Regional Recreation Centre” and library. The site south of the recreation facility is planned for a high school, and an LRT park and ride is proposed for the northwest site (figure 1).

The Seton Outline Plan was approved in 2004 (figure 2). It established a site for the recreation facility, the high school, the library, the LRT park and ride and the surrounding road network. Both the Seton Outline Plan and the Land Use Bylaw identify the site for public, park, school and recreation purposes.

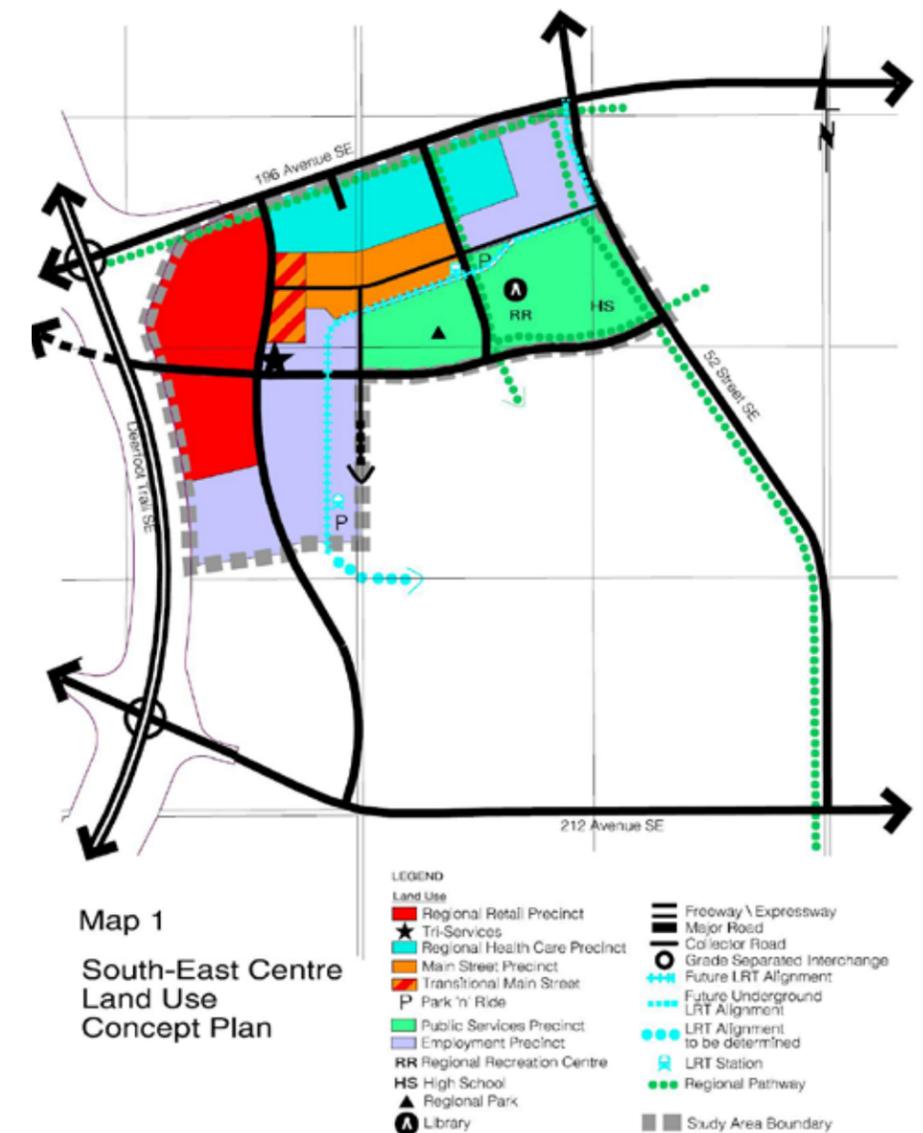


Figure 2 South East Centre ASP Land Use Concept Plan

# SECTION 2.1 | SITE ANALYSIS

## SETON RECREATION FACILITY

### 2.1.2 Planning Context (continued)

The site is currently designated Special Purpose - School, Park and Community Reserve (S-SPR). Land use redesignation to Special Purpose - Recreation (S-R) is required to accommodate the proposed recreation facility, library and ancillary uses. The recreation facility will not be reserve land and as such the S-R District is more appropriate (figure 3).

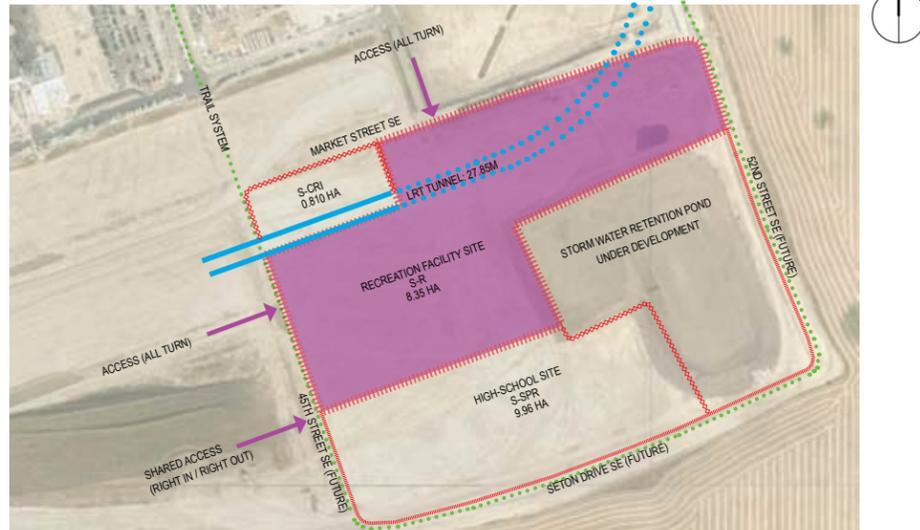


Figure 3 Seton Recreation Facility Site Proposed Land Use

### 2.1.3 Transportation

The road system abutting the site consists of Market Street SE to the north, 45th Street SE to the west and 52nd Street SE to the east. Vehicular access to the recreation facility is anticipated from 45th Street SE and from Market Street SE. Specific access locations will be determined at the development permit stage. Access to the regional pathway system will be provided from 45th Street SE and 52nd Street SE.

Ultimately the site will be served by the Southeast LRT line with a station to the west of 45th Street SE (figure 4). A Bus Rapid Transit (BRT) route is proposed along Market Street SE in the interim.

The recreation facility will be within walking distance of the future Seton LRT station (figure 4). The LRT line crosses the site in an east-west direction along the northern portion of the site paralleling Market Street SE. The Southeast Centre ASP provides for shared use of the park and ride facility for recreation facility and library purposes.

A subdivision is currently in process to create the LRT ROW through the site in accordance with the approved outline plan (figure 4). The LRT line is proposed to be below grade east of the park and ride lot, with a right of way of sufficient width to accommodate tunnel construction. Interim and long term uses will be determined at the development permit stage. Access points shown on the concept plan remain to be confirmed.

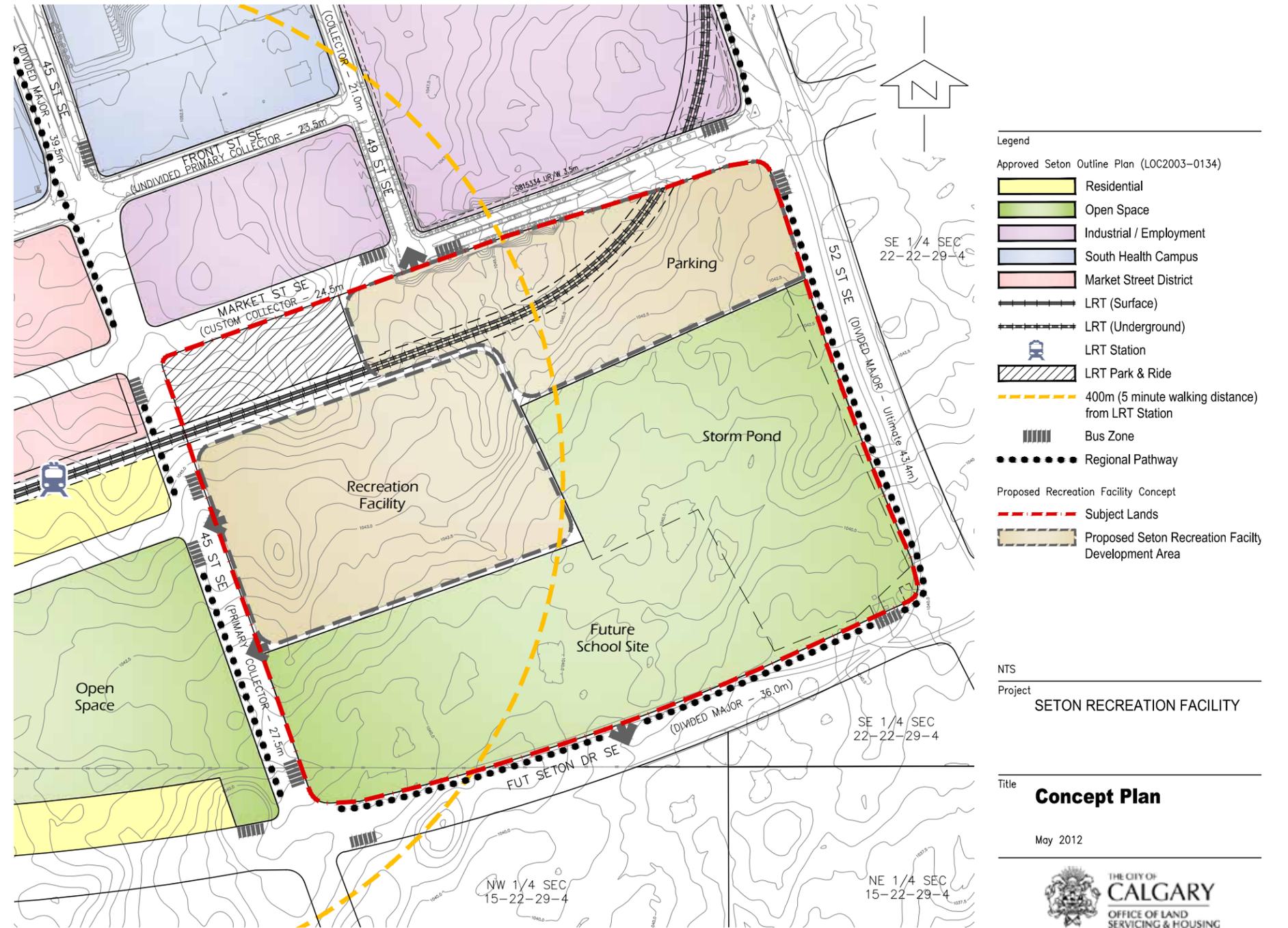


Figure 4 Seton Recreation Facility Site Concept Plan

- Legend
- Approved Seton Outline Plan (LOC2003-0134)
- Residential
  - Open Space
  - Industrial / Employment
  - South Health Campus
  - Market Street District
  - LRT (Surface)
  - LRT (Underground)
  - LRT LRT Station
  - LRT Park & Ride
  - 400m (5 minute walking distance) from LRT Station
  - Bus Zone
  - Regional Pathway
- Proposed Recreation Facility Concept
- Subject Lands
  - Proposed Seton Recreation Facility Development Area

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Project  
**SETON RECREATION FACILITY**

Title  
**Concept Plan**

May 2012



### 2.1.4 Development Considerations

Development of the recreation facility will be subject to Southeast Centre ASP and Land Use Bylaw policies. Architectural guidelines will apply to the site. The guidelines address building and parking lot siting and design. The ASP encourages a high quality of urban design and identifies the need to consider the physical prominence and level of activity that recreation facilities generate. Special care and consideration is expected to be given to the architectural design of the building and site planning.

### 2.1.5 Parking

The ASP addresses parking siting and requires consideration of parking location criteria and pedestrian orientation. The ASP also states that parking areas should be an integral component of site design, provide clear and direct access from the street, and meet parking requirements.

The amount of required parking will be confirmed at the development permit stage and will relate to the mix of uses including proximity to LRT, and potential for shared parking depending on hours of operation. Preliminary estimates of parking requirements for the recreation facility anticipate a range from 1,529 stalls (Land Use Bylaw) to 646 stalls (2012 Recreation Facility Parking study). Given the proposed building footprint, and its size and configuration approximately 810 parking stalls can be accommodated on site. The amount of required parking will be confirmed at the development permit stage and will relate to the mix of uses, including proximity to the LRT and potential for shared parking.

### 2.1.6 Site Assessment

A number of studies have been undertaken to support the planning, design and development of the Seton Recreation Facility. Such studies include a Phase I Environmental Assessment (ESA), geotechnical reports, and a Biophysical Impact Assessment. A summary of the site characteristics and servicing status to support recreation facility development is provided below:

#### Preliminary Grading Plan

The site is vacant and has been graded. It slopes from the northwest corner to the south and southeast corners. The site requires additional earthwork to excavate the building footprint and redistribute fill to create a flat site.

#### Infrastructure and Services Analysis

Site servicing is anticipated by Q4 2013. Sanitary and water connections will be available from 45th Street SE.

Conventional storm water management practices are planned for the site. Storm water flows will connect to the existing storm sewer in 52nd Street SE. Dialogue is underway with Water Resource to examine the feasibility of meeting the storm water management flow rates and volume control targets identified.

Power, cable, gas and telephone lines will tie to the utilities in 52nd Street SE.

#### Sustainability Objectives

As a City project, the Sustainable Building Policy will be adhered to. Sustainability options will be explored and addressed at the development permit stage.

# SECTION 2.2 | SITE ANALYSIS

## QUARRY PARK RECREATION FACILITY

### 2.2 Site Analysis - Quarry Park

#### 2.2.1 Site Location

The site is located within Quarry Park at 108 Quarry Park Road SE. The 6.68 hectare (16.5 acre), City-owned, serviced parcel is situated south of Quarry Park Boulevard SE, east of 18th Street SE and directly west of 24th Street SE (figure 1).

#### 2.2.2 Planning Context

Quarry Park is a mixed-use development located between the communities of Riverbend to the north and Douglasdale/Glen to the south. Previously an industrial area, Quarry Park was transformed into the office park and residential areas of current day.

The Barlow Area Structure Plan (ASP) identifies the recreation facility site as a park. An amendment to the ASP will update the plan to recognize the site as a recreation facility location and provide guidelines regarding recreation facility development. The recreation facility supports the vision for Quarry Park as a mixed-use community providing opportunities for residents to live, work and play within the community.

The site is currently designated Special Purpose - School, Park and Community Reserve (S-SPR). Land use re-designation to Special Purpose - Recreation (S-R) is required to accommodate the proposed recreation facility, library and ancillary uses. The existing S-SPR District reflects the reserve designation of the site and as such provides for a limited range of uses. The proposed S-R District will provide for a wider range of recreation and complementary uses, including a library. The reserve designation will be removed and replaced with a deferred reserve caveat in order to allow the desired range of uses on the site (figure 2).



Figure 1 Quarry Park Recreation Facility Context Map

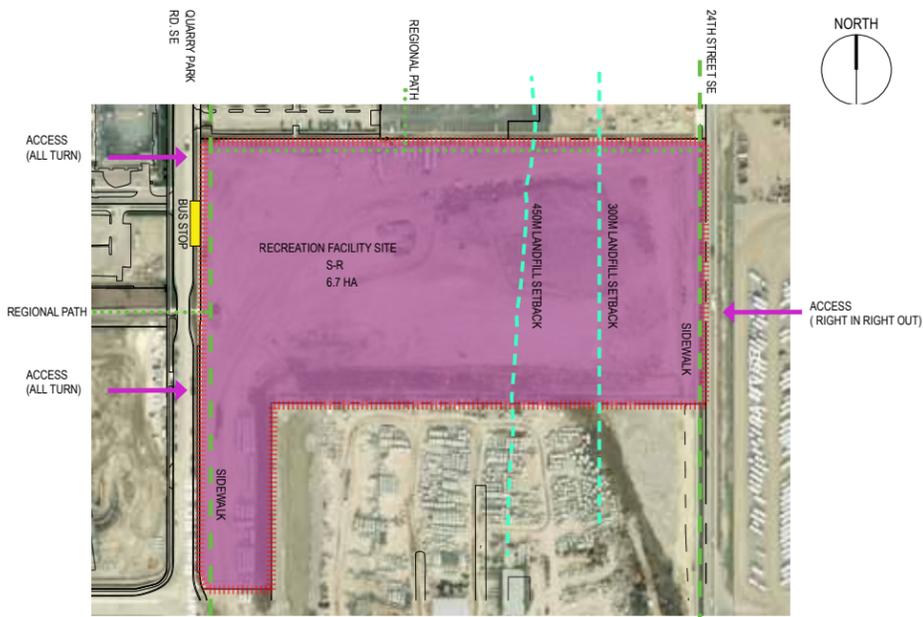


Figure 2 Quarry Park Recreation Facility Proposed Land Use

# SECTION 2.2 | SITE ANALYSIS

## QUARRY PARK RECREATION FACILITY

### 2.2.3 Transportation

The road system abutting the recreation facility site consists of 24th Street SE on the east and Quarry Park Road SE on the west. 24th Street SE is a principal component of the road system serving Quarry Park and provides access to Deerfoot Trail (figure 1). The future Southeast LRT line will parallel 24th Street SE to the east (figures 1 & 3). As shown in the concept plan in figure 3, the Quarry Park LRT Station is proposed at the intersection of Quarry Park Boulevard SE and 24th Street SE.

Sidewalks and pathways have been constructed along Quarry Park Road SE and 24th Street SE. A pathway along the north edge of the parcel provides pedestrian access to the site and connects to 24th Street SE and Quarry Park Road SE (figures 2 & 3).

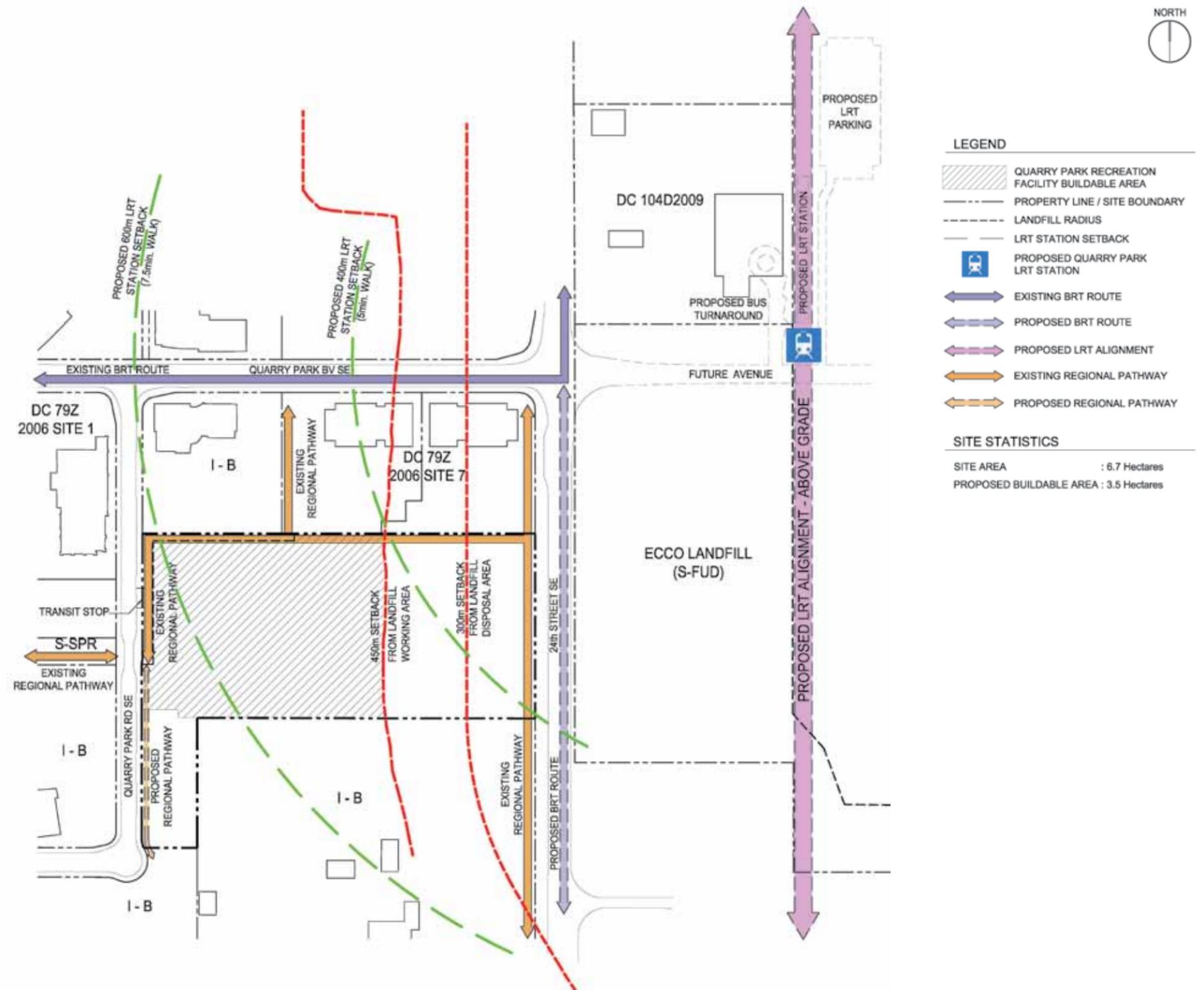


Figure 3 Quarry Park Recreation Facility Site Concept Plan

## SECTION 2.2 | SITE ANALYSIS

### QUARRY PARK RECREATION FACILITY

#### 2.2.4 Development Considerations

The recreation facility will be subject to policies of the Municipal Development Plan, Barlow ASP and the Land Use Bylaw. Although there are no architectural controls applicable to the Quarry Park Recreation Facility site, the building will be in keeping with the established character and architectural standards of Quarry Park.

The subject site has a number of constraints that will require consideration:

##### Flood Fringe

The site is within the Bow River flood fringe. A flood protection embankment and other flood mitigation measures have been completed to address potential flood risk within the area. Compliance with the Land Use Bylaw requirements for flood fringe sites remains however, in part to address potential implications resulting from the high water table within the area.

##### Landfill Setback

The site is located near one operational and one closed landfill. Subdivision and Development Regulation landfill setback requirements limit uses within landfill setback areas, thus impacting the eastern portion of the site. The proposed recreation facility building area is outside the landfill setbacks and as such no relaxation of the landfill setback is anticipated at this time. Should any portion of the building be located within the landfill setback area, written consent from the Deputy Minister of Environment will be required for a relaxation.

##### Methane Generating Fill

Methane generating fill has been identified on the property. A comprehensive site investigation is being undertaken to evaluate site conditions. Based on the results of the investigation, and input to date from Alberta Health Services, development will need to address the following requirements: an engineered building design, a comprehensive risk management plan, and ongoing operational and maintenance considerations for the building and associated lands to address any regulatory concerns.

#### 2.2.5 Parking

Parking requirements will be confirmed at the development permit stage and will relate to the mix of uses of the recreation facility and proximity to the future Quarry Park LRT Station. Preliminary estimates of the parking requirements for the recreation facility, based on the Land Use Bylaw requirements, are for 470 stalls.

A parking study is currently being undertaken to more accurately identify the amount of parking required. Given the conceptual building footprint and its size and configuration, it is anticipated that all parking can be accommodated on site.

#### 2.2.6 Site Assessment

A number of studies have been undertaken to support the planning and design and development of the Quarry Park Recreation Facility:

##### Phase I and Phase II ESA

Phase I and Phase II Environmental Site Assessments (ESAs) were submitted with the Outline Plan report (LOC2005-0125) for the Quarry Park subdivision. The reports indicated that the site and surrounding properties have been historically used for commercial and industrial purposes. A Phase II ESA has been undertaken to provide additional information on site conditions and to identify any mitigation requirements.

##### Geotechnical Report

A significant amount of soils containing organic matter was encountered. The fill material was not compacted to densities required for construction. The fill is unfavourable for shallow foundations as well as slab-on-grade construction. Foundation requirements to address site conditions are being investigated and will be addressed at the development permit stage.

##### Preliminary Grading Plan

The site is vacant and has been rough graded to slope from the east to the west. There is a depression on the south property boundary.

##### Infrastructure and Servicing Analysis

Sanitary and water servicing connections will be available from Quarry Park Road SE.

The site will be sloped to direct storm water flows to the southwest corner of the site. Dialogue is underway with Water Resource to examine the feasibility of meeting the storm water management flow rates and volume control targets identified.

Power, cable, gas and telephone lines will tie to shallow utilities on Quarry Park road.

##### Sustainability Objectives

As a City project, the Sustainable Building Policy will be adhered to. Sustainability options will be explored and addressed at the development permit stage.

## 2.3 Site Analysis - Great Plains

### 2.3.1 Site Location

The site is located within the Great Plains Industrial Park at 5749 76th Ave SE. The 5.02 hectare (12.4 acre) City-owned serviced site is situated north of Glenmore Trail and east of 52nd Street SE (figure 1). Land is developed to the west and remains vacant to the east.



Figure 1 Great Plains Recreation Facility Context Map

# SECTION 2.3 | SITE ANALYSIS

## GREAT PLAINS RECREATION FACILITY

### 2.3.2 Planning Context

The Southeast 68 Street Industrial Area Structure Plan (ASP) identifies the Great Plains site as the potential location for a small regional recreation facility. The ASP supports provision of recreation uses and states, "the recreation facility functions as a regional gathering place for residents from southeast Calgary and neighbouring employees."

The site was re-designated from Industrial General (I-G) to Special Purpose Recreation (S-R) in the fall of 2011 to accommodate the recreation facility and provide for a range of recreation and complementary uses (figure 2). A deferred reserve caveat is in the process of being registered on title.

### 2.3.3 Transportation

The regional road network that serves the recreation facility site consists of Glenmore Trail to the south, 68th Street SE to the east and 52nd Street SE to the west (figure 1). The purpose of the facility is to support team based sports. Transit service is provided in the vicinity of the site along 52nd Street SE. A sidewalk has been constructed on 76th Avenue SE and a proposed sidewalk along 57th Street SE will be determined at the development permit stage (figure 2).

### 2.3.4 Development Considerations

The recreation facility will be subject to policies of the Municipal Development Plan, the Southeast 68 Street Industrial ASP, the Land Use Bylaw, and the Architectural and Development Design Guidelines for the Great Plains IV Industrial Park. It is anticipated that development of the site will be phased.

### 2.3.5 Parking

Preliminary estimates of the parking requirements for the recreation facility, based on the Land Use Bylaw requirements, is 394 stalls. A parking study is currently being undertaken to more accurately reflect the anticipated parking requirements which will be confirmed at the development permit stage. Given the conceptual building footprint and its size and configuration, it is anticipated that all parking can be accommodated on site.

### 2.3.6 Site Assessment

A number of studies have been undertaken to support the planning, design and development of the Great Plains Recreation Facility. Such studies include a Phase I Environmental Site Assessment (ESA) as well as geotechnical and site servicing reports.

#### Phase I ESA

Based on Phase I ESA findings to date, no major issues have been identified. Further investigations will be undertaken as required throughout the duration of the project.

#### Geotechnical Report

The geotechnical evaluation has found favourable soil conditions on the site to support shallow foundations (spread and wall footings). The mitigation of groundwater below ice rink slabs must be addressed.

#### Preliminary Grading Plan

The site is vacant and has been rough graded to slope from the west to the east.

#### Infrastructure and Servicing Analysis

Sanitary and water connections will be available from 76th Avenue SE.

Storm water will be directed to the northeast portion of the site. The storm water system will consist of catch basins that will tie into the existing storm sewer at 57th Street and 76th Avenue SE. Dialogue is underway with Water Resource to examine the feasibility of meeting flow rates and volume control targets identified.

Power, cable, telephone and gas services will tie to servicing on 57th Street SE.

#### Sustainability Objectives

As a City project, the Sustainable Building Policy will be adhered to. Sustainability options will be explored and addressed at the development permit stage.



Figure 2 Great Plains Recreation Facility Land Use

### 2.4 Site Analysis - Rocky Ridge

#### 2.4.1 Site Location

The recreation facility site is a 26.1 hectare (64.5 acre) partially serviced City-owned parcel that is located at 11300 Rocky Ridge Road NW. It is located in Residual Area 02A at the northeast corner of the intersection of Country Hills Boulevard/112nd Avenue and Rocky Ridge Road NW. South of Country Hills Boulevard are the communities of Royal Oak and Rocky Ridge. To the west, within Rocky View County, is Butterfield Acres Farm, and acreage residences. To the northeast of the property is a City of Calgary Reservoir, and further north is the University of Calgary Faculty of Veterinary Medicine Clinical Skill Building (figure 1).

#### 2.4.2 Planning Context

The North Regional Context Study (NRCS) identifies the subject site as the location of a 'Large Regional Recreation Facility'. The NRCS was adopted by resolution of Council in June 2010 and guides planning and development within the NRCS area.

The recreation facility site is located within Cell A of the NRCS, an area otherwise proposed for industrial and employment uses. Although there is no Area Structure Plan (ASP) for the area, development of the site is supported as the facility is considered an essential public service facility and its development will not compromise future urban growth within the NRCS area. The recreation facility will also be subject to applicable planning documents such as the Municipal Development Plan, the Rocky View/Calgary Intermunicipal Development Plan and the Land Use Bylaw. Because the parcel is not being subdivided there will be no dedication of reserve land, however a substantial area of land will be set aside for open space and wetlands.

The site is currently designated Special Purpose – Future Urban Development (S-FUD). An application for land use re-designation to Special Purpose – Recreation (S-R) has been made to accommodate the proposed recreation facility, library and complementary uses. The site will provide for a range of opportunities, from indoor recreation facility uses to outdoor passive recreation pursuits in the surrounding natural areas. Application of the S-R District to the parcel provides for flexibility in the location of facilities, the anticipated active recreation uses, and allows for the protection of the on-site natural resources.

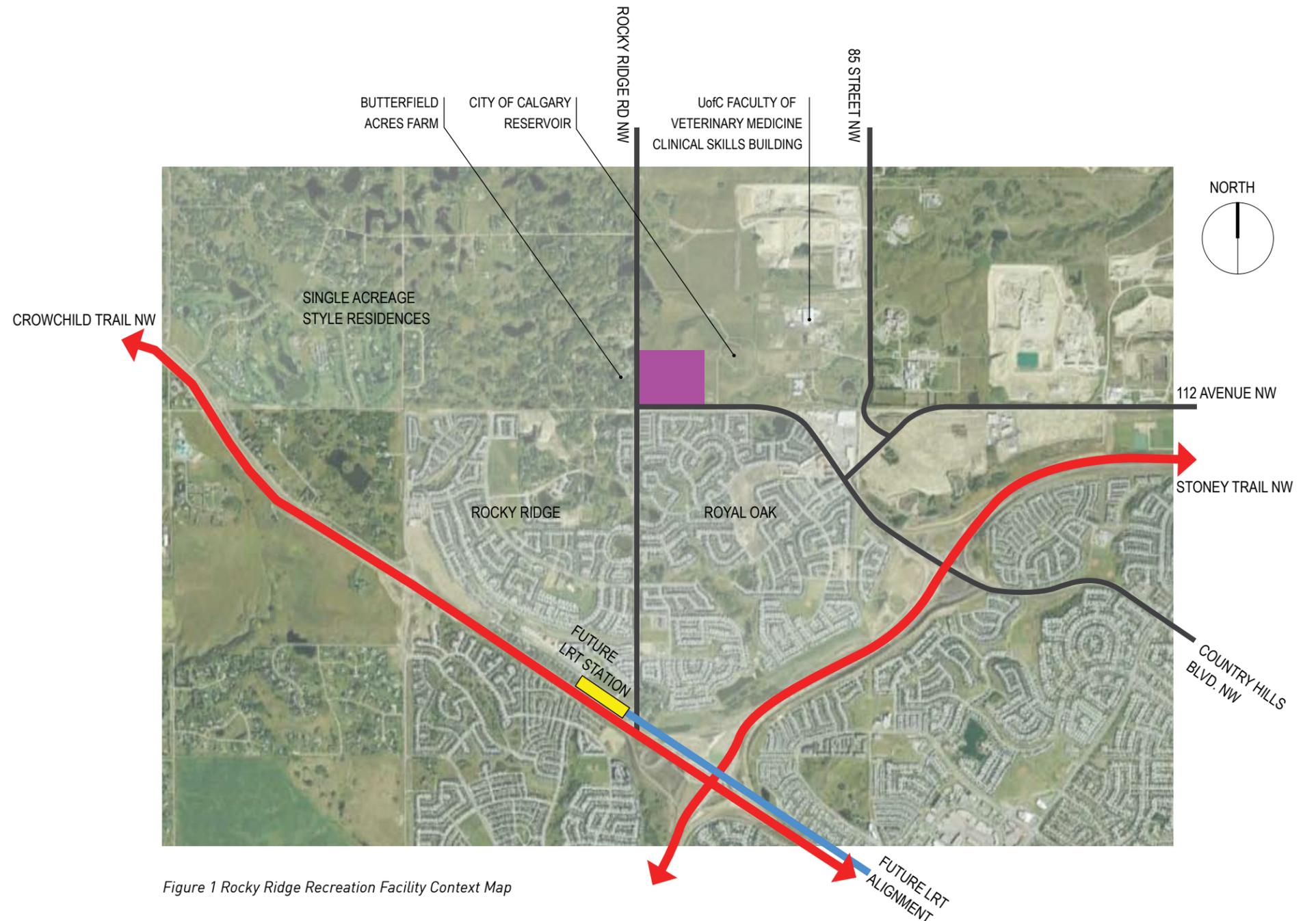


Figure 1 Rocky Ridge Recreation Facility Context Map

# SECTION 2.4 | SITE ANALYSIS

## ROCKY RIDGE RECREATION FACILITY

### 2.4.3 Transportation

Vehicular access to the recreation facility is anticipated to be from Country Hills Boulevard to the south and Rocky Ridge Road to the west of the site. Specific access locations will be determined at the development permit stage. Regional pathway connections are proposed along Country Hills Boulevard NW and Rocky Ridge Road NW in conformity with the North Regional Context Study.

Bus access will be available from Country Hills Boulevard NW and plans for the recreation facility site will enable accommodation of buses within the site. Bus routes will connect to the proposed Tuscan LRT station south of the site at Rocky Ridge Road NW and Crowchild Trail, approximately 2.5 km away (figure 1).

### 2.4.4 Development Considerations

The parcel includes wetlands, natural landforms and vegetation that warrant protection (figure 2).

A comprehensive Biophysical Impact Assessment and Wetland Assessment have been undertaken on the site and the findings were used to guide the development of the site as shown in the concept plan (figure 3). The concept plan reflects the most recent site development information. Within the 'development area', general locations for building(s) and parking are shown. Multi-use fields may also be accommodated within the development area. Provision has been made for the protection of environmentally sensitive areas including wetlands and sloping sites. Recreation facility siting and vehicular access through the site as shown in the concept plan have been located to minimize impacts on natural areas.

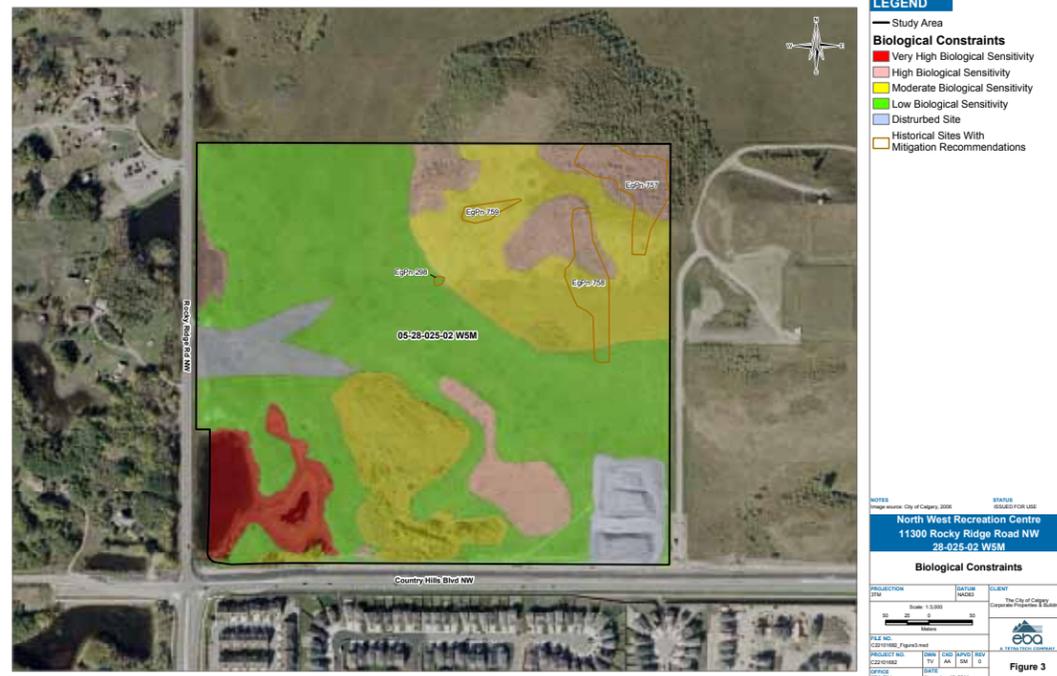


Figure 2 Rocky Ridge Recreation Facility Site Biological Constraints Map

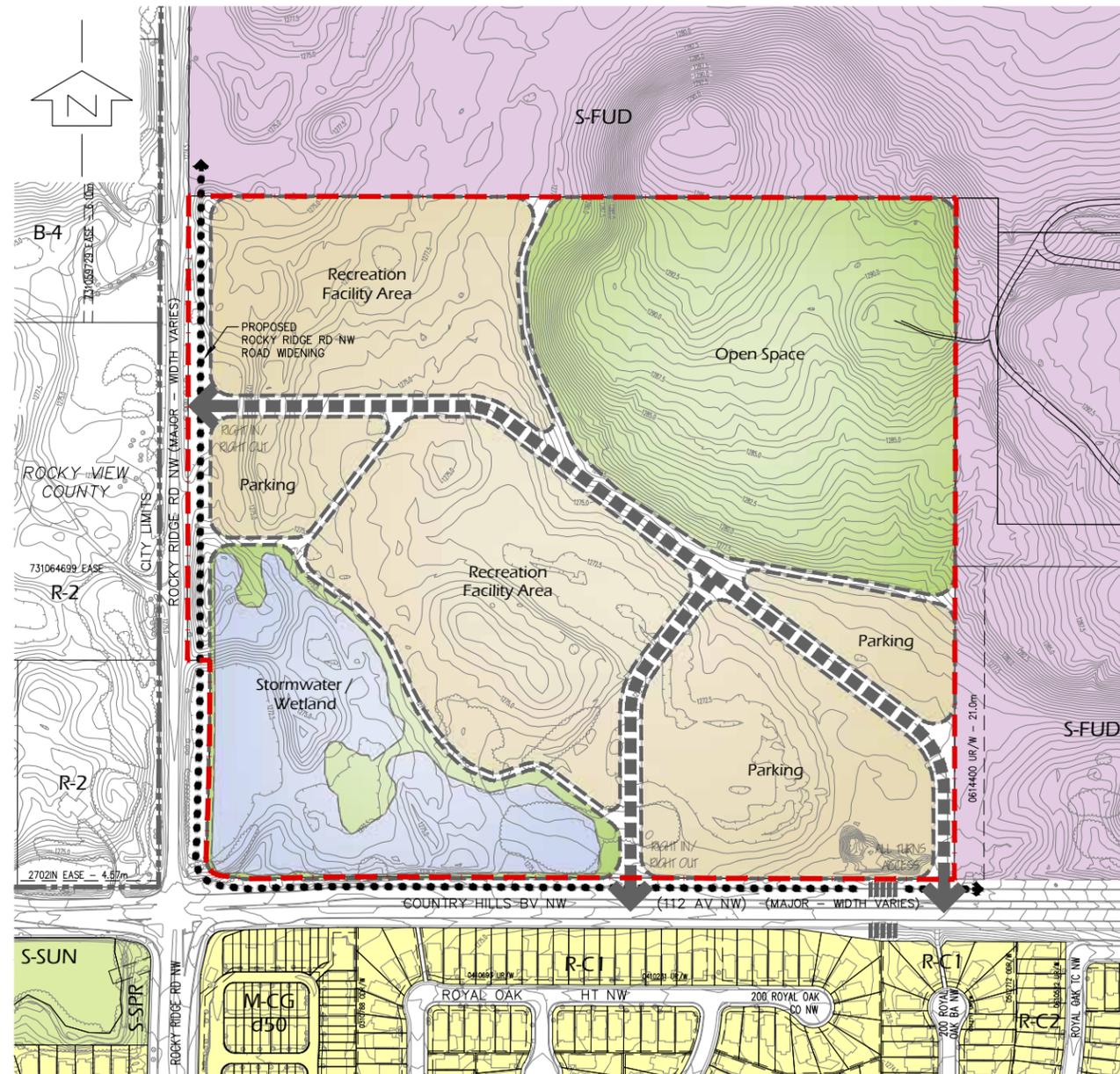


Figure 3 Rocky Ridge Recreation Facility Site Concept Plan

Total Area Outlined	26.12 ha± (64.54 ac±)
Less Road Widening	0.52 ha± (1.28 ac±)
Net Developable	25.60 ha± (63.26 ac±)
Development Area (includes Building, Parking, Outdoor Amenities and Internal Roads)	14.35 ha± (35.46 ac±)
Open Space / Wetland	11.25 ha± (27.80 ac±)

Legend

- Subject Lands
- City of Calgary Limits
- Existing Residential
- Existing Open Space
- Proposed Industrial / Employment

Proposed Recreation Facility Concept

- Proposed Rocky Ridge Recreation Facility Development Area
- Proposed Open Space
- Proposed Stormwater / Wetland
- Proposed Regional Pathway
- Proposed Bus Zone
- Proposed Internal Roads

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**ROCKY RIDGE RECREATION FACILITY**

Title  
**Concept Plan**

May 2012



### 2.4.5 Parking

Parking requirements will be confirmed at the development permit stage. Based on the Land Use Bylaw, the recreation facility parking requirements are estimated to be 1,377 stalls. Although parking can be accommodated on site, a parking study is currently being undertaken to verify the parking requirements in consideration of mixed uses proposed for the recreation facility.

### 2.4.6 Site Assessment

A number of studies have been undertaken to support the planning, design and development of the Rocky Ridge Recreation Facility including:

#### Phase I ESA

Based on findings to date no significant environmental issues have been identified. Further investigations will be undertaken as required throughout the duration of the project.

#### Biophysical Impact Assessment and Wetland Assessment

The Biophysical Impact Assessment and Wetland Assessment undertaken on the site identified four wetlands and four historical resource sites (see figure 2) which are located outside of the anticipated development area. Avoidance of the wetland in the south central portion of the site is not possible and as such enhancement and enlargement of the wetland in the southwest corner of the property will be undertaken to achieve no net loss of wetlands on the site. Historical Resource Impact Mitigation (HRIM) studies will also be undertaken on the archaeological sites before The City proceeds with the construction of the recreation facility.

#### Geotechnical Report

Based on the geotechnical work undertaken to date, soil conditions appear favourable to support shallow foundation (spread and wall footing) construction.

#### Preliminary Grading Plan

The site is presently vacant and consists of varying terrain rising from the southwest at an elevation of 1272 metres to the northeast with an elevation of 1289 metres, the highest natural elevation in The City. As outlined in the concept plan, grading to support the buildings, sport fields and parking areas will be undertaken in the central portion of the site with provisions in place to protect the environmentally sensitive areas.

#### Infrastructure and Servicing

Sanitary and water connections are available from Country Hills Boulevard NW. Studies are underway to confirm that the existing infrastructure has capacity to address peak demand and regulatory requirements.

A Staged Master Drainage Plan (SMDP) will be required to address on-site storm water management, wetland design and surface runoff management. The current storm water management catchment area includes the recreation parcel as well as land extending to the east and west of the site. The catchment area is currently under review and dialogue is underway with Water Resources to assess the feasibility of meeting the storm water management requirements and volume control targets identified.

#### Sustainability

As a City project, the Sustainable Building Policy will be adhered to. Sustainability options will be explored and addressed at the development permit stage.

#### Transportation Impact Assessment

A transportation impact assessment is being undertaken to ensure that current guidelines are met and that there are no negative operational consequences to the off-site public roads in the vicinity.

It is anticipated that access from Rocky Ridge Road NW will be provided to the recreation facility site. Land to accommodate the widening of Rocky Ridge Road at the Country Hills Boulevard intersection was provided in 2007. Additional widening of Rocky Ridge Road will be required adjacent to the site to accommodate a four lane divided road (figure 3).

# SECTION 3.0 | FUNCTIONAL PROGRAM

## DESCRIPTION & SUMMARY

### 3.0 Functional Program

#### 3.0.1 Definition and Description

The functional programming phase, a pre-design task, is a discipline that evolves to meet owners' and users' need for more functionally responsive and accountable buildings. The general purpose of the functional program is as follows:

- To provide the approving and funding authorities with a detailed description of the proposed facilities needed prior to initiating architectural design.
- To provide the architectural design team with a clear understanding of the activities to be accommodated, and functional criteria to be met during the design process.
- To provide the client/owner with a reference manual for evaluating design schemes as they are generated and for use when commissioning, operating and evaluating the new facility.

The functional program tables provide the total required area of a component in two ways:

- **Net Area**  
The total net square metres (nsm) reflects the space that directly accommodates an occupant or use. It refers to the area of a functionally assigned space measured to the inside face of the enclosing walls and excluding any interior partitions, structure, internal circulation, or any other un-assignable spaces that contribute to the overall component area.
- **Gross Area**  
The total component gross square metres (gsm) includes constituents of gross such as partitions, internal structure, external structure, shafts, vertical and horizontal circulation. A grossing factor is applied to the net assignable area to determine the component gross area. Component grossing factors differ according to the complexity of space and the number of partitions and circulation paths. For example, the component gross of a gymnasium court may only be 1.05 the net area as it is adding only enclosures and partition gross area, whereas an office suite may have a component gross of 1.40 as it is adding internal circulation as well as partition gross area.

The functional program gross floor areas were determined through the analysis of prescriptive components and their required gross floor areas. The functional programming gross floor areas are part of an ongoing discussion, are subject to change and will be refined with future detailed design. In particular, the libraries, art spaces and theatres functional programming will be further developed in conjunction with the overall planning exercise for the Central Library project.

The functional programs have been organized into the following components:

- 1.0 Aquatics
- 2.0 Ice
- 3.0 Indoor Fields/Dry Pads
- 4.0 Gymnasium
- 5.0 Not Used (for consistency with the cost estimate)
- 6.0 Climbing Wall
- 7.0 Fitness Centre
- 8.0 Multipurpose Rooms
- 9.0 Youth Centre
- 10.0 Library
- 11.0 Arts
- 12.0 Child Care
- 13.0 Retail/Commercial
- 14.0 Wet/Dry Common Change Rooms
- 15.0 Administrative
- 16.0 Programmable Circulation
- 17.0 Support Spaces
- 18.0 Outdoor Areas

#### 3.0.2 User and Stakeholder Input

In developing the functional programs and concept plans for each facility, further dialogue was required with some key stakeholders to ensure that specific needs and expectations were clearly understood. In this regard, meetings were held with the Calgary Public Library, Sport Calgary and Calgary Arts Development. In addition, focus groups with performing artists/organizations (dance, music, theatre, film) and visual artists (visual arts organizations, literary artists, new media) were organized.

Further discussions were also undertaken with some of the sports advisory groups that have been created by Sport Calgary (i.e. aquatics and soccer) to both share progress and outline some of the proposed scope changes and phasing that is required to align the functional programs and concept plans with the approved capital budget.

Finally, Administration has continued to work collaboratively with the community advisory groups (CAGs): the South East Calgary Recreation Society and the Northwest Community Advisory Group. Both CAGs have been kept informed of progress in developing the functional programs, concept plans and cost estimates for the recreation facilities and they continue to support communications to area residents and other key stakeholders.

Further refinement of the functional programs will be based on future discussions with users and stakeholders.

### 3.0.3 All Facilities Summary

Area Requirements				
FACILITY		N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
TOTAL	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.)	64,177	1.18	75,415
	TOTAL OUTDOOR AREA	69,381	1.00	69,381
	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.) INCLUDING POSSIBLE FUTURE PHASE	87,055	1.15	100,008
SETON	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.)	25,831	1.18	30,578
	TOTAL OUTDOOR AREA	27,218	1.00	27,218
QUARRY PARK	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.)	8,357	1.12	9,401
	TOTAL OUTDOOR AREA	5,845	1.00	5,845
	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.) INCLUDING POSSIBLE FUTURE PHASE	12,767	1.12	14,351
GREAT PLAINS	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.)	6,781	1.16	7,891
	TOTAL OUTDOOR AREA	8,295	1.00	8,295
	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.) INCLUDING POSSIBLE FUTURE PHASE	12,149	1.15	13,985
ROCKY RIDGE	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.)	23,208	1.19	27,545
	TOTAL OUTDOOR AREA	28,023	1.00	28,023
	TOTAL NET AND GROSS FLOOR AREA (N.F.A. & G.F.A.) INCLUDING POSSIBLE FUTURE PHASE	36,308	1.13	41,094

# SECTION 3.1 | FUNCTIONAL PROGRAM

## SETON RECREATION FACILITY

### 3.1 Functional Program - Seton

#### 3.1.1 Functional Program Objectives

The primary functional objective for the Seton Recreation Facility is to provide a centre for recreational, leisure and cultural activities. Secondary to this is the provision of certain competitive and high performance components within the facility. In addition, due to its proximity to the South Health Campus, there is opportunity for the facility to provide regenerative and rehabilitative programs. The intent is not to divide all of these uses and functions, but rather to combine and open the relationships between them, allowing for connectivity, and creating a truly multi-use, multi-generational, community facility.

The connectivity between the components of the facility is programmed into a component labeled 'programmable circulation'. This circulation will be a dynamic space, in which events, performances and activities can take place. The programmable circulation will provide significant visual access to all of the major facility components: aquatics, ice, fitness, gymnasiums, library and arts.

The aquatics component at Seton will provide play, learning and fitness opportunities for individuals and families through the use of a large recreation pool, with features such as a current channel, wave pool, waterslides, climbing walls, vortex and spas. The 52 metre, 10 lane lap pool with combination dive tank, will also provide play, learning and fitness opportunities, while accommodating the training and competitive needs of swim clubs and diving clubs. Ancillary spaces will support both the recreation and the competitive aspects of the aquatics component. Spectator seating for the Seton aquatics is of particular importance and would be accessible through the programmable circulation.

Two other spectator accessible components, the ice arenas and gymnasiums, would be booked and used by third-party groups and organizations, in addition to drop-in use, and would accommodate the full range of sport activity from introductory to high performance. The provision of spectator seating for these two components enables their use for games and competitions.

The ice component consists of two NHL regulation sized rinks, used by all ages. It will have dedicated team change rooms and can be used for hockey and ringette practices and games, figure skating rehearsals and competitions, and learn-to-skate lessons. The ice component will have a separate entrance, thus facilitating access to the team change rooms. The drop-in use of the ice will also encourage pleasure skating.

The gymnasium consists of three courts. These courts will have multipurpose flooring and will accommodate a multitude of dry sports: basketball, volleyball, badminton, field and floor hockey, futsal and indoor soccer practice. In addition, one of the courts will be slightly oversized to meet the growing demand of netball. There will be two dedicated team rooms for the gymnasium to meet competition needs. The gymnasium will be directly adjacent to the fitness component.

Health and fitness objectives would be met through the development of a large-scale state-of-the-art fitness centre, incorporating strength and cardio machines, studios, stretching areas and an interconnected, recreational use running/walking track. The fitness centre is a significant component at the Seton facility and will comprise 11% of the total gross floor area of the entire facility.

The 2,400 square metre library would be physically accessed from the programmable circulation with an objective to maintain visual accessibility to the other major facility components. The 300 seat theatre and artist studios should be in close proximity to the library. Components such as multipurpose rooms and the youth centre will be a bridge between the cultural and sport activities. Further work on the library and cultural spaces will be conducted in conjunction with the planning for the Central Library project.

Child care and physiotherapy will be directly accessible from the programmable circulation, with physiotherapy having a direct adjacency to the fitness centre. The physiotherapy would use the aquatics component as well for regenerative and rehabilitative therapy. Other retail components, such as the food services and the pro shop, will be directly integrated into the programmable circulation, further activating the space. Public washrooms too will be physically accessible from the programmable circulation.

The wet/dry common change rooms will provide the change room facilities necessary for both the aquatics and the dry sports. The wet areas (showers, drying areas) will be clearly distinct from the dry areas (lockers, etc.). They will be separated into women's, men's and family change room areas. They will have a direct adjacency to the aquatics component.

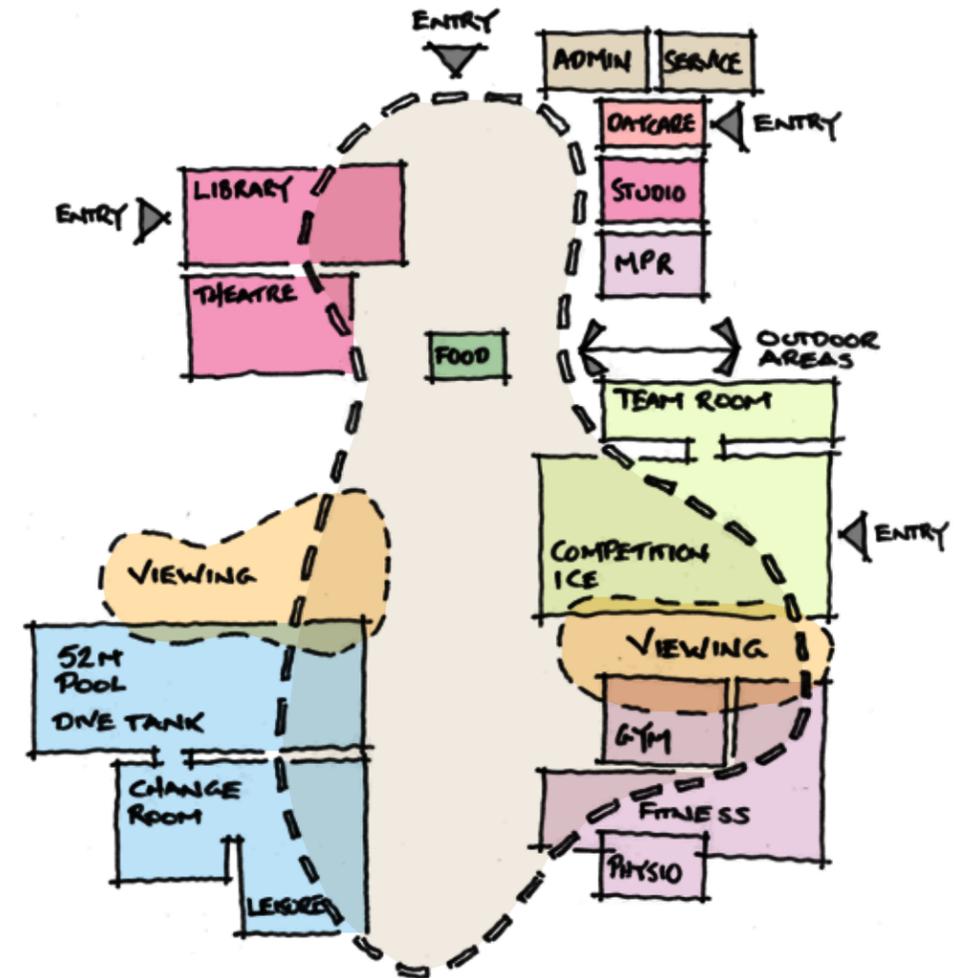
The administrative component allows for 30 full-time employees, keeping in mind that a number of the full-time employees will be stationed permanently throughout the facility. The administrative component will also accommodate some modest City office space, if required.

Support spaces such as a security room, first aid, janitor's rooms, laundry, garbage and recycling, mechanical and electrical rooms, etc. have all been allocated space in the functional program.

Subject to the site's capabilities, there may be an allowance for some outdoor amenity development, such as a skateboard park. The objective is not to provide a large expanse of outdoor programming as there will be future high school fields and a future city park in direct proximity to the Seton Recreation Facility providing further outdoor amenities.

As an integrated facility, revenues would be derived from a combination of membership fees, facility rentals, drop-in admissions and registered programs. The provision of drop-in and registered programs for all segments of the population (ie. all ages and abilities) that focus on introductory activities and basic skill development would be a core element of the facility's operation. More accomplished and higher-performance opportunities in both sport and the arts would be provided by the groups and organizations who book facility components to deliver their programs and services.

The Seton Recreation Facility will be a community hub where people of all ages and abilities can come together to play, learn, exercise, relax and have fun.



# SECTION 3.1 | FUNCTIONAL PROGRAM

## SETON RECREATION FACILITY

### 3.1.2 Functional Program Summary

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>25,831</b>	<b>1.18</b>	<b>30,578</b>
1.0 AQUATICS			
1.1.1 COMPETITIVE LAP POOL AND DIVE TANK NATATORIUM Lap Pool (52m - 10 lane w/ bulkhead)/Dive Tank Combination	2,302	1.05	2,417
1.2.1 RECREATION NATATORIUM Recreation Pool (Play Feature, Current Channel, Vortex, Waterslide)	1,400	1.05	1,470
Spa, Sauna/Steam Room, Seating (300), Multipurpose Room, Team Rooms, Meet Support, Pool Mechanical	1,115	1.25	1,397
<b>SUB-TOTAL</b>	<b>4,817</b>	<b>1.10</b>	<b>5,284</b>
2.0 ICE Competition Ice: 2 Boarded, Change Rooms (8), Flex Rooms (4), Referee Rooms (2), Seating (400), Multipurpose Room, Refrigeration, Ice Resurfacing	<b>5,563</b>	<b>1.11</b>	<b>6,168</b>
4.0 GYMNASIUM Courts (3), Seating (200), Team Rooms	<b>2,540</b>	<b>1.10</b>	<b>2,790</b>
7.0 FITNESS CENTRE (11% of G.F.A.) Strength and Cardio, Studios, Stretching, Track, Personal Training Rooms, Offices	<b>2,970</b>	<b>1.17</b>	<b>3,474</b>
8.0 MULTIPURPOSE ROOMS Large (two 24 person), Meeting Rooms (three 10 person)	<b>264</b>	<b>1.20</b>	<b>317</b>
9.0 YOUTH CENTRE (30 person)	<b>120</b>	<b>1.18</b>	<b>142</b>
10.0 LIBRARY	<b>2,248</b>	<b>1.07</b>	<b>2,400</b>
11.0 ARTS			
11.1 ARTIST SPACES Studios, Gallery, Workshop	396	1.20	475
11.2 THEATRE Stage, Seating (300), Storage, Control Booth, Dressing Rooms	400	1.45	579
<b>SUB-TOTAL</b>	<b>796</b>	<b>1.32</b>	<b>1,054</b>
12.0 CHILD CARE			
12.1 DAYCARE 66 Childcare Spaces, 16 Staff Members	479	1.05	503
12.2 CHILD-MINDING 40 Childcare Spaces, 4 Staff Members	148	1.05	155
<b>SUB-TOTAL</b>	<b>627</b>	<b>1.05</b>	<b>658</b>

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>25,831</b>	<b>1.18</b>	<b>30,578</b>
13.0 RETAIL/COMMERCIAL			
13.1 FOOD SERVICES Servery, Kitchen, Food Storage, Office	230	1.08	247
13.3 PRO SHOP Pro Shop	50	1.05	53
13.4 PHYSIOTHERAPY/MEDICAL CLINIC	265	1.28	338
<b>SUB-TOTAL</b>	<b>545</b>	<b>1.17</b>	<b>638</b>
14.0 WET/DRY COMMON CHANGE ROOMS (1,500 LOCKERS) Women's/Men's/Family Change Rooms, Washrooms, Drying, Showers, Steam Rooms, Saunas	<b>2,058</b>	<b>1.11</b>	<b>2,275</b>
15.0 ADMINISTRATIVE (30 FTE) & CITY OFFICE SPACE Control/Customer Service, Closed/Open Offices, Meeting Room, Work & Lunch Room	<b>205</b>	<b>1.38</b>	<b>282</b>
16.0 PROGRAMMABLE CIRCULATION (5% of G.F.A.)			<b>1,529</b>
17.0 SUPPORT SPACES Public WCs, Security, First Aid, Interfaith, Building Mechanical, Electrical, Garbage/ Recycling, Loading, Laundry, Ops, Janitor, Bike Storage	<b>3,079</b>	<b>1.16</b>	<b>3,567</b>
<b>TOTAL OUTDOOR AREA</b>	<b>27,218</b>	<b>1.00</b>	<b>27,218</b>
18.0 OUTDOOR AREAS Parking - 646 Stalls	22,610	1.00	22,610
Possible Outdoor Amenities	4,608	1.00	4,608
<b>SUB-TOTAL</b>	<b>27,218</b>	<b>1.00</b>	<b>27,218</b>

# SECTION 3.2 | FUNCTIONAL PROGRAM

## QUARRY PARK RECREATION FACILITY

### 3.2 Functional Program - Quarry Park

#### 3.2.1 Functional Program Objectives

While the Quarry Park Recreation Facility will be serving surrounding communities, it is also adjacent to business parks, and as such, it caters to mix use designation. Program offerings will be developed for all segments of the population (i.e. all ages and abilities), and will concentrate on introductory activities and basic skill development, and be non-competitive in nature.

Quarry Park will have an aquatics component, a single court gymnasium, and a large fitness centre. The aquatics will have a 25 metre, six lane lap pool and an adjacent small scale leisure pool with features such as a current channel, vortex and participatory play feature, with a secondary use as a teaching pool. The fitness centre is a large draw for this type of recreation facility, and as such, it comprises 20% of the total gross floor area of the facility. Included within the fitness centre are strength and cardio machines, fitness studios, stretching areas and a recreational use running/walking track. Also included are personal training rooms. The multipurpose rooms in the facility can be used as studios, as well as classrooms and meetings spaces. The single court gymnasium will have multipurpose flooring to accommodate a variety of dry sports such as basketball, volleyball, badminton, field and floor hockey, futsal and soccer practice.

The Glenmore Square Library will be relocated to the site and incorporated into 991 square metres of the facility, thus contributing to the cultural aspect of the recreation facility. Additional work on the library will be conducted in conjunction with the planning for the Central Library project. Furthering its place as a community facility, daycare and child minding have been programmed into the facility.

The wet/dry common change rooms will provide the change room facilities necessary for both the aquatics and the dry sports. The wet areas (showers, drying areas) will be clearly distinct from the dry areas (lockers, etc.). They will have a direct adjacency to the aquatics component. They will be separated into women's, men's and family change room areas. In addition, subject to the future operator's preference, executive (or 'plus') change rooms have been programmed, catering to a more adult demographic typically found in urban or business park locations.

The administrative component allows for 15 full-time employees, keeping in mind that a number of the full-time employees will be stationed permanently throughout the facility. The administrative component will also accommodate some modest City office space, if required.

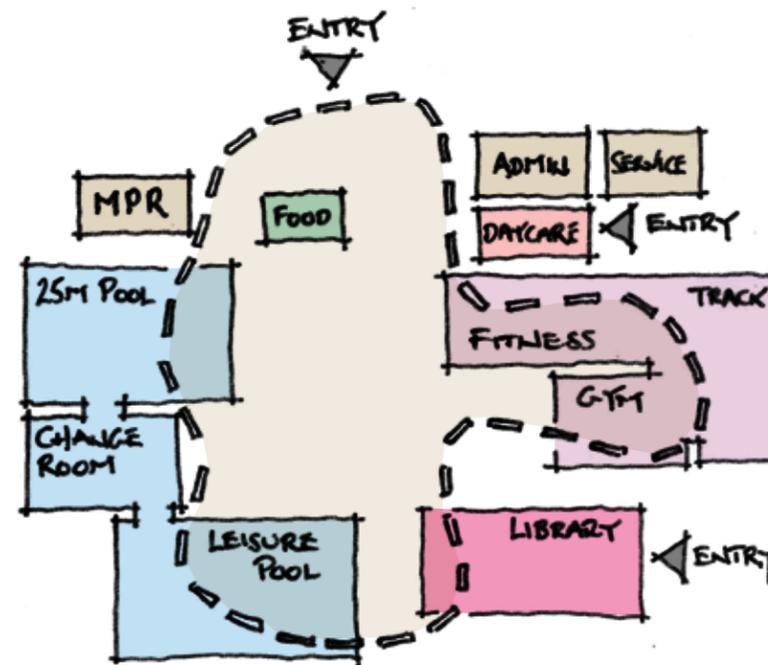
Support spaces such as a security room, first aid, janitor's rooms, laundry, garbage and recycling, mechanical and electrical rooms, etc. have all been allocated space in the functional program.

Programmable circulation has been programmed into the Quarry Park Recreation Facility but at a lower percentage than at the Seton or Rocky Ridge recreation facilities. This is due to the lack of requirement of any spectator viewing within the facility. The programmable circulation will still provide a large circulation space that can be used for programs and activities. It will also provide visual access to all of the major components within the space. Food services will be incorporated into this space, thus animating it all the more.

While there are no outdoor areas programmed into the Quarry Park Recreation Facility (other than children's play structures) there is an opportunity to incorporate a two-field fieldhouse onto the Quarry Park site, with dedicated team change rooms. This would be a possible future phased part of the design and construction plan subject to additional funding. The fieldhouse would provide multipurpose flooring to allow for a variety of sports and activities.

For the majority of the facility, memberships, drop-in admissions and registered program fees would be the main sources of revenue; however the fieldhouse, if built, would provide an opportunity for revenue from facility rentals, as would the gymnasium and aquatics components albeit on a smaller scale.

The Quarry Park Recreation Facility will provide leisure and recreational amenities for individuals and families with a focus on spontaneous and unstructured use.



# SECTION 3.2 | FUNCTIONAL PROGRAM

## QUARRY PARK RECREATION FACILITY

### 3.2.2 Functional Program Summary

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>8,357</b>	<b>1.12</b>	<b>9,401</b>
1.0 AQUATICS Lap Pool (25m - 6 lane), Recreation Pool, Spa, Sauna/Steam Room, Pool Mechanical	1,293	1.09	1,413
4.0 GYMNASIUM Court (1)	638	1.05	671
7.0 FITNESS CENTRE (20% of G.F.A.) Strength and Cardio, Studios, Stretching, Track, Training Rooms, Office	1,543	1.14	1,761
8.0 MULTI-PURPOSE ROOMS Large (one 24 person), Meeting Rooms (two 10 person)	141	1.20	169
10.0 LIBRARY	923	1.07	991
12.0 CHILD CARE			
12.1 DAYCARE 66 Childcare Spaces, 16 Staff Members	479	1.05	503
12.2 CHILD-MINDING 40 Childcare Spaces, 4 Staff Members	148	1.05	155
<b>SUB-TOTAL</b>	<b>627</b>	<b>1.05</b>	<b>658</b>
13.0 RETAIL/COMMERCIAL			
13.1 FOOD SERVICES Serving, Food Storage, Office	95	1.09	104
<b>SUB-TOTAL</b>	<b>95</b>	<b>1.09</b>	<b>104</b>
14.0 WET/DRY COMMON CHANGE ROOMS (600 & 300 PLUS LOCKERS) Women's/Men's/Family Change Rooms, Washrooms, Drying, Showers, Steam Rooms, Saunas, Women's/Men's Plus Change Rooms	1,863	1.11	2,060
15.0 ADMINISTRATIVE (15 FTE) & CITY OFFICE SPACE Control/Customer Service, Closed/Open Offices, Meeting Rooms, Work & Lunch Rooms, Washrooms	200	1.38	275
16.0 PROGRAMMABLE CIRCULATION (3% of G.F.A.)			282
17.0 SUPPORT SPACES Public WCs, Security, First Aid, Interfaith, Mechanical, Electrical, Garbage/ Recycling, Loading, Laundry, Janitor, Bike Storage	1,034	0.98	1,016
<b>TOTAL OUTDOOR AREA</b>	<b>5,845</b>	<b>1.00</b>	<b>5,845</b>
18.0 OUTDOOR AREAS Parking - 167 Stalls	5,845	1.00	5,845

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.) INCLUDING POSSIBLE FUTURE PHASE</b>	<b>12,767</b>	<b>1.12</b>	<b>14,351</b>
3.0 INDOOR FIELDS/DRY PADS Indoor Fields (2), Change Rooms (8), Flex Rooms (4), Referee Rooms (2), Seating (400), Multipurpose Room	4,410	1.12	4,950

# SECTION 3.3 | FUNCTIONAL PROGRAM

## GREAT PLAINS RECREATION FACILITY

### 3.3 Functional Program - Great Plains

#### 3.3.1 Functional Program Objectives

The Great Plains Recreation Facility, consisting primarily of two boarded ice rinks, will be a competitive tournament facility with a focus on team-based ice sports such as ice and sledge hockey, and ringette. Figure skating too would be accommodated at the facility. There is potential for a possible future phased portion of the facility which would consist of two dry pads, thus expanding the focus of the facility to lacrosse and ball hockey. While the facility will be largely adult and teen based, it can also be used for children's tournaments.

The NHL regulation sized boarded ice rinks will have dedicated team change rooms, referee rooms, flex rooms and other ancillary spaces. A refrigeration room and ice resurfer's area will serve both rinks. There will be a small fitness/multipurpose component in the facility available for the training requirements of the team-based sports using the complex. There will be small dedicated women's and men's change rooms for this fitness/multipurpose component.

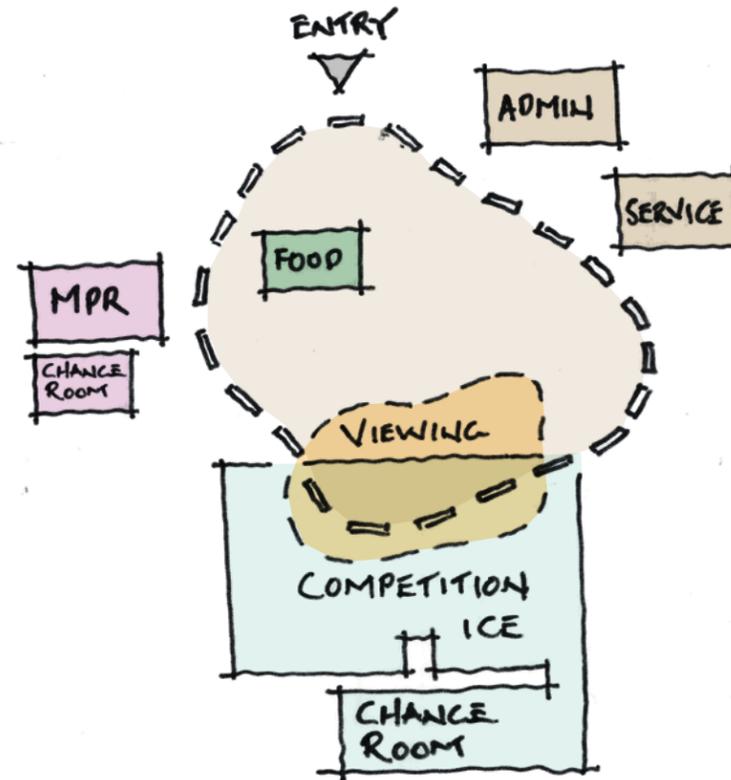
A food service component will further enable the facility to become a tournament facility. The food services will be incorporated into the programmable circulation thus allowing visual access to both rinks. As this is a tournament facility, spectator viewing will be an important factor and has been programmed in as 400 seats for one rink and 200 seats for the other. Spectator viewing will be physically and visually accessed from the programmable circulation. Programmable circulation can also be used as crush space for teams and players during tournaments.

The administrative component allows for three full-time employees and would also accommodate some modest City office space, if required.

Support spaces such as a security room, first aid, janitor's rooms, garbage and recycling, mechanical and electrical rooms, etc. have all been allocated space in the functional program.

The possible future phased portion of the facility of two lacrosse fields/dry pads would also provide dedicated team change rooms, referee rooms, flex rooms and other ancillary spaces. An additional refrigeration room and ice resurfer's area would serve both phased pads, thus enabling the facility to be transformed into four ice rinks should the need arise.

Revenue for the Great Plains Recreation Facility would primarily be derived from the third party rental of the ice arenas and dry pads, along with associated food services revenue.



### 3.3.2 Functional Program Summary

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>6,781</b>	<b>1.16</b>	<b>7,891</b>
2.0 ICE Competition Ice: Boarded (2), Change Rooms (8), Flex Rooms (4), Referee Rooms (2), Seating (600), Refrigeration, Ice Resurfacing	<b>5,513</b>	<b>1.14</b>	<b>6,268</b>
8.0 MULTIPURPOSE ROOMS Large Studio/Fitness (one 20 person), Meeting Room (two 10 person)	<b>131</b>	<b>1.20</b>	<b>157</b>
13.0 RETAIL/COMMERCIAL			
13.1 FOOD SERVICES Serving, Seating Area, Kitchen, Food Storage, Office	310	1.20	372
13.3 PRO SHOP Skate Sharpening	20	1.10	22
<b>SUB-TOTAL</b>	<b>330</b>	<b>1.19</b>	<b>394</b>
14.0 DRY COMMON CHANGE ROOMS (50 LOCKERS) Women's/Men's Change Rooms, Washrooms, Drying, Showers	<b>65</b>	<b>1.20</b>	<b>78</b>
15.0 ADMINISTRATIVE (3 FTE) & CITY OFFICE SPACE Closed Offices, Meeting Room, Work Room	<b>55</b>	<b>1.40</b>	<b>77</b>
16.0 PROGRAMMABLE CIRCULATION (3% of G.F.A.)			<b>158</b>
17.0 SUPPORT SPACES Public WCs, Security, First Aid, Interfaith, Mechanical, Electrical, Garbage/ Recycling, Janitor, Bike Storage	<b>687</b>	<b>1.11</b>	<b>759</b>
<b>TOTAL OUTDOOR AREA</b>	<b>8,295</b>	<b>1.00</b>	<b>8,295</b>
18.0 OUTDOOR AREAS Parking - 237 Stalls	<b>8,295</b>	<b>1.00</b>	<b>8,295</b>

<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.) INCLUDING POSSIBLE FUTURE PHASE</b>	<b>12,149</b>	<b>1.15</b>	<b>13,985</b>
3.0 INDOOR FIELDS/DRY PADS Lacrosse Pads (2), Change Rooms (8), Flex Rooms (4), Referee Rooms (2), Seating (600), Refrigeration, Ice Resurfacing	5,368	1.14	6,094

# SECTION 3.4 | FUNCTIONAL PROGRAM

## ROCKY RIDGE RECREATION FACILITY

### 3.4 Functional Program - Rocky Ridge

#### 3.4.1 Functional Program Objectives

While there will be opportunities for training and competition in certain components within the facility, the primary functional objective for the Rocky Ridge Recreation Facility is to provide a facility for recreational, leisure and cultural activities. Uniquely, the site for the Rocky Ridge facility allows for a significant amount of outdoor programming which will thus become a feature of the facility. The site also allows for the possible relocation of the Calgary West Soccer Centre.

Similar to the Seton Recreation Facility, the intent at the Rocky Ridge facility is to combine and open the relationships between all its components, allowing for connectivity, and creating a truly multi-use, multi-generational, community facility. The connectivity between the components of the facility is programmed into programmable circulation. This circulation will be a dynamic space, in which events, performances and activities can take place. The programmable circulation will provide significant visual access to all of the major facility components: aquatics, ice, fitness, gymnasiums, library and arts.

The aquatics component at Rocky Ridge will accommodate training and competitive needs of swim clubs in its 25 metre, eight lane pool. The lap pool and the large recreation pool will provide play, learning and fitness opportunities for individuals and families. Ancillary spaces will support both the recreation and the training aspects of the aquatics component. Spectator seating for the Rocky Ridge aquatics would be accessible through the programmable circulation.

Two other spectator accessible components, the ice arena and gymnasiums, would be booked and used by third-party groups and organizations, in addition to drop-in use, and would accommodate the full range of sport activity from introductory to high performance. The provision of spectator seating for these two components enables their use for games and competitions.

The ice component consists of two ice rinks: one an NHL regulation sized rink, and, unique of the four facilities, one will be recreational ice, a free-form surface to be used primarily for pleasure skating. The boarded rink will have dedicated team change rooms and can be used for hockey and ringette practices and games of all ages, as well as figure skating rehearsals and competitions. Figure skating can also be accommodated on the free-form ice, as can skate lessons. The ice component will have a separate entrance, thus facilitating access to the team change rooms. In addition, the free-form surface will have dedicated public washrooms with skate flooring.

The gymnasium consists of three courts. These courts will have multipurpose flooring and will accommodate a multitude of dry sports: basketball, volleyball, badminton, field and floor hockey, futsal and soccer practice. In addition, one of the courts will be slightly oversized to meet the growing demand of netball. There will be two dedicated team rooms for the gymnasium to meet competition needs. The gymnasium will be directly adjacent to the fitness component.

Health and fitness objectives would be met through the development of a large-scale state-of-the-art fitness centre, incorporating strength and cardio machines, studios, stretching areas and an interconnected, recreational use running/walking track. The fitness centre is a significant component at the Rocky Ridge facility and will comprise 13% of the total gross floor area of the entire facility.

The Rocky Ridge facility will offer a climbing wall, a component attractive to the youth market. The climbing wall would be a significant visual feature.

The 1,700 square metre library would be physically accessed from the programmable circulation with an objective to maintain visual accessibility to the other major facility components. The 300 seat theatre and artist studios should be in close proximity to the library. Components such as multipurpose rooms and the youth centre will be a bridge between the cultural and sport activities. Further work on the library and cultural spaces will be conducted in conjunction with the planning for the Central Library project.

Child care and physiotherapy will be directly accessible from the programmable circulation, with physiotherapy having a direct adjacency to the fitness centre. The physiotherapy would use the aquatics component as well for regenerative and rehabilitative therapy. Other retail components, such as the food services and the pro shop, will be directly integrated into the programmable circulation, further activating the space. Public washrooms too will be physically accessible from the programmable circulation.

The wet/dry common change rooms will provide the change room facilities necessary for both the aquatics and the dry sports. The wet areas (showers, drying areas) will be clearly distinct from the dry areas (lockers, etc.) They will be separated into women's, men's and family change room areas. They will have a direct adjacency to the aquatics component.

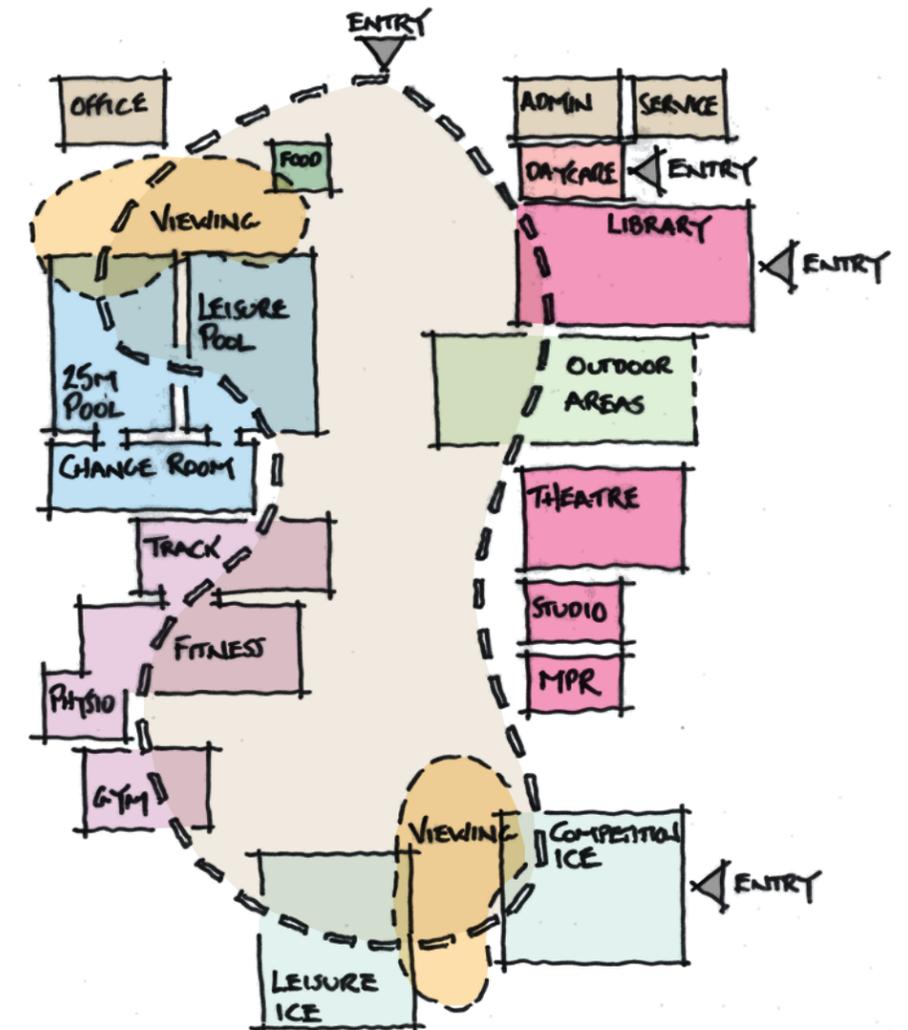
The administrative component allows for 30 full-time employees, keeping in mind that a number of the full-time employees will be stationed permanently throughout the facility. The administrative component will also accommodate some modest City office space, if required.

Support spaces such as a security room, first aid, janitor's rooms, laundry, garbage and recycling, mechanical and electrical rooms, etc. have all been allocated space in the functional program.

The Rocky Ridge Recreation Facility's outdoor spaces will be an important programming component. In addition to basketball courts, tennis courts, a skateboard park and children's play structures, the site encourages significant outdoor interpretive nature trails and paths. As mentioned previously, the site could allow for the possible relocation of the Calgary West Soccer Centre which could also include two outdoor artificial turf fields.

As an integrated facility, revenues would be derived from a combination of membership fees, facility rentals, drop-in admissions and registered programs. The provision of drop-in and registered programs for all segments of the population (ie. all ages and abilities) that focus on introductory activities and basic skill development would be a core element of the facility's operation. More accomplished and higher-performance opportunities in both sport and the arts would be provided by the groups and organizations who book facility components to deliver their programs and services.

The Rocky Ridge Recreation Facility will be a community hub where people of all ages and abilities can come together to play, learn, exercise, relax and have fun.



# SECTION 3.4 | FUNCTIONAL PROGRAM

## ROCKY RIDGE RECREATION FACILITY

### 3.4.2 Functional Program Summary

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>23,208</b>	<b>1.19</b>	<b>27,545</b>
1.0 AQUATICS			
1.1.1 LAP POOL NATATORIUM Lap Pool (25m - 8 lane with springboard diving)	1,247	1.05	1,309
1.2.1 RECREATION NATATORIUM Recreation Pool (eg. Wave, Play Feature, Current Channel, Vortex, Waterslides)	1,400	1.05	1,470
Spa, Sauna & Steam Room, Seating (200), Administration, Multipurpose Room, Pool Mechanical	690	1.29	894
<b>SUB-TOTAL</b>	<b>3,337</b>	<b>1.10</b>	<b>3,673</b>
2.0 ICE Boarded and Free Form, Change Rooms (4), Flex Rooms (2), Referee Rooms (2), Seating (200), Multipurpose Room, Public Washrooms, Refrigeration, Ice Resurfacing	<b>5,075</b>	<b>1.10</b>	<b>5,582</b>
4.0 GYMNASIUM Courts (3), Seating (200), Team Rooms	<b>2,539</b>	<b>1.10</b>	<b>2,789</b>
6.0 CLIMBING WALL	<b>50</b>	<b>1.20</b>	<b>60</b>
7.0 FITNESS CENTRE (13% of G.F.A.) Strength and Cardio, Studios, Stretching, Track, Personal Training Rooms, Offices	<b>2,970</b>	<b>1.17</b>	<b>3,474</b>
8.0 MULTIPURPOSE ROOMS Large (two 24 person), Meeting Rooms (three 10 person)	<b>264</b>	<b>1.20</b>	<b>317</b>
9.0 YOUTH CENTRE (30 person)	<b>120</b>	<b>1.18</b>	<b>142</b>
10.0 LIBRARY	<b>1,604</b>	<b>1.07</b>	<b>1,718</b>
11.0 ARTS			
11.1 ARTIST SPACES Studios, Gallery, Workshop	396	1.20	475
11.2 THEATRE Stage, Seating (300), Storage, Control Booth, Dressing	400	1.45	579
<b>SUB-TOTAL</b>	<b>796</b>	<b>1.32</b>	<b>1,054</b>
12.0 CHILDCARE			
12.1 DAYCARE 66 Childcare Spaces, 16 Staff Members	479	1.05	503
12.2 CHILD-MINDING 40 Childcare Spaces, 4 Staff Members	148	1.05	155
<b>SUB-TOTAL</b>	<b>627</b>	<b>1.05</b>	<b>658</b>

FACILITY COMPONENTS	N.F.A. (s.m.)	GROSS FACTOR	G.F.A. (s.m.)
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.)</b>	<b>23,208</b>	<b>1.19</b>	<b>27,545</b>
13.0 RETAIL/COMMERCIAL			
13.1 FOOD SERVICES Serving, Kitchen, Food Storage, Office	230	1.08	247
13.3 PRO SHOP	50	1.05	53
13.4 PHYSIOTHERAPY/MEDICAL CLINIC	265	1.24	338
<b>SUB-TOTAL</b>	<b>545</b>	<b>1.17</b>	<b>638</b>
14.0 WET/DRY COMMON CHANGE ROOMS (1,500 LOCKERS) Women's/Men's/Family Change Rooms, Washrooms, Drying, Showers, Steam Rooms, Saunas	<b>2,058</b>	<b>1.11</b>	<b>2,275</b>
15.0 ADMINISTRATIVE (30 FTE) & CITY OFFICE SPACE Control/Customer Service, Closed/Open Offices, Meeting Room, Work & Lunch Room	<b>205</b>	<b>1.38</b>	<b>282</b>
16.0 PROGRAMMABLE CIRCULATION (5% of G.F.A.)			<b>1,377</b>
17.0 SUPPORT SPACES Public WCs, Security, First Aid, Interfaith, Building Mechanical, Electrical, Garbage/Recycling, Loading, Laundry, Janitor, Bike Storage	<b>3,018</b>	<b>1.16</b>	<b>3,506</b>
<b>TOTAL OUTDOOR AREA</b>	<b>28,023</b>	<b>1.00</b>	<b>28,023</b>
18.0 OUTDOOR AREAS Parking - 669 Stalls	23,415	1.00	23,415
Basketball Court (1), Tennis Courts (3), Skateboard Park, Daycare Play Area, Children's Play Structure, Nature Trails	4,608	1.00	4,608
<b>SUB-TOTAL</b>	<b>28,023</b>	<b>1.00</b>	<b>28,023</b>
<b>TOTAL NET AND GROSS FLOOR AREA (N.F.A. &amp; G.F.A.) INCLUDING POSSIBLE FUTURE PHASE</b>	<b>36,308</b>	<b>1.13</b>	<b>41,094</b>
3.0 INDOOR FIELDS/DRY PADS			
3.1 INDOOR FIFA Field divides into four 61m (200') x 26m (85') fields, Warm-up setback	11,656	1.00	11,656
Change (16), Flex (2), Referee Rooms (2), Seating (400), Multipurpose Room	1,444	1.31	1,893
<b>SUBTOTAL</b>	<b>13,100</b>	<b>1.03</b>	<b>13,549</b>
<b>TOTAL OUTDOOR AREA INCLUDING POSSIBLE FUTURE PHASE</b>	<b>46,255</b>	<b>1.00</b>	<b>46,255</b>
18.0 OUTDOOR AREA Two Artificial Turf Fields	18,232	1.00	18,232

# SECTION 4.0 | CONCEPT DESIGN OBJECTIVES

## 4.0 Concept Design - Objectives

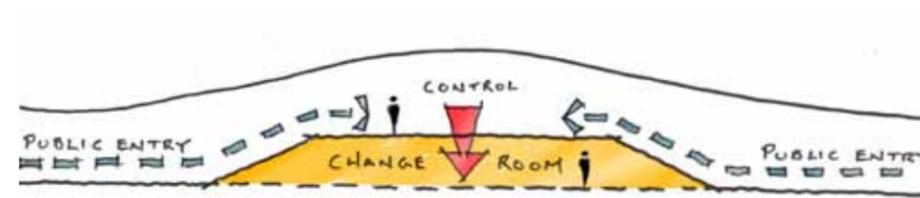
A conceptual design is the creation of an idea, the exploration of the intentions of an idea and the representation of an idea. The following tools and representations enable us to develop and communicate the conceptual design:

- Diagrams demonstrate primary and secondary circulation, visual and spatial interconnections, vertical organization and basic component relationships.
- Site plans illustrate the facility location, the parking layouts, road access, sidewalks and landscaping.
- Colour coded plans clearly indicate the component locations and provide a more detailed view of the component relationships and the facility circulation.
- Physical models have been built to diagrammatically communicate the layering of spaces and the visual connectivity between spaces, and to identify circulation. Physical models demonstrate rudimentary massing of the building.
- 3D computer modelling is the next level beyond the physical models. They further illustrate the scale, proportion, and volume of the building design.

The intent of the concept designs at this time is not to design the facilities, but rather to verify the functional program and to test how the program areas fit on the sites. The concept designs are a starting point in which the functional program objectives are explored and tested. The functional program informs the concept design, which in turn informs the detailed design. The concept designs for the recreation facilities have been developed to facilitate discussion and feedback on the functional program and conceptual design.

The facilities are important hubs of the community, functioning as places where people of all ages and abilities can come together to play, learn, exercise, relax and have fun, while providing a blend of community, cultural, leisure and recreational amenities for individuals, families and competitive sports groups alike. While each of the facilities has unique programmatic objectives, they share a number of important underlying conceptual design objectives, as follows.

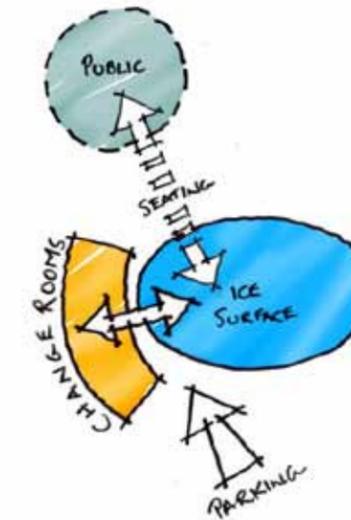
### Public



#### Primary Circulation

- Dual main entrances direct users to a large, light filled, programmable circulation space. Conceived to be highly transparent, this physically and visually permeable area ties the major components of the facilities together.
- The main programmable circulation space is generously sized to facilitate flexible programming opportunities.
- A consolidated point of control is located in the programmable circulation space, controlling user access to the change rooms and components at the lower participant level.

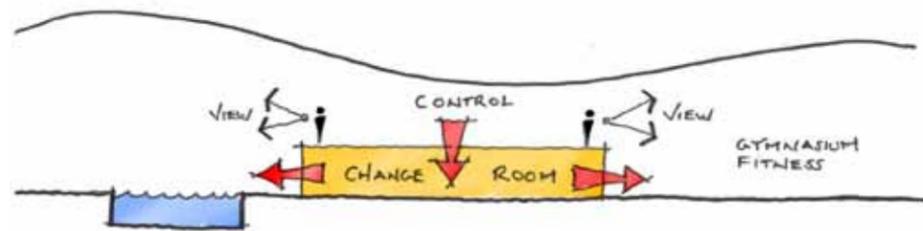
### Public and Participant



#### Secondary Circulation

- The access requirements for the ice hockey surfaces differ from the main facility. User groups book and prepay for ice time through various leagues and club organizations. As a result, a centralized control point is not necessary for revenue generation and access control.
- Spectator viewing is stacked above the team change rooms. Access to viewing is provided from the public level, while access to the team change rooms is via a separate exterior entry with dedicated hockey parking.
- Other components such as daycare and physiotherapy may also require secondary entries.

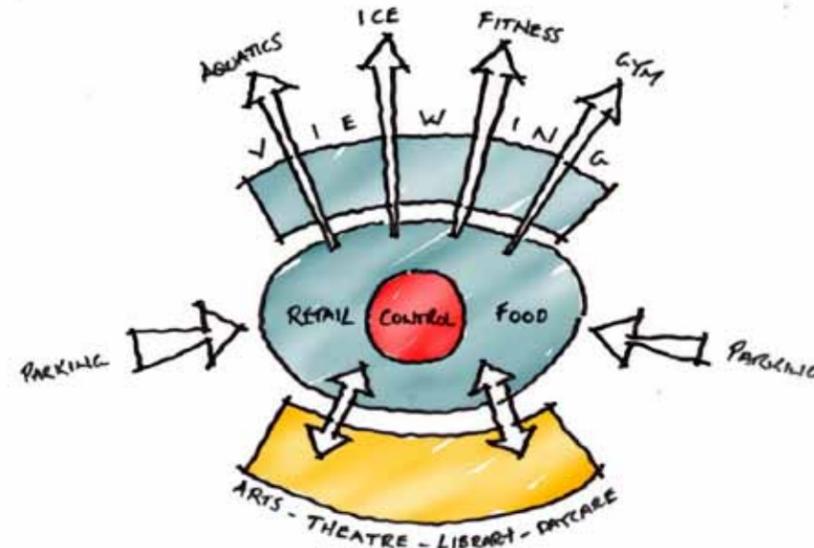
Public and Participant



Vertical Organization:

- The recreation facilities are organized over two levels: an upper public level is stacked over the lower participant level.
- Public program elements that do not require paid access (membership/drop-in) to recreation facilities, such as spectator viewing, retail and food services, library, theatre, arts studios, multipurpose spaces, child minding and youth centre, are located on the upper public level.
- Program elements requiring consolidated controlled access such as change rooms, aquatics, gymnasiums, and fitness areas are located on the lower participant level.
- The change room facilities are centrally placed beneath the public concourse with a direct connection to aquatics, fitness and gymnasiums.

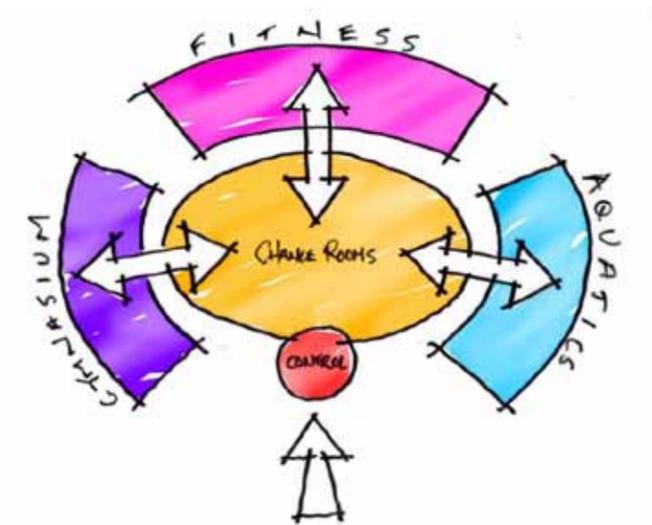
Public



Visual and Spatial Interconnection

- The recreation facilities are organized to maximize visual and spatial connections between program elements. Large openings and windows interconnect spaces, placing the activities in each program on display.
- Connectivity is reinforced by a common unifying roof form that shelters and contains all of the spaces.
- Components requiring separations for environmental reasons (wet/dry, cold/warm) are divided from one another by large expanses of windows, promoting visual interconnectivity.
- The main programmable circulation space serves as space from which all of the major facility components can be viewed. It will be a dynamic space in which events, performances and activities can take place. It provides support to adjacent components such as lobby space for the theatre and seating for food services.
- A strong and open relationship between culture, sport and recreation is forged, providing an extroverted, engaging and unified interior environment, where the public can socialize, view, play, learn and interact.
- By virtue of emphasizing an open contiguous facility, the user experience is intuitive, enhancing legibility and way-finding, and decreasing the requirement for signage.

Participant



Combined Wet/Dry Change Rooms

- The change rooms are combined in a central wet/dry concept, with the aquatics elements accessed through the wet portion of the change facilities, and dry activities accessed from the dry area of the change rooms.
- Separate men's and women's change areas flank either side of the family change area.

# SECTION 4.1 | CONCEPT DESIGN

## SETON RECREATION FACILITY

### 4.1 Concept Design - Seton

#### Site Plan Concept Design

The community of Seton is developing into a vibrant urban town centre in Southeast Calgary where people will have opportunities to work, play and shop. It will have a mixture of residential and business development. A large public services precinct is also planned that will include the regional recreation facility, as well as a regional park, a senior high school, and an LRT station.

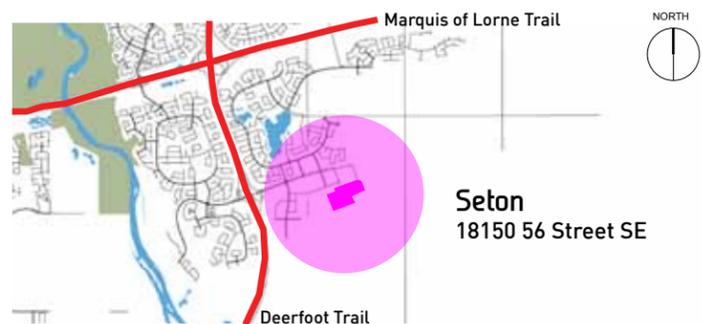
Public transit services will be introduced to meet the needs of the local communities and the town centre in the form of LRT, Bus Rapid Transit and feeder and express busses. The regional pathway system will extend through the area to the town centre, the Bow River escarpment, and major facilities. The urban nature of the neighbourhood will have vitality and an energy that will permeate through to the Seton site, and in return the Seton Recreation Facility will further energize the neighbourhood.

The proposed facility is positioned on the western portion of the site in close proximity to the future LRT station. The entrances are pulled back, creating generous plazas that provide a strong sense of arrival and serve as gathering spaces. The site will have three access points. The major point of access is off Market Street to the north and leads directly to a drop off zone at one of the main building entries. Another access point is located to the west which too will lead directly to a drop off zone, at the second of the main entries. The third access point will be from the west along the shared route with the high school; the parking at this access point will be specific to the ice entry and daycare.

The parking is predominantly located to the northeast of the facility with some parking on the west and south sides of the site. Throughout the parking area, trees and landscaped islands will add to the pedestrian experience while providing shade and shelter.

The facility concept was significantly influenced by the previously determined site size and configuration, as well as the LRT alignment. These determining influences have presented some challenges to the concept design, in that they limit space for outdoor programming and future expansion opportunities, and they limit the options for orienting the facility in a manner that contributes to the vitality of the community and pedestrian environment. The siting of the building has however used the site characteristics to optimal advantage.

Given the regional importance of the major public facilities planned within Seton, additional site planning may be required to ensure the optimization of public lands identified for recreation, parks, transportation and school purposes.



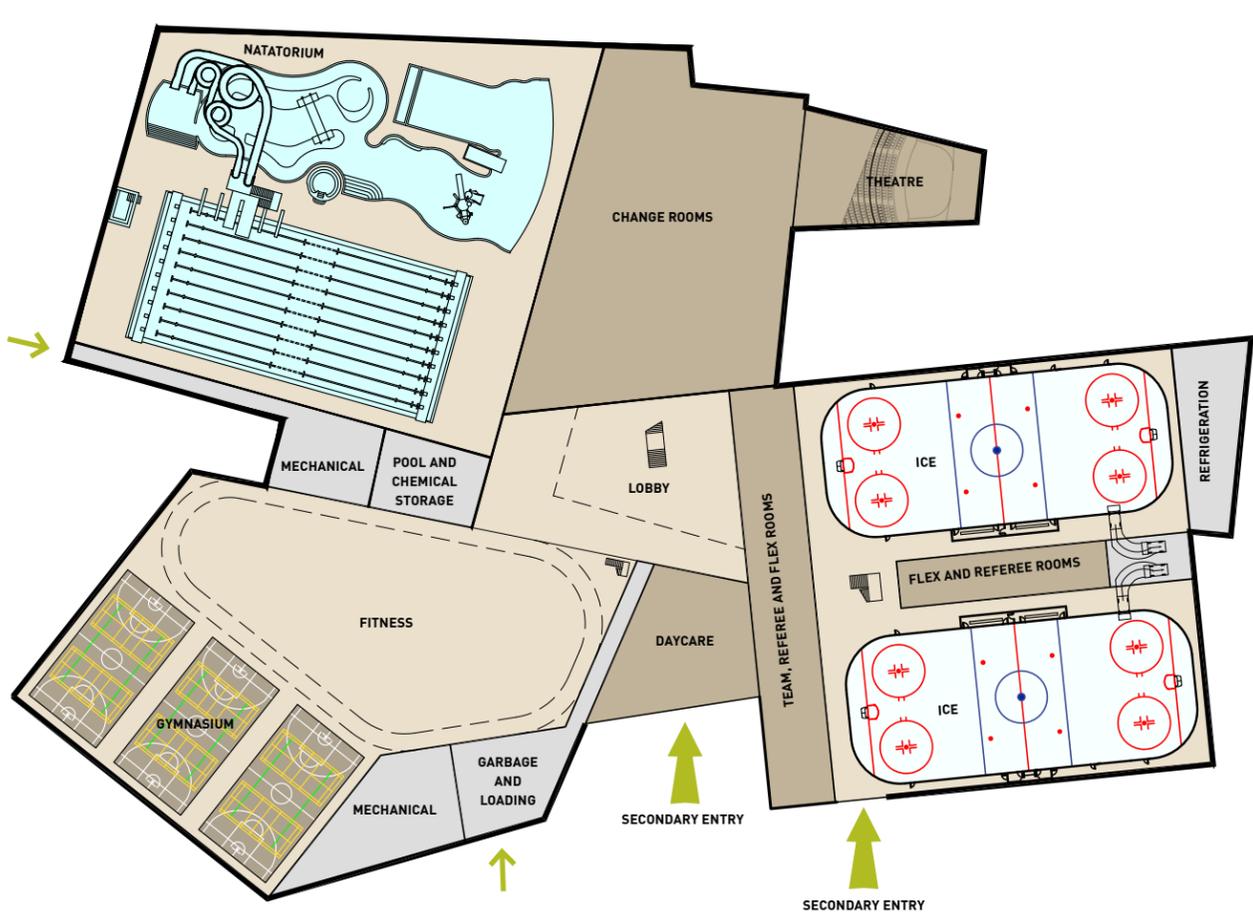
# SECTION 4.1 | CONCEPT DESIGN

## SETON RECREATION FACILITY

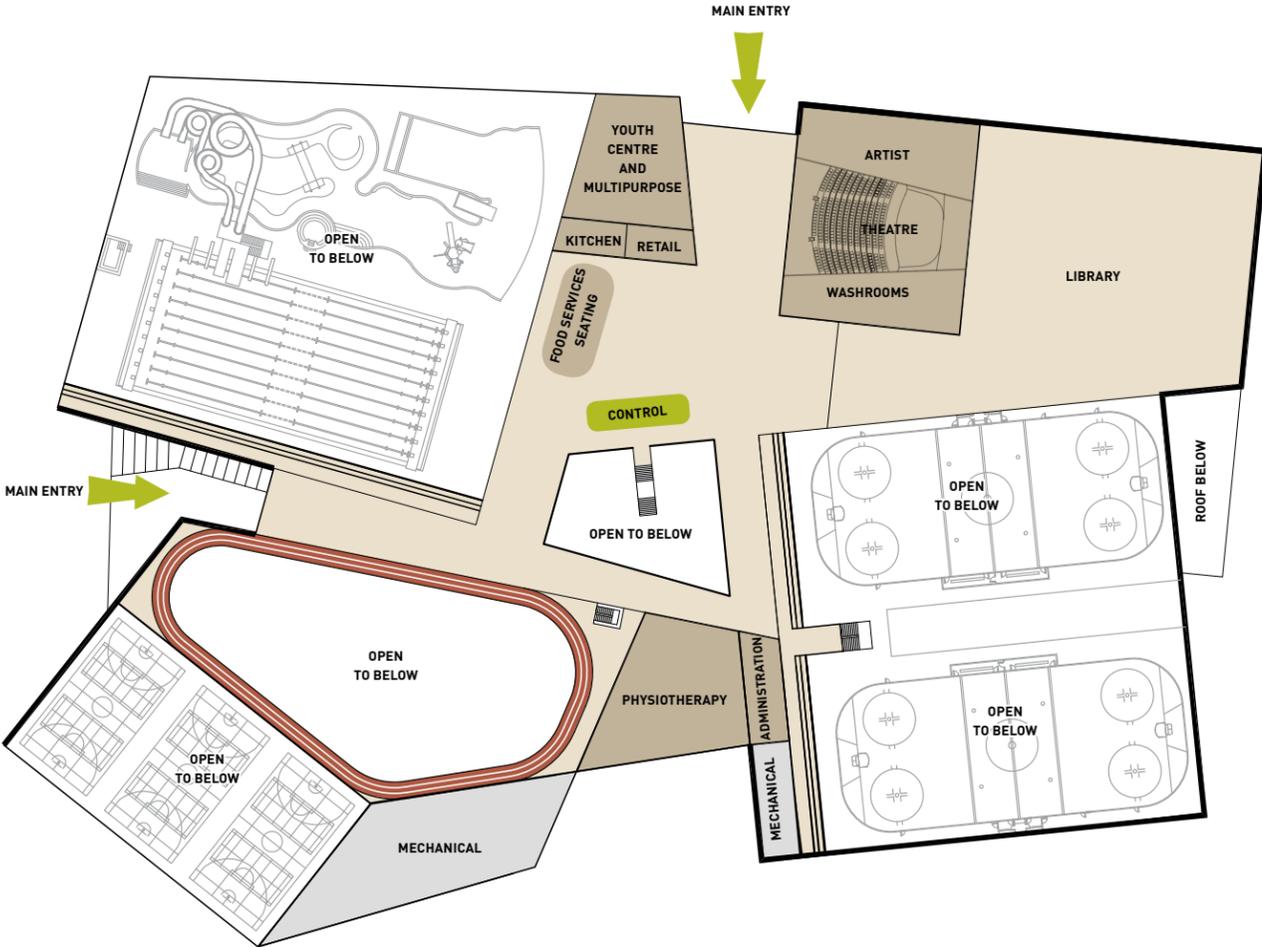
### Floor Plan Concept Design

The facility is accessed by two main entry points, one to the north and the other to the west. Secondary entries are located for the day care and the ice component. The two main entry points lead to a programmable light filled concourse area from which all activities are accessed and viewed. The concourse will provide viewing, food services, casual gathering, lobby space for the theatre, and will serve as event and performance space for all cultural and community related activities. Visibly located within the concourse, a central control point will lead participants down to the event level where they can access the change room facilities and the fitness, gymnasiums and aquatics components.

The public concourse is the main organizational feature within the Seton Recreation Facility with all major program elements arranged around it. The north oriented library and arts components prove advantageous to their environmental and daylight sensitivities. Similarly, the aquatics program has been located on the northwest corner of the facility, placing a very active program near the prominent community intersection of 45th Street SE and Market Street SE. The ice component which requires some opacity, particularly due its refrigeration requirements, is placed on the opposite side of the facility thus shielding the blank wall spaces from the street face.



Lower Participant Level



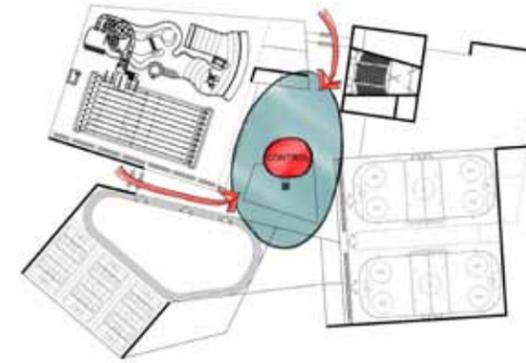
Upper Public Level

# SECTION 4.1 | CONCEPT DESIGN

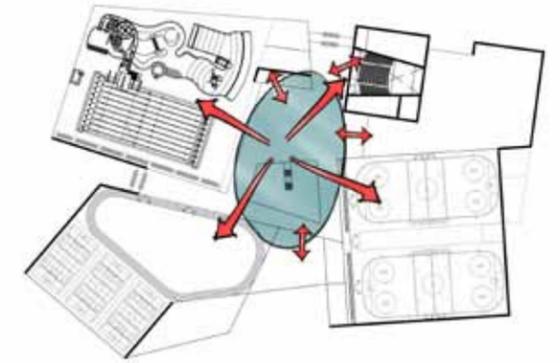
## SETON RECREATION FACILITY

### Circulation & Interconnection Concept Design

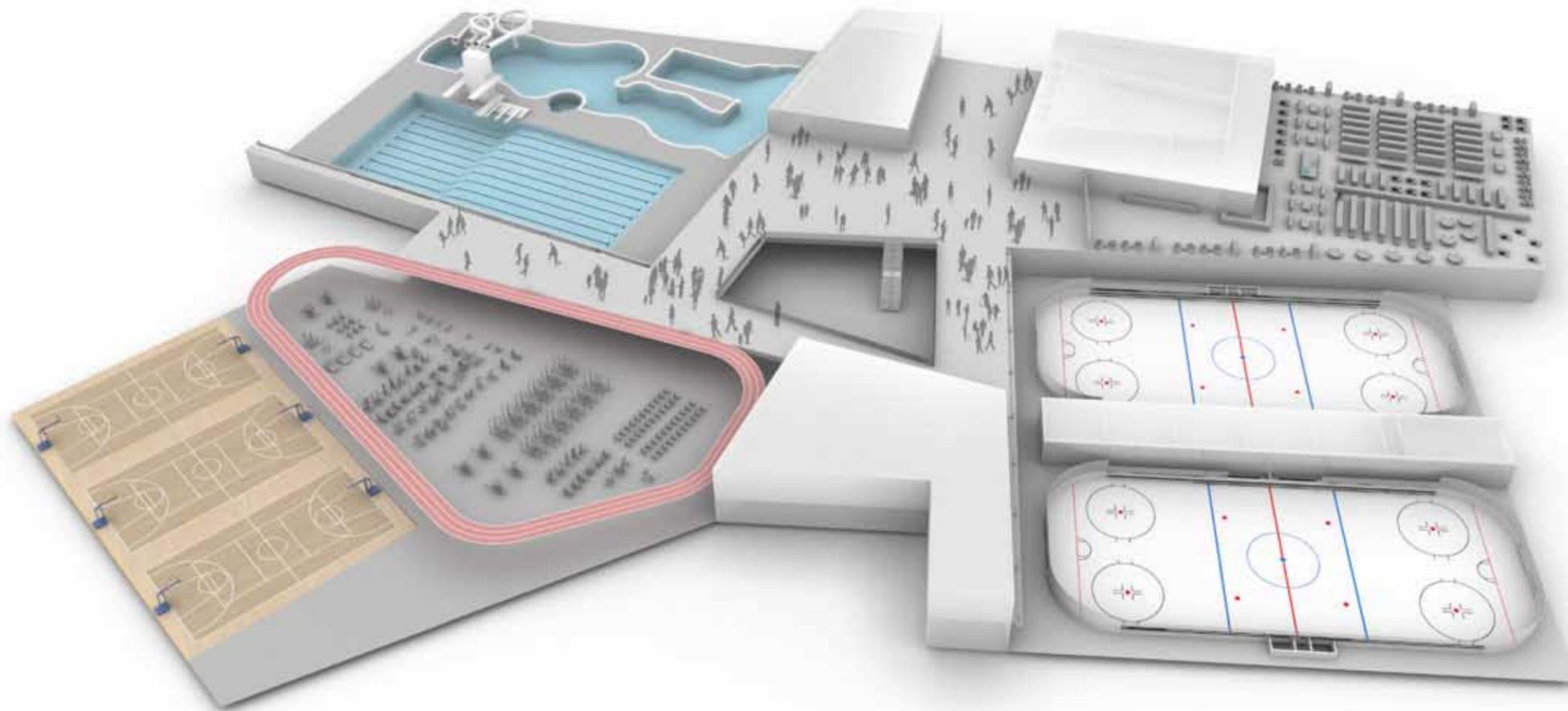
The interconnectivity within the facility is created through horizontal transparency as well as large open-to-below spaces.



Primary Circulation



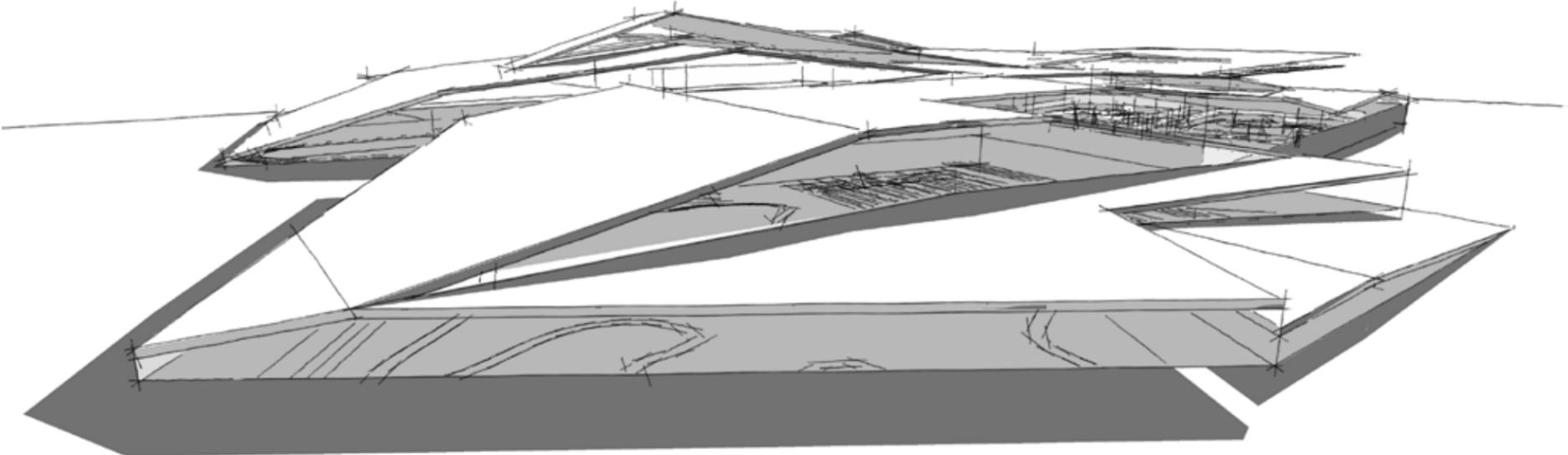
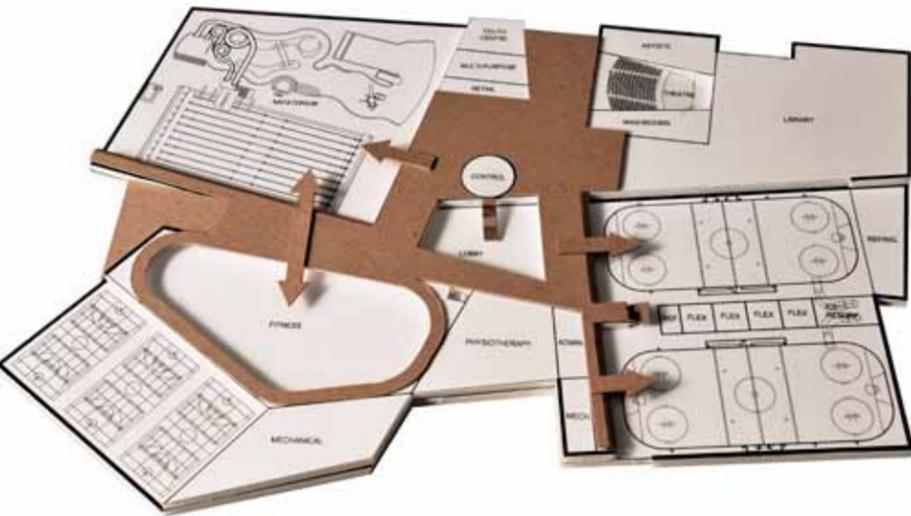
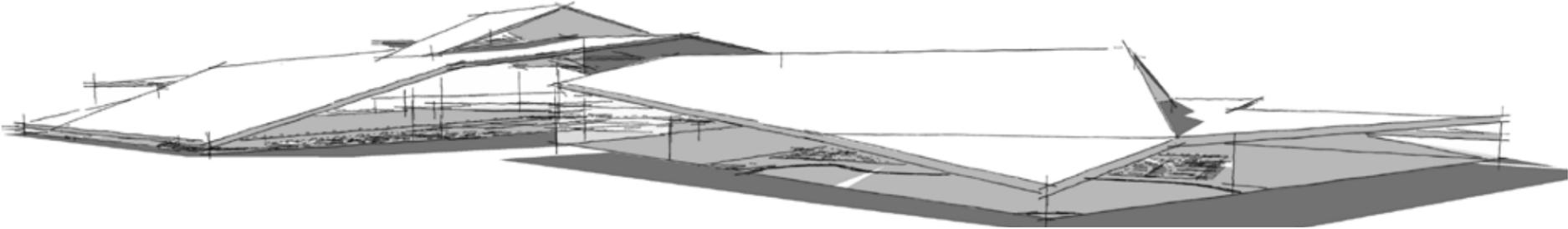
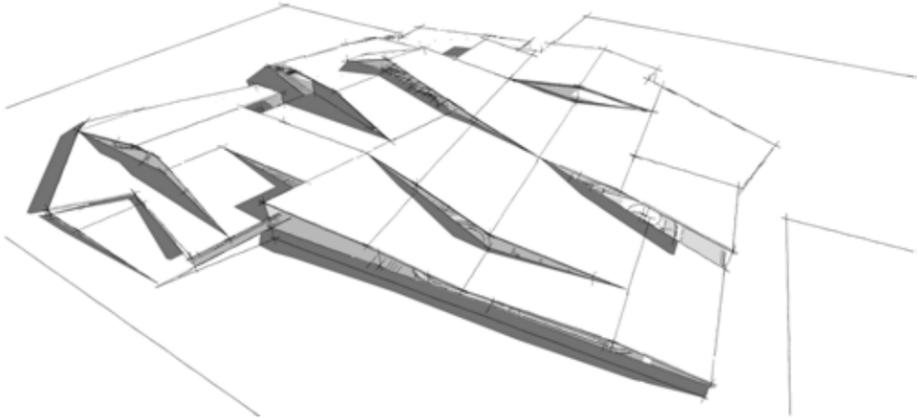
Visual and Spatial Interconnections



### Massing and Roof Concept Design

As a counterpoint to the large high South Health Campus, the Seton Recreation Facility will be a low horizontal building. It will be inviting and architecturally accessible. It will not dominate the landscape but will rather merge with the natural sloping topography of the site. The participant level of the building will be partially submerged into the ground. Landscaping will guide users to the main entries directly accessing the second, public level in which the primary circulation and control are located. Working with the grade naturally guides users to the entrances, both main entries on the second level, and secondary entries on the participant level.

In keeping with the overall concept of connectivity, the architecture seeks to combine the building components under one expansive, dramatic, single roof. Rather than a single height building, the roof will increase and decrease in height where needed, in angular folds, subtly mirroring the mountains which are prominently visible from the site. The spaces between the angular folds of the roof will become clerestory glazing, thus flooding the building with light from above. To reduce perimeter cladding, the roof becomes the walls, and where the roof meets the ground, it will be primarily transparent. Where possible, glazing has been incorporated into the facility to allow the activity within the building to be projected outwards toward the street. Thus are the concept objectives of connectivity, flexibility and transparency expressed in the architecture.



# SECTION 4.2 | CONCEPT DESIGN

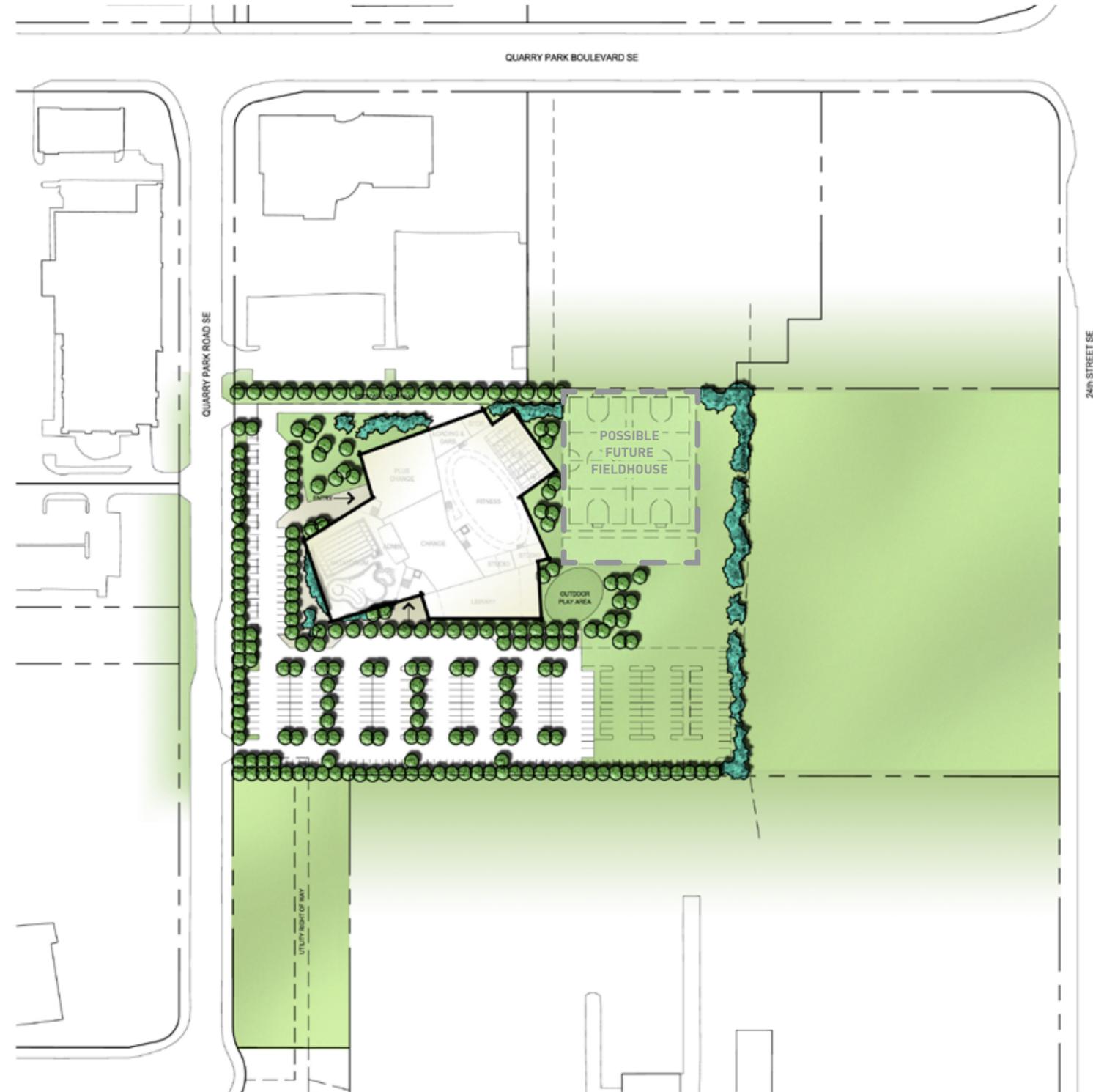
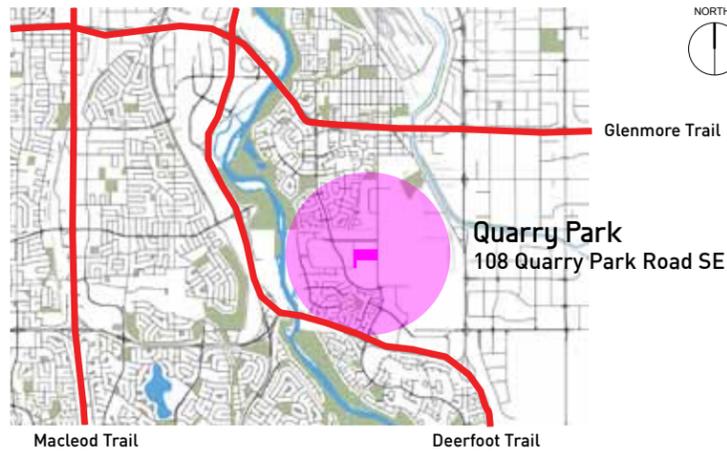
## QUARRY PARK RECREATION FACILITY

### 4.2 Concept Design - Quarry Park

#### Site Plan Concept Design

The Quarry Park Recreation Facility is located in the development of Quarry Park. Previously an industrial area, it is being transformed into an office park and residential community. The facility is accessed from two points along Quarry Park Road SE both leading to a landscaped parking area on the south portion of the site, with some parking along the west edge.

The facility is positioned on the western portion of the site to maintain the urban edge of the surrounding community. The building form is set back from the street revealing two main entry points, one to the northwest of the building, and the other to the southwest. The bulk of the building is at the center of the site, allowing for large landscaped areas along Quarry Park Road SE and along the regional pathway at the north of the site. A contributing factor to the location of the facility is the need to keep the entire facility back from the landfill setbacks along the eastern portion of the site.



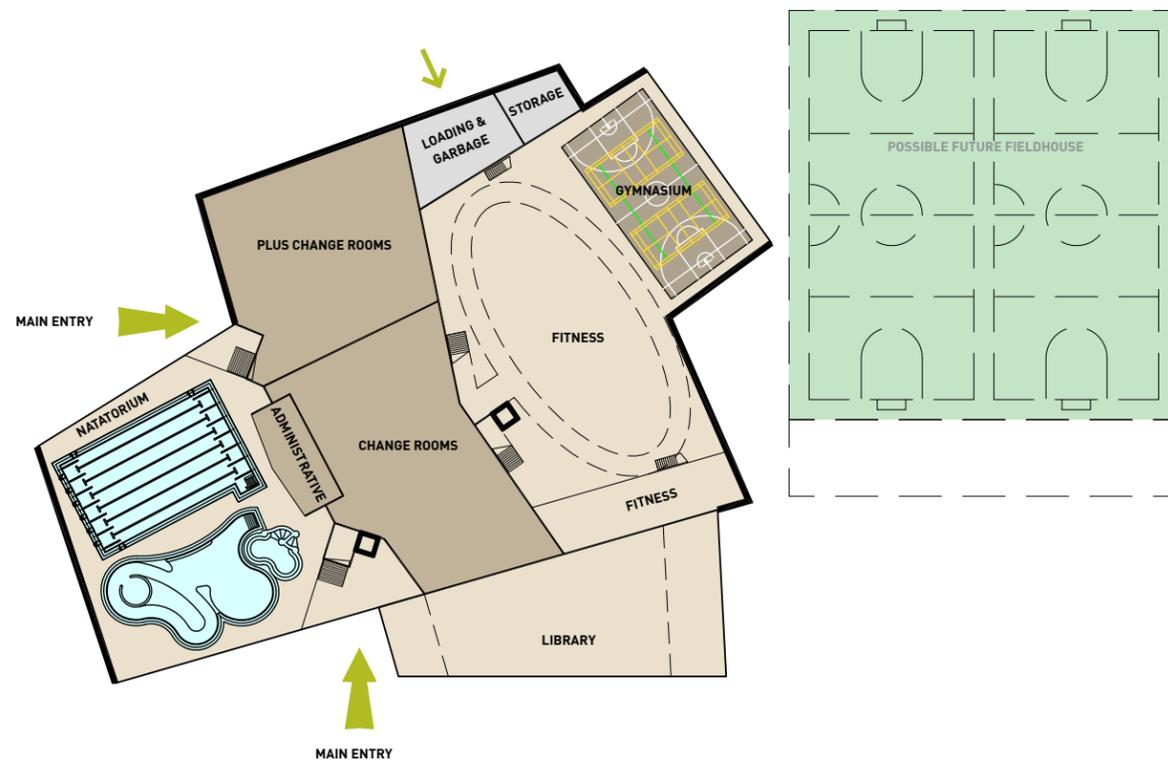
### Floor Plan Concept Design

The two entrances lead to a programmable central concourse space designed to provide access and views to all active programs. The southwest entrance also functions as a shared entrance to the library. A central control point, visibly located on the concourse, allows participants' descent to the event level, where the activity and change room spaces are located. Multipurpose rooms, administration and child care are also accessed from the public concourse creating a truly multi-functional and active space.

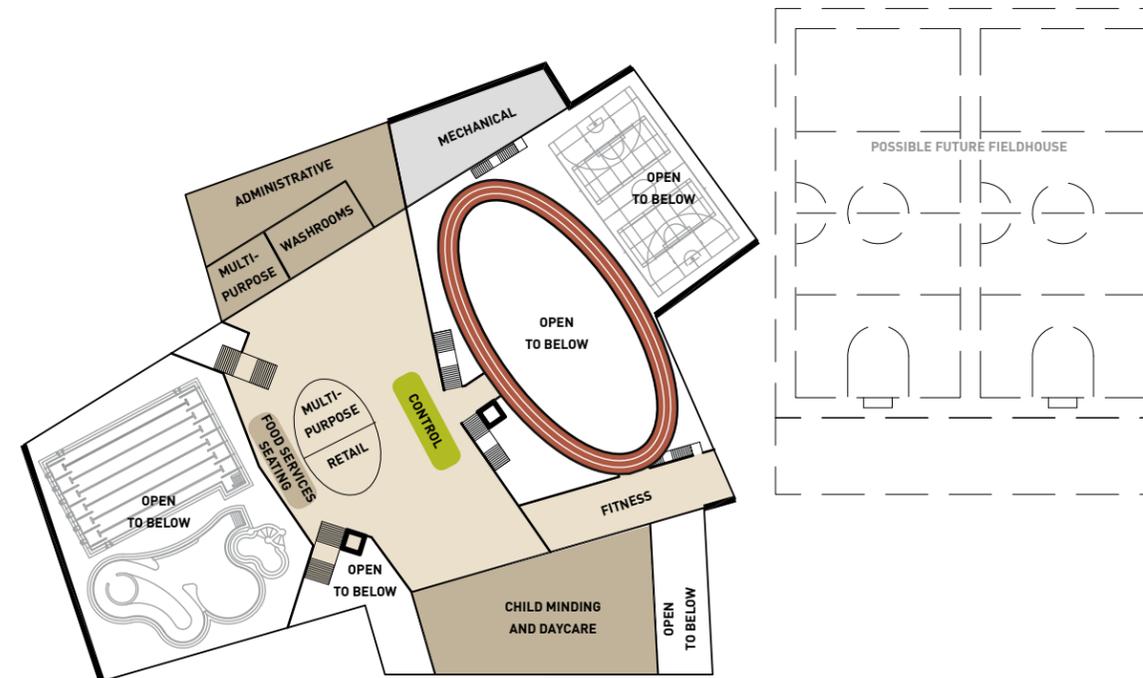
The library is prominently located adjacent to the main parking area to the south. Large amounts of south facing glazing will allow the library to capture the south sun while also allowing the activity to project out from the space to the street during low light hours. Connection to the recreation facility will be maintained through the shared entrance, as well as open to above vertical connections to the concourse and fitness facility.

The aquatics program is centrally located and faces the street, projecting the activity outwards to the community. Wherever possible the aquatics program will be glazed allowing for natural daylight to fill the space.

The facility has been designed to provide a future possible expansion of a fieldhouse, consisting of two multipurpose dry pads, team change rooms, spectator seating and respective support spaces. The current site plan has been designed to accommodate this expansion.



Lower Participant Level

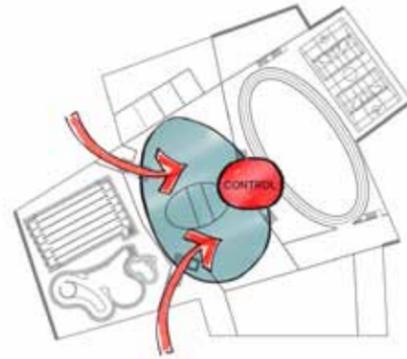


Upper Public Level

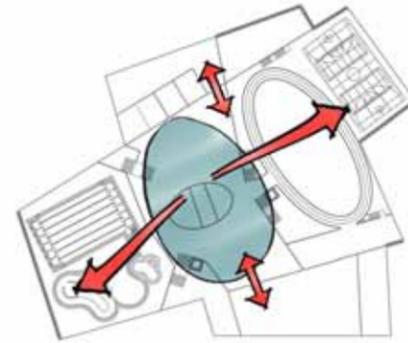
# SECTION 4.2 | CONCEPT DESIGN

## QUARRY PARK RECREATION FACILITY

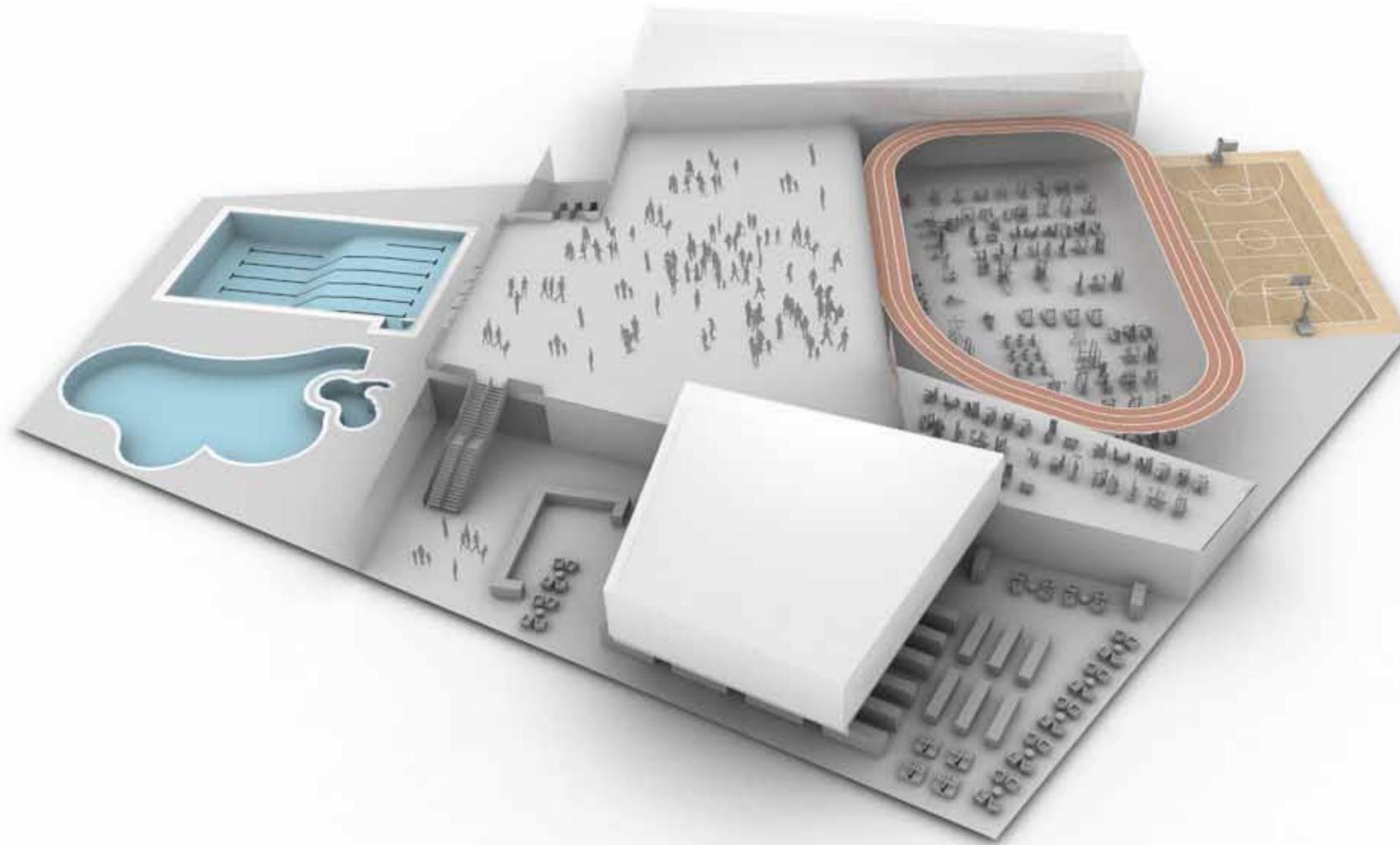
### Circulation & Interconnection Concept Design



Primary Circulation

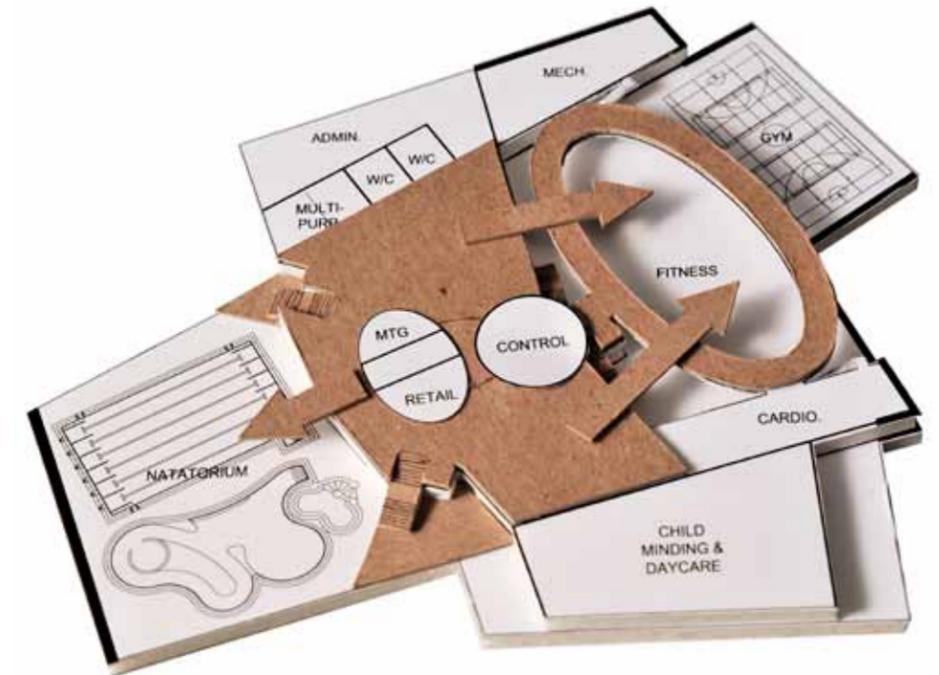


Visual and Spatial Interconnections



### Massing Concept Design

Surrounded by two and three story office buildings, the Quarry Park Recreation Facility will have similar massing. Unlike both the Seton and Rocky Ridge Recreation Facilities, the Quarry Park facility will not be submerged into the landscape but will sit directly on grade with both entries accessed along the naturally flat grade of the site, again working with the local topography. A determining factor for positioning the entire building above grade is the high levels of methane located in the soil, and the Bow River floodway. Access to the second level will be through internal vertical circulation.



## 4.3 Concept Design - Great Plains

### Site Plan Concept Design

The Great Plains Recreation Facility site is accessed at two points off of 76th Avenue SE that lead to the main parking area. The third access point is from a service road linking up with 57th Street SE on the eastern portion of the site.

Occupying a pivotal position on the site, the facility splays open to direct its transparent north entrance to the street corner clearly marking itself to the parking area and differentiating it from the other larger program elements. The splay also creates a landscaped plaza on the northeast corner of the site allowing for a landmark entrance space as well as pedestrian access to the street corner.



# SECTION 4.3 | CONCEPT DESIGN

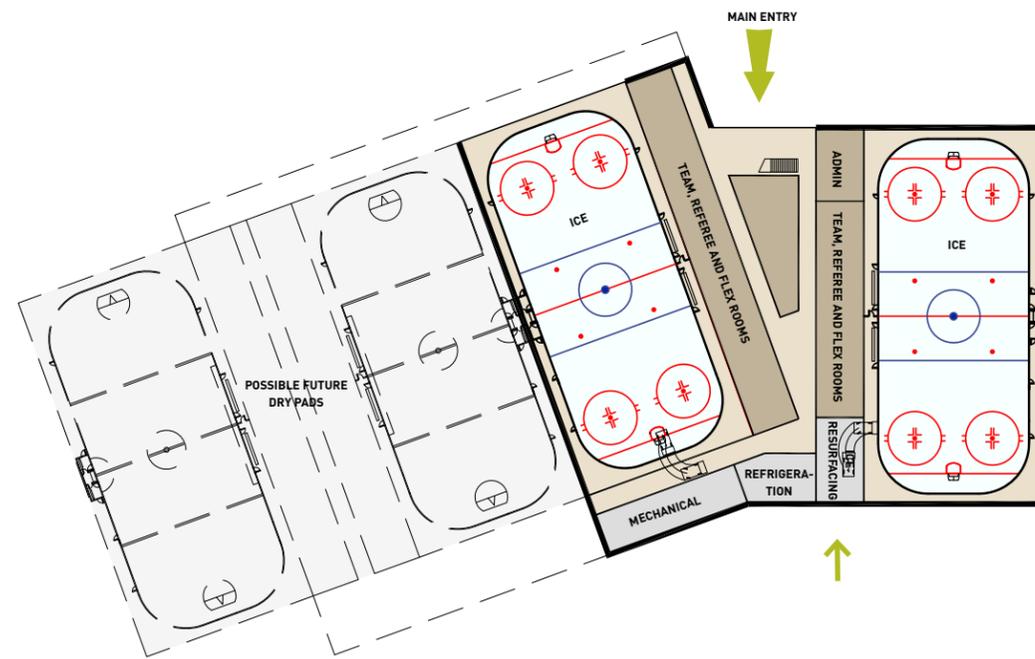
## GREAT PLAINS RECREATION FACILITY

### Floor Plan Concept Design

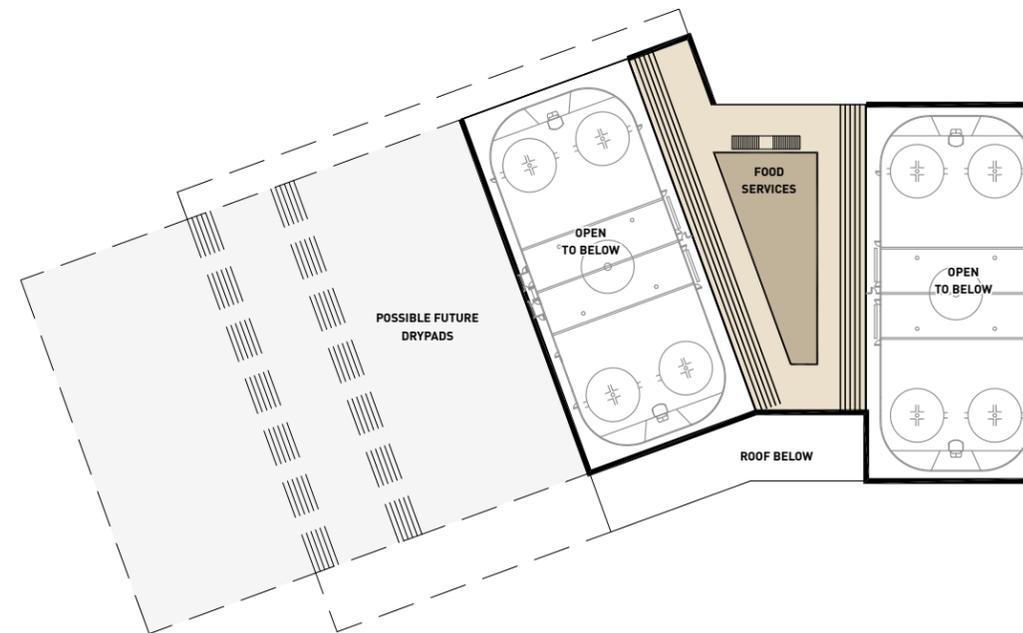
The generous entrance space provides direct access to the ice level and team rooms. Spectator and food service areas are located on the upper public level. The upper level will provide ample crush space to accommodate tournament situations, when multiple teams and spectators gather between games. The facility has been organized so that the public portions of the program are placed on the street face while the service spaces are placed at the back.

The Great Plains Recreation Facility consists of two NHL sized ice surfaces with the provisions to allow for possible future expansion to the west, adding two dry pads or ice surfaces and their respective support spaces, with connections at both the participant and public levels. The current site plan has been designed to accommodate this expansion.

Centrally located on the public level, a large food services facility provides sight lines to both ice surfaces.

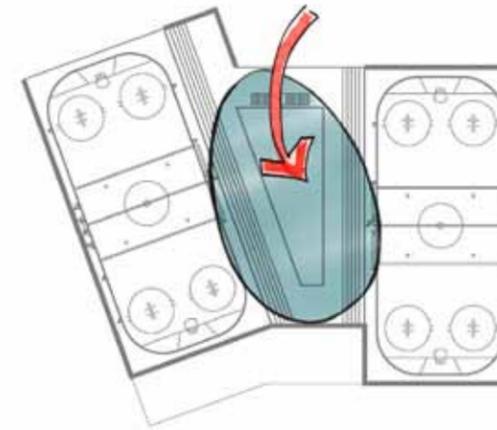


Lower Participant Level

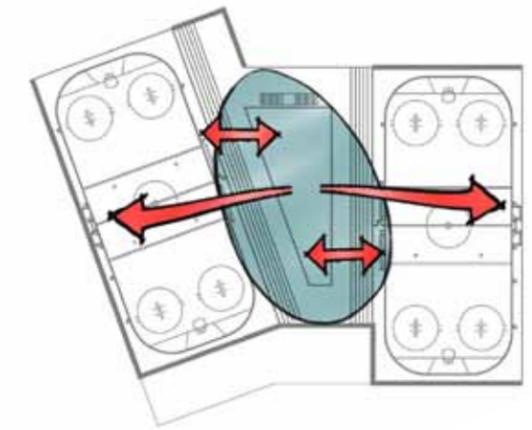


Upper Public Level

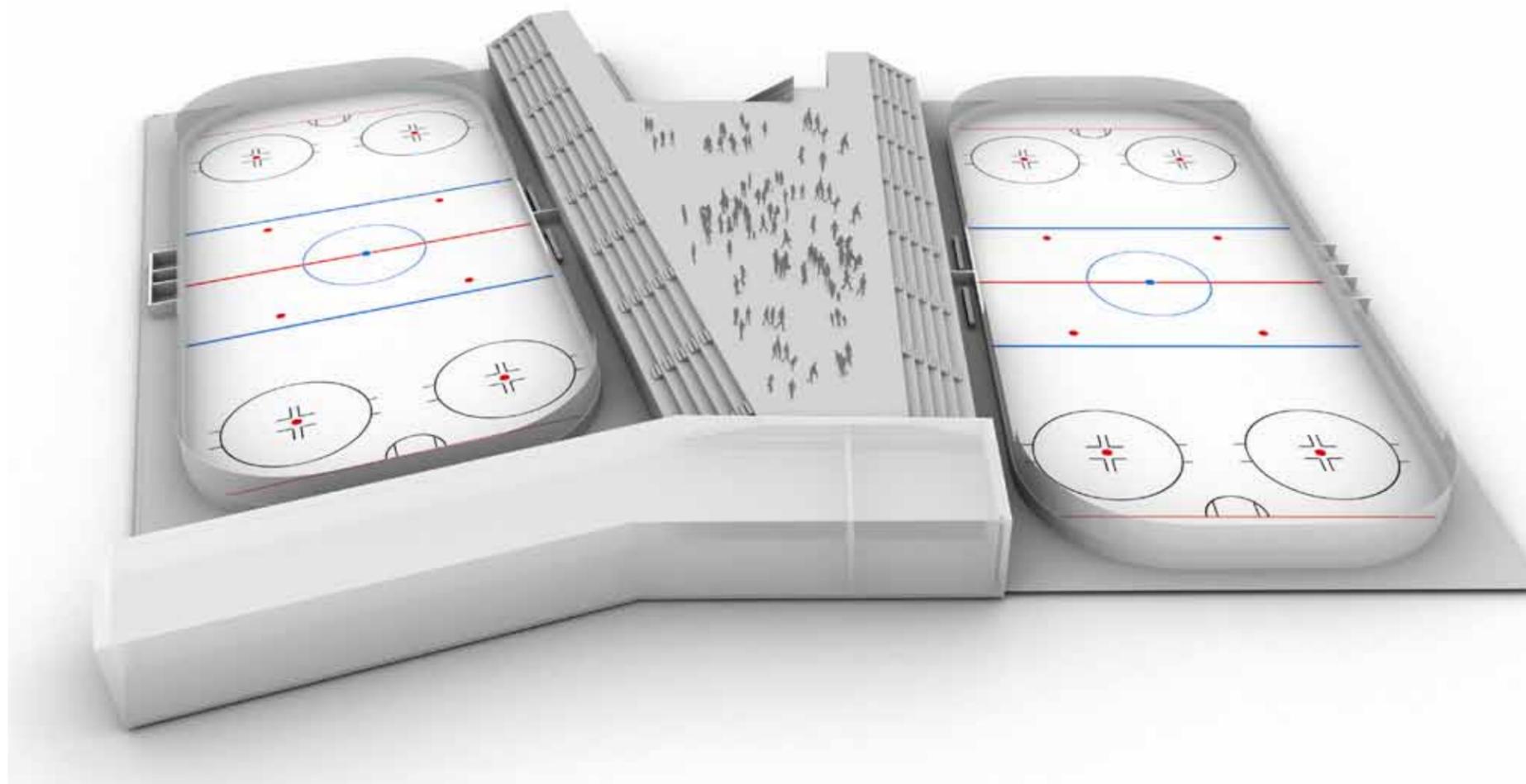
# SECTION 4.3 | CONCEPT DESIGN GREAT PLAINS RECREATION FACILITY



*Primary Circulation*



*Visual and Spatial Interconnections*



# SECTION 4.4 | CONCEPT DESIGN

## ROCKY RIDGE RECREATION FACILITY

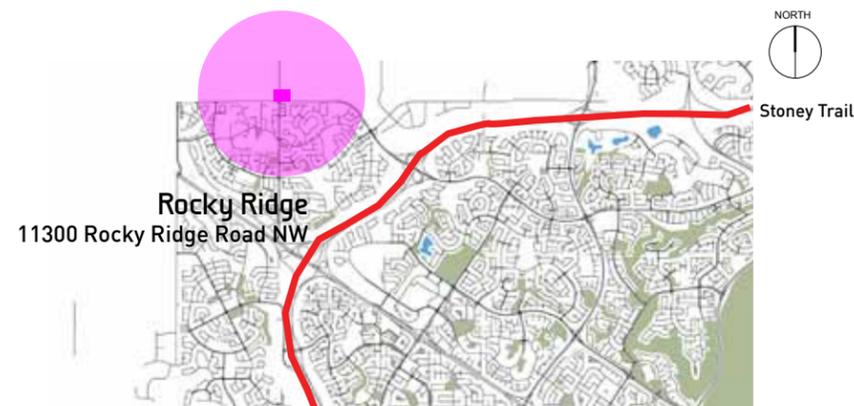
### 4.4 Concept Design - Rocky Ridge

#### Site Plan Concept Design

The Rocky Ridge site is located at the very northwest corner of the City. Bordered on the south by the thriving communities of Royal Oak and Rocky Ridge, and on the west by single family acreage-style residences, the site is a bridge between urban and rural life. From the hill at the northwest corner of the site, one can see the City of Calgary laid out in its entirety; the hill is the highest natural elevation within the City of Calgary limits. To the west are the views of the mountains. To the north is a City of Calgary reservoir and the seemingly agricultural land that supports the University of Calgary Veterinary Faculty's Clinical Skills Building. The site itself is rich in natural characteristics with a varied topography. From the hill in the northeast corner the site gradually slopes southwest to an expanded, permanent wetland. The opposing curvatures of the hill and the large wetland create a natural bow-shape in which the Rocky Ridge Recreation Facility has been placed.

The building will be designed to express and complement the natural contours of the site. Curving around the wetland, the facility is accessible from both Country Hills Boulevard to the south and Rocky Ridge Road to the west. Main entries to the facility are located at the northwest and southeast. Parking will be concentrated around these entries, and will be heavily landscaped with bio-swale strips and treed islands. The building form creates two major points of entry, with landscaped plazas that function as gathering spaces and way-finding elements to locate the entrances from the parking areas.

Due to its surrounding districts and its strong natural properties, the site encourages substantial outdoor programming. In addition to the wetlands, and the varied topography, the hill is home to several archaeological sites. Interpretive trails will wind their way through the land, connecting the facility with the enhanced wetland, the landforms and the archaeological sites. Walking, hiking, biking, cross-country skiing and snowshoeing would all be accessible to the public, activating the landscape, and further connecting the facility to its surroundings. Tennis courts, a basketball court, a skate park and children's play structures will all be a part of the outdoor programming. The site could also allow for the possible relocation of the Calgary West Soccer Centre which could include two outdoor artificial turf fields.



# SECTION 4.4 | CONCEPT DESIGN

## ROCKY RIDGE RECREATION FACILITY

### Floor Plan Concept Design

The facility is accessed by two major entry points to the northwest and to the southeast. Separate entries are also provided for specific programs such as daycare and theatre back-of-house. The two main entry points lead to the concourse area on the second level from which all activities are accessed and viewed. The north entrance also allows direct participant access to ice programs and tournament entry for the gymnasium on the main level of the building. A central administration and control point located on the concourse at the second level, clearly visible from both entries, leads the participants down to the change areas and the main event level. The concourse is a multi-functional space, providing direct access to the many community, cultural, and retail programs, while also providing space for viewing, relaxing, and food services. This concourse doubles as programmable circulation.

Within the Rocky Ridge Recreation Facility, individual programs have been arranged around the active concourse to create a very compact plan, increasing the efficiency as well as allowing for chance encounters to occur between users of athletic and cultural and community programs. The ice and cultural programs are located on the northern part of the facility due to their environmental and daylight sensitivities, while public and aquatic functions are located to the south to capture sunlight. The library is located on the southeast corner of the facility, adjacent to the main entrance, a clearly visible and accessible location with an abundance of daylight.

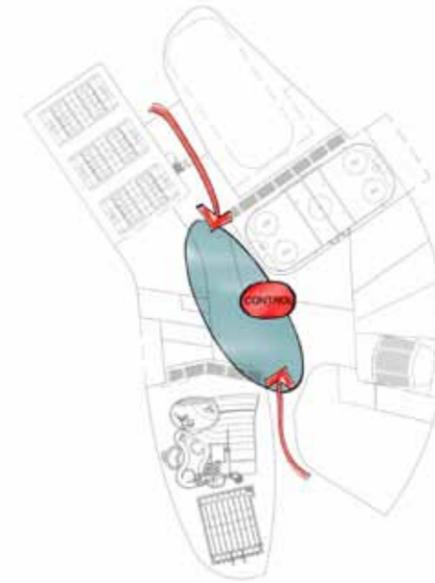
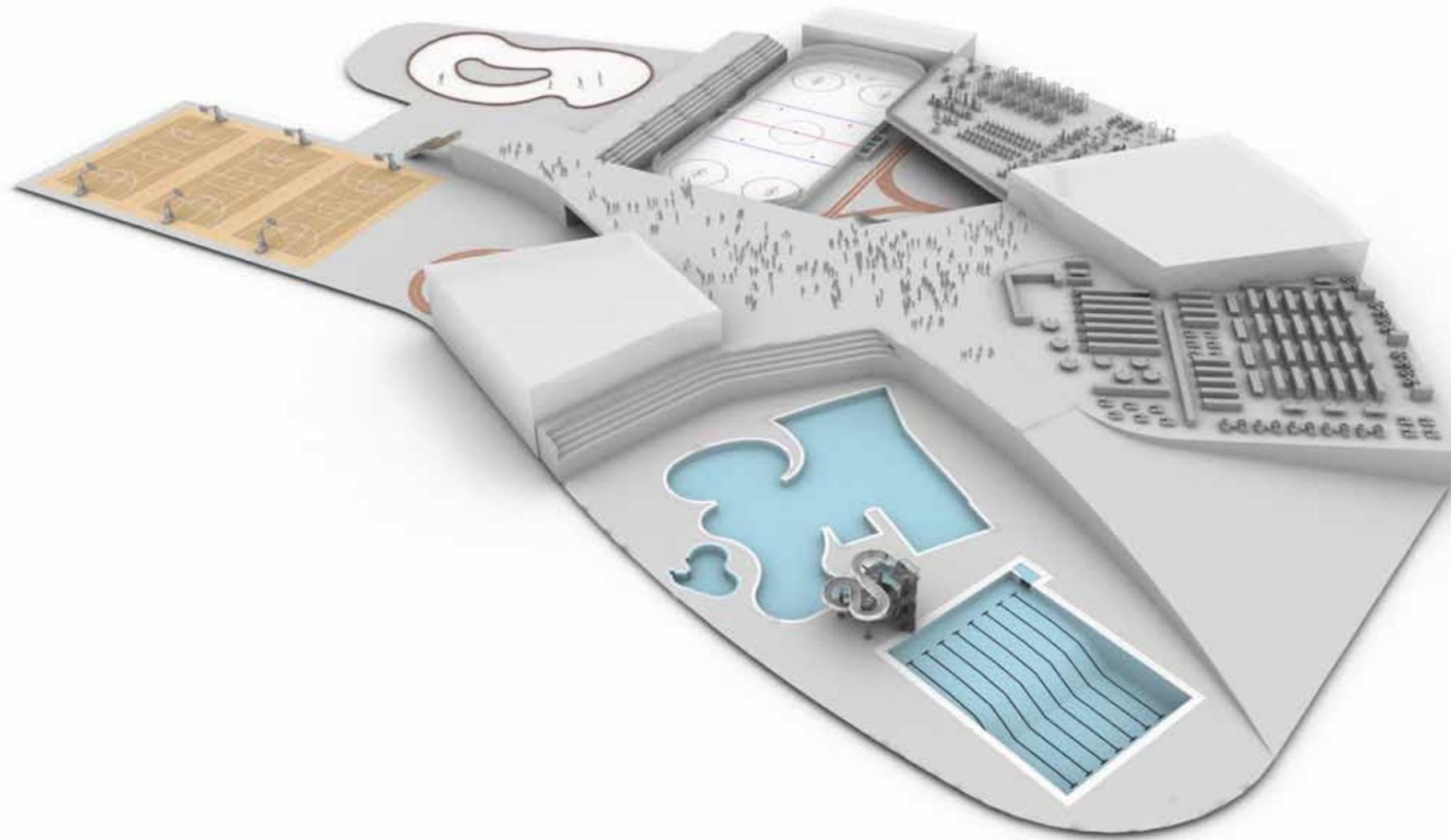


# SECTION 4.4 | CONCEPT DESIGN

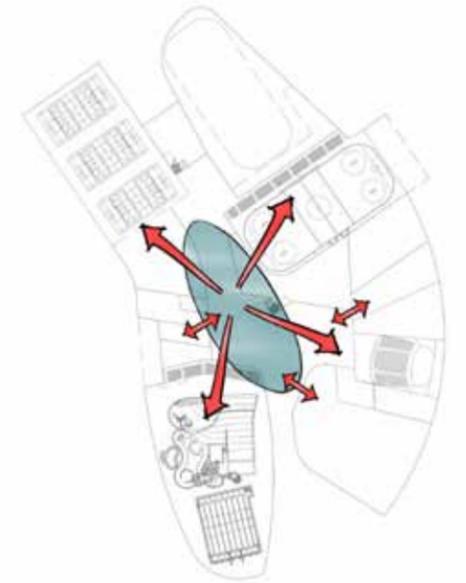
## ROCKY RIDGE RECREATION FACILITY

### Circulation & Interconnection Concept Design

The central public concourse is the keystone to the facility, visually connecting all the individual program components clearly and legibly.



Primary Circulation



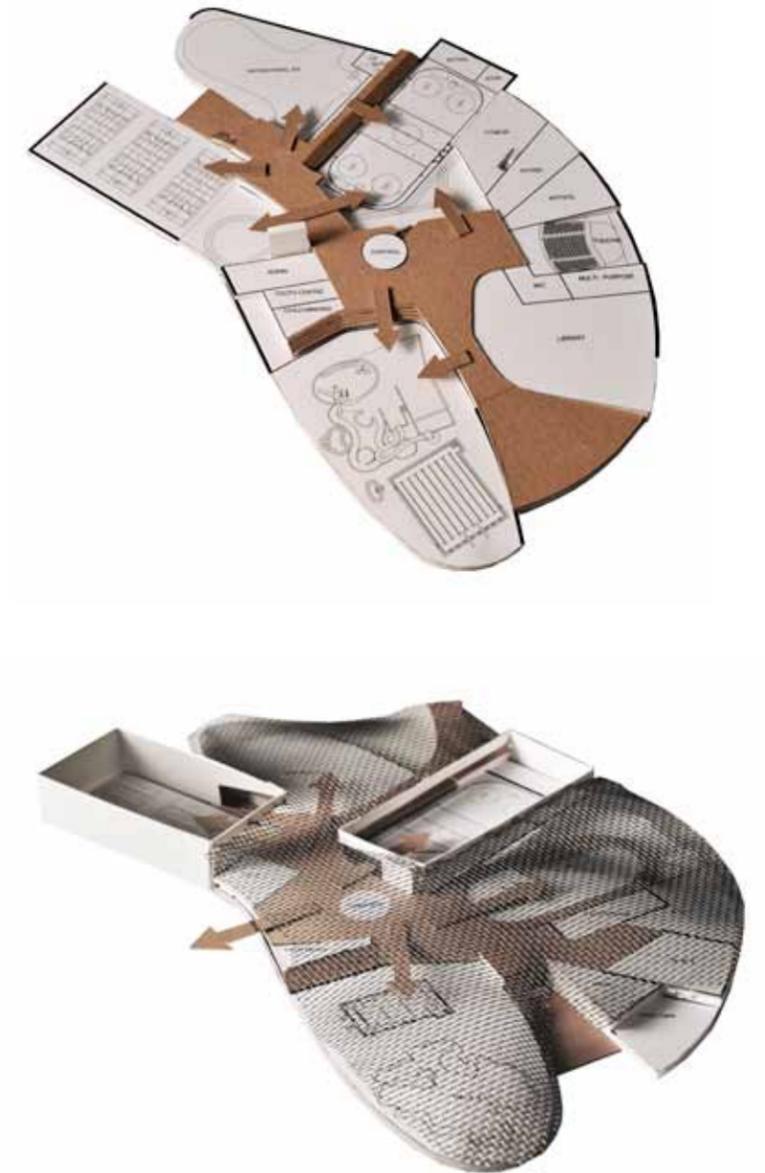
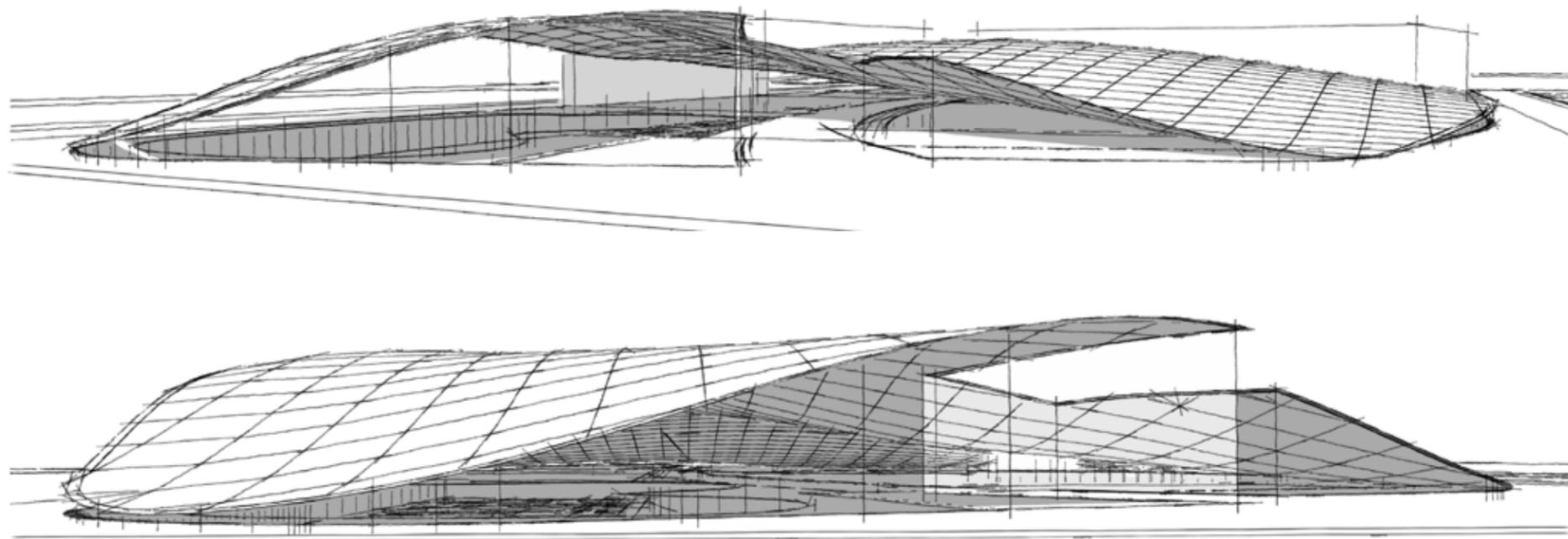
Visual and Spatial Interconnections

### Massing and Roof Concept Design

The Rocky Ridge Recreation Facility is conceived as a low, horizontal building form stitched into the landscape. By working with the existing grade, two entrances are provided: one entrance permits visitors to arrive at the upper public concourse level and the other at the lower level giving direct access to the ice surface. Working with existing grade in this way means that much of the building is partially submerged and the high volumes commonly associated with recreational facilities of this type are significantly reduced in scale. The graded entrances also permit easy connection to the many surrounding interpretive trails permeating the site.

Further enhancing the local topography and the low-lying nature of the building, the roof concept for the Rocky Ridge Recreation Facility will mimic the surrounding rolling land-forms. The roof will create a dialogue between the hill and the wetland. The components vary considerably in height and have been arranged so that they help inform the roof shape and open up to the hill and down to the wetlands. The height variation of the roof will allow for potential clerestory glazing to allow daylight to penetrate throughout the facility.

The south facade of the building is a smooth continuous band and provides a backdrop to the natural beauty of the wetland. Wherever possible, the south façade will be glazed providing views to the wetlands from within the facility as well as permeating the energy and activity outwards to the street during low light hours. The northern façade creates a dialogue with the hill, curving toward, then away. Large amounts of glazing will also connect the visual beauty of the natural hill to the interior and provide consistent natural daylight for the cultural programs.



# SECTION 4.5 | CONCEPT DESIGN

## GENERAL

### 4.5 Concept Design - General

#### 4.5.1 Aquatics Concept Design

##### Leisure Pools

The design of leisure pools is significantly different from the design of competitive, diving, therapy, and other types of pools. Leisure pools are required to provide amenities for patrons of all ages from toddlers to teenagers and young adults to seniors. Providing features for this broad spectrum of potential users is a challenge. Layouts, provided amenities, and target demographics are often a blend of the stakeholder's main objectives and the overall budget.

Generally speaking, it is best practice to have shallow water closer to the change room entrance, and the deep water further away. Aquatic amenities are arranged such that a logical grouping of features can be followed through the progression of water depths: infant and toddler areas placed at the front of a facility, young children and grade school amenities towards the center, and pre-teens and teenagers further away.

Leisure swimmers typically prefer warmer water than competitive swimmers, but not quite as warm as therapy users. Typically this is between 29°C and 30°C. It is advantageous to separate the basins into multiple spaces to control the environment from both a comfort and acoustical perspective.

Operating leisure facilities in an efficient manner is often the most challenging of all aquatic facilities. Labour and lifeguarding costs can typically represent +/-50% of the cost to operate the facility. Ensuring that adequate sightlines are maintained or that multiple waterslides start and terminate in the same area are small design guidelines that can significantly streamline and reduce overhead costs.

The following aquatics descriptions are suggestions for the operation and layout of the pools.

##### Seton

The competition pool features ten 52 metre lanes with two one and a half metre moveable bulkheads and a possible moveable floor in the deep diving end. The moveable bulkheads allow for many different programming configurations, such as two 25 metre course layouts, regulation water polo courses for men's and women's events, synchronized swimming, diving, and shallow water recreational swimming and learn-to-swim instructional classes.

The concrete diving tower includes a seven and a half metre platform, a five metre platform, two three metre springboards, and two one metre springboards over a water depth of five metres. A 15-18 person warm water spa is provided near the diving tower primarily for divers to use during practices and competitions.

The leisure pool is a single body of water with a large combination zero beach entry which services the wave area and the tot area leading into the rest of the pool. The shallow portion of the zero entry could include a wide tot slide for toddlers and parents to ride simultaneously, bubbler features flush with the pool floor, and a play structure which includes multiple interactive spray features, platforms, and a slide in approximately a one third metre of water depth.

Transitioning down the beach entry into the main one metre deep area is open water which can be used for floatable structures, team sports (eg. volleyball) or lesson programming such as learn-to-swim classes or aqua aerobics. A five metre long underwater bench is provided with hydrotherapy jets.

Past the open water area is the area of the leisure pool that grade school children, pre-teens, and teens will gravitate towards. This area could include a 65 metre long current channel, a dedicated area with a bouldering wall over deeper water, a large area internal to the current channel which includes a floatable walk, volleyball area, and basketball court, and a four and a half metre diameter vortex feature.

Two high waterslides, utilizing the dive tower for access, meander over the leisure pool and terminate in a dedicated plunge area. The plunge pool also serves as a multi-purpose space for programming. With its wide stairs this area is ideal for aqua aerobics classes or learn-to-swim classes where children can be stationed on the stairs in between instruction.

##### Quarry Park

The stair entries for the spa, leisure pool, and lap pool are all provided off of the change facilities. The large spa could be elevated to allow for a transfer wall access, but also allowing the users to relax while overlooking the entire natatorium.

The leisure pool is entirely at a water depth of one metre. This area would include a large area of open water, which can be programmed for instructional learn-to-swim purposes during portions of the day and water volleyball or basketball during more recreational hours. It could also include a seven metre long underwater bench with hydrotherapy jets looking into this sport or instructional area, a 40 metre long, two metre wide current channel, a four metre diameter vortex inside the current channel, and several water spray features that interact with the current channel and open water area.

The overall layout provides for wide sightlines for efficient lifeguarding with minimal obstructions.

##### Rocky Ridge

The tot pool and zero beach entry to the wave portion of the leisure pool are immediately adjacent to the change facilities. The water depth of the tot pool is between one tenth and three tenths of a metre and could include a moderately sized interactive play structure and smaller spray feature for younger toddlers. The tot pool should be on a dedicated mechanical system so that in the event of a biological contamination, the pool can be closed without having an operational impact on the other pools at the facility.

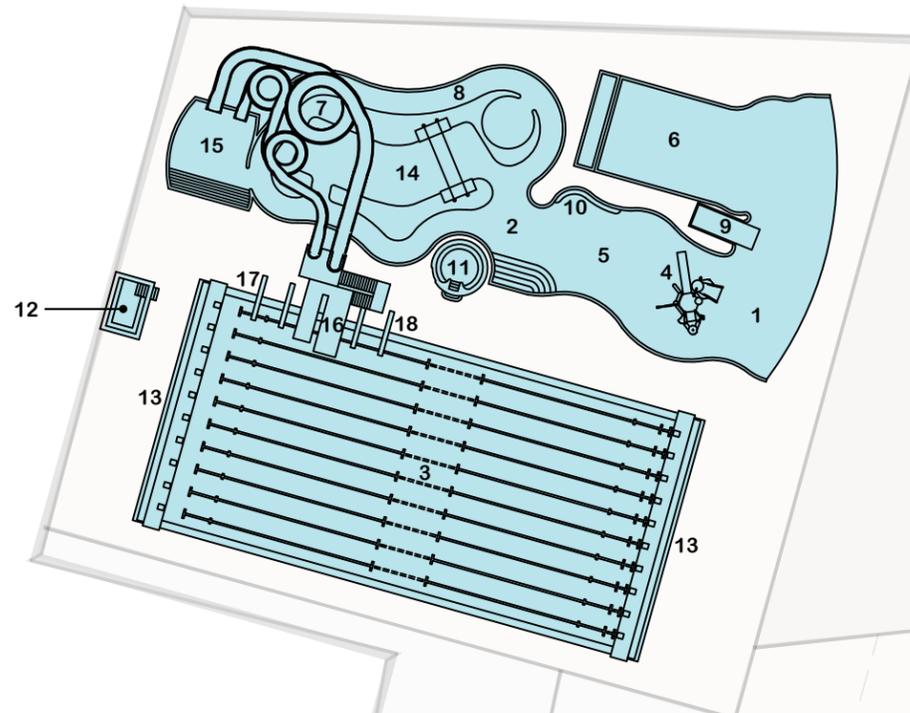
An interactive play structure could span over the current channel and into the leisure pool providing a link between the two pools. The other leisure pool amenities could

include a wave pool (with waves varying in height from one third to half a metre), one seven metre tall open flume body slide, a 50 metre long current channel (which propels patrons at a velocity of approximately one metre per second), a three and a half metre wide vortex (which is a circular area interior to the current channel which produces a circular current), a dedicated area for bouldering within the pool which would appeal to the pre-teen and teenager demographic, and an underwater bench seating area with hydrotherapy jets interior to the current channel which would function as a passive or social space within the pool.

A warm water spa is also provided alongside the current channel. It is elevated half a metre above the deck to give a panoramic view of the leisure pool area. The spa will be able to accommodate approximately 30 to 35 patrons and will have a water temperature between 38°C and 40°C.

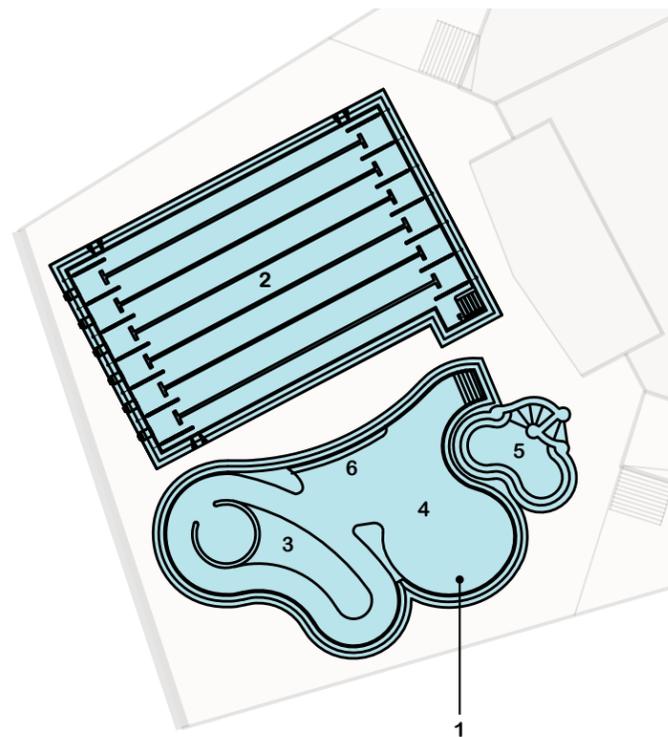
# SECTION 4.5 | CONCEPT DESIGN

## GENERAL



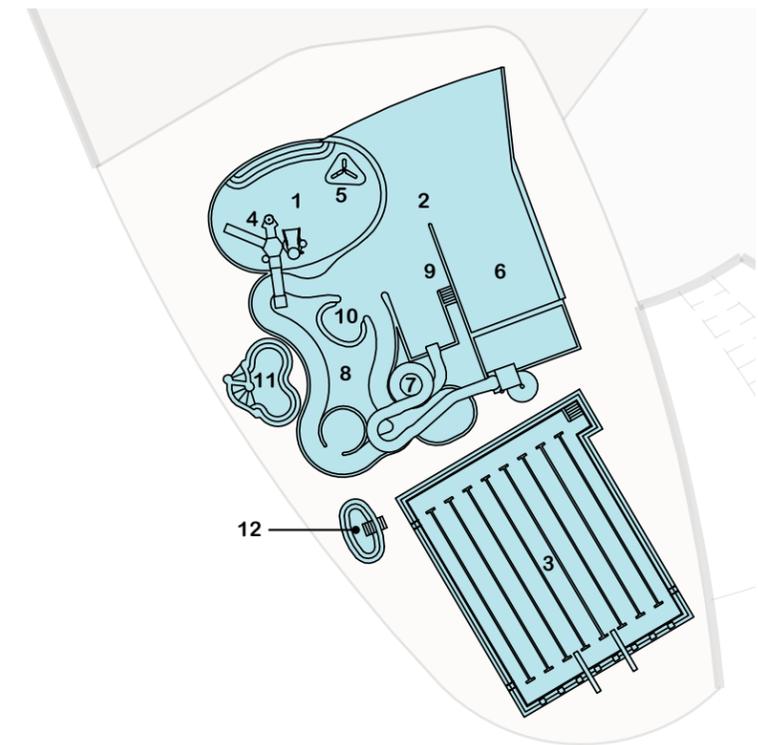
### Seton

- 1 Tot Pool
- 2 Leisure Pool
- 3 10 Lane 50 Metre Competition Pool
- 4 Interactive Play Structures
- 5 Spray Features
- 6 Wave Pool
- 7 Two High Water Slides
- 8 Current Channel & Vortex
- 9 Bouldering Area
- 10 Underwater Bench & Hydrotherapy Jets
- 11 Leisure Pool Spa
- 12 Competition Pool Spa
- 13 Moveable Bulkheads
- 14 Multi-Purpose Open Water Area (Volleyball/Basketball/Floatable Walk)
- 15 Plunge Pool / Open Water Instructional Area
- 16 Dive Tower
- 17 Three Metre Spring Boards
- 18 One Metre Spring Boards



### Quarry Park

- 1 Leisure Pool
- 2 Six Lane 25 Metre Competition Pool
- 3 Vortex & Current Channel
- 4 Open Instructional Water
- 5 Raised Spa
- 6 Underwater Bench & Hydrotherapy Jets



### Rocky Ridge

- 1 Tot Pool
- 2 Leisure Pool
- 3 Eight Lane 25 Metre Competition Pool
- 4 Interactive Play Structures
- 5 Spray Features
- 6 Wave Pool
- 7 Body Slide
- 8 Current Channel & Vortex
- 9 Bouldering Area
- 10 Underwater Bench & Hydrotherapy Jets
- 11 Leisure Pool Spa
- 12 Competition Pool Spa

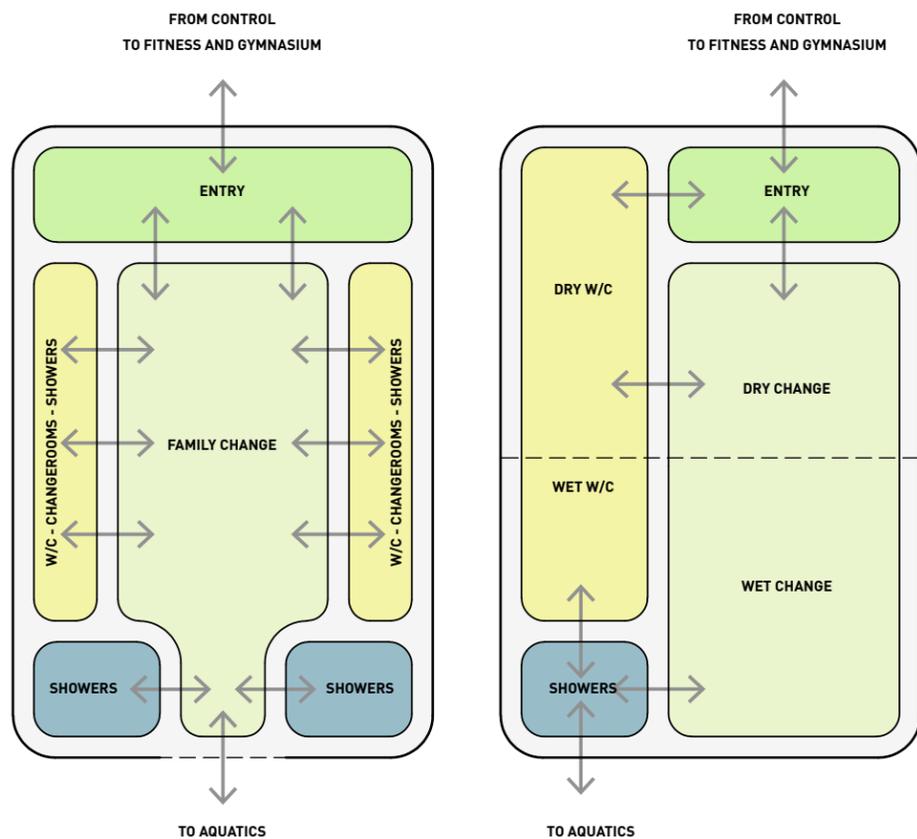
# SECTION 4.5 | CONCEPT DESIGN

## GENERAL

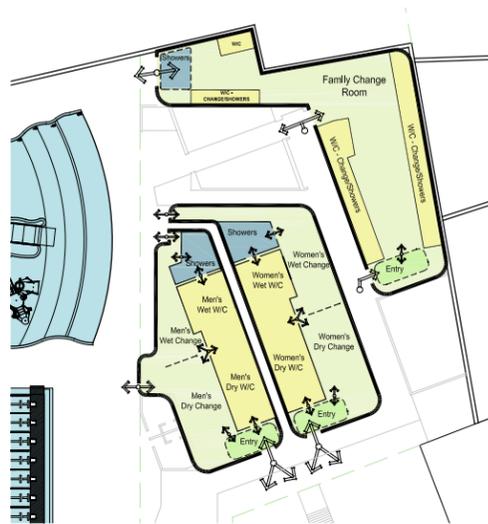
### 4.5.2 Change Room Concept Design

The function and organization of change rooms has a large impact on how well the facility functions. There are two fundamental organizational options available in planning change rooms in facilities that combine aquatics, fitness and gymnasiums: separate wet (for aquatics) and dry (for gym/fitness) change facilities, or combined 'wet/dry' change spaces. Given the proposed operational model utilizing a single point of control, the facility scale, and the size of change rooms required, the preferred change room configuration for all three facilities is the combined wet/dry model. An advantage to this model is that users have the ability to include aquatics and dry-land activities in the same visit without the inconvenience of having to use different change rooms.

The combined wet/dry change room model in turn has three large subdivisions: male, female and family change areas. Each of these areas has some specific requirements.



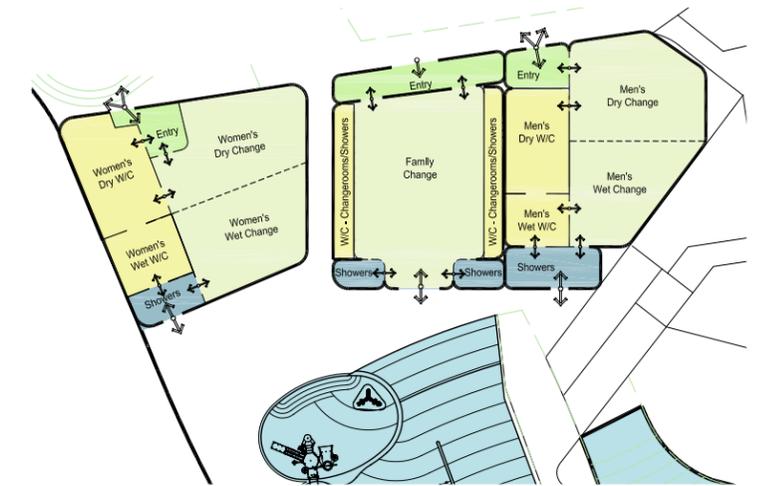
Seton Change Rooms



Quarry Park Change Rooms



Rocky Ridge Change Rooms



#### Female & Male Change Rooms

The popularity of the family change room does not diminish the importance of gender specific change rooms, however it does affect the size requirements.

Key components of successful male and female change rooms are:

- Outdoor shoe and boot storage near the entry, reducing cleaning requirements of dirt and debris being tracked through the change rooms and towards the pool deck.
- Zoned wet and dry areas that provide fitness and gym users with dry, quiet spaces to change, and pool users with an area to return wet from natatorium.
- Two zones of bathrooms and showers: one close to the locker room entry, focusing on grooming and dry floor users of fitness and gymnasiums, and a second group of washrooms and showers adjacent to the pool that accommodates pool users.
- A variety of shower and change options should be provided to accommodate an increasingly multicultural mix of users. For example, a combination of change and/or shower cubicles that offer complete privacy for a single occupant, and more open areas and shower zones for those users who do not require a high degree of privacy while changing or showering.

#### Family Change Rooms

Current best practice designs dedicate +/-50% of pool change room space to family change areas. This area is primarily utilized by aquatics centre users, and may prove useful for other family related change functions as well. Dedicated family change areas provide parents and families with small children, with an appropriate environment to manage their children. Sufficiently sized, and open, family change rooms create environments in which children are less vulnerable, where changing can be completed safely under parental observation. Family change areas also reduce disruption to adult users who may find the presence and noise of children in locker rooms to be distracting and unappealing.

Key components of successful family change rooms are:

- 10-12 private family change rooms that allow parents with up to four kids to change together. These should be provided in a combination of change only, change plus shower, and accessible options.
- An open and visually accessible plan without visual obstructions when looking through the room, facilitating supervision. Half height lockers are placed in the centre with full height lockers around the perimeter.
- A wet area that opens directly onto the pool deck. This allows a parent with multiple children under their supervision open observation if they need to take or send one child into the washroom while the other stays in the water.
- The entry to pool deck should be located as close as possible to zero entry/tots/play pools for obvious safety issues, and also to allow for parents to quickly take tots back and forth to bathrooms as required.

### 4.5.3 Building Foundations Concept Design

#### Seton

Preliminary geotechnical evaluation of the site has been undertaken. We anticipate that shallow foundations (spread footings and wall footings) will be required to support the one and two storey tall building structures.

#### Quarry Park

The geotechnical evaluation has found unfavourable soil conditions to support shallow foundations (spread footings and wall footings). There exist up to 25 metres of uncontrolled man-made fill placed over bedrock. A deep foundation system, such as driven or cast-in-place piles founded on bedrock is anticipated to be required to support the one and two story building structures. Environmental studies performed to date have found substantial methane concentrations in the man-made fill. At the future stages of design, any influence of the methane mitigation system implemented for the site on the foundation design will need to be coordinated.

#### Great Plains

The geotechnical evaluation has found favourable soil conditions on the site to support shallow foundations (spread footings and wall footings) for the anticipated one and two story tall building structures. Any below grade structures on the site basement mechanical rooms will have to consider the possible impacts of hydrostatic pressures due to groundwater. In addition, the mitigation of groundwater below ice rink slabs must be assured to prevent frost heave due to frozen soils.

#### Rocky Ridge

The geotechnical evaluation has found favourable soil conditions on the site to support shallow foundations (spread footings and wall footings) for the anticipated one and two story tall building structures. Below grade structures on the site such as aquatics pools and basement mechanical rooms will have to consider the possible impacts of hydrostatic pressures due to groundwater. In addition, the mitigation of groundwater below ice rink slabs must be assured to prevent frost heave due to frozen soils.

### 4.5.4 Superstructure Concept Design

Each facility's above-grade structure will be comprised of an upper level elevated mezzanine and contiguous roof over the complete building footprint. The elevated mezzanine structure will be a self-supporting platform with appropriate braced frame or shear walls for lateral stability. In most instances a standard column grid layout of 10 x 10 metres will be suitable because the programmed area below can accommodate a regular column arrangement. The column grid spacing will also allow for economical floor framing spans. Steel, cast-in-place concrete, and pre-cast concrete are all viable materials for the mezzanine structural systems.

The roof structure is large in area and will cover a wide variety of programmed spaces below, such as pre-function, gymnasiums, ice rinks, fitness rooms, aquatics, a library, and a theater. Roof span ranges are anticipated to be between 10 and 35 metres to accommodate the varying program requirements. At initial design stages for large roof structure system selection the following questions should be considered:

#### What is the span? Can it be subdivided?

At the longer span conditions (ice rinks, gymnasiums, aquatics) the primary roof members should span the short direction. If program allows, a row of columns should be introduced between adjacent courts, rinks, and pools.

#### How much transparency is required?

Large roofs often call for skylights or clerestories to help natural day lighting enter the interior space.

#### How large is the roof? Are expansion joints required?

The large roof area for the recreation facilities will require consideration of expansion joints that will in effect create several separate free-standing roof structures. These joints are often the most economical means by which to ensure in-plane thermal expansion and contraction of the roof does not cause excessive deflections or over-stress of the roof structure.

#### Does it have to be insulated?

A permanent insulated roof structure is required, in accordance with Alberta Building Code for enclosing heated or cooled space.

#### What life expectancy is required?

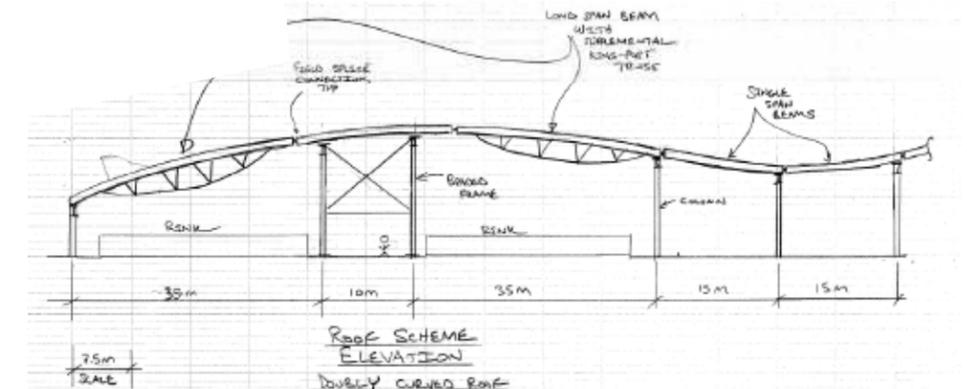
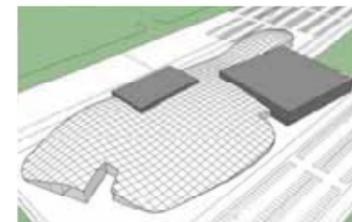
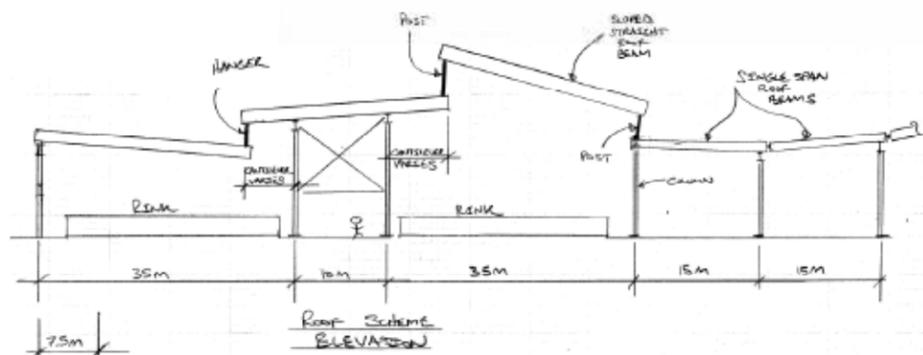
The design life of the roof structure should not be less than that of the rest of the building structure (i.e. 75 year design life). Note that for the aquatic component in particular, chlorine and humidity create a moderate to severe corrosive environment. The selection of roofing material (i.e. wood beams, or painted steel) should include consideration of lifecycle maintenance costs.

#### Does the roof support large external or internal loads?

The weight of ceilings, mechanical units, scoreboards, etc. need to be identified early in the design process as they will influence the roof system selection.

#### Is there a preferred architectural aesthetic? Is a certain material seen as more or less appropriate?

The large expanse of roof seen from the interior space is arguably the most critical aesthetic gesture for the recreation facility. At the next stages of design, structural systems should be explored that provide economical yet visually interesting, and integrated design solutions. Wood and steel, or a hybrid combination of the two, are considered appropriate structural materials for the roof system.



### 4.5.5 Mechanical, Plumbing and Pool Concept Design

Based upon the functional space programming and concept floor plans, corresponding mechanical and plumbing space needs were established. These service space requirements form part of the overall functional program and cost estimates. The location of these service spaces were established based upon optimizing the system and equipment cost as well as operational and service requirements.

Heating, ventilating and air-conditioning systems will include central heating and cooling equipment to produce hot and chilled water for distribution to air-handling units located throughout the building. For purposes of space planning and estimating, a conventional boiler, chiller & cooling tower system has been assumed, although alternatives, such as a more energy efficient ground-source heat exchanger system, may be considered during future design phases.

Air handling units will be zoned to provide heating, cooling, and ventilation to the spaces that have similar environmental needs or criteria. Air handling unit rooms will be located relatively near to the program spaces that they serve, and can be individual rooms for each AHU or combined rooms to serve multiple nearby zones. Individual air-handling units will be provided for spaces with unique loads or schedules such as the pool areas, ice arenas, locker rooms, common areas, kitchen areas, fitness rooms, the theatre, and child care. Pool AHUs and ice arena AHUs will also include energy efficient refrigerated dehumidification systems to compensate for the high levels of moisture in those two spaces. Waste heat and condensation from the pool hall refrigerated dehumidification system will be used to supplement the pool heating. Heat recovery in all air handling systems will also be considered, and provided where required by code and/or where it is cost effective, such as in spaces with high outside-air requirements and high exhaust requirements.

Domestic hot water systems will produce hot water for use in restrooms and locker rooms showers, Zamboni flooding requirements, as well as in the kitchen/food preparation area. Waste heat from the arena refrigeration system will be used to preheat domestic hot water.

The pool hydraulic systems will require service spaces below grade, for pumps, piping, and disinfection and filtration systems. For Seton, which includes a competition pool, a wave pool, and a leisure pool, several sets of pumps will be required to provide the desired water movement. These below-grade spaces should be located as near to the pools and water features as is feasible, and the pump room should be near to the leisure water features. Also, filter rooms will require access to grade through an area well. A surge tank will also be required adjacent to the pools, below grade. Separate on-grade rooms will be required for the chemical treatment (ozone, chlorine and chemical disinfectant, and chemical storage).

### 4.5.6 Refrigeration Concept Design

The design concepts presented in this document are based on previous designs implemented by Thermocarb Ltd. in several dozen similar installations in the Calgary area. A number of these installations were completed directly for The City of Calgary and have been operating efficiently and trouble free for a number of years. The design concept will remain consistent for each project with the only changes being due to the size and number of rinks in each facility. In essence, there will be little difference to the layman when viewing the various installations after completion.

Ammonia has been selected as the refrigerant in all cases based on its efficiency and cost. As such, each engine room must be specifically constructed for the service as per the CSA B-52 Refrigeration Code.

#### Process Design

Each refrigeration system utilizes an indirect cooling ammonia refrigerant/calcium chloride brine solution, designed for -12.2°C evaporating temperature and 29.4°C condensing temperature with a 20.0°C wet bulb temperature.

Calcium chloride brine is pumped into each ice surface through a set of piping mains and distribution headers at the end of each floor. Plastic pipes are embedded in the concrete slab for each rink on closely spaced centers through which the cold brine passes. The brine absorbs heat from the ice surface either through conduction loads or freezing duty after a flood. Warmer brine then enters the engine room for chilling by the ammonia system. The warm brine enters a shell and tube brine chiller. Ammonia levels are controlled in the shell side of the vessel that evaporates to chill the brine before it is pumped back to the arena floor. The saturated vapour from the chiller(s) is compressed to a pressure where it can be condensed. The heat rejection associated with the condensing process is achieved by passing the saturated vapour through a coiled pipe bank that has a combination of water and air forced over it. The condensed liquid flows to a pressure vessel where it is accumulated or directly sent the chiller(s). This liquid is then evaporated to chill the brine and the cycle starts again.

### 4.5.7 Electrical and Telecom Concept Design

The electrical systems will consist of a utility service originating at an on-site pad mount transformer. There will also be a standby generator to provide power to select portions of the distribution in the event of a utility outage. Power from the utility transformer will connect to a main switchboard located in a main electrical room. The switchboard will then feed distribution panelboards, transformers, and branch circuit panelboards within the main electrical room and in the branch electrical rooms. Power from the standby generator will connect to automatic transfer switches (ATSs). ATSs will then feed panelboards, transformers, and branch panelboards in the main electrical room and select branch electrical rooms. The items that are expected to be connected to the standby generator distribution are: interior and exterior lighting for safe egress of the building, the fire alarm system, and elevators. Other items may include: freeze protection of piping, security system equipment, telecom system equipment, sump pumps, and food service refrigerators/freezers.

The facilities will all have energy efficient lighting throughout. Fixtures will be located so that adequate light levels are provided for the anticipated tasks in each area. Ease of maintenance will be a key factor in determining fixture type, locations, and quantities, especially in the areas above pools and ice rinks.

A project-wide lighting control system is anticipated, and will provide the following functionalities:

- Daylight-responsive dimming for interior fluorescent lighting at the perimeter of the building
- Switched (on/off) control of exterior lighting
- Motion sensor set-back for exterior lighting during periods of non-occupancy
- Multiple preset scenes for varied use within multi-purpose rooms, etc.

An addressable fire alarm system will be provided. Alarm initiation will be triggered by automatic as well as manual means. Smoke detection will be provided to support the fire strategy of the building and address code-required smoke detection at air handling units, elevator machine room(s), smoke dampers, and other requirements. Pull stations at all exits will be installed. Annunciation will be via audible and visual means throughout the facility, using wall and ceiling mounted speakers and strobes. A single LCD annunciator will be installed at the main entrance, and the system will include an analog phone line for reporting of alarm condition to a central station.

The telecommunications systems will include, at a minimum, data service and cable television from local service providers. The services for the facilities will originate at the entrance facility room. From this room, the main cabling will route to the main equipment room and to the smaller communication rooms located throughout. The communication rooms are where individual data circuits to outlets throughout the facility will originate. Outlets throughout will provide connectivity for computer workstations, wireless access points, televisions, etc.





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